

# Deterring, Countering, and Defeating Conventional-Nuclear Integration

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## Abstract

Potential US adversaries have integrated nuclear weapons into their concepts for fighting and winning a future regional conflict. To this end, they have organized, trained, and equipped nuclear-capable forces for theater war fighting. The United States, and its allies, must prepare for adversaries who integrate conventional and nuclear arms to shape the regional battlespace, counter theater defenses, and combat coalition forces. The challenge posed by this conventional-nuclear integration (CNI) cuts across strategic, operational, and tactical levels of warfare. While CNI is not a new phenomenon, its growth and evolution in recent years is placing increasing pressure on US regional deterrence and defense strategies. To effectively deter this threat requires an integrated, but not mirror-imaged, approach. The goal of US CNI is to convince potential adversaries that integrating conventional and nuclear-capable forces grants insufficient advantages within a future regional conflict to overcome either the latter's potential vulnerabilities or the risks attendant with attempting to leverage nuclear escalation. Potential adversaries are likely to retain some of these platforms and their associated nuclear weapons as a hedge against uncertainty. However, it is important for the Department of Defense to bolster US and allied deterrence postures in Europe and the Asia-Pacific by taking steps—prior to any regional crisis—to influence their cost-benefit calculus in contemplating the deployment or employment of nuclear weapons in theater. This article proposes a three-part framework using the Department of Defense's *Deterrence Operations – Joint Operating Concept* (deny benefits, impose costs, and encourage restraint) to plan and posture for accomplishing this goal.

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Russia, China, and North Korea are fundamentally opposed to regional security arrangements currently underpinned by US defense commitments.<sup>1</sup> They are determined to undermine these

alliances and partnerships and are preparing for potential future regional conflicts with the United States and its allies. They recognize, however, that US and allied militaries represent a formidable challenge when fighting together with full national support. To counter these forces, potential adversaries seek to fully integrate all elements of their military power, sow political division between Washington and allied capitals, and exploit potential seams and gaps within US and allied theater defense postures.

An important component of their approach is integrating conventional and nuclear-capable forces into their political-military strategies. For advanced militaries, nuclear-capable forces include delivery systems that are solely devoted to a nuclear role and dual-capable platforms that can carry either conventional or nuclear weapons (and whose status and armaments may be unclear to a potential opponent). All three states have developed and deployed both long-range “strategic” nuclear-armed missiles and theater-range (i.e., short-, medium-, or intermediate-range) nuclear-capable delivery systems, with the latter serving alongside, or intermixed with, their conventional forces.<sup>2</sup> These integrated forces provide these actors with the ability to develop combined arms theater campaign plans bringing conventional and nuclear capabilities to bear against US and allied forces within a future potential regional conflict.<sup>3</sup> As stated by Brad Roberts, former deputy assistant secretary of defense (DASD) for nuclear and missile defense policy, the “United States must expect that nuclear weapons would play a role in regional wars against Russia or China,” as both Moscow and Beijing have incorporated nuclear coercion, and potential employment, into their “theories of victory” for these types of conflicts.<sup>4</sup> Roberts further assesses that North Korea’s nuclear weapons and missile development programs may have granted it “operationally attractive” options for a “credible anti-access area-denial strategy” against the United States and South Korea within a future conflict on the Korean Peninsula.<sup>5</sup> Keith Payne, who also previously served in this DASD role, shares many of these same concerns. In 2018 he noted, “We must understand how to deter Great Powers and nuclear-armed Rogues from exploiting limited nuclear threats and/or escalation for coercive purposes in support of their respective goals to change established orders and borders in Europe [and] Asia.”<sup>6</sup>

For US policy makers, it is important to recognize that present efforts to address the challenge posed by conventional-nuclear integration (CNI) can be informed by the Cold War, when the Soviet Union attempted to utilize a combination of conventional forces and theater-range nuclear delivery systems to threaten and attempt to fracture the North Atlantic Treaty Organization (NATO).<sup>7</sup> The United States met this challenge with

its own integrated conventional-nuclear force, with the allied regional defense posture relying on the US arsenal of “non-strategic” nuclear weapons to counter the Warsaw Pact’s significant advantage in conventional forces.<sup>8</sup> Critically, however, the present CNI threat from adversaries combines both of these concepts. Russia, China, and North Korea field integrated forces to challenge US regional defense alliances and deterrence postures while also viewing CNI as necessary to offset what they assess as contemporary US advantages in conventional forces.

As a result, while aspects of the present situation echo the Cold War, today’s CNI environment is more complex than in the past era. The United States must address the challenge of three potential adversaries fielding integrated conventional and nuclear forces, to include new theater-range, nuclear-capable mobile missiles recently fielded by each state. Our proposed counter-CNI strategy seeks to adapt to today’s multipolar context, a half century of technological achievement, and the important fact that the United States is less reliant on nuclear weapons to impose costs on an opponent’s military forces within future regional conflicts than its potential adversaries. US policies and strategies for countering the evolving and cross-cutting CNI threat thus requires an integrated, but not mirror-imaged, response. It should leverage US conventional and nuclear-capable forces to enhance regional deterrence and defeat options, without mimicking potential adversaries by overly and dangerously relying on the threat or use of nuclear weapons in theater to prevail in a potential future regional conflict.

This article begins by defining the broader phenomenon of CNI and the present CNI threat posed by Russia, China, and North Korea. Next, it assesses why these potential adversaries seek to integrate their conventional and nuclear-capable forces and how these states may seek to use them in regional crises and conflicts. It then uses the concepts within the DOD three-part framework from *Deterrence Operations – Joint Operating Concept* (deny benefits, impose costs, and encourage restraint) to propose potential courses of action for countering this evolving threat.<sup>9</sup> The US military must prepare for adversaries to readily accept and leverage nuclear risk to realize an advantage in a future regional conflict. With adversary CNI posing a number of pressing challenges to US and allied defense policies and postures, we focus our assessments and recommendations on steps US policy makers and combatant commanders can take to bolster regional deterrence and assurance strategies. These include preparing US war fighters to combat and defeat an opponent’s integrated conventional and nuclear forces while signaling preparedness and resiliency to potential adversaries.

## **Defining the CNI Phenomenon and Present Threat**

CNI is a subset of the broader phenomena of nuclear-conventional “entanglement,” a term referring to the ways and means by which conventional and nuclear forces may intersect, interconnect, and/or overlap.<sup>10</sup> Importantly, entanglement does not necessarily attribute intentionality to this interrelationship. Research on this subject often focuses on areas of entanglement that may be unintentional and, therefore, are either reversible or can be otherwise addressed to reduce the risk that overlap could lead to nuclear crisis or conflict.<sup>11</sup>

We define *CNI* as the deliberate, calculated decision by a state actor to combine conventional and nuclear-capable forces for the purpose of realizing strategic, theater, and/or tactical military objectives that it assesses cannot be achieved through the use of conventional forces alone. This intentionality extends across a spectrum of activities associated with fielding military forces. These include researching and developing delivery systems and weapons that can fit into an integrated force (such as dual-capable missiles that can carry conventional or nuclear warheads); organizing, training, and equipping both conventional and nuclear-capable military forces; preparing, planning, and training these forces to operate together; and openly conducting tests or exercises for combined operations, demonstrating how one type can support or enable the other and/or making clear to outside audiences that nuclear-capable forces are integral to theater war-fighting concepts. The focus here is on the integration of conventional and nuclear-capable forces by Russia, China, and North Korea as actors that represent potential adversaries of the United States. It is important to note, however, that CNI is a broader phenomenon that also extends to states such as Pakistan, which has integrated short- and medium-range nuclear-capable forces into strategies and plans for defending its territory against a potential cross-border offensive by large numbers of Indian conventional forces.<sup>12</sup>

## **Understanding the Evolving CNI Threat**

While the integration of nuclear and conventional forces never fully disappeared after the end of the Cold War (to include for the purposes of preparing for potential regional contingencies), CNI has substantively evolved in the past five years in a manner posing additional threats and challenges to the United States and its allies.<sup>13</sup>

Russia, China, and North Korea have devoted significant resources to developing and fielding new theater-range, nuclear-capable delivery sys-

tems. Their goal is to supplement their conventional forces and to provide their national leaders with options for threatening regional states and holding US and allied targets at risk below the threshold of strategic nuclear forces. Russia deliberately violated the Intermediate-Range Nuclear Forces Treaty that reflected US-Russian mutual agreement to fully eliminate an entire class of missiles and reduce the risk of regional nuclear crises. It did so by developing and fielding the SSC-8/9M729, a dual-capable, ground-launched intermediate-range cruise missile—the exact type of delivery system expressly banned by the treaty. As stated in November 2018 by then-director of national intelligence Dan Coats, Russia now fields “multiple battalions of 9M729 missiles, which pose a direct conventional and nuclear threat against most of Europe and parts of Asia.”<sup>14</sup> The missile joins a range of other Russian short- and medium-range nuclear-capable delivery systems (ground, naval, and air) that can be equipped with munitions from the country’s “active stockpile” of approximately 2,000 “non-strategic nuclear weapons.”<sup>15</sup> China currently fields the world’s largest arsenal of medium- and intermediate-range conventional and nuclear-capable missiles.<sup>16</sup> While Beijing long restricted its nuclear forces to a relatively small number of silo-based intercontinental ballistic missiles kept at a low level of readiness, it now deploys multiple mobile nuclear-capable delivery systems.<sup>17</sup> These include the DF-26, an intermediate-range ballistic missile (IRBM) that the Chinese media describes as having an “aircraft carrier killer” role and the DOD states is “capable of rapidly swapping conventional and nuclear warheads” and ranging US bases across the Indo-Pacific region as far as Guam.<sup>18</sup> In addition, North Korea has pursued a breakneck effort to develop a range of conventional and nuclear-capable missiles, to include theater-range, nuclear-capable systems such as the KN-15 MRBM and Hwasong-12 IRBM. Pyongyang has successfully test-launched both missiles from transporter erector launchers (TEL), leading a number of analysts to conclude these systems are either operational or will be in the near future.<sup>19</sup> Moreover, Russia and China, per unclassified US government assessments, maintain open production lines for nuclear weapons (with China potentially doubling its nuclear arsenal in the next decade), while North Korea has stated it maintains the ability to produce fissile material for new weapons.<sup>20</sup> The implications of such developments are that Russia, China, and North Korea have intermingled their conventional and nuclear-capable forces.

Russia, for example, currently deploys several SSC-8/9M729 IRBMs together with its conventional forces (to include conventionally armed ballistic missiles) stationed in the Kaliningrad Oblast bordering Poland

and Lithuania, where these missiles can range a number of key NATO military facilities across several states.<sup>21</sup> China's People's Liberation Army Rocket Force (PLARF), responsible for the country's ground-based missile fleet, assigns brigades of conventional and dual-capable delivery systems to shared bases, appears to deploy and/or exercise these brigades in overlapping areas, and is increasingly training its personnel in how to use both.<sup>22</sup> This situation led at least one PLARF officer to publicly note the increased burden in training, stating in 2017 that "our missile weapon systems are both nuclear- and conventional-capable. . . . Nuclear must be learned, and conventional also must be learned. This is equivalent to one person doing two jobs."<sup>23</sup> China's command-and-control systems and processes for conventional and nuclear-capable missiles also appear to be either shared or substantively overlap.<sup>24</sup> In addition, North Korea's conventional, dual-capable, and nuclear missile programs are closely integrated, both in terms of "systems integration" and in some cases, collocation at certain bases.<sup>25</sup>

Russia, China, and North Korea have also conducted exercises and/or tests where nuclear-capable forces carry out strikes demonstrating their ability to support a broader, integrated force in its achievement of regional war-fighting objectives. From 2013 to the present, several Russian military exercises have combined conventional and nuclear-capable forces in operations practicing for an armed conflict against an unnamed adversary that appears closely modeled on NATO. These exercises have included "simulated" nuclear attacks against NATO members and partners and tests of various types of nuclear-capable systems in providing fire support to conventional forces.<sup>26</sup> In August 2020, China made public a recently concluded "cross regional confrontational exercise," allegedly held in response to the "US provocatively [sending] two aircraft carriers to the South China Sea for exercises [with] India, Japan and Australia" that practiced striking mobile targets at sea, such as aircraft carriers.<sup>27</sup> This exercise followed a number of other PLARF exercises highlighted by Chinese government-controlled media outlets in the last four years that have featured theater-range, nuclear-capable missile units rapidly deploying and carrying out simulated strike operations against an advanced military opponent equipped with fighter jets and "electronic warfare" capabilities (which in at least one case was directly referred to as the "blue team" squaring off against the PLA's "red team").<sup>28</sup> North Korea has stated that past tests of its nuclear-capable missiles represent practice for potential future strikes against US military bases in Japan.<sup>29</sup> These tests (and statements) are consistent with both South Korean and US assessments of North

Korea's strategy for a future conflict on the peninsula, which would first rely on "coercive nuclear preemptive threats" with ballistic missiles to try to prevent unified US and allied action against its forces.<sup>30</sup> If these threats failed to have the desired effect, Pyongyang would then lean on artillery and missile strikes, to possibly include with nuclear weapons, against Seoul and US bases in South Korea and Japan to support a surprise attack by its conventional forces to attempt to win a quick victory prior to the arrival of US reinforcements.<sup>31</sup>

In short, these above developments reflect the DIA's 2018 assessment that Russia, China, and North Korea are developing and fielding nuclear capabilities "for military or coercive use on the battlefield." All three states view integrated forces—and the credible threat of nuclear employment on regional battlefields by theater-range platforms—as important to their "theories of victory" for future potential regional conflicts.<sup>32</sup>

### **Why Pursue CNI?**

Development of capability alone, however, does not fully explain the intent of potential adversaries or the potential risks CNI poses to the United States and its allies. Why have Russia, China, and North Korea pursued CNI, and why should their integration of conventional and nuclear-capable forces concern the United States?

Russia, China, and North Korea's perspective on regional affairs represents a jaundiced form of realism; while they strongly believe they are engaged in a "zero sum game" with the United States and its allies (with regional prestige and influence the prize), they categorically reject ever accepting a regional balance of power.<sup>33</sup> Russian and Chinese leaders are determined to be seen both at home and abroad as the preeminent power within their respective regions (with North Korea's primary concern that it be recognized as the strongest state on the Korean Peninsula and a power center independent from the United States and China).<sup>34</sup> All three thus strongly oppose and continually seek to undermine US-led regional security arrangements, which Russia and China view as obstacles to assuming their "rightful" place as first among equals in the region. Meanwhile, North Korea fears that US allies such as Japan will wholeheartedly support Washington's efforts to topple its ruling regime.

This competitive animosity leads these states to contemplate and prepare for potential armed conflict with the United States and its allies either on or near their borders or within what they view as their traditional sphere of influence. All three likely assess that they face a significant challenge in defeating the United States and its regional allies within a conflict

that solely features conventional forces. They worry that US conventional forces will best their own in a future fight and fear facing the same type of ignominious defeats meted out to autocrats such as Slobodan Milosevic and Saddam Hussein in past conflicts.<sup>35</sup> Moreover, they are deeply wary of launching any kinetic strike against the US homeland, likely calculating this type of attack would bring the full force of the United States to bear on a conflict they would prefer remain regional.

Russia, China, and North Korea thus conclude they face a significant security dilemma in their pursuit, within their respective regions, of what they consider critical national objectives. They believe it imperative to field and wield military power that can coerce and compel other regional states to accept their leadership. At the same time, however, they seek to limit US involvement, and prevent US intervention, in regional affairs, to include within any military crises or conflicts. Moreover, they are committed to preparing for a possible future fight with the United States or its allies and resolve to find a potential pathway to victory either on the battlefield or at the negotiating table.<sup>36</sup>

We assess that Russia, China, and North Korea conclude that integrating conventional and nuclear forces, with the latter specifically featuring theater-range options, can play a key role in achieving these imperatives. CNI does so, in their view, by allowing their military forces to realize some or all the following objectives within a potential regional conflict with the United States and its allies.

### ***To Guarantee at Least a Draw (and Thus Preserve the Regime)***

Russia, China, and North Korea all view military power as a critical tool of statecraft and seek to use it to coerce and compel other states. All three are wary, however, of the risks of military aggression against the United States and its allies. They do not have full confidence of victory in a regional conventional military conflict. Moreover, their leaders may fear that suffering a serious military reversal in the field could pave the way for US-imposed regime change or even catalyze an internal coup d'état.<sup>37</sup>

In the face of these grim (but in their view, entirely plausible) outcomes, Russia, China, and North Korea likely view theater-range, nuclear-capable forces as critical to preventing potential setbacks within a future regional military conflict from turning into routs. They may conclude that the only means to force the conclusion of an armed conflict not going their way is to threaten US and allied forces with a theater nuclear strike unless both sides agree to a cease-fire and/or a negotiated settlement.<sup>38</sup> Should this fail to end hostilities (and if their conventional forces continue to suffer

reverses in the field), they may seriously contemplate employing a theater nuclear strike against US and allied forces, perhaps even on or within the boundaries of their own borders to cover a military retreat. They may gamble that nuclear employment in the midst of ongoing combat—perhaps with a small number of weapons configured for low yield and low fallout—would fall below the threshold of the US stated policy to impose “intolerable costs” in response to an adversary’s nuclear attack.<sup>39</sup>

Their leaders very likely understand that a nuclear strike causing significant US or allied civilian casualties would result in devastating counterstrike. But in the heat of a battle with potentially existential stakes, they may bet that a “limited” nuclear attack on US or allied military forces—particularly if these forces were either afloat or away from major civilian population centers—might be assessed differently by US leaders. All three states may share the assessment of Bernard Brodie, who in his 1965 classic, *Escalation and the Nuclear Option*, concluded that “the use or threat of use of nuclear weapons in tactical operations seems at least as likely to check as to promote the expansion of hostilities.”<sup>40</sup> Like the venerable Cold War strategist, they may conclude that theater nuclear employment will not necessarily result in a broader nuclear war, as the attacked party may hesitate to order a significant nuclear counterattack for fear of initiating a mutually destructive nuclear conflagration. If so, this form of nuclear employment may be viewed as an acceptable risk and the best, or perhaps the only, way to halt the advance of coalition forces and compel the United States and its allies to accept a negotiated settlement.<sup>41</sup>

### ***To Discourage Allied Participation and/or US Intervention***

Any future regional crisis or conflict involving Russia, China, or North Korea will occur near their borders and under a nuclear shadow cast by their growing nuclear arsenals. Potential adversaries may view CNI’s ability to put pressure on US alliances as one of its prime benefits, forcing foreign leaders to contemplate the possibility that their populations and military forces can be targeted with nuclear-capable platforms from the outset of hostilities. CNI allows Russia, China, and North Korea to exercise or deploy large integrated conventional-nuclear forces—prominently featuring theater-range, nuclear-capable delivery systems—adjacent to allied territory.

Russia and North Korea, for example, have already made open, credible nuclear threats against allied targets in Europe and the Asia-Pacific, respectively. In addition to the simulated nuclear attacks against NATO noted above, Russian officials and legislators have made public nuclear

threats against NATO allies and partners for their support of activities such as theater missile defense exercises and hosting US forces.<sup>42</sup> North Korea regularly makes bellicose nuclear threats against US regional allies, to include stating that Japan's main islands can be "sunken into the sea" with nuclear weapons and that South Korea faces "pre-emptive" and "indiscriminate" nuclear attacks due to its ongoing military cooperation with Washington.<sup>43</sup> These statements aim to dissuade key allied and partner capitals from operating or exercising with the US military and to convince their publics to oppose hosting or otherwise supporting US forces. These shots across the bow may also represent attempts by potential adversaries to influence regional states to consider denying the US military access to airports and seaports in a future conflict, slowing the flow of US forces intended to relieve beleaguered allies into the theater (and possibly tipping the balance of a contested fight).

Adversaries may also view CNI as useful for raising questions in Washington regarding whether overseas allies are worth the potential cost in US blood and treasure necessary to defend them against nuclear threats from delivery systems that cannot range the United States. They may also seek to raise doubts in allied capitals regarding whether a US president would answer these questions in the affirmative. These issues are not new. During the Cold War, Western European leaders perennially asked whether a US president would really "trade New York or Detroit to save Hamburg or Bonn."<sup>44</sup> They are made acute, however, by the evolution and expansion of theater-range, nuclear-capable options and the fact that these capabilities are fielded by multiple actors. Dissuading the United States from military intervention on behalf of allies, and persuading these actors they may be better off negotiating their own forms of bilateral détente, will be top priorities for Russia, China, or North Korea in a future regional military crisis or conflict. All three may view CNI as a way to achieve both objectives.

### ***To Provide Fidelity for (Theater) Brinkmanship***

Potential adversaries may also believe that integration grants them a more expansive military tool kit for managing and exploiting future regional crises. They may view CNI as granting ways and means for manipulating nuclear risk in a regional crisis or conflict in a manner that enhances the reach or weight of their conventional forces. Russian military writings, for example, argue that "the threat of nuclear escalation, particularly with nonstrategic nuclear weapons, helps amplify the coercive effect of strategic conventional weapons."<sup>45</sup> The mobility of theater-range, nuclear-capable

platforms that can transit to and from border areas, for example, can provide leaders with a form of local pressure that can be readily dialed up or down against neighboring or nearby states as needed.<sup>46</sup>

Introducing theater-range, nuclear-capable forces into a region and/or spotlighting their presence may also be viewed—by potential adversaries and allies—as a way to ratchet up tensions during a crisis by providing the former with a more plausible battlefield weapon than “strategic” nuclear forces capable of reaching the United States. Saber rattling with the latter would likely prompt the United States to quickly respond with strong deterrence and assurance measures. Potential adversaries may calculate that the ambiguous status of integrated forces in theater permits them to communicate threats with these capabilities that will effectively play on the fears of regional actors without directly antagonizing Washington.<sup>47</sup>

### ***To Complicate the Rules of Engagement (ROE) and Targeting***

A potential adversary might also hope that deliberately intermixing conventional and nuclear-capable forces at certain locations, or as part of a specific combined arms operation, will shield the latter and transfer this protection to nearby assets. Its intent is for the United States to either hesitate before launching an attack against an intermixed force or otherwise truncate target lists in a way that limits the effectiveness of strikes.<sup>48</sup> For Russia, China, and North Korea, this ability to buy time, and perhaps a form of protection, for their integrated forces in theater may be considered an important way to achieve a military balance against the United States and its allies. It may also provide a means of safeguarding certain key homeland targets, such as rear-area military headquarters or political leadership sites, from US conventional attacks through stationing nuclear-capable forces at these locations or signaling (or tacitly allowing the US to conclude) that these facilities are integral to the command and control to some or all of their nuclear forces.

This approach relies on potential adversaries making two broad assumptions. The first is that the United States is unable to readily discern the difference between intermixed conventional and nuclear-armed forces in theater. US forces will thus prove wary of engaging the combined forces of an opponent out of concern the possible inadvertent or incidental destruction of nuclear platforms (or their means of command and control) could escalate a conventional fight into a nuclear conflict. The second assumption is that even in those cases where the United States is confident it has correctly identified an opponent’s theater-range, nuclear-capable platform, it will hesitate to attack these forces. Recognizing that these

forces represent high-value assets (due to their limited numbers, their value to leadership, or other factors), the United States may fear attacks on these platforms will quickly place an opponent into a “use or lose” situation with its remaining delivery systems.<sup>49</sup>

If these assumptions proved correct, CNI could pose a unique obstacle to US freedom of action regarding attacking key adversary forces, bases, and supporting elements. Potential adversaries are deeply concerned by the speed, accuracy, and effectiveness of US strike capabilities and are eager to find ways and means to counter this advantage. They may view comingling conventional and nuclear-capable forces as useful for slowing or even paralyzing US military activities in the field, complicating US ROEs, forcing US war fighters to gather onerous amounts of information before acting, and/or pushing targeting decisions up the command chain.

### ***To Enhance the Lethality of Standoff Strike Options***

Nuclear weapons are uniquely powerful; the effects of detonation include blast, heat, radiation, and an electromagnetic pulse.<sup>50</sup> A nuclear warhead’s explosion is orders of magnitude more destructive than a comparably-sized conventional one. By arming theater-range platforms with nuclear weapons, aggressors significantly increase the destructive capacity of their standoff strike options.

This enhanced lethality can boost broad efforts to restrict US and allied freedom of movement in theater that are sometimes collectively referred to as anti-access/area denial (A2/AD) strategies. Adversaries may believe that the threat of a possible nuclear strike in theater will cause US political leaders and military commanders to hesitate before flowing additional forces into a particular region or lead to less efficient, more dispersed force flow. They may also hope the presence and posture of theater-range, nuclear-capable systems on or near their land or maritime borders can force US ground forces to avoid using or transiting through certain areas or US naval forces to keep their distance from coastlines.

Potential adversaries who fear they are overmatched in theater (whether due to US and allied strike systems in particular or some “correlation” of offensive and defensive forces in general) may view the destructive potential of theater-range, nuclear-capable forces as providing a more favorable balance of forces, particularly if they only have limited numbers of stand-off strike systems available.<sup>51</sup> In the event of an actual conflict, equipping platforms such as theater-range mobile ballistic missiles with nuclear warheads may also provide an option for delivering a stinging blow against massed coalition forces or other critical targets that are either outside the

reach, or resilient to the effects, of their conventional platforms. At a basic level, nuclear weapons may be the most lethal munitions available to an opposing force, and their use in combat could simply reflect a potential adversary's assessment that military necessity demands their employment.

The above list is not intended to be comprehensive or all inclusive, nor do all these reasons apply to every potential adversary that integrates its conventional and nuclear-capable forces. Several of the above factors, however, likely figure into the decision-making calculus of potential adversaries. Understanding the nuances of why potential adversaries are pursuing CNI is essential for the United States to prepare efficiently and effectively to deter, counter, and defeat these types of capabilities.

### Countering the CNI Threat

Adversary CNI poses two interrelated challenges for US policy makers and US combatant commanders. First, Russian, Chinese, and North Korean CNI represents a cross-cutting challenge for US defense policy and military strategy. Their integration of conventional and nuclear-capable forces can affect a range of US and allied cost-benefit calculations before and during hostilities. By placing pressure on US alliances and extended deterrence guarantees, the CNI threat requires US policy makers to devote time and attention to assuring allies they are protected against an opponent's conventional and nuclear forces, to include during any regional contingency or conflict. It also necessitates US policy makers making resource decisions on capability investments, the placement of forces, and other matters relevant to countering potential adversaries in contested regions. Furthermore, it presents a range of operational and tactical issues for US combatant commands that must plan against the challenges posed by an opponent's integrated force, to include the possible threat of nuclear employment in a regional conflict. Moreover, these various challenges cannot be separated from each other. Adversaries and allies must believe the United States has both the political will and military capacity to directly counter, deter, and if necessary, defeat an integrated force fielding conventional and nuclear-capable assets in a regional fight far from US shores.

The second challenge is convincing potential adversaries that theater-range, nuclear capable delivery systems operating as part of an integrated force do not represent a critical offset to, or a competitive advantage against, US and allied forces in a regional conflict. Russia, China, and North Korea likely assess that the stakes of a possible regional armed conflict are higher for them than for the United States. Potential adversaries may view CNI as a useful *cost imposition* strategy vis-à-vis the United

States, prompting US commanders to expend significant time and resources to either defend against or attempt to avoid platforms they are forced to treat as highly lethal war-fighting assets. As described by Kenneth Ekman, “Cost imposition strategies focus on eliciting an adversary response that creates a hardship differential favoring the initiating nation. . . . Necessary preconditions include the requirement and will to compete, the impetus to do so efficiently, and the potential to do so from a position of capability advantage with ability and intent to elicit a disadvantageous response from an adversary.”<sup>52</sup> To counter this strategy, the United States must attempt to convince potential adversaries that integrating conventional and nuclear-capable forces will incur rather than impose costs, particularly if they are used to commit regional aggression.

Addressing these two challenges in an era of military competition with Great Powers and ongoing contention with rogue regimes requires renewed policy attention and military focus. Following the approach to deterrence stated in the Department of Defense *Deterrence Operations – Joint Operating Concept*, US policy makers and combatant commanders must work together to affect the “adversary’s decision calculus elements in three ‘ways’: Deny Benefits, Impose Costs, and Encourage Adversary Restraint.”<sup>53</sup>

Importantly, due to the unique challenges posed by nuclear weapons, deterrence (and parallel efforts to assure allies) cannot rely on conventional forces alone. The United States needs its own integrated response addressing adversary CNI as a strategic, operational, and tactical threat. Combatant commanders, for example, need to develop plans and activities designed specifically to deter potential adversaries from either integrating their forces or attempting to leverage CNI for the purposes of intimidation, coercion, or armed aggression within a contested region. The Department of Defense recognized this issue in the *2018 Nuclear Posture Review* (NPR) and now requires “the integration of [US] nuclear and non-nuclear military planning. Combatant Commands and Service components will be organized and resourced for this mission, and will plan, train, and exercise to integrate US nuclear and non-nuclear forces to operate in the face of adversary nuclear threats and employment.” The NPR further notes that “the United States will coordinate integration activities with allies facing nuclear threats and examine opportunities for additional allied burden sharing of the nuclear deterrence mission.”<sup>54</sup>

Critically, however, this integration should counter, but not mirror-image, the CNI strategy of potential adversaries. The latter’s approach incorporates CNI as part of broader political and military strategies that ultimately rely on coercion and threats of aggression to reorder regional

security arrangements. In addition, all three states have rejected US offers over the past decade to engage in substantive talks on arms control, strategic stability, or regional confidence-building measures for nuclear or conventional forces.<sup>55</sup> They assert that their increased commitment to nuclear forces (to include theater-range, nuclear capable delivery systems) is necessary to address a dangerous and unstable regional security environment, but for the most part refuse to engage in diplomacy that could address a range of risks associated with military competition, whether with nuclear, conventional, or both types of forces.

In contrast, the US approach to CNI should be carefully calibrated and clearly communicated as a commitment to regional stability that directly denies the benefits, and increases the costs, of nuclear threats and aggression. US CNI can be further differentiated from potential adversaries' approach to integration by emphasizing that, as an important part of the US approach to extended deterrence, it is collaborative in nature, reflecting Washington's readiness to accept risks to defend its allies against all threats. In addition, the United States should continue to press all three capitals to participate in diplomatic talks and military-to-military engagements aimed at verifiably reducing nuclear risks, to include those associated with entanglement, while simultaneously ensuring its force capabilities and posture provide US negotiators with a strong hand in future negotiations. By making these distinctions in the development of a US approach to CNI, policy makers and combatant commanders can ensure the US response to integrated nuclear and conventional threats both assures nervous allies and imposes costs on those choosing to rely on delivery systems such as theater-range, nuclear-capable platforms.

### ***Deny CNI Benefits (Intermingling)***

Potential adversaries may believe they can realize a number of benefits from intermingling their conventional and nuclear forces, to include complicating US efforts to understand their order of battle, obscuring the nature and purpose of key strike systems, and even attempting to protect certain locations or units from attack. To deny them from realizing any advantages from either attempting to cloak their intent or shield key assets, the United States should seek to equip military commanders with intelligence, surveillance, and reconnaissance (ISR) capabilities that can help disentangle these integrated forces by identifying the presence of nuclear weapons on the battlefield.

The development and fielding of tools for providing commanders with this information represents a significant, but not insurmountable, techni-

cal and tactical challenge. Past experiments have demonstrated the ability to use standoff platforms equipped with radiation detectors to find radioactive signatures at a distance, to include those associated with nuclear weapons. In 1989 US and Russian scientists, as part of a joint effort to develop verification tools for future nuclear arms control agreements, successfully demonstrated that a helicopter equipped with a neutron detector could find a nuclear weapon stored inside a surface ship from a range of 100–150 meters.<sup>56</sup> Later experiments using detectors carried by piloted and remotely piloted platforms have shown improvement in the ability to detect different types of radiation sources at these and greater distances, to include in radioactively contaminated environments.<sup>57</sup> Although not designed for battlefield conditions, these platforms and their sensors could possibly be modified for military purposes. In addition to providing means for detecting nuclear weapons on a battlefield and depriving potential adversaries the ability to hide or mask the status of delivery systems (or the larger force elements within which they are integrated), these types of platforms could also prove invaluable for finding and securing stored, unused, or even lost nuclear weapons and help support future diplomatic efforts to develop a new generation of arms control agreements.

### ***Deny CNI Benefits (Lethality)***

Within potential future regional conflicts, the United States and its allies may face adversaries willing to take significant risks to achieve their goals or to avoid ignominious defeat. A combatant commander facing an adversary with an integrated nuclear and conventional force must prepare for the possibility that it may seriously contemplate a theater nuclear strike even if it is well aware that the United States can impose considerable costs in response.

In addition, potential adversaries may integrate their standoff strike capabilities (such as air and missile platforms) to boost the profile of their overall forces within a regional conflict. In doing so, they may hope to force their opponents to treat some or all of these forces as if they are equipped with nuclear munitions, expending finite time and resources attempting to deal with this amplified risk.

This scenario highlights the importance of the United States developing deterrence strategies to deny a potential adversary from realizing any benefits from launching a standoff nuclear strike in theater against US and allied forces and imposing significant costs should such a strike be attempted during a regional conflict. Such strategies can play a critical role in assuring allies that the United States wields both a sword and a shield

on their behalf against CNI opponents. Deterrence by denial efforts aimed at achieving this goal can include mounting both “active” and “passive” defenses against an adversary’s theater-range, nuclear-capable platforms.

**Active defenses.** The primary US approach to protecting forces from theater air and missile threats is integrated air and missile defense (IAMD).<sup>58</sup> IAMD posits a layered, dynamically active approach to incorporating “sensors and shooters” that brings together radars and theater missile defenses (such as Terminal High Altitude Area Defense [THAAD] and Patriot Advanced Capability [PAC]-3 batteries). This approach is “agnostic” with regard to the characteristics of the armaments of the air and missile platforms it defends against, and US military doctrine on IAMD does not generally focus on or otherwise highlight theater-range, nuclear-capable threats for prioritization, especially during a mass strike.<sup>59</sup>

This approach is both logical and practical in terms of broad application to the wide range of air and missile threats faced by US and allied forces worldwide. Within a region where an adversary has integrated its conventional and nuclear-capable forces, however, US policy makers and combatant commanders can send signals (e.g., via IAMD exercises) communicating to an adversary that it cannot trust that a limited theater nuclear strike will prove successful.<sup>60</sup> In addition, intelligence-based tipping and cueing can help focus “sensors and shooters” on nuclear threats hidden within a larger salvo, focusing interceptors on the most lethal part of an adversary’s attempted strike. The realization that even a limited defensive system can plausibly destroy an inbound nuclear-armed missile or aircraft can serve as an important deterrent to potential adversaries launching such an attack. US and allied active defenses can tilt their cost-benefit assessments against attempting a standoff strike whose prospects are uncertain but whose initiation invites major retaliation.

No defense, however, can provide a perfect shield against all incoming attacks. An unfavorable ratio of interceptors against the number of both conventional and nuclear missiles an adversary can fire (and/or air defenses against adversary dual-capable strike aircraft) requires a theater IAMD approach that integrates offensive and defensive operations.<sup>61</sup> During a conflict, for example, ISR systems tracking an adversary’s theater-range, nuclear-capable systems could send information about an imminent launch to both missile defense interceptors and piloted and remotely piloted assets already in the air.<sup>62</sup> These latter forces could then undertake actions (both kinetic and nonkinetic) to destroy, disable, or otherwise disrupt adversary air and missile forces before they can fully launch an attack or fire a second salvo, helping to prevent US and allied defenses from being overwhelmed—

even as these latter forces are already alerted to, tracking, and preparing to intercept any missiles that make it into the air.

With this mixed offense-defense approach, the United States and its allies can place and posture forces that can rapidly impose costs on an opponent's launchers and their support elements at the same time as partnering defensive capabilities are denying the benefits of the attempted strike. This can further bolster the United States' deterrence posture against an integrated opponent contemplating a theater nuclear strike, as it may have a limited number of high-end assets such as TELs and strike aircraft—only some of which may be armed with nuclear weapons. If a potential adversary has to worry that any attempt at launching such a strike faces poor odds of success and may well result in some or many of its most prized forces and weapons being knocked out of the fight (perhaps without any prospect of replacing them in time to affect the remainder of the conflict), it may conclude that this type of attack is not worth attempting.

**Passive defenses.** Another key tenet of a robust regional deterrence posture against a CNI opponent is to convince the potential adversary that US and allied forces can survive—and operate in, around, and through—a potential theater nuclear attack. While less high-profile than active defenses, passive defenses play an important deterrent role against theater nuclear use, particularly if the latter's combined arms operations rely on a handful of standoff strikes against key US and allied nodes either on the battlefield or at operational depth.<sup>63</sup>

If the hardening of key facilities in theater, for example, means that an adversary attack featuring a limited number of low-yield nuclear munitions causes damage at ports and/or bases within the region but does not necessarily suspend all US operations, then the construction of protective structures such as “third generation” hardened aircraft shelters at these locations is a worthwhile investment.<sup>64</sup> Importantly, not all facilities necessarily require hardening, which would prove prohibitively expensive. Selective hardening may be sufficient to protect critical facilities and impact an adversary's cost-benefit calculus, as the latter must factor in the possibility that a nuclear attack may hit but neither fully nor effectively destroy its target.<sup>65</sup> The attack will have thus broken the nuclear taboo, with costly implications, to realize little or no military gain.

In addition, dispersion and redundancy are two means of defeating geographically and numerically limited nuclear threats that may prove more affordable than widespread nuclear hardening. The essential assumption underpinning this counter-tactic is that dispersion and duplication create more targets than the attacker's means of destruction. In the past, force

dispersal posed a challenge to regional combatant commands because this complicated the ability to concentrate combat power. Advances in communications technology and networked approaches to warfare, however, have drastically reduced this negative effect.<sup>66</sup> Integrated command, control, communications, computers, and intelligence (C4I) is a baseline requirement for contemporary theater combat operations. Many core capabilities such as intelligence gathering and munitions delivery are now also naturally disaggregated and dispersed across the fighting force. In addition, precision strike effects can be provided from many ground, air, or sea platforms deployed to the theater. In short, smaller numbers of platforms, operating from a range of locations (to include locations outside of the theater), can now provide the same effects that once required massing forces at a few regional bases.

This message is bolstered by the United States demonstrating the ability to combine assets in and outside of a specific theater to practice complex operations, such as a July 2020 maritime exercise where a B-52 from a US-based bomber task force flew 28 hours to support a US carrier strike group in the Pacific.<sup>67</sup> Publicizing these types of exercises clearly demonstrates to both US allies and potential adversaries that geographic distance is no obstacle to US efforts to rapidly and decisively respond to potential regional aggression. Moreover, this approach may realize a range of efficiencies for the global force, and it would be worthwhile for the Defense Science Board or some other US government-funded research effort to study how dispersion and duplication can help the United States address regional defense and deterrence challenges in an era of Great Power competition.

**Exercises simulating nuclear environments against nuclear-armed opponents.** Deterrence can be further strengthened by demonstrating competency fighting on simulated radiologically contaminated battlefields. US and allied forces should conduct combined exercises preparing participants to encounter both conventional and nuclear-capable forces on regional battlefields. Moreover, these exercises, whether conducted in theater or on tabletops, should continue unabated through a simulated battlefield nuclear attack. This act should not be treated as a terminal part of the exercise or as an activity separated from other “conventional” actions. Demonstrating preparedness to continue operations despite a notional opponent’s theater nuclear strike assures both internal and external actors of the US-led coalition’s ability to remain cohesive and effective after any conventional or combined attack.

These types of exercises are critical for both physically and psychologically preparing personnel for a situation without precedent—continuing

to fight following adversary employment of a nuclear weapon. A study of the potential psychological effects of a nuclear attack notes that following the nuclear bombings of Hiroshima and Nagasaki, survivors of the attacks reported, in addition to physical injuries, “psychic numbing, severe anxiety, and disorganized behavior, and there were later chronic effects such as survivor guilt and psychosomatic reactions.” The study’s author concludes that the psychological impact on military personnel surviving a nuclear strike would likely be the same.<sup>68</sup> While nothing can fully mitigate the shock of experiencing a nuclear attack, preparing forces for the possibility that one could occur on a battlefield where they are engaged in combat can help manage fears of the unknown. Doing so can ensure that, should a nuclear detonation occur, troops are mentally and physically prepared to maintain good order while treating casualties, mitigating radiological contamination, and preparing to execute response orders.<sup>69</sup>

Within a future regional conflict a potential adversary, if sufficiently pressured, may gamble that the “shock value” of a nuclear detonation in theater will provide time, space, and other forms of military advantage. By devoting attention and resources to openly preparing US and allied forces to withstand the physical and psychological impact of a nuclear attack, US policy makers and combatant commanders can clearly signal to an adversary that the United States and its allies will be neither intimidated by nor unprepared for possible nuclear strikes in theater.

### ***Impose Costs***

The ability to impose unacceptable costs via defeat in actual tactical combat is also foundational to deterrence theory. As described in the DOD’s *Deterrence Operations – Joint Operating Concept*,

Deterrence by cost imposition involves convincing adversary decision-makers that the costs incurred in response to or as a result of their attack will be both severe and highly likely to occur. Cost imposition includes the full array of offensive operations including kinetic and non-kinetic options. . . . The key challenge to improving the effectiveness of deterrence by cost imposition is to overcome adversar[ies’] perceptions that they can successfully deter US attack, or that the US will be self-deterred.<sup>70</sup>

In addition to making it clear to potential adversaries that their integration of conventional and nuclear forces cannot effectively hide or protect the latter, it is important for the United States to show that it can rapidly target and destroy high-value, low-density, nuclear-capable assets such as mobile missiles. While strike lists within a campaign strategy will

undoubtedly target many other types of assets, these expensive and rare nuclear-capable platforms are an easily justified pressure point for imposing costs in response to the threat or employment of nuclear weapons in theater. Increasing the vulnerability of an adversary's theater-range, nuclear-capable forces will decrease the utility of both CNI in force planning and the use of these forces in theater war fighting.

**Calibrate the kill chain.** The ROEs and “kill chain” for fighting a CNI adversary will differ in several ways from fighting an opponent that fields a solely conventional force. It is important for policy makers setting guidance (and for combatant commanders in planning and execution) to balance several key considerations. If there are policy and operational concerns regarding attacking nuclear-capable platforms that may or may not be armed with nuclear weapons, US forces in theater should be equipped with precision weapon options that can disable or destroy these threats with low collateral damage risk. Hellfire missiles equipped with blades instead of explosives, for example, are already in the US arsenal; these or other nonexplosive weapons could potentially be used against the crew or tires of a wheeled TEL carrying a missile in order to prevent it from reaching a launch site.<sup>71</sup> In addition, directed-energy weapons (DEW), several of which are in later stages of development, may provide other nonexplosive options for disabling theater-range, nuclear-capable platforms by providing means for disabling or otherwise interfering with their guidance, communications, or other key internal systems.<sup>72</sup>

Another challenge is that US platforms will likely be operating within a contested, high-risk environment and may be searching for a moving target accompanied by conventional forces. These cases may require locally generated, high-penetration, precise engagement options that are highly discriminate and capable of striking both priority platforms and their defenses (such as theater-range, nuclear-capable delivery systems protected by air-defense batteries). Moreover, policy makers and combatant commanders will likely seek to minimize the risk to US personnel; if available, they will either employ unmanned systems or manned-unmanned combinations that reduce human exposure to hazardous environments. Emerging strike delivery options such as the Golden Horde and CLEAVER programs provide expendable, semiautonomous weapons that can significantly increase standoff strike capacity across a theater, granting US commanders numerous options for attacking an adversary's forces while keeping US forces out of harm's way.<sup>73</sup>

These and other examples of “smart” weapons currently fielded or under development could be important cost imposition tools for dealing with

CNI opponents. An additional benefit of these conventional systems is their complementary traits of rapid incorporation expandable across a coalition and slew of delivery platforms as well as, in relative terms, their low costs per unit or weapon.<sup>74</sup> By providing US forces with large numbers of inexpensive weapons that are dispersed across multiple bases and platforms and able to operate in a wide range of nonpermissive environments, these strike options can obviate some of the perceived benefits of intermingling forces and seriously complicate the planning of a CNI adversary. Even when its strike systems (conventional and nuclear-capable) are protected by active defenses or appear to be operating away from American strike platforms, these types of smart weapons will be able to hold all these forces—offensive and defensive—at risk of a sudden, accurate, lethal conventional attack.

**Tailor communications.** A threat that is not effectively communicated or fully understood is not credible, regardless of the military capabilities behind it. US policy makers should develop tailored strategic communications plans aimed at influencing the cost-benefit calculus of potential CNI opponents. Through public speeches and statements at events or engagements (particularly with allies and partners), policy makers should emphasize the risks potential adversaries face if they fail to disentangle their nuclear forces or choose to engage in theater nuclear brinkmanship. At the same time, however, they should also tout the potential benefits these states can realize through joining arms control talks, agreeing to implement confidence-building measures, and engaging in Track 1 and Track 2 dialogues. In turn, US combatant commanders, whose public statements are also closely watched by the capitals of both allies and potential adversaries, can broadcast these same messages to their defense counterparts across the region.

US policy makers should draw a clear distinction within their public messaging between a potential adversary's approach to CNI and the regional defense strategy and deterrence posture of the United States and its allies. Opening talking points could focus on potential adversaries' overreliance on destabilizing (and vulnerable) theater-range, nuclear-capable forces to attempt to hold US and allied forces within the region at risk. In contrast, the United States and its allies have a wide range of conventional ways and means for locating and either disabling or destroying an adversary's key theater-range strike systems (however armed) and, more broadly, for halting any combined conventional-nuclear theater offensive. Furthermore, the effectiveness of these conventional operations is enhanced by the enduring US commitment to extended deterrence. This provision of a

US “nuclear umbrella” is neither static nor applicable only in dire crises. It is an integral part of a broader US regional defense posture that includes conventional and nuclear-capable forces and is calibrated to meet contemporary security challenges, to include neutralizing adversary efforts to use nuclear threats to shape the battlespace or otherwise alter US and allied conventional operations. Neither the United States nor its allies rely on nuclear saber rattling to communicate resolve, nor do they require nuclear strikes to realize US and allied theater campaign objectives. Indeed, the potential employment of US nuclear forces, which will never target civilians, remains solely reserved for “extreme circumstances.”<sup>75</sup>

A second important message for US policy makers to emphasize is that these actors stand alone, and their efforts to use nuclear weapons to intimidate regional states betray their isolation and comparative military weakness. In contrast, the US approach to regional deterrence and assurance, including extended deterrence, is part of a common, coordinated theater defense posture based on consultation and cooperation rather than bullying. Indeed, the unique challenges posed by a potential adversary’s integrated forces and nuclear weapons ultimately bind the United States and its allies more closely together. As a result, coalition forces are well prepared for a full range of adversary threats, can maintain combat effectiveness in even the most challenging operating environments, and are fully equipped to counter conventional and nuclear-capable platforms in theater.

Finally, US policy makers can state that US alliance networks—and the extended deterrence guarantees undergirding these relationships—function to impose significant costs on adversaries in times of both competition and conflict. With coalition forces able to hold an opponent’s integrated forces at risk regardless of when, where, and how they seek to leverage nuclear threats, theater-range, nuclear-capable forces are not credible tools of coercion or war fighting. As such, the substantial resources potential adversaries devote to developing, fielding, and maintaining theater-range, nuclear-capable forces and their accompanying nuclear weapons entail significant resource costs without offering any real benefits.

### ***Encourage Restraint***

The third pillar of US deterrence strategies is encouraging restraint. As stated in *Deterrence Operations*, “Encouraging adversary restraint is the way in which US actions can influence adversary decision-makers’ perceptions of the benefits and costs of not taking an action we seek to deter. Thus, encouraging adversary restraint involves convincing adversary decision-

makers that not undertaking the action we seek to deter will result in an outcome acceptable to them (though not necessarily desired by them).<sup>76</sup>

Regarding the challenges posed by CNI, the United States should encourage adversaries to either halt or roll back their integration of conventional and nuclear-capable forces. A closely related objective is attempting to convince a potential adversary to convert its theater-range, nuclear-capable systems so that they can only deliver conventional munitions and making this nonnuclear status permanent and readily observable.<sup>77</sup> Overall, the United States seeks to convince potential adversaries that casting a nuclear shadow over a region is a costly, counterproductive endeavor not worth pursuing.

*Deterrence Operations* also indicates that encouraging restraint requires convincing a potential adversary there are viable alternatives to pathways the United States does not wish them to pursue (and that accepting this alternative will result in an outcome amenable to both). On some issues, this may entail finding a “minimax” solution whereby the United States and the other party reach a mutually advantageous agreement (and avoid a mutually costly outcome) despite their broader competition.<sup>78</sup>

Persuading a potential adversary to either roll back its integration of conventional and nuclear forces or give up some of the latter may require a combined diplomatic-military approach akin to the “dual track” employed by the United States and NATO prior to the negotiation of the 1987 Intermediate-Range Nuclear Forces (INF) Treaty. To counter the threat posed by new Soviet intermediate-range nuclear forces in the form of the SS-20 Pioneer missile, the United States developed its own highly capable intermediate-range, nuclear-capable platforms (which several NATO states then agreed to host). The United States, however, also offered a diplomatic “track” to Moscow, proposing arms control talks to potentially limit these types of forces. The Soviet Union, which viewed the United States’ ground-launched intermediate-range missiles as particularly dangerous (due in part to fears they could spearhead a “decapitation” strike on its leadership) and increasingly concerned about the costs of a prolonged arms race, eventually agreed to a treaty eliminating both sides’ arsenals of these types of theater-range delivery systems.<sup>79</sup>

A contemporary dual-track approach could focus the military track on the United States fielding its own type(s) of ground-launched, intermediate-range missiles previously banned by the INF Treaty; continuing to develop several types of locally generated, high-penetration, precise-engagement “smart” weapons such as those discussed above; increasing troop rotations, force levels, or pre-positioned equipment to areas

or allies subject to specific regional nuclear threats; or perhaps employing some combination of the above. At the same time as it took these steps boosting its ability to hold a potential adversary's theater-range, nuclear-capable platforms at risk, the United States could also offer diplomatic negotiations to limit these types of capabilities and their associated nuclear weapons. One possible approach could be the pursuit of an agreement representing a hybrid of nuclear and conventional arms control treaties, such as combining elements of the Conventional Forces in Europe (CFE) Treaty, INF Treaty, and New START. The agreement would provide for numerical limitations of certain types of weapon systems and inspections within a specific theater and verification measures confirming the nuclear or nonnuclear status of dual-capable platforms.

The success of these or other types of talks seeking to address CNI-related challenges will ultimately depend on a broad range of factors. Whether via arms control negotiations or the use of other ways and means to encourage restraint (such as sanctions designed to penalize the development of certain types of weapons), US policy makers can negotiate or operate from a position of strength when backed by flexible, effective military capabilities and strong support from allies. This position can pave the way for potential adversaries to accept restraint regarding nuclear integration or the deployment of theater-range, nuclear-capable forces.

## **Conclusion**

Potential adversaries such as Russia, China, and North Korea are continuing to invest in theater-range, nuclear-capable delivery systems and the production of new nuclear warheads. Their integration of nuclear and conventional forces, to include for the purpose of theater campaign planning, is a present and future challenge for US policy makers and combatant commanders.

Deterring and countering CNI threats from potential adversaries requires an integrated, but not mirror-imaged, US response. Policy makers should clearly communicate that the US approach to CNI allows its forces to hold opposing high-value theater assets, such as theater-range, nuclear-capable forces, at risk throughout a conflict. Such a message credibly threatens defeat of their integrated forces with US conventional capabilities—all without ever resorting to bellicose threats of nuclear use. Moreover, when properly equipped, US combatant commanders will possess an uninterrupted alliance all-domain kill chain that can effectively isolate an adversary's nuclear assets and eliminate theater employment options.

By coupling cost imposition and deterrence by denial strategies, the United States can make clear to both adversaries and allies that attempting to introduce nuclear weapons into a regional military conflict will not provide the former with a pathway to victory. In addition, developing effective US strategies for negating the perceived benefits of CNI will strengthen the ability of policy makers to encourage potential adversaries to refrain from their dangerous reliance on theater-range, nuclear-capable forces and regional nuclear coercion. In the long term, these strategies may also contribute to broader efforts to encourage these actors to retire or negotiate away nuclear weapons and nuclear-capable platforms either designed or assigned for regional conflict. **SSQ**

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### **Notes**

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34. National Intelligence Council (NIC), “Russia and Eurasia,” in *Global Trends: Paradox of Progress* (Washington, D.C.: NIC, 2017), 125, <https://apps.dtic.mil/dtic/>; Michael Mazarr, “The Essence of Strategic Competition with China,” *PRISM* 9, no. 1 (2020): 3–22, <https://ndupress.ndu.edu/>; and Richard Javad Heydarian, “China’s Premature Bid for Hegemony in Southeast Asia,” *Order from Chaos* (blog), Brookings, 28 November 2018, <https://www.brookings.edu/>.

35. Stephan Evans, “The Saddam Factor in North Korea’s Nuclear Strategy,” *BBC News*, 9 September 2016, <https://www.bbc.com/>; and James C. Mulvenon et al., *Chinese Responses to U.S. Military Transformation and Implications for the Department of Defense* (Washington, D.C.: RAND Corporation, 2006), 10.

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38. The 2014 *Quadrennial Defense Review* recognized this challenge, stating that the United States (and its nuclear forces) will ensure “potential nuclear-armed adversaries that they cannot escalate their way out of failed conventional aggression.” Department of Defense, 2014 *Quadrennial Defense Review* (Washington, D.C.: DOD, March 2014), 13, <http://archive.defense.gov/>.

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40. Bernard Brodie, *Escalation and the Nuclear Option* (Santa Monica, CA: RAND Corporation, 1965), vi, <https://www.rand.org/>.

41. Kevin Ryan, “Is ‘Escalate to De-escalate’ Part of Russia’s Nuclear Tool Box?,” *Russia Matters*, Harvard Belfer Center, 8 January 2020, <https://www.russiamatters.org/>.

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43. Jack Kim and Kiyoshi Takenaka, “North Korea Threatens to ‘Sink’ Japan, Reduce US to ‘Ashes and Darkness,’” *Reuters*, 14 September 2017, <https://www.reuters.com/>; and “North Korea Threatens US and S. Korea with Nuclear Strikes,” *BBC News*, 7 March 2016, <https://www.bbc.com/>.

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Middleton, "The De Gaulle Nuclear Doctrine Is Alive in Paris," *New York Times*, 6 May 1981, A16, <https://www.nytimes.com/>. See also Jamie Shea, "1979: The Soviet Union Deploys Its SS20 Missiles and NATO Responds," NATO video lecture, 4 March 2009, <https://www.nato.int/>.

45. Michael Kofman, Anya Fink, and Jeffrey Edmonds, *Russian Strategy for Escalation Management: Evolution of Key Concepts* (Washington, D.C.: Center for Naval Analyses, April 2020), 12, <https://www.cna.org/>.

46. Christian Lowe, "Russia Defends Right to Deploy Missiles after Kaliningrad Rebuke," Reuters, 6 February 2018, <https://www.reuters.com/>.

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48. This is a "deterrence by doubt" defense. "Interview: Lt. Gen. Raad Al-Hamdani," *Frontline*, PBS, 26 February 2004, <http://www.pbs.org/>.

49. James Acton, "Inadvertent Escalation and the Entanglement of Nuclear Command-and-Control Capabilities," Belfer Center Policy Brief, 29 October 2018, <https://www.belfercenter.org/>.

50. Office of the Deputy Assistant Secretary of Defense for Nuclear Matters, *Nuclear Matters Handbook 2020* (Washington, D.C.: Department of Defense, 2020), 224, <https://fas.org/>.

51. Alexei Arbatov, "A Russian Perspective on the Challenge of US, NATO, and Russian Non-strategic Nuclear Weapons," 152–71, in *Reducing Nuclear Risks in Europe: A Framework for Action*, eds. Steve Andreasen and Isabelle Williams (Washington, D.C.: Nuclear Threat Initiative, 2011): 162–63, <https://media.nti.org/>.

52. Col Kenneth P. Ekmen, "Applying Cost Imposition Strategies against China," *Strategic Studies Quarterly* 9, no. 1 (Spring 2015): 26, 30, <https://www.airuniversity.af.edu/>.

53. Department of Defense, *Deterrence Operations – Joint Operating Concept*, ver. 2.0 (Washington, D.C.: DOD, December 2006), 5, <https://www.jcs.mil/>.

54. Department of Defense, *2018 Nuclear Posture Review*, VIII.

55. David Santoro and Robert Gromoll, *On the Value of Nuclear Dialogue with China* (Honolulu, HI: Pacific Forum, 2020): 8–9, <https://pacforum.org/>; Brad Roberts, "Strategic Stability Under Obama and Trump," *Survival* 59, no. 4 (2017): 57, <https://doi.org/10.1080/00396338.2017.1349780>; Nuclear Threat Initiative (NTI), "Russia Rejects Immediate Talks on Tactical Nuke Cuts," 8 February 2011, <https://www.nti.org/>; Radio Free Europe/Radio Liberty, "Russia Sees 'No Prospects' for Extending Nuclear Pact with U.S.," 14 October 2020, <https://www.rferl.org/>; "Russia Suspends Joint Consultations on Treaty on Conventional Armed Forces in Europe," TASS, 10 March 2015, <https://tass.com/russia/781973>; Julia Masterson and Kelsey Davenport, "North Korea Rejects U.S. Proposal," *Arms Control Now* (blog), Arms Control Association, 10 October 2019, <https://www.armscontrol.org/>; and Duyeon Kim, "N. Korea Launches Rocket, Kills U.S. Deal," *Arms Control Today*, Arms Control Association, 8 May 2012, <https://www.armscontrol.org/>.

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57. Richard Maurer et al., “Aerial Neutron Detection: Neutron Sensors for Nonproliferation and Emergency Response Applications,” National Security Technologies, Report DOE/NV/25946-1634, October 2012, 48, <https://doi.org/10.2172/1136549>. In more recent years, experiments conducted around the Fukushima Daiichi Nuclear Power Plant destroyed by the tsunami that struck Japan in 2011 have demonstrated that unmanned drones can detect localized radiation sources and hotspots from 150 to 300 meters. Jiang et al., “A Prototype of Aerial Radiation Monitoring System Using an Unmanned Helicopter Mounting a GAGG Scintillator Compton Camera,” *Journal of Nuclear Science and Technology* 53, no. 7 (2016): 1067–75, published online 5 October 2015, <https://doi.org/10.1080/00223131.2015.1089796>.

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59. Joint Publication 3-01, *Countering Air and Missile Threats*, 21 April 2017 (validated 2 May 2018), <https://www.jcs.mil/>.

60. For example, the United States developed plans for a theater missile defense exercise with Japan and South Korea shortly after North Korea conducted its November 2017 test of the Hwasong-15 missile. Ankit Panda, “US, Japan, South Korea to Hold Missile Tracking Exercise,” *The Diplomat*, 11 December 2017, <https://thediplomat.com/>.

61. Office of the Secretary of Defense, *2019 Missile Defense Review* (Washington, D.C.: Department of Defense, 2019), <https://www.defense.gov/>; US Army, *Army Air and Missile Defense Vision 2028* (Huntsville, AL: USASMDC/ARSTRAT, March 2019), <https://www.smhc.army.mil/>; and Kenneth R. Dorner, William B. Hartman, and Jason M. Teague, “Back to the Future: Integrated Air and Missile Defense in the Pacific,” *Air and Space Power Journal* 29, no. 1 (January–February 2015): 61–78, <https://www.airuniversity.af.edu/>.

62. Joseph Trevithick, “F-35 Cueing Artillery to Take Out Air Defense Site Is a Glimpse of the Future,” *The Drive*, 13 December 2019, <https://www.thedrive.com/>.

63. “Passive defenses” broadly refer to static defenses and techniques such as dispersal of forces, inasmuch as the latter involves movement before or during conflict.

64. US Army News Service, “US Army Corps of Engineers, Far East District, Completes Construction of Third Generation of Hardened Aircraft Shelters at Kunsan Air Base,” 27 May 2020, <https://www.army.mil/>.

65. Jaganath Sankaran, “‘Big, Fat, Juicy Targets’—The Problem with Existing Early-Warning Satellites. And a Solution,” *Bulletin of Atomic Scientists*, 30 September 2019, <https://thebulletin.org/>.

66. George I. Seffers, “Air Force Seeks Disaggregated Command and Control,” *Signal*, 1 February 2019, <https://www.afcea.org/>.

67. Hailey Haux, “A B-52 Exercises Dynamic Force Employment with Joint Partners in Indo-Pacific,” Pacific Air Forces Public Affairs press release, 7 July 2020, <https://www.pacom.mil/>.

68. Charles A. Salter, “Psychological Effects of Nuclear and Radiological Warfare,” *Military Medicine* 166, Suppl. 2 (2001): 17–18.

69. Following a series of exercises in which most personnel wore personal protective equipment for most of the activity, a November 2019 US Army 1st Armored Division report noted, “Much of what will be asked of a Soldier against a near-peer threat in a contaminated battlefield will require fighting ‘dirty’ for extended periods of time. Maneuver formations at the brigade level and lower will need to conduct hasty decontamination as far forward as possible to continue to sustain operational tempo.” Kurt Ebaugh, “News from the CTC: Unit CBRN Readiness Training – A Way,” Center for Army Lessons Learned, November 2019, <https://usacac.army.mil/>.

70. DOD, *Deterrence Operations – Joint Operating Concept*, 26–27.

71. Nonexplosive Hellfire missiles have a proven combat record eliminating high-value targets on the move with exceptionally low collateral risk. See Gordan Lubold and Warren P. Strobel, “Secret Missile Targets Terrorist Leaders,” *Wall Street Journal*, 10 May 2019, A4.

72. One example of such a system would be Boeing’s Counter-electronics High Power Microwave Advanced Missile Project (CHAMP), a “non-kinetic, non-lethal” weapon first tested in 2012 that uses “bursts of high-powered energy” to destroy electronics systems and microchips, “effectively knocking out a specific target’s data and electronic subsystems” and rendering it inoperable. “CHAMP – Lights Out,” Boeing press release, 22 October 2012, <https://www.boeing.com/>; and George I. Seffers, “CHAMP Prepares for Future Flights,” *SIGNAL*, 1 February 2016, <https://www.afcea.org/>. Similarly, other electronic attack systems may be able to directly disable delivery systems by interfering with internal or external systems or networks that enable them to conduct attacks. Brendan I. Koerner, “Inside the New Arms Race to Control Bandwidth on the Battlefield,” *Wired*, 18 February 2014, <https://www.wired.com/>; and Joseph Trevithick, “Navy to Add Laser Weapons to at Least Seven More Ships in the Next Three Years,” *The Drive*, 8 July 2020, <https://www.thedrive.com/>.

73. The “Golden Horde” is a US Air Force “Vanguard program” that, via an innovative combination of hardware and software, can provide aircraft with “munitions [that] can be networked together and operate autonomously after launch according to a set of predetermined rules.” Valerie Insinna, “US Air Force Gears Up for First Flight Test of Golden Horde Munition Swarms,” *Defense News*, 13 July 2020, <https://www.defense.news.com/>. Golden Horde, after being fired by a pilot, can split up to strike both the intended target (e.g., air defense systems) and other, higher-priority targets (e.g., mobile missiles leaving hide sites) that are not identified until after the weapons are inbound. The Cargo Launch Expendable Air Vehicle with Extended Range (CLEAVER) system is designed to allow cargo planes to drop multiple “palletized munitions” that contain “long-range, high precision weapons [that can] destroy moving and non-moving targets.” Whitney Wetsig, “AFRL, AFSOC Launch Palletized Weapons from Cargo Plane,” *Air Force News*, 28 May 2020, <https://www.af.mil/>.

74. Weapons such as the CLEAVER, dropped from standard cargo planes, can provide strike options that are significantly less expensive than medium- or long-range bombers. This is especially true for offering such technology to partners and allies in an attempt to cheaply attain dispersion and redundancy of long-range precision-strike capabilities.

75. DOD, *2019 Nuclear Posture Review*, II.

76. DOD, *Deterrence Operations – Joint Operating Concept*, 27.

77. Under the terms of START, for example, the United States agreed to convert its dual-capable B-1B bombers to conventional-only platforms. A “metal cylindrical sleeve

was welded into the aft attachment points,” making it impossible for the aircraft to carry nuclear-armed cruise missiles from its wings, and cable connectors required to arm nuclear weapons were also removed. US Air Force, “B-1 Bomber,” fact sheet, 16 December 2015, <https://www.af.mil/>.

78. Thomas C. Schelling, “The Strategy of Conflict: Prospectus for a Reorientation of Game Theory,” *Journal of Conflict Resolution* 2, no. 3 (September 1958): 209–19, <https://doi.org/10.1177/002200275800200301>.

79. Louis Sell, *From Washington to Moscow: US-Soviet Relations and the Collapse of the USSR* (Durham, NC: Duke University Press, 2016), 204.

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