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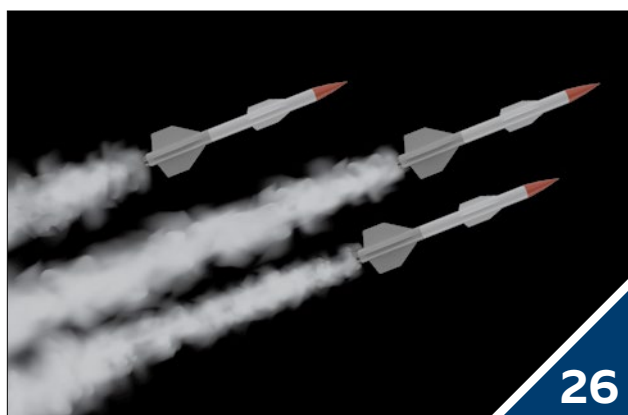
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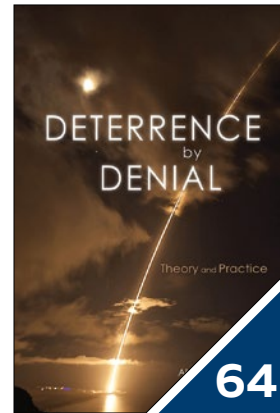
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Book Review



Deterrence by Denial: Theory and Practice

Edited by: **Alex S. Wilner** and
Andreas Wegner

Reviewed by: **Patrick Swan**,
per Concordiam contributor

Deterrence by denial succeeds when bad actors are convinced that they will be denied the fruits of their aggression.

On the Cover



The West considers how to respond to Russia's nuclear threats and China's growing nuclear arsenal.

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GEORGE C. MARSHALL
EUROPEAN CENTER FOR SECURITY STUDIES

Welcome to the 47th edition of *per Concordiam*. When we planned an issue on strategic deterrence with a focus on nuclear weapons, we were unaware of just how topical the issue would become. We were aware that the fifth United States nuclear posture review would be completed before the issue was printed. However, we did not know that Russia, the state with the world's largest nuclear arsenal, would launch a large-scale war of aggression against Ukraine and that the world would have to consider how to react to threats of nuclear escalation.

The topic is presented writ large with a focus on strategic deterrence, Russia's nuclear forces, the emergence of China's nuclear forces and the potential implications of an era of high tension on cooperative measures, such as arms control. The experts contributing to this issue have a variety of links with the Marshall Center. Some have joined our programs as speakers or participated in our Strategic Competition Seminar Series, while others share their expertise here for the first time.

Marshall Center faculty member Dr. Pál Dunay conceptualizes the topic and provides a framework for analysis. Dr. Pavel K. Baev, of the Peace Research Institute Oslo, presents a detailed picture of the development of Russian nuclear forces. Dr. Maxim Starchak, a fellow at the Centre for International and Defence Policy of Queen's University in Canada, addresses a matter that keeps reappearing on the agenda: the potential for forward deployment of Russian nuclear forces to Belarus. Martin Verrier, a Royal United Services Institute fellow, complements the picture with a historical analysis of Russian covert operations.

Dr. Brian G. Carlson, head of the Global Security Team at the Center for Security Studies, takes stock of China's growing nuclear capacity. U.S. Air Force Brig. Gen. Glenn T. Harris and U.S. Army Maj. John Yanikov present the case for modernizing U.S. nuclear capabilities, with an emphasis on deterrence. Dr. Anna Péczeli, of the Lawrence Livermore National Laboratory, contemplates the need for seeking strategic stability among the most powerful nuclear powers. And U.S. Army Col. Jeffrey W. Pickler makes the case that a whole-of-society approach is needed to mitigate Russia's aggression.

This issue of *per Concordiam* provides a sobering account very much in the spirit of our time. We hope that the moral inhibition and reasons not to employ the world's deadliest weapons will prevail, as it has for more than 77 years.

Sincerely,

Barre R. Seguin
Director



Barre R. Seguin

*Director, George C. Marshall
European Center for Security
Studies*

Barre R. Seguin retired from the U.S. Air Force as a major general in October 2020 after more than 31 years of active service. His last assignment was as the Deputy Chief of Staff, Strategic Employment, Supreme Headquarters Allied Powers Europe, Belgium. He entered active duty in 1989 as a distinguished graduate of the Reserve Officer Training Corps after graduating from the State University of New York at Potsdam. His flying assignments included serving as a flight examiner, instructor pilot, wing chief of safety and operations officer, with commands at the squadron, group, wing, and Air and Space Expeditionary Task Force levels. His command and staff positions included Commander, 9th Air and Space Expeditionary Task Force-Afghanistan and the NATO Air Command-Afghanistan, Kabul, Afghanistan; Director, Strategy, Engagement, and Programs, U.S. Africa Command, Stuttgart, Germany; Commander, 31st Fighter Wing, Aviano Air Base, Italy; and Inspector General, Headquarters Air Combat Command.



Dr. Pavel K. Baev is a research professor at the Peace Research Institute Oslo. He is a senior nonresident fellow at the Brookings Institution in Washington and a senior research associate at the French Institute of International Relations in Paris. His research interests include the transformation of the Russian armed forces and strategic culture, Russia's security policy in the Arctic and Russia-China security cooperation.



Dr. Pál Dunay is professor of NATO and European security issues at the Marshall Center and academic advisor for its Program on Applied Security Studies and European Security Seminar-East courses. He was director of the Organization for Security and Co-operation in Europe Academy from 2014 to 2016 and course director of the International Training Course in Security Policy at the Geneva Centre for Security Policy from 1996 to 2004 and 2007 to 2014.



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Col. Jeffrey W. Pickler, U.S. Army, has served in leadership positions with the 82nd Airborne Division, 2nd Ranger Battalion, 173rd Airborne Brigade Combat Team, 25th Infantry Division, and 4th Infantry Division. He has a master's degree in organizational psychology and leadership from Teacher's College, Columbia University in New York City. He has served on the staff at the United States Military Academy at West Point and within the Office of the Chairman of the Joint Chiefs of Staff, and has completed a War College Fellowship at the Marshall Center.



Dr. Maxim Starchak is a fellow on Russian nuclear policy at the Centre for International and Defence Policy of Queen's University in Canada, and a contributor to the Jamestown Foundation's "Eurasia Daily Monitor" and to the Center for European Policy Analysis. He has authored reports for the Atlantic Council and the Foreign Policy Research Institute on Russian strategic nuclear forces. He has worked for Russian think tanks, including the PIR Center, the Institute for US and Canadian Studies and the Gaidar Institute for Economic Policy.



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Strategic Deterrence

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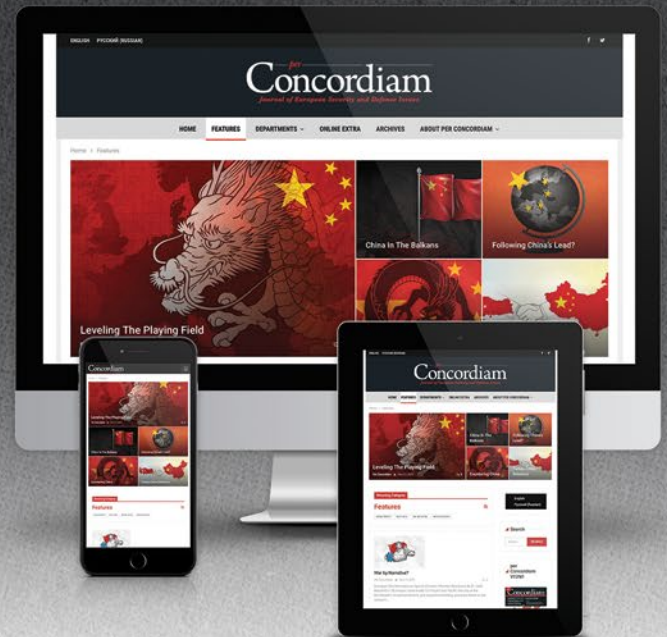
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RISKY BUT MANAGEABLE

Strategic Deterrence in the Nuclear Era

By **Dr. Pál Dunay**, Marshall Center professor

Soon, it will be eight decades since the inception of the nuclear era. The world must live with nuclear weapons — they cannot be uninvented, as then-Prime Minister Margaret Thatcher called our attention to in 1982. More than 40 years have passed and the statement has stood the test of time. The nuclear era is irreversible and continues unabated. However, the primary, if not sole, rationale for the existence of the world's deadliest weapons must be to reduce the danger of war.

The existence of nuclear weapons is regularly cited as a reason the so-called long peace held during the four decades of the Cold War. Whether a single class of weapons can hold the peace is open to debate, but few would dispute that the amassing of large nuclear arsenals contributed to the long peace. This belief was underlined by what used to be called Cold War thinking. While the term carries some ambiguity, it is a commonly shared view that Cold War thinking entails not only deterrence but also a readiness to engage in nuclear war. Following the Cuban missile crisis, substantive efforts were made to reduce the level of confrontation between the United States and the Soviet Union, the world's two nuclear great powers. The first major arms control agreement, the Partial Test Ban Treaty, is often mentioned in this context. However, in the 1960s a doctrine of flexible response spread from the U.S. to NATO and began to replace the massive retaliation doctrine. It carried the message that an armed conflict between the nuclear great powers (and their allies) does not necessarily have to lead to nuclear escalation. It is not surprising that the flexible response doctrine has outlived the Cold War.

Horizontal proliferation

One element of nuclear history that bridges the Cold War and the current era is the strong aversion by the U.S. and the Soviet Union/Russia — and for that matter, all five permanent members of the U.N. Security Council — to an increase in the number of states possessing nuclear weapons. The development of nuclear programs by countries



U.S. President Ronald Reagan, right, and Soviet leader Mikhail Gorbachev celebrate the signing in 1987 of the Intermediate-Range Nuclear Forces Treaty, an agreement to reduce the world's nuclear arsenal. THE ASSOCIATED PRESS

without them is known as horizontal proliferation. The aversion to this proliferation is reflected in the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) signed in 1968, the world's most successful multilateral arms control agreement. The U.S., the Soviet Union and the United Kingdom played prominent roles in achieving it. Of course, it can be argued that, despite the treaty, the number of de facto nuclear powers increased from five to nine. However, this happened over more than half a century, while several states gave up their nuclear aspirations (one state, the Republic of South Africa, abolished its small nuclear weapons stockpile) and the five legitimate nuclear weapons states retained their unity in rejecting the nuclear ambitions of other states. This is a significant achievement. During the past half-century, traditional nuclear powers have often had close relations with one de facto nuclear power or another. Consider the links between the U.S. and

In the first two decades of the post-Cold War era, there were concerns related to nuclear arsenals. But those concerns were part of a very different security agenda than the one that had prevailed during the Cold War.



Israel, China and North Korea, and the Soviet Union/Russia and India. However, a majority of the states in the world, including most of the 191 state parties of the NPT, do not support nonnuclear states becoming de facto nuclear states.

The Cold War left the world with an arsenal of approximately 65,000 nuclear devices. However, the arsenal started to shrink after 1987 because of the U.S.-Soviet Intermediate-Range Nuclear Forces Treaty (INF) and subsequent unilateral and reciprocated cooperative reduction measures. The question, “How much is enough?” has become more pertinent than ever. Russia and the U.S. lived up to their NPT responsibilities. The treaty obliged the parties to undertake nuclear disarmament. Understandably, this was the foremost task of leading nuclear powers. Over 35 years (between 1987 and 2022), 80% of the world’s nuclear weapons stockpiles were eliminated. This is certainly an achievement, though it may not affect our perception of security because the capacity for nuclear overkill remains. With the elimination of those Russian and U.S. nuclear weapons — and with the growth of the Indian, Pakistani and, to a lesser extent, North Korean arsenals — the share of the world’s nuclear arsenal owned by the two superpowers shrank to approximately 92%.

In the first two decades of the post-Cold War era, there were concerns related to nuclear arsenals. But those concerns were part of a very different security agenda than the one that had prevailed during the Cold War. In the 1990s, five concerns dominated the agenda:

1. The physical control of Russian nuclear weapons, the so-called loose nukes challenge.
2. The possession of nuclear weapons by Belarus, Kazakhstan and Ukraine as successor states of the Soviet Union, and the return of the weapons to Russia.
3. The horizontal proliferation of nuclear weapons in India and Pakistan.
4. The alleged and, as later revealed, interrupted nuclear program in Iraq.
5. The potential access to fissile material by nonstate actors for building dirty bombs.

A new security agenda

The 9/11 terrorist attacks changed the security agenda. Interstate security relations among the main nuclear powers, at least temporarily, mattered less than before. Russian President Vladimir Putin challenged the international distribution of power — as demonstrated by his speech at the 2007 Munich Security Conference (when he openly rejected the post-Cold War security order), and in

Russia’s war against Georgia in August 2008. The danger of a return to interstate rivalry between Russia and the West has been present ever since. The New Strategic Arms Reduction Treaty (New START) in 2010, initiated by the U.S., and Russia’s demonstrated interest in a reset gave hope that a new era of adversarial relations could be avoided.



Russian lawmakers meet in 2021 to extend the New START Treaty for five years.
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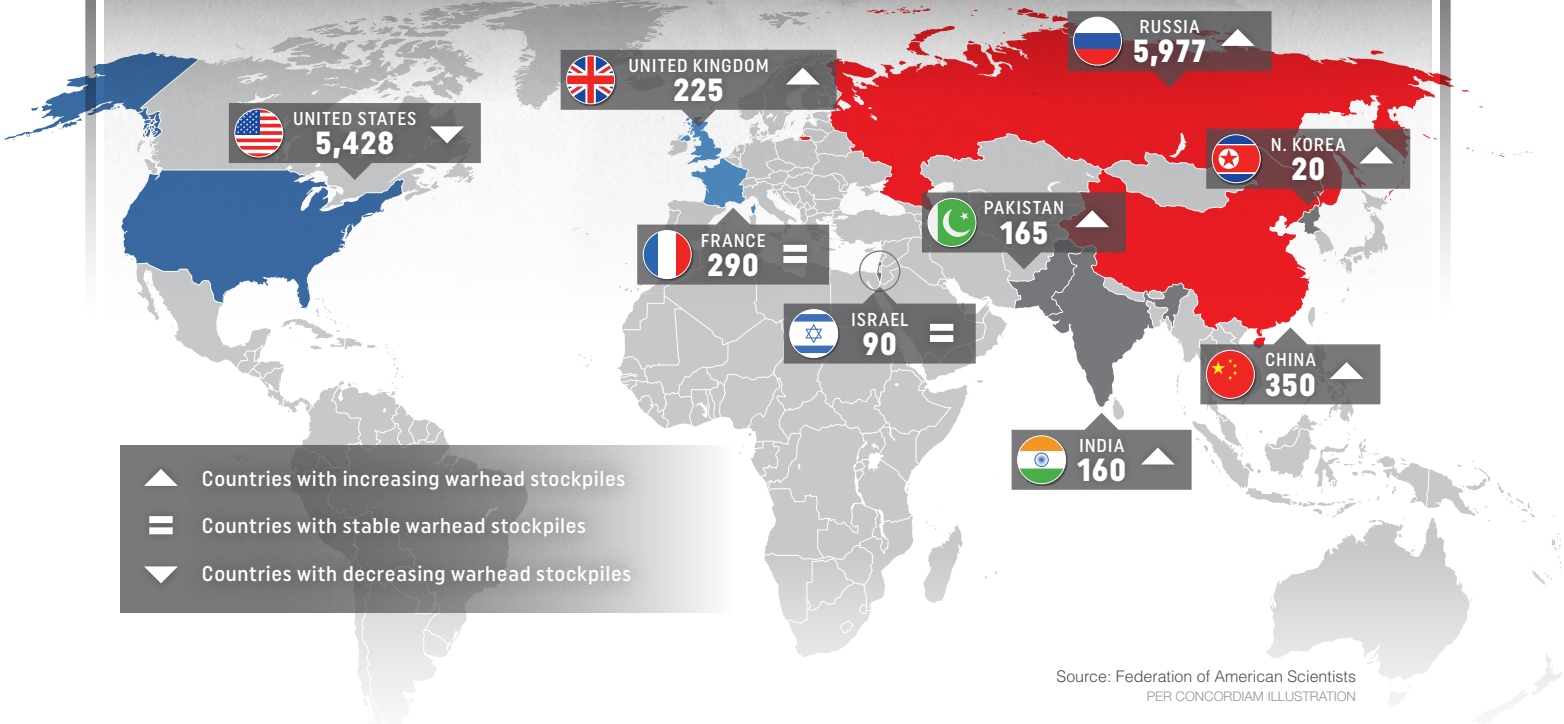
Russia had benefited from economic advancement between 1999 and 2012 and increased its investment in the defense sector. This could be interpreted in various ways. The benevolent, if not outright naive, interpretation could draw the conclusion that it compensated for a long period between the late 1980s and the early years of the 21st century when Russia did not prioritize its military. A less naive conclusion is that Russia wanted to return to the “high table” of world politics. This was clear not only from its military modernization efforts but also from its political pronouncements, in particular Putin’s unceasing claim (first made in 2005) that his country wanted to be at the center of a multipolar international order. If the armed forces are Russia’s most important source of power, then it was logical to conclude Russia’s “recovery” would be based on the consolidation of its military might. And Russia’s official documents left no doubt about the importance of nuclear weapons. Russia regards them as the ultimate deterrent. Aware of the perceived loss of its conventional military superiority, Russia is increasingly tempted to rely on its nuclear forces. The documents vary as to the contingencies in which nuclear weapons would be employed. Would it be in the defense of Russia proper and also its allies? Or only if attacked by a nuclear-weapon state?

A moral inhibition

A deterrent posture always consists of two elements: the existence of the capability and the readiness to use it. Russia, with the world’s largest nuclear arsenal, certainly

Russian long-range bombers participate in a Victory Day parade in Moscow. THE ASSOCIATED PRESS

ESTIMATED GLOBAL NUCLEAR WARHEAD INVENTORIES, 2022



possesses the former and its declared policy leaves no doubt about the latter. However, every nuclear weapons state faces the following challenge: Nuclear weapons have not been deployed since August 9, 1945. More than 77 years have passed and the moral inhibition has been mounting against nuclear weapons use. This is complemented by various international agreements adopted between 1982 and 2022, each declaring that a nuclear war cannot be won and must not be fought (or a variation of this language). Although the documents have no bearing on the world's nuclear capacities, they contribute to the strength of the moral inhibition.

There is no universal legal prohibition banning nuclear weapons or their employment. The International Court of Justice, in an advisory opinion adopted in 1996, could not conclude that the use of nuclear weapons would be illegal and stated: "... in view of the current state of international law, and of the elements of fact at its disposal, the Court cannot conclude definitively whether the threat or use of nuclear weapons would be lawful or unlawful in an extreme circumstance of self-defence, in which the very survival of a State would be at stake." The Treaty on the Prohibition of Nuclear Weapons that was opened for signature in 2017 and entered into force in 2021 does not have a single state with nuclear weapons among its parties. In summary, nuclear deterrence continues to hold. There is a quest to constrain the existence of nuclear arsenals to their deterrent function, but that has not yet been achieved.

It is worrying that an opposite trend may be emerging. Recently, in the heated atmosphere of Russia's war

of aggression against Ukraine, concerns were raised that Russia would escalate the conflict by employing a nuclear weapon. In fact, beginning with its Zapad-99 exercise, Russia has integrated a scenario into its military training that is called "escalate to deescalate." It means that if Russia could not prevail in a conventional conflict, it would use a nonstrategic nuclear weapon to be followed by negotiations, under the theory that the other party (and most likely the collective political West) would want to avoid nuclear escalation. Several subsequent exercises indicate that Russia's military considers this an option. What lessons can be learned from such a Russian approach? It indicates that Russia could imagine a contingency wherein the nuclear threshold is crossed out of necessity. It is also a starting assumption by Moscow that the West will not engage in nuclear escalation and that the West indirectly recognizes that Russia is capable and ready to continue to escalate if faced with a nuclear response.

Public condemnation may be the reason that Russia did not carry out recent exercises with an element of nuclear escalation, or at least did not publicly reveal that it did so. During Russia's war against Ukraine, the danger of a tactical nuclear escalation has been widely debated in Western circles because of the military setbacks Russia has suffered. The West made it clear that it would not engage in nuclear escalation in response to a low-yield nuclear strike. It is understandable that the West cannot reveal in detail its possible reaction to Russian nuclear escalation. Despite this ambiguity, it was made clear that the reaction, while not nuclear, would have catastrophic consequences for Russia.



The B-21 Raider nuclear stealth bomber is unveiled in December 2022 as part of the Pentagon's answer to rising concerns over China. THE ASSOCIATED PRESS

China's nuclear ambitions

While nuclear deterrence is primarily interpreted in the U.S. (and across the West) in a Russian context, some rearrangement of this thinking is needed because of China's plans to build a substantial nuclear arsenal by 2030. China's aspiration to possess 1,000 nuclear warheads will separate it from countries with smaller nuclear arsenals, but leave it lagging significantly behind the Russian and U.S. arsenals. A key question is whether the arsenal is for deterrence or warfighting. The focus of nuclear deterrence has been moving away from the sheer number of warheads to other factors, such as the survivability of nuclear arsenals (which led to the development of land-, sea- and air-deliverable components known collectively as the nuclear triad); the quality of the warhead delivery vehicles, including missiles, submarines and airframes; and the ability to overcome evolving missile defense systems.

The advancements of missile defense capabilities do not make the U.S. and other states that are introducing them immune from a massive Russian strategic nuclear attack. Still, Russia's view is that ballistic missile defenses weaken its capacity to launch a successful nuclear strike. Its reaction has been twofold: to develop higher velocity (i.e., hypersonic) missiles that can penetrate missile defenses, and to bolster its nuclear arms infrastructure. Whereas the former has been partly realized since 2019, the latter is in its infancy and may require efforts and resources that are not available to Russia in the middle of its high-intensity war in Ukraine.

It is apparent that Russia wants to retain nuclear deterrence at the core of its military strategy. That theory is supported by Moscow's declared policy and by the verbal threats that are supported by videos of the Tsirkon hypersonic missile and the Kinzhal hypersonic air-launched cruise missile. The current state of affairs is reflected in the unclassified version of the U.S. Nuclear Posture Review (NPR), published in October 2022. The document reflects the

reality that there are four main nuclear challengers: Russia, China, North Korea and Iran. Each presents a different challenge, although they are united by being potential adversaries of the West. It is understandable that the language addressing Russia is harsh. Russia is diversifying its nuclear arsenal and regards its nuclear weapons as "a shield behind which to wage unjustified aggression against [its] neighbors." The role of the U.S. nuclear arsenal is not confined to deterrence exclusively, though that remains its fundamental role. It provides security assurances to allies and partners, and the ability to achieve U.S. objectives if deterrence fails. The U.S. further underlines the priority of deterrence in its nuclear posture when it specifically points out that it "will not use or threaten to use nuclear weapons against non-nuclear weapon states that are party to the NPT and in compliance with their nuclear non-proliferation obligations." This exempts all but a few nonnuclear weapons states that may face U.S. nuclear power. It certainly includes North Korea and Iran; the former withdrew from the NPT and the latter apparently does not live up to its commitments.

Conclusion

Despite the meager prospects of arms control and crisis management, the NPR avoids being a hawkish document overtaken by the events unfolding at the time of its drafting. It is clear the U.S. does not want to overreact to the current high tensions with Russia and the mounting rivalry with China, and resisted the temptation to provide its main nuclear opponents with an excuse to escalate tensions. Arms control is at a stalemate between Russia and the U.S. Although U.S. President Joe Biden's administration extended the New START Treaty in February 2021 for another five years, that continuation was set aside by Putin's suspension of the treaty in February 2023. This means that the treaty can survive, but only if fundamental changes occur in Russia, including ending Russia's war against Ukraine in a manner satisfying to the treaty's two parties. □

THE **UKRAINE** **WAR**



PER CONCORDIAM ILLUSTRATION

Impact on Russian nuclear policy and instruments

By **Dr. Pavel K. Baev**, research professor, Peace Research Institute Oslo

PHOTOS BY THE ASSOCIATED PRESS

Russia's desire for great power status and its ambition to emerge as a key power center in the presumed multipolar world are underpinned, shaped and driven by its arsenal of nuclear weapons, which quite probably is the largest in the world. But despite channeling huge amounts of increasingly scarce resources into the modernization of this arsenal, Moscow finds it increasingly difficult to harvest political dividends from these investments. A longtime principle of Russia's grand strategy, upholding nuclear parity with the United States, is unproblematic, but the high number of warheads doesn't translate into authority in the international arena or in Moscow's ability to influence global developments. In the new geopolitical configuration shaped by the war in Ukraine, Russia may find a greater need to rely on its superior nuclear potential because other elements of its power, particularly its economy, are weakened and compromised. However, the applicability of nuclear instruments for scoring a victory on the Donbas battlefields is extremely low. As for deterring Western support for Ukraine, a nuclear strategy would be ineffectual, if not counterproductive.

Moscow wasn't satisfied with the acknowledgement of its status as an equal partner to the U.S. because it was conditional on following a "stable and predictable" political course ...

One of the most effective ways of capitalizing on modern and diverse nuclear capabilities has traditionally been engagement in complicated arms control talks and agreements, foremost with the U.S. This high-profile nuclear bargaining secured for the Soviet Union — and since the early 1990s, for Russia — the symbolic position as the second-most powerful state in the world. This well-traveled avenue arrived at an apparent dead end at the beginning of the 2020s. The breakdown of the Intermediate-Range

Nuclear Forces (INF) Treaty signed by U.S. President Ronald Reagan and Soviet Communist Party General Secretary Mikhail Gorbachev in December 1987, which signified the end of the Cold War, is the most apparent manifestation of the crisis in arms control, even if Russia is inclined to backdate the arrival of this crisis to the U.S. decision to withdraw in 2002 from the Anti-Ballistic Missile Treaty.



U.S. President Joe Biden, left, and Russian President Vladimir Putin meet in Switzerland in 2021.

The agreement in June 2021 between U.S. President Joe Biden and Russian President Vladimir Putin to extend the New Strategic Arms Reduction Treaty (New START) for another five years could have signified a new beginning in denuclearization. But it turned out to be a non-starter. Moscow wasn't satisfied with the acknowledgement of its status as an equal partner to the U.S. because it was conditional on following a "stable and predictable" political course, as Biden insisted. Putin feared Russia's gradual reduction to global irrelevance. Consultations on strategic stability immediately ran into familiar deadlocks, which Moscow blamed squarely on the U.S. without acknowledging Russia's violations of key provisions in the old agreements or the fact that its massive nuclear modernization

programs have rendered the agreements impractical.

The onset of the Ukraine war in February 2022 derailed U.S.-Russia nuclear talks, and even if Putin signaled a readiness to resume dialogue and declare that nuclear war cannot be won and must never be initiated, the rationality of his decision-making has been undercut by his fateful choice to attack Ukraine. Then, in February 2023, Putin suspended Russia's participation in New START. Clearly, the Kremlin underestimated Western solidarity in support of Ukraine, and as the prospect of Russia's failure looms larger and Putin becomes more desperate, nuclear instruments become a potential means of last resort.



A Russian Defense Ministry photo shows a Tu-22M3 bomber over the Mediterranean Sea in February 2022.

Achievements and setbacks

It was the early 2010s when Putin — then the prime minister — set a course to modernize Russia's nuclear arsenal. The task became a top priority in the 2020 State Armament Program (SAP), approved in December 2010, when Russia appeared to be on an ascending economic track. What is remarkable, and in hindsight fallacious, about that plan was its ambition to upgrade all strategic capabilities and to develop a rich set of new nonstrategic nuclear-capable weapons systems, which inevitably resulted in the advancement of some systems and setbacks for others, leaving the structure of strategic/tactical nuclear forces seriously unbalanced. The 2027 SAP, approved in December 2017 after a delay caused by the economic crisis of 2014-2017, acknowledged the imperative to reduce expenditures, but again prescribed modernization of the whole range of capabilities, failing to set meaningful priorities and to choose between building on successes or addressing failures. In the strategic triad, the naval element gets the bulk of funding, and the introduction of the new generation of Borei-class strategic submarines is the single most expensive project in both the 2020 and 2027 SAPs.

The implementation was not without delays, caused primarily by the many failed tests of its main weapons system, the Bulava (SS-N-32) intercontinental missile. But in December 2021, the fifth submarine of this class (the K-552, *Knyaz Oleg*) joined Russia's Pacific Fleet. The program is progressing unsteadily, with trials of the newest Borei (the *Generalissimus Suvorov*), delayed until mid-2023. Dates for launching submarines currently under construction remain uncertain. The focus on these efforts caused serious delays with the program's second-highest priority, the Yasen-class cruise missile nuclear submarines. Seven years passed between the commissioning of the pilot vessel (the K-560 *Severodvinsk*) in 2014 and the entering into service of two more subs (the K-561 *Kazan* and K-573 *Novosibirsk*). As this article was being written, a fourth (the K-571 *Krasnoyarsk*) was still undergoing trials and five remained under construction.

What is traditionally the strongest (in terms of numbers) nuclear forces element — land-based intercontinental ballistic missiles — also experienced setbacks with modernization. The replacement of Topol (SS-25) missiles with Topol-M (SS-27 Mod 1) and Yars (SS-27 Mod 2) missiles has progressed smoothly, but the plan for replacing the SS-18 missiles with a new heavy-liquid-fueled Sarmat (SS-X-30) missile encountered technical issues and only one test was performed, in April 2022, despite Putin's announcement in May 2018 that Sarmat was ready for deployment. Lacking Sarmat, the newly developed hypersonic glide vehicle Avangard (a weapon Putin promoted in 2018) has been integrated with the SS-19 missile, which was expected to have been retired by 2020. Long-range strategic bombers are the most useful for demonstrating power, but Russia's production base for such weapons has deteriorated. The development of a new generation of PAK DA bombers has been postponed and plans for resuming production of the Tu-160 bomber have also run into trouble. The only test of the first newly produced Tu-160M2 aircraft was performed in January 2022. Russia has had to rely on the legacy Tu-95 and Tu-22M3, which are prone to technical failures.

However, significant success has been achieved in developing a remarkable variety of air-launched and ship/submarine-launched nuclear capable missiles, as well as surface-to-air missile systems with anti-missile and anti-satellite characteristics. The long-range Kalibr (SS-N-27) cruise missile was tested in combat operations in Syria and is now fitted on various naval platforms, including

low-displacement corvettes, as a key means of projecting firepower on shore. The hypersonic air-launched ballistic missile Kinzhal has entered service, with the MiG-31K fighter and the Tu-22M3 bomber as key platforms, though the strategic rationale for this unconventional design is dubious and several strikes on fixed targets in western Ukraine were not effective. The anti-ship hypersonic cruise missile Tsirkon (SS-N-33) has completed an extensive testing program, but the serial production of this weapons system, which potentially — along with the application of other hypersonic technologies — can constitute a game-changer in modern naval warfare, has yet to begin.

Perhaps the most serious concern related to Russia's execution of nuclear modernization plans is the high risk of accidents.

As impressive as these high-tech weapon systems appear to be, though, they require corresponding upgrades in command-and-control systems, real-time intelligence gathering, target acquisition, etc., and the Russian armed forces cannot realistically hope to meet many of these requirements. One particular weakness is the insufficient capacity of satellite communications and monitoring, which isn't expected to improve because of mounting problems in Russia's space program. That leaves the strategic early warning system more reliant on the modern phased-array Voronezh-M/DM/VP radars, than on satellites. Additionally, to make nonstrategic nuclear-capable weapons systems into useful instruments of nuclear policy, they must be connected to nuclear warheads. But there are few signs of such interoperability. The openly available data on nonstrategic nuclear munitions is no better than anecdotal, but it can be established for fact that they are still safely locked in central storage facilities, as prescribed by the Presidential Nuclear Initiatives (PNI) advanced simultaneously by the Soviet Union and the U.S. in 1991. Several large-scale exercises in 2017-2021 involved simulations of a nuclear strike, but in real terms, Russian armed forces conducted no training for handling nuclear munitions.

Perhaps the most serious concern related to Russia's execution of nuclear modernization plans is the high risk of accidents. At least three such setbacks happened in 2019, including a deadly shootout caused by brutal bullying in a military unit servicing nuclear munitions. A fire onboard the nuclear-powered submersible AS-31 (nicknamed Losharik) of the Northern Fleet claimed the lives of 14 officers, but a greater disaster was averted by closing the connector to the transport vessel — the nuclear submarine Podmoskovye (BS-64, converted Delta IV-class). A great effort by investigative journalists breached the wall of secrecy around the explosion of a nuclear-propelled missile after a failed test near Severodvinsk, in the Arkhangelsk region, with seven

lives lost and a widespread panic about radioactive contamination. Putin asserted that tests would continue “no matter what,” but in fact no new advances in the Burevestnik nuclear-armed cruise missile program have been reported. No significant accidents were reported in 2020 and 2021, which might indicate a tightening of safety measures, as well as a curtailing of the riskier nuclear programs, like the nuclear-propelled, unmanned underwater vehicle, Poseidon (advertised by Putin in a 2018 speech).

Russia's efforts at modernizing its nuclear capabilities have involved a remarkably wide range of projects, which follows the Soviet pattern of developing and deploying multiple weapons systems of similar kind and putting the interests of the powerful defense-industrial complex ahead of requests from the military. This desire to get ahead of competitors in the arms race on every level is incompatible with Russia's deteriorating industrial base. Facing a severe economic recession and denied access to crucial Western technologies, Russia faces painful choices on cutting funding for newly launched and half-implemented nuclear programs that will result in debilitating disruptions.



A Yars intercontinental ballistic missile is launched during military drills in February 2022 in this Russian Defense Ministry photo.

Opportunities and limitations

The scale of effort directed toward upgrading and diversifying the nuclear arsenal signals Russia's desire to use it for achieving more ambitious goals than merely deterrence, which could be effectuated with much more modest means. What has constituted a tricky problem for Moscow is the parallel desire to uphold the system of international norms and regulations, first and foremost regarding nuclear nonproliferation, which grants it tangible privileges, such as a permanent seat on the U.N. Security Council. This political proposition of having it both ways — making nuclear weapons into more applicable instruments of policy and presenting itself as an adherent of the arms control system — became clear in Putin's 2018 address to the Federal Assembly, half of which was rather unexpectedly devoted to nuclear rearmament. The animated presentation of a set of six new weapons systems impressed not only

his excitable audience but also Western policy planners. Putin sought to reinforce that impact by adding further emphasis in his 2019 address. He didn't return to this theme, however, in the 2020 and 2021 addresses, focusing instead on his domestic agenda, perhaps recognizing that he could no longer travel down two diverging tracks. The Ukraine war has aggravated this impasse. Putin's barely veiled threats of extra-grave consequences failed to discourage NATO from supplying arms to Ukraine and all but destroyed any vestiges of trust in Russia's commitment to its Nuclear Nonproliferation Treaty (NPT) obligations.

The key targets of Putin's threats to use "wonder-missiles" are European NATO members with anti-nuclear leanings that were reinvigorated with the campaign to promote the 2017 Treaty on the Prohibition of Nuclear Weapons (TPNW). Russia's intent was to deepen and exploit the split between the U.S. and its European allies, similar to its efforts to block and compromise NATO's commitment to building the European missile defense system. The noisy campaign against missile defense was gradually toned down by Moscow in the late 2010s, as Russia deployed S-400 surface-to-air missile systems from Syria to Kaliningrad and tested several advanced anti-missile and anti-satellite weapons, from the A-235 Nudol

interceptor to the S-500 Prometheus (an upgrade of the S-400 system).

In hindsight, Putin's push can be seen as an attempt to exploit European disagreements with former U.S. President Donald Trump's policies, but it failed when NATO managed to take a firm collective stance on holding Russia responsible for violating the INF Treaty and on justifying the U.S. withdrawal. Putin's bragging about new missiles also failed to sufficiently rekindle nuclear fears and instead made it apparent that the framework of the INF Treaty became irrelevant for checking the arms race. As Biden started the work of rebuilding NATO cohesion, he found that key European states were ready to rethink the parameters of deterrence and the scope of their defense efforts. Even states that initiated and promoted the TPNW, such as Norway and Sweden, have opted not to join it because the nuclear threat from Russia was seen — many months before the eruption of the Ukraine war — as compelling evidence for new investments in containment.

Another key aim of Russia's nuclear buildup has been to deter the threat of revolutions. The Kremlin's

Russian soldiers patrol in Mariupol in eastern Ukraine in June 2022.



current obsession with exorcising the specter of “color revolutions” can be traced to the inherent instability of Putin’s autocratic regime, with its spectacular corruption and hostility to reforms. It is his personal preoccupation — cultivated by self-interested courtiers — with the perceived Western sponsorship and manipulation of protests that underpins the idea of deterring this interference with nuclear instruments. In Russian strategic thinking, color revolutions are now defined as a new form of warfare, in which Western incitement of unrest is combined with U.S. long-range, high-precision strikes. Russia conceptualizes a way to counter this “aggression” by possessing a versatile arsenal of nuclear weapons that makes the incitement of unrest too risky, and the use of long-range strikes ineffectual because of missile defense systems and the threat of punitive retaliatory strikes.



A Russian Tu-95MS strategic bomber, foreground, refuels during a patrol over the Sea of Japan and the East China Sea in this Russian Defense Ministry photo.

The risks inherent in this strategy are rather obvious. Not only does it create the potential for accidents, it requires that Russia constantly reinforce the credibility of the implicit nuclear threat, creating a greater risk for conflict. Russia resolutely denies that any strategic proposition resembling the much-debated “escalate to de-escalate” concept has ever existed, and Putin in his capacity as commander-in-chief has ruled out planning for a first nuclear strike, while making plenty of vague pronouncements about a nuclear catastrophe. In-depth research (to which the Marshall Center has contributed) into new features in Russian strategic thinking and its manifestation in military preparations and training reveals that in the course of a conventional war, Russia perceives a nuclear strike aimed at securing a victory (or at least an agreeable outcome) as a feasible and justifiable option. The question about whether the Kremlin might resort to such an option not only under *jus in bello* (currently, to avoid defeat in the

Ukraine war) but also in the course of domestic unrest threatening to dislodge the ruling regime (and perceived by the regime as a hostile action directed from abroad), is not an exercise in thinking about the unthinkable. Persistent recycling by Russian elites of the mind-boggling thesis “Нет Путина – Нет России” (If there is no Putin — there is no Russia) indicates that this question cannot be answered in the negative.

This strategic messaging — loaded with heavy hints — is aimed not only at Western adversaries but also at China, a crucially important but difficult strategic partner for Russia. Some mainstream analysts in Moscow argue that the steady upgrading of security ties since mid-2014 amounts to the emergence of a military alliance, even if formally undeclared, while other analysts point to the security threats emanating from China and the limited pro forma support from Beijing for Moscow’s “special operation” in Ukraine. For the Kremlin, the obvious power inequality in this highly valued partnership, and Russia’s deepening dependency on economic ties with China, constitute a source of grave concern. Russia must turn to its modernized strategic nuclear arsenal, which is far superior to China’s, to balance the power. For that matter, the first joint patrol by two Russian and two Chinese strategic bombers over the Sea of Japan in July 2019 had little real significance (yet caused a serious military incident involving South Korea) and was intended as a show of the greater reach of Russian long-range aviation compared with China’s capabilities. A joint patrol involving four

Chinese (H-6K) and two Russian (Tu-95MS) strategic bombers was held in May 2022 over the Sea of Japan in response to a summit held by the Quad (Australia, India, Japan and the U.S.) in Tokyo.

Putin’s claim in October 2019 that Russia was helping China build a modern early warning system was more about geostrategic posturing than a real step in upgrading strategic ties. What the Kremlin might deliver is Beijing’s engagement in arms control negotiations in a new trilateral setting, something the Trump administration insisted on as a condition for extending the New START. Biden dropped that demand at the Russia-U.S. summit in Geneva in May 2021, but his steady course (undiminished by the Ukraine war) on countering China’s rising aggressiveness implies that any new strategic arms control regime — replacing the New START suspended by Putin and set to expire in February 2026 — must include China. There is scant information in Moscow about the guidelines and parameters of China’s



Ukrainian soldiers fire at Russian positions from a U.S.-supplied M777 howitzer in Ukraine's eastern Donetsk region in June 2022.

fast-progressing nuclear modernization program. But there is a fairly clear understanding that Beijing is not interested in adjusting these guidelines according to any newly agreed Russia-U.S. limits, or in exposing these parameters to external monitoring. There is also a clear impression in Moscow that China would much prefer to see Russia go an extra diplomatic mile toward preserving the remaining structures of arms control and avoid blatant violations of old commitments. If there is one voice that can discourage Putin from contemplating a nuclear escalation of his presently deadlocked and possibly disastrous intervention in Ukraine, it belongs to Chinese President Xi Jinping.

The region where Russia's nuclear buildup generates the greatest security implications — and where China can advance its interests — is the Arctic. The Kola Peninsula, with its extraordinary concentration of nuclear submarines, warheads and radioactive waste, is by far the most nuclearized area in the world, and Russia's high command has for a decade executed a complex program of military buildup aimed at protecting these assets. This sustained militarization undercuts efforts at promoting international cooperation in the High North and interferes with China's interests in the Arctic that are focused on economic and commercial expansion, which defines the conflict-avoidance security perspective. Russia's Nordic neighbors are greatly concerned about the nuclear risks, but China is also perfectly aware that the tests of nuclear-propelled cruise missiles and underwater drones advertised by Putin can only be performed in Northern test sites (such as on Novaya Zemlya), and involve a high probability of radioactive contamination. Some policy analysts in the U.S. mix Russian and Chinese ambitions and military preparations in the High North and argue that the war in Ukraine has brought these two strategic partners closer together. However, China explicitly disapproves of the Arctic's militarization, causing Russia to move with extra care in implementing its nuclear plans in the region. An

underground test of tactical nuclear munitions may constitute part of Russia's planning for accentuating the threat of escalation in Ukraine and compromising, if not destroying, the Comprehensive Nuclear-Test-Ban Treaty of 1996 (which neither China nor the U.S. has ratified). Beijing may be in a position to discourage Moscow from staging this test.

Overall, Moscow's track record for using nuclear weapons as instruments of policy is mixed at best, and the breakdown of the key structures of arms control — caused in a large measure by these experiments in wielding

nuclear instruments — is a serious setback for the policy of upholding Russia's international status. This policy was seriously damaged by Putin's decision to start the war against Ukraine, but his circle of loyal minions promotes the denial of consequences. In a situation with fast-shifting global geopolitical interactions, in which Russia finds itself at a disadvantage due to its eroding economic strength, the besieged autocratic regime, anxious about domestic stability, may see a greater need to rely on its upgraded but underutilized nuclear assets.

War-determined prospects and implications

At the beginning of 2022, Russia's position in the international arena appeared solid and prominent; many Western leaders sought to engage with Putin to discharge the rising tensions around Ukraine. Yet, that show of respect wasn't convincing for the Kremlin, which was worried about the possible growth of domestic discontent caused by its serious mismanagement of the COVID-19 outbreak. The Kremlin believed that after the pandemic, the true status of major powers in the presumed multipolar world would be determined by their economic resurgence and dynamism, capacity for innovation, and the efficiency of their health care systems — and Russia was lagging in all of these components. The size of its nuclear arsenal was a parameter of diminishing significance, and Putin's consistent efforts at promoting its importance included the signing on June 2, 2020, of a decree outlining Russia's policy on nuclear deterrence, the first document of this kind. But those efforts had little impact. The presumption of Russia's forthcoming decline, along with too many misperceptions and miscalculations to be mentioned here, shaped the decision to attack Ukraine.

The war has affected and deformed most global geopolitical and geoeconomic interactions. Yet, it has not undermined the foundations of strategic nuclear stability. Against many expert assessments, the character of warfare

shifted from initial fast-moving operations into old-fashioned positional battles dominated by artillery rather than airpower, while many hybrid features, including the much-anticipated cyberattacks, are barely evident. The war is also increasingly localized in eastern and southern Ukraine. Russia's capacity for horizontal escalation is undercut by the imperative to concentrate all available military resources on the Donbas and Kherson battlefields, and by heavy casualties. Nuclear weapons appear to have no place in these high-intensity conventional hostilities; nevertheless, the war definitely has a complex and evolving nuclear dimension.

The prospect of a nuclear escalation hangs heavy over decision-making by NATO and, more broadly, the Western coalition, which Putin has sought to split with heavy hints about possible disastrous consequences. It is clear that he miscalculated the determination in the collective West to deny Russia a success in its brutal projection of power, and this miscalculation keeps deepening as the U.S. and key European states revise their assessments and supply Ukraine with more powerful weapons systems. The aims of the Western alliance, which is far more united than the Kremlin had anticipated, changed from helping Ukraine resist the massive military onslaught to empowering it to win back occupied territories. This shift necessitates a change in Russian war planning — from achieving a near-total victory to avoiding a sequence of retreats. Because the possibility of defeat requires a practical outlook, the General Staff must prepare a set of countermeasures, which cannot leave out nuclear instruments.

A sudden nuclear strike, even if single-target and low-yield, can only be a measure of last resort to be delivered if Putin's regime concludes that the fiasco of his "special operation" threatens the regime's very existence. A threat of such a strike may, however, be perceived as an effective means to put pressure on the European states. In order to make the threat more real, Putin may decide to cancel the PNI approved by Gorbachev in 1991, allowing the movement of nonstrategic nuclear warheads from central storage areas to bases in Crimea and Kaliningrad. The Kremlin might assume that the U.S. would be reluctant to withdraw from its PNI, while Russian troops could start training for operating nuclear munitions, for instance with the Iskander-M mobile ballistic/cruise missile launchers.

One way to amplify European concerns could be a conventional missile strike on a nuclear power station in Ukraine, for instance in the city of Netishin in western Ukraine. Ukrainian forces could be blamed (as Russia did in August 2022) for shelling close to reactors in Enerhodar, a city captured by Russian troops in March 2022. At the same time, Moscow might try to show a readiness for engaging in talks with the U.S. on strategic stability, asserting that combat operations in Ukraine have no relevance for strategic arms control matters covered by the New START, and that new weapons systems bring an urgency to such talks. Such a stance was intended to boost Russia's profile at the NPT Review Conference, held in New York


in August 2022. After a two-year delay caused by the COVID-19 pandemic, Russia is keen to portray itself as a responsible owner of nuclear assets and a firm supporter of the NPT regime; it is equally keen to shift international attention from the Ukraine war to the Iranian and North Korean nuclear programs, which indeed attracted much discussion at the conference. It will put the blame for the breakdown of the Joint Comprehensive Plan of Action, negotiated in 2015, squarely on the U.S., but proceed with sabotaging all efforts at revising the deal without coming openly to the Iranian side.

Overall, Russia's nuclear policy will inevitably degenerate and become more reckless under the impact of the unwinnable Ukraine war.

Russia might try to further weaken global nuclear norms by withdrawing from the Comprehensive Nuclear-Test-Ban Treaty, which it signed in September 1996 and ratified in June 2000, citing U.S. refusal to ratify (after signing in September 1996) and alleged preparations for conducting a test. In fact, Russia itself has been preparing the Novaya Zemlya site for tests. Moscow has good reason to expect a spike in concerns from Norway, or from Sweden and Finland, who will find little protection from this "hybrid" threat even with membership in NATO.

Overall, Russia's nuclear policy will inevitably degenerate and become more reckless under the impact of the unwinnable Ukraine war. Even before launching this disastrous intervention, Moscow had been looking for ways to maximize political dividends from its massive investments in modernizing the nuclear arsenal. Preventing Russia's use of nuclear weapons demands priority attention from the collective West and NATO in particular, and every use of these instruments as a political threat by Moscow needs to be countered, rather than dismissed as another bluff. The U.S. and its key European allies need to deliver a united message to the Kremlin that reinforces its intention to apply all necessary means to end its aggression.

Russia has encountered far stronger NATO unity and Western solidarity than expected, and it appears now that its only hope for splitting the coalition supporting Ukraine is in the limited application of various nuclear means. NATO members have different exposures to the nuclear threats emanating from Russia, and their societies have different sensitivities to and resilience against nuclear risks. Upholding and consolidating the unity of the Alliance in deterring Russian nuclear blackmail and, quite possibly, in responding to Russia's crossing the nuclear threshold is a difficult task of massive complexity and great urgency. □



A RUSSIAN-BELARUSIAN ALLIANCE

THE PROSPECTS FOR A NUCLEAR FORCES DEPLOYMENT TO BELARUS

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PHOTOS BY THE ASSOCIATED PRESS

ON December 17, 2021, with the publication of its draft agreements on security guarantees, Russia delivered an ultimatum to the United States and NATO: If you refuse to consider Russia's security proposals, a number of military-technical responses can be expected. According to Russian President Vladimir Putin, the general staff of Russia's armed forces developed several responses, the first being the military invasion of Ukraine. Because Moscow considers nuclear weapons to be the basis of its military power, another of those responses may be the deployment of nuclear weapons to Belarus to counter NATO. That possibility became more likely when, after a formal request by Belarusian President Alexander Lukashenko, Putin announced on March 25, 2023, that Russia would deploy nuclear weapons to Belarus, although he provided no timeline. With the potential for nuclear escalation in Europe heightening, it is important to take a closer look at the threats emanating from Moscow's new military capabilities in Belarus.



Russia's defense ministry says this photo shows a Russian Su-30SM fighter pilot flying over Belarus during joint drills in February 2022.

STRENGTHENING MILITARY INTEGRATION

Belarus plays a crucial role in Russia's strategic military planning. It offers a buffer zone against NATO, an operational space and a land bridge to Kaliningrad in the event of a conflict. That is why military control over Belarus is a matter of great importance to Moscow. In 1999, the Regional Group of Forces of Belarus and Russia was established under the Collective Security Treaty Organization (CSTO). It includes all of Belarus' armed forces and the 20th Guards Army of Russia's Western Military District. Until recently, the Russian military carried out temporary tasks in Belarus and participated in exercises, but then returned to bases in Russia. However, the deterioration of NATO-Russia relations prompted Moscow to prepare for the deployment of Russian forces to Belarus. In 2018, Russian foreign minister Sergei Lavrov and then-foreign minister Vladimir Makei of Belarus expressed concern about NATO's military activities and Washington's intention to withdraw from the Intermediate-Range Nuclear Forces

Treaty (INF). Later that year, Putin approved the draft of a new Military Doctrine of the Union State of Belarus and Russia.

However, pressure from Moscow to deepen the integration of the two countries led Minsk to postpone signing the doctrine. That hesitance changed in August 2020 after mass demonstrations by Belarusians dissatisfied with the results of the presidential election, and after the international community's condemnation of the government's harsh crackdown on protesters. Russian Tu-160 strategic bombers began patrolling the western borders of Belarus and Tu-22M3 long-range bombers made simulated bombing runs, adding to European security concerns. In November 2021, Belarus' ministry of defense reported that the Russian strategic bombers would conduct regular flights along Belarusian borders, a move considered to be a reaction to military activity by neighboring countries.

Lukashenko had already approved a new plan for using the Regional Group of Forces. The plan clarified the group's combat composition and weapons arsenal, deployment options

and use of formations and units. Apparently, Moscow and Minsk have also outlined options for the use of nuclear weapons to repel perceived NATO military threats. Alexander Volfovich, secretary of Belarus' State Security Council and former chief of the armed forces general staff, said the Regional Group of Forces is now considered a mechanism of strategic deterrence, as well as a force for repelling large-scale aggression against the Union State. Stanislav Zas, the CSTO secretary-general, also calls the Russian-Belarusian military exercises and the CSTO exercises in Belarus strategic deterrence measures. These statements indicate that the Iskander missile systems of the 20th Guards Army can be equipped as nuclear carriers if necessary.

Also in 2021, the ministries of defense of the two countries adopted a five-year strategic partnership. It consists of more than 160 measures for the military-technical and military-economic integration of Belarus and Russia. Agreements were signed that established three joint military training centers and extended the use of Russian military facilities in Belarus (the Radio Engineering Center at Gantsevichi and the 43rd Communications Center at Vileika).

Moscow's support of the Lukashenko regime during the 2020 mass demonstrations strengthened its military presence in Belarus. Also, amendments to Belarus' constitution that were proposed by Lukashenko and approved in February 2022 mean that Belarus is no longer a neutral and nuclear-free state. Politically and militarily, the country is coming under control of Russia. By July 2022, Lukashenko was openly admitting that a unified army had been created with Russia.

MILITARY DOCTRINE OF THE UNION STATE

The new military doctrine of the Union State, adopted in November 2021, states: "The Russian Federation and Belarus consider any violent actions directed against one of the participants as an encroachment on the Union State, and will take retaliatory measures using all the forces and means at their disposal." In fact, it can be said that Russia now undertakes to ensure the security of Belarus by any means, including with nuclear weapons. This partly duplicates the obligations on collective security within the framework of the CSTO.

The new doctrine reveals what the Union State considers its most serious threats: the deployment of NATO military formations in neighboring states; the refusal of individual states to participate in international arms control treaties; the deployment of strategic missile defense elements; the implementation of the global strike concept; the deployment of weapons in space; and the deployment of strategic nonnuclear precision weapons systems. These dangers are copied from Russia's military doctrine. However, the doctrine says that Russia will counteract these threats by maintaining nuclear deterrence at a sufficient level. There is no mention of that in the Military Doctrine of the Union State. Instead, the Union State is creating and developing the Regional Group of Forces and improving the joint use of military and transport infrastructure facilities. This is confirmed by the Military Doctrine of Belarus, in which the use of force is determined by its international treaties with Russia and is decided by the Regional Group of Forces. In other words, how and by what means the Regional Group of Forces responds

to threats is decided exclusively by Moscow.

One of the main differences between the old and the new version of the Union State's Military Doctrine is that, instead of the unified development of the national armed forces, the new doctrine focuses on the development of a regional group and its joint use. There was an opportunity to create a joint command of a regional group, and there was at one time an item on preserving national command of troops, but that disappeared. Given that the regional group includes all the armed forces of Belarus, the new doctrine gives Moscow the opportunity to integrate the armed forces of Belarus into the armed forces of Russia. The practice of operational control of Belarusian troops has already been worked out by the Russian command at various joint Russian-Belarusian exercises. As for nuclear weapons, nothing is mentioned in the new Union State Military Doctrine about the reasons for their use; it remains solely Moscow's decision. At the same time, nuclear weapons have become an important factor in deterring even conventional military conflicts.

TACTICAL NUCLEAR WEAPONS

The role of nuclear weapons as a means of preventing large-scale aggression was revealed during Russian-Belarusian military exercises. In the 1990s, against the backdrop of a sharp reduction in conventional armed forces, Russia's dependence on its nuclear forces became more pronounced. The general belief was that the Russian conventional armed forces had limited combat usefulness in the event of large-scale aggression against Russia or one of its allies. This was due to both a decrease in the size of the armed forces and their technological obsolescence. Tactical nuclear weapons, designed for limited strikes during battle, became operational weapons. Moreover, the Russian foreign ministry considered the redeployment of tactical nuclear weapons to Belarus and Kaliningrad and to naval vessels in the Baltic Sea as a response to NATO's expansion. While that did not happen, the Zapad-1999 exercise simulated an attack by Western forces on Belarus and the first use of nuclear weapons to deescalate such a conflict. The exercise had bombers launching cruise missile strikes against operational targets to put an end to a local conflict before it escalated into an exchange of the larger, more lethal strategic nuclear strikes. It confirmed that Russian nuclear weapons would protect Belarus if necessary. Two years later, the use of nuclear weapons to prevent large-scale aggression became part of the Military Doctrine of the Union State.

Russia's interest in using tactical nuclear weapons to repel aggression against Belarus became evident during the joint Union Security-2004 military exercise. As part of the exercise, virtual strikes with tactical nuclear weapons were part of a plan to repel a surprise offensive by superior enemy forces, an indication that the weapons could be used against enemy troops. The creation of the Iskander missile system provided further evidence of Russia's growing interest in tactical nuclear weapons. The system is capable of delivering a nuclear warhead and is considered a replacement for the Russian Oka missile system removed during the INF Treaty's implementation. In 2006, Lukashenko confirmed that tactical nuclear weapons could be used in the event of aggression against Belarus. Over

the years, strategic Russian-Belarusian military exercises, such as Zapad-2009, Zapad-2017 and Zapad-2021, have confirmed the possibility that such weapons could be used in a conflict.

Until recently, nuclear weapons were considered part of Russia's military theory. Now, with Belarus' increasing military dependence on Russia and the deployment of the Iskander and Su-24 platforms, all joint and national exercises between the countries will include a nuclear component, increasing the pressure on the West by making the nuclear threat that much greater.

RUSSIAN MILITARY BASING IN BELARUS

If Russia deploys nuclear warheads to Belarus and creates a base for their storage, this will become a mechanism for the permanent presence of Russia's armed forces in Belarus. Russia has long wanted to have a military base in Belarus because it would improve its forward presence and serve as leverage over Belarus' leadership.

Sergei Shoigu, Russia's defense minister, first announced the possibility of opening a Russian air base in Belarus in April 2013. The rationale, according to Shoigu, was "the need to confront a new range of challenges and threats." An agreement for the air base was expected to be signed in 2015. A draft agreement indicated that Russia would be allowed to deploy all types of weapons to Belarus (including weapons of mass destruction) at any time and in any quantities, and under Russia's full jurisdiction. However, Russia's annexation of Crimea in February 2014 caused Lukashenko to fear for his own power and he ended any further integration. Additionally, Belarus was not considered an important target for potential enemies. Lukashenko probably understood that hosting aircraft and missile systems capable of carrying nuclear weapons would immediately turn Belarus into a target.

For example, in March 2021, when the signing of the strategic partnership program restarted talks about a possible Russian military base, Lukashenko opposed it. In August that year he declared that the Russian military base would never be located in Belarus because it could be easily attacked from territory in Poland and Lithuania. Several months later, Belarusian Defense Minister Viktor Khrenin said there was no need for Russian military bases because the two countries had developed different mechanisms for interacting militarily within the framework of the regional grouping of forces.

Apparently, Lukashenko understands that Russia controls the military infrastructure of Belarus. As the invasion of Ukraine has shown, Moscow can choose any airfield and base in Belarus, gain a foothold there and use it for its own purposes. This means that nuclear weapons deployment to Belarus no longer depends on Lukashenko. Russia can create a nuclear warhead storage base in Belarus under the protection and control of Russia's military.

RUSSIA'S POSITION

The idea of deploying nuclear weapons to Belarus was voiced in 2007. Then, Russia was looking for an answer to the deployment of U.S. missile defense systems in Eastern Europe. Col. Gen. Leonid Ivashov, former head of the Main Directorate



The Russian army's Iskander missile launchers are positioned during drills in Russia in January 2022 in this Russian Defense Ministry photo.

of International Military Cooperation of the Russian defense ministry, offered to deploy tactical nuclear weapons to Belarus, reasoning that the deployment would not turn Minsk into a nuclear power and would therefore not violate international obligations. At the end of 2007, statements were made from Minsk and Moscow about the imminent delivery of the Iskander system to Belarus. Lt. Gen. Nikolai Rodionov, former commander of the Soviet Union's missile defense corps, said the possible deployment of Russian nuclear missiles to Belarus was an adequate response. "In addition to the purely military factor, this would psychologically affect the attitude of the population of Europe to the planned construction of U.S. missile defense facilities on the territory of these countries," he said.

Also in 2007, Alexander Surikov, Russia's then-ambassador to Belarus, said that Russia could place nuclear weapons facilities in Belarus, a contention that is repeated today. Dmitry Peskov, Putin's press secretary, said the possible deployment by NATO countries of nuclear weapons to Eastern Europe would require an appropriate response. After Lukashenko said in November 2021 that he might accept nuclear weapons in Belarus, Lavrov said the West should consider the statement "as a very serious warning which is dictated, first of all, by the reckless policy pursued by the West." In other words, Moscow is considering the possibility of deploying nuclear weapons to Belarus and expects that such a threat will have an impact on the West. By the end of December 2021, Russia's foreign ministry said it would allow the deployment of nuclear weapons to Belarus if negotiations between Russia and the U.S. failed. When negotiations did not take place, and Russia entered into an active confrontation with the West, the deployment of certain weapons to Belarus became a foregone conclusion.

BELARUS' NUCLEAR RHETORIC

At the "For a Future without Terrorism" conference in Minsk in 2019, Lukashenko announced that Belarus is a full participant in the INF treaty. "We have not left it and do not intend

to produce or deploy such missiles if they do not threaten our security. There is no such situation yet. I hope it won't be," he said. However, Lukashenko believes the situation has changed.

After the international condemnation of Lukashenko's brutal suppression of the mass demonstrations in protest of the 2020 presidential election in Belarus, he began to believe that there was a threat to the country's security, and that NATO is systematically building an offensive military infrastructure along his country's borders. When he learned in November 2021 about the possible transfer of American nuclear weapons from Germany to Poland, he told the Russia Today news agency that he would propose to Putin the return of nuclear weapons to Belarus.

Several months later, Lukashenko warned that threats to Belarus would be met not only with nuclear weapons, but also with "super-nuclear" weapons in Belarus. In April, after Russia invaded Ukraine and after learning that Polish leaders had said they would be open to hosting U.S. nuclear weapons, Lukashenko pressed Putin for information about reports that the West planned to attack Russia through Ukraine and Belarus. In June 2022, he expressed concerns about U.S. and NATO aircraft capable of carrying nuclear warheads.

Addressing the National Assembly on March 31, 2023, Lukashenko said that he would preserve and ensure sovereignty and independence in any way possible, including with a nuclear arsenal. However, this was an attempt to convince the Belarusian population that he would be in control, although that stopped being true long ago. In addition, Lukashenko has stated twice in the past 16 months that Soviet-era Topol strategic missile sites had been restored to

be fully operational. This bragging is an attempt to raise his profile in the eyes of the West and to show Putin that he is a loyal partner who is ready to increase his country's role in Russia's conflict with the West. In fact, most of the nuclear sites in Belarus have been destroyed, and the deployment of ICBMs in Belarus would have no military value. Strategic missiles located in Russia have the necessary range, and deploying them in Belarus is financially burdensome.

RUSSIA'S ANSWER

In June 2022, Putin raised the stakes in his confrontation with the West by deciding to re-equip Belarusian aircraft to carry nuclear weapons, and to transfer to Belarus the Iskander missile system capable of launching ballistic and cruise missiles that are either conventional or nuclear. Months later, Lukashenko confirmed that Russia had transferred the Iskander system to Belarus, and that Su-24 aircraft had been retrofitted and Belarusian crews were being trained. Belarus also received an unspecified number of Russian S-400 anti-aircraft missile systems. Together with the Su-30SM fighters and Protivnik-GE radar, this indicates that Moscow is creating a safe zone in Belarus for its weapons, some of which may be nuclear.

Moscow had refused Lukashenko's previous requests for the Iskander missile system. Russia's decision to supply Iskanders may have been a response to the U.S. sending its High Mobility Artillery Rocket Systems to Ukraine. It could also be a warning to the West not to provide Ukraine with nuclear warheads. Based on Putin's statements and those of Col. Ruslan Chekhov, head of the Missile Troops and Artillery Department of the Belarusian General Staff, it appears that

A police officer stands guard as Russian S-400 anti-aircraft missile system launchers are inspected on the eve of a Victory Day military parade in St. Petersburg, Russia, in 2022.



Russia has taken the unprecedented step of transferring the Russian version of the Iskander system to Belarus rather than an export version. If so, Russia is in violation of the Missile Technology Control Regime (agreed to by 35 countries, including Russia), which prohibits the export of missiles with a range of more than 300 kilometers. However, Russia may try to circumvent this by saying that the complex remains owned by Russia and is under the control of the Russian military.

Minsk cannot buy the missile systems on its own, meaning Moscow expects something in return; for example, the permanent presence of the Russian military in Belarus at the nuclear weapons storage base. In November 2019, Zas, then-secretary of state of the Security Council of Belarus, said that Russia proposed to place an air force base in Belarus in exchange for assistance in acquiring 12 Su-30SM fighters. In telephone conversations in February 2022, Lukashenko and Putin assured French President Emmanuel Macron that they were not going to deploy nuclear weapons to Belarus. However, by March 2023, the situation had changed for Putin. His war against Ukraine is failing and support for Ukraine from the West is holding firm.

That led to Putin's announcement that nuclear weapons will be moved to Belarus along with the Iskander missile system, and that 10 Belarusian aircraft would be equipped to carry nuclear weapons. In addition, it was announced that the construction of storage sites for tactical nuclear weapons would soon be completed. Realizing that nuclear weapons are a sensitive topic for the U.S. and Europe, Putin sees this as a significant card to play in his conflict with the West. Putin hopes the U.S. will recognize the threat posed by nuclear weapons in Belarus and agree to Moscow's conditions in Ukraine. Putin does not say when nuclear weapons will be in Belarus and for how long. This is meant to maintain permanent pressure on the West while allowing Putin to step back from the delivery if the war ends on his terms.

CONSEQUENCES

The Russian Foreign Ministry says this is not about transferring nuclear weapons. The Russian Defense Ministry says it will maintain control over the storage, movement, security and safety of nuclear warheads in Belarus. Thus, according to Moscow, the NPT will not be violated. As of April 2023, there was no information about the possible movement of nuclear warheads from Russia to Belarus. However, the appearance of nuclear-capable carriers such as the Su-24 and Iskanders in Belarus will inevitably raise questions about the type of warheads on their missiles. No international treaty limits tactical nuclear weapons.

The Iskander is a dual-use system capable of carrying nuclear and conventional warheads. Dual-use weapons have common technical and operational features. Their deployment in Belarus is dangerous because there is no safe way to exclude the installation of nuclear warheads on nonnuclear missiles, and no reliable way to distinguish between a nuclear and a nonnuclear warhead after launch and before hitting the target. Thus, Russia is blurring the differences between conventional and nuclear weapons to complicate an enemy's response calculations. Even without the deployment of nuclear warheads, Moscow creates a threat level close to that if they were actually deployed.



Belarusian President Alexander Lukashenko, left, meets with Russian President Vladimir Putin in St. Petersburg, Russia, in June 2022.

Cultivating ambiguity carries the risk of an unintended escalation of conflict because of the potential misunderstanding of the enemy's goals and the potential consequences of strikes inflicted by dual-use systems. In addition, an armed attack on Belarus, as a member of the Union State, would be considered an attack on Russia. This probably lowers the threshold for the use of nuclear weapons by Russia. Putin seems not to trust Lukashenko, and because of this he will probably delay the deployment of nuclear warheads to Belarus. However, Russia has made Belarus completely dependent. Russia can complete a storage base, and deliver nuclear warheads and service them, increasing the risk of a nuclear conflict. Regardless of the type of warhead, Russia's nuclear-capable carriers will be closer to NATO territory, and a significant number of European territories will fall under potential strike range with a short flight time.

Countermeasures will be required to ensure the survivability of potential Iskander targets in Europe. It is likely that NATO may have to consider a preemptive strike if preparations for a launch are identified. However, even a strike by conventional weapons can carry the danger of nuclear escalation. Tactical nuclear weapons can be accidentally attacked because they are located on the same bases as general-purpose forces and weapons, and their carriers are dual-use delivery vehicles. While tactical nuclear weapons can act as a deterrent to conflict, they also pose a great risk during a crisis.

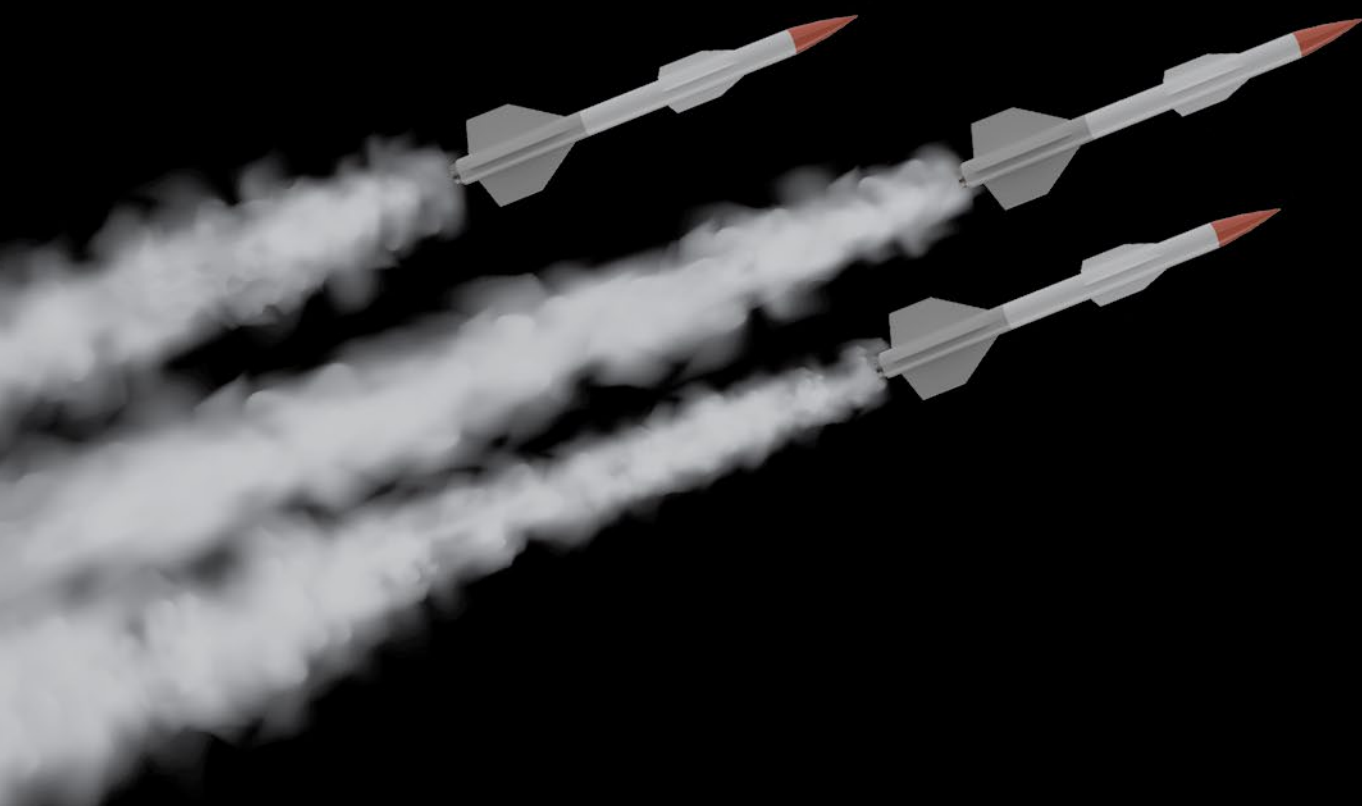
For Russia, from a military perspective, the deployment of nuclear weapons in Belarus does not make a lot of sense. For example, the targets for tactical nuclear weapons may be missile launch silos and radar systems in Poland and Romania. But those targets can also be hit by cruise missiles fired from submarines and Russia-based aircraft. In addition, weapons can be deployed to Kaliningrad and other western regions of Russia. Therefore, the possibility of nuclear weapons deployment in Belarus is primarily a political question. The threat of placing nuclear weapons in Belarus will continue to be used by Moscow as a form of blackmail to achieve its goals in the region. □

Russian Propaganda and Disinformation

The Cold War Foundations of Modern Russian Covert Operations



PER CONCORDIAM ILLUSTRATION



By **Martin Verrier**, associate fellow, Royal United Services Institute

“The Art of War,” written by Sun Tzu in roughly the fifth century B.C., calls for military commanders to avoid direct confrontation, reminding the reader that the most effective campaign is the one that is won by indirect methods to break the enemy’s will to fight before the battle begins. In many ways, this principle remains the main objective of covert actions, propaganda and information operations.

In February 2021, Twitter published a report documenting 373 accounts believed to be part of a coordinated effort by Iran, Armenia and Russia to conduct information operations. The concepts of information operations vary, but most definitions agree that those operations aim to diminish an enemy’s cohesion and willingness to fight. U.S. Joint Chiefs of Staff publications define information operations as the use of “information-related capabilities in concert with other lines of operations to influence, disrupt, corrupt, or usurp the

decision-making of adversaries and potential adversaries while protecting our own.” This definition presents information operations as a two-sided strategy; both offensive and defensive.

Today’s Russian information operations have these same objectives. According to T.S. Allen and A.J. Moore, authors of “Victory without Casualties: Russia’s Information

Operations,” Russia, conscious of its incapability to balance against the United States’ regular military capacities, has relied on its significant expertise in the use of information warfare as an asymmetric method to counterbalance defensively and offensively the West’s primacy in military resources. Unlike

the American case, where information operations primarily support traditional military and intelligence operations, Russia understands information operations as an essential piece of state power projection. It seeks to align military, diplomatic and economic efforts to information operations objectives.

“Hence to fight and conquer in all your battles is not supreme excellence; supreme excellence consists in breaking the enemy’s resistance without fighting.”

– Sun Tzu



Russian tank crews rehearse for a military parade in Moscow celebrating the end of World War II. The parades act as information operations aimed at domestic audiences. THE ASSOCIATED PRESS

For Russia, information operations are valid also as a defensive weapon. In a well-known article, Valery Gerasimov, chief of the general staff of the Russian armed forces, stated that Western powers are the ones that use information operations to affect Russia's interests. In fact, as highlighted by Hans Klein, an associate professor in the School of Public Policy at the Georgia Institute of Technology, both East and West accuse each other of conducting information operations to weaken each other's positions. This struggle can be traced back to the Cold War.

Covert propaganda during the Cold War

During the Cold War, both the U.S. and the Soviet Union relied on propaganda as an information operations tool to undermine and degrade their adversaries' will to fight. By the 1970s, BBC broadcasts to the East bloc were listened to by almost 50% of the Soviet population, despite Soviet efforts to jam these transmissions. It is also true that the West effectively used propaganda to disseminate information on the benefits of capitalism. For example, Western films were used to propagate capitalism's and democracy's benefits, and to demonize communism. In the 1950s, the CIA bought the movie rights to George Orwell's book "Animal Farm" to use as a propaganda tool in the East bloc. Western efforts to undermine communist governments in the East proved detrimental to Soviet performance during the Cold War.

According to Christopher M. Andrew, a history professor from England, and Vasili Mitrokhin, a former Soviet

intelligence chief who defected to the United Kingdom, Soviet information operations during the Cold War were oriented toward achieving three main objectives: the fragmentation of NATO, promoting the communist agenda, and the subversion of nonaligned countries. The primary tool to perform these operations was the KGB-controlled Society for Cultural Relations Abroad. Some of the tactics included false flag operations, such as the attack on Pope John Paul II, which according to Taras Kuzio, professor of political science at the National University of Kyiv Mohyla Academy, was deliberately attributed to a Turkish nationalist who turned out to have links to East bloc intelligence agencies. Other tactics included supporting separatist and nationalist movements by financing information operations, and the intensive use of *dezinformatsiya*, or disinformation, campaigns that included blaming the spread of HIV on the CIA. During the Cold War, a large part of information operations was also oriented toward influencing local populations in the Soviet Union and satellite countries. The main objectives of this strategy were to consolidate popular support, build resilience in case of war and build resistance against the West's information operations, according to Center for European Policy Analysis fellows Irina Borogan and Andrei Soldatov. These can be considered information operation defensive measures.

The Soviet Union also executed information operations in an offensive mode, mainly through the use of active measures, which involve overt and covert operations to influence public opinion. One of the main instruments of this strategy was the

design and exploitation of front organizations that promoted Soviet policies. The World Peace Council, founded in 1949 to promote peace globally, was de facto controlled by the Communist Party and ruled by Soviet officials. The Soviets used this organization to encourage positions against the liberal Western economic order, to aid leftist “liberation” movements and to exploit fears of nuclear weapons in NATO countries, according to the U.S. State Department.

Other active measures included forgery of official documents and reports. For instance, the Soviet Union used authentic official U.S. documents as models to fabricate false war plans designed to build tension between countries. Agents of influence were another tool for conducting information operations. These agents recruited sympathizers, who weren’t aware that they were being used to spread disinformation. The World Peace Council’s campaign, including demonstrations against enhanced radiation weapons in the U.S., was an example of the Soviet use of agents of influence. Finally, the Soviet Union relied on traditional active measures such as distributing misinformation and fake news through conventional media outlets. While these campaigns were directed at domestic news outlets, Soviet agents also targeted the foreign press, inserting falsely attributed material. For instance, the TASS news agency oversaw the global spread of Soviet propaganda. It had a substantial overseas representation with more than 400 staff and correspondents in 126

countries. Many of them were connected to Soviet state security organs, including foreign intelligence.

Information operations in Putin’s Russia

The collapse and disintegration of the Soviet Union led to political turmoil in Russia. Still, intelligence agencies, particularly the KGB (now known as FSB), maintained profound influence on Russia’s political structure. Before becoming Russia’s president, Vladimir Putin was elected prime minister in 1999. He is a former KGB officer and once served as FSB director. His personal experience during the Cold War profoundly shapes current Russian information operations. According to journalist Chris Bowlby, Putin’s worldview was formed by the fall of the Berlin Wall, the disintegration of the Soviet Union and the power vacuum that followed, which he experienced while serving as a KGB officer in East Germany in 1989. The disintegration of the Soviet Union, which many Russian scholars think resulted from Western information operations, may have reinforced his vision on the crucial role that these types of operations would have in the future. In particular, the Soviet collapse demonstrated how vulnerable a country can become when its leadership breaks. This is absolutely linked to the new way in which Russia conducts information operations. While they remain a centerpiece of Russia’s foreign policy activities, today’s information



A Russian living near the Ukrainian border speaks with a journalist in February 2022. The government’s propaganda portrays the invasion as righteous and limited. AFP/GETTY IMAGES



operations aim to have a kinetic effect in addition to the traditional subjective influence on an adversary's social cohesion. Russia's seizure of Crimea in 2014 provides paradigmatic examples of the four distinct characteristics of contemporary Russian information operations that differentiate them from those of the Cold War era, not only for achieving strategic objectives but also for ensuring tactical victories.

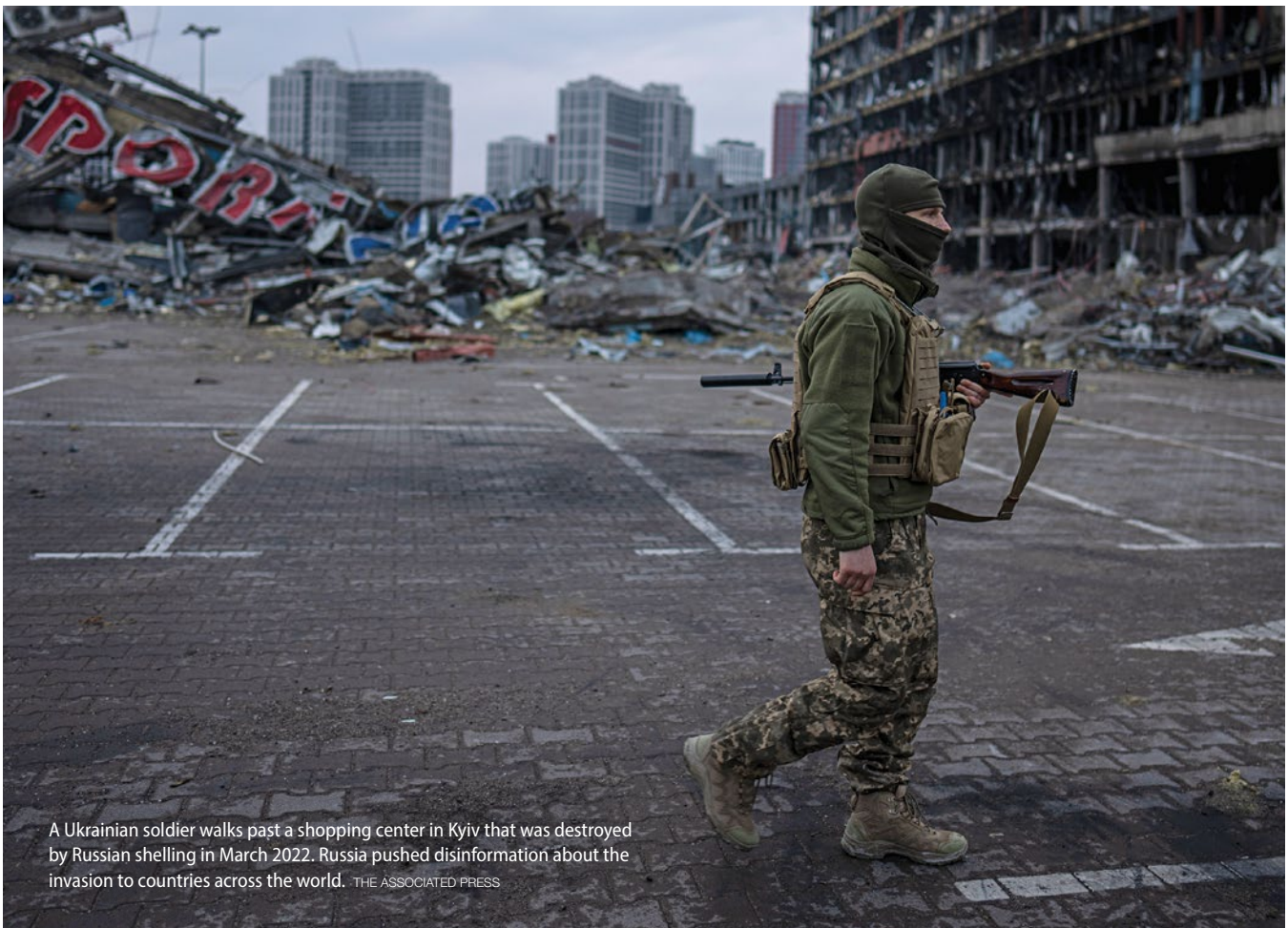
First, Russia increasingly controls mass media to distribute and propagate its messages by developing news outlets that act as agents of Russian influence. For example, Russia Today (RT) broadcasts to more than 100 countries and has been marked for its involvement in Russian information campaigns. A recent report by the U.S. Office of the Director of National Intelligence found that RT news outlets played a vital role in the Russian strategy to meddle in the U.S. national elections in 2016. According to the report, RT mixed real information, hacked information, and fake or false information while amplifying its messaging through social media to undermine the U.S. public's faith in the democratic process.

Second, modern information operations aim to control the Russian diaspora in former Soviet republics. Russia uses information operations to create a false narrative of aggression against Russian diaspora communities to justify subsequent military actions. These operations aim not only to justify this narrative internally, but also to legitimize it in international

eyes. In Georgia (2008) and Ukraine (2014), to justify its interventions, Russia had been conducting information operations for years before actually deploying troops.

Third, social media has given a whole new meaning to Russian information operations. Social media outlets such as Facebook and Twitter are used to propagate narratives that appeal to emotions deeply rooted in Russian social psychology. The use of emotional stories reinforces the potent ideas of the glorious Russian past and Russia being a victim of adversaries' aggression. For example, Chris Collison, from the Jackson School of International Studies, states that during the Crimean campaign, Russian media made the fantastical claim that Ukrainian soldiers had crucified the child of a family who supported the Russian intervention. According to Julien Nocetti, a research fellow at the French Institute of International Relations, Russia employed a similar strategy to attribute a gas attack in Syria to Syrian opposition forces.

Finally, Russia operates information campaigns as a tool of hybrid warfare operations. There isn't a unique definition of hybrid warfare. The Norwegian Institute of International Affairs defines it as "the synchronized use of multiple instruments of power tailored to specific vulnerabilities across the full spectrum of societal functions to achieve synergistic effects." Russia has successfully conducted information operations that created mayhem in the adversary's military and corrupted its



A Ukrainian soldier walks past a shopping center in Kyiv that was destroyed by Russian shelling in March 2022. Russia pushed disinformation about the invasion to countries across the world. THE ASSOCIATED PRESS

RT staff prepare for a visit by Russian President Vladimir Putin to their Moscow studio. RT has been identified as an agent of Russian government influence. THE ASSOCIATED PRESS



chain of command. In Crimea, Russia's use of information operations, combined with parastatal troops, special forces and the active role of the Russian diaspora, rendered local Ukrainian armed forces virtually useless. The local Ukrainian military faced unidentified troops and civic-military demonstrations, received confusing information from mass media, and found its communication channels with other units had been jammed. As a result, local units didn't fight, and just one Ukrainian soldier was killed. Russia achieved an almost flawless victory according to Sun Tzu's definition.

Contemporary Russian and Soviet Cold War operations

Russia uses information operations to asymmetrically balance the West's capabilities, promote its own interests abroad and consolidate the domestic political scene. It has shown the world how a conflict can be won with little violence, by breaking the enemy's leadership and creating a massive fog of war. Russia has also proved how effective information operations are at deepening preexisting societal fractures and how that can affect democracy and even the rule of law. Additionally, it has proved to the world how social media plays a vital role in propagating cleverly tailored messages and how traditional media can be used to spread disinformation or misinformation. Russia has shown that information operations can have more tangible results than in the past and may be used in a kinetic way with immediate tactical results.

Contemporary Russian information operations are

deeply rooted in their Soviet predecessor. As in the Soviet past, the Russian government still considers itself a victim of Western information operations to undermine its sphere of influence. Mark Galeotti, a writer and lecturer on Russian security affairs, argues that Russian authorities see the United States' push for transparency, democratization and the fight against corruption as tools of subversion, which can be linked to Ukraine, Georgia and the Balkan states moving politically closer to the West. This is not the only link to the past. RT can be traced back to TASS and APN, media outlets that distributed tailored Soviet information around the world. With its speed, social media has revolutionized the way disinformation is spread. But the objectives remain similar to those of the Cold War agents of influence. Moreover, the current trend of using information operations to influence the Russian diaspora abroad is intimately related to its defensive countering of Western information operations in the East bloc during the Cold War.

One factor in Russia's modern use of information operations is that it can be used at a tactical level, encompassing military actions and achieving kinetic power that can weaken an adversary's armed forces. Still, this unique characteristic was developed as a result of a phenomenon that can also be traced back to the Cold War: Russia's inability to compete on equal terms with the West in the conventional military arena. For Putin, Sun Tzu's principle of winning without fighting has turned out to be not an option but a necessity, even though it apparently does not exclude the use of kinetic means. □

CHINA'S GROWING NUCLEAR CAPACITY



PER CONCORDIAM ILLUSTRATION

AN AGGRESSIVE MISSILE BUILDUP SIGNALS A SIGNIFICANT POLICY SHIFT

By **Dr. Brian G. Carlson**, head of the Global Security Team at the Center for Security Studies

China's growing nuclear capacity is a subject of concern for the United States and its allies and partners around the world. Although China's government denies it, evidence of a large-scale nuclear buildup is accumulating. The motivation for this buildup appears to be a desire among China's leaders to preserve the credibility of their nuclear deterrent and assert their country's place in the world. In 2021, satellite images showed that China was constructing about 300 missile silos in western and north-central China that could eventually be filled with intercontinental ballistic missiles (ICBMs). This revelation served as further evidence in support of recent U.S. assessments that China was planning a major expansion of its nuclear arsenal. The 2018 U.S. Nuclear Posture Review argued that China's nuclear modernization and lack of transparency raised questions about the country's future intentions. A U.S. Department of Defense report in 2020 projected that during this decade, China would at least double the size of its nuclear warhead stockpile, which the report estimated at the time to be in the low 200s. In August 2021, Adm. Charles Richard, commander of U.S. Strategic Command, which is responsible for U.S. nuclear forces, said China was engaged in conventional and nuclear buildups that were "breathtaking" and constituted a "strategic breakout." A Pentagon report in 2021 on China's military raised its estimate of the pace of China's nuclear buildup, projecting that China could have 700 deliverable nuclear warheads by 2027, and 1,000 warheads by 2030.

The buildup marks a dramatic departure from China's record over the past several decades. Following its first successful nuclear test in 1964, China adopted the doctrine of minimum nuclear deterrence. This doctrine entailed the renunciation of arms races with other great powers, a declared

policy of no first use (NFU) of nuclear weapons and the maintenance of the minimum level of nuclear forces needed to ensure the credibility of China's nuclear deterrent. With this course, China aimed to protect itself against nuclear threats and blackmail while avoiding the diversion of resources desperately needed for economic development. China adhered to the doctrine of minimum deterrence for several decades after 1964, though it began a gradual modernization of its nuclear arsenal in the 1980s.

THE BUILDUP MARKS A DRAMATIC DEPARTURE FROM CHINA'S RECORD OVER THE PAST SEVERAL DECADES.

By the early 2000s, China most likely possessed only a few dozen nuclear weapons that could strike the U.S., all of which were silo-based, leaving them vulnerable. Since then, China has made significant strides in the modernization of its nuclear forces. It has deployed road-mobile ICBMs, equipped some of its strategic missiles with multiple independently targetable re-entry vehicles (MIRVs), and deployed its navy's first viable ballistic missile submarines (SSBNs). China also increased the size of its nuclear arsenal, though at least until recently it still appeared to maintain a "lean and effective" nuclear force rather than striving for numerical parity with the U.S. and Russia. For years, China has worried that U.S. missile defense systems, high-precision conventional weapons and nuclear modernization could undermine the credibility of its nuclear deterrent. Until recently, however, Chinese officials believed



THE ASSOCIATED PRESS

Fu Cong, center, director-general of China's Department of Arms Control, denies at a press conference in January 2022 that his government is rapidly expanding its nuclear arsenal.

Satellite imagery shows intercontinental ballistic missile silos under construction in Yumen, Gansu province, China.



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that they faced no immediate external threat and could respond to these concerns with their own program of gradual nuclear modernization.

This situation appears to have changed in recent years. The 2018 U.S. Nuclear Posture Review raised questions about China's intentions for its nuclear arsenal despite no change in China's official doctrine. China's most recent defense white paper, published in 2019, reaffirms the country's NFU policy. This document adds that China refrains from engaging in nuclear arms races with other countries and maintains nuclear capabilities at the minimum level required for national security. The goal of the country's nuclear arsenal, the document states, is to deter other countries from using or threatening to use nuclear weapons against China.

China's declaratory policies, however, appear to reflect a lack of transparency regarding its actual intentions. Despite the mounting evidence that China is conducting a nuclear buildup of unprecedented size and scope, the Chinese government has remained largely silent on the issue. Official Chinese media sources have disputed Western reporting on the construction of the missile silos, even suggesting that they may instead be windmills. Even many Chinese nuclear experts appear to be in the dark about the silos and about China's nuclear buildup. Reports of the silo construction first emerged during the summer of 2021, when researchers at the James Martin Center for Nonproliferation Studies at Monterey, California, which is associated with the Middlebury Institute of International Studies, obtained commercial satellite images showing 119 nearly identical construction sites in the desert near Yumen, a city in China's central Gansu province. According to reporting by The Washington Post, the construction sites had many common features with

China's existing launch facilities for its nuclear-tipped ICBMs. The Middlebury Institute's Jeffrey Lewis, an expert on China's nuclear arsenal who was part of the team that analyzed the images, said China would probably deploy the DF-41 ICBM in some of the silos. The DF-41 can carry multiple warheads and has a range of up to 15,000 kilometers, allowing it to reach the U.S. mainland.

Researchers are unsure how many missiles might eventually end up in the silos, however. China has used decoy silos in the past and could use some of the new ones to create uncertainty about the location of its silo-based ICBMs, which could be vulnerable to U.S. counterforce strikes. Additional satellite images showed similar silo construction near Hami in the western province of Xinjiang and near

Ordos in Inner Mongolia, for a total of about 300 silos. According to most estimates, China's current nuclear stockpile most likely is 250 to 350 warheads. Therefore, deploying DF-41s equipped with MIRVs in any significant number of the newly constructed silos would constitute a notable increase in the size of China's nuclear arsenal.

The U.S. government's concerns about China's possible nuclear buildup were growing in the years leading up to the emergence of the satellite images showing the silo construction. In May 2019, Lt. Gen. Robert P. Ashley Jr., then the director of the U.S. Defense Intelligence Agency, predicted that both Russia and China would expand their nuclear arsenals significantly, with China most likely to at least double the size of its nuclear stockpile. The U.S. has sought to involve China in nuclear arms control negotiations, but so far China has refused. Chinese officials argue that the U.S. and Russia should first reduce their nuclear arsenals to levels approaching that of China's arsenal.

Vehicles carrying DF-41 ballistic missiles roll past the Great Hall of the People in Beijing to commemorate the founding of communist China. THE ASSOCIATED PRESS



During its final year, the administration of former U.S. President Donald Trump unsuccessfully sought Russia's assistance in bringing China into a new arms control treaty. In making its case to Russia, the administration shared unprecedented amounts of classified information about China's nuclear arsenal, including projections of its rapid growth. But Russia declined to apply pressure on China, its strategic partner. U.S. President Joe Biden's administration has sought to engage China in a dialogue on nuclear issues. However, China has little incentive to join international arms control negotiations. Unlike Russia, which has traditionally viewed international arms control as a means of maintaining nuclear parity with the U.S., China views arms control as a trap that could lock in its nuclear inferiority and stifle its rise.

Russia has also joined China in calling for the U.S. to refrain from deploying land-based intermediate-range missiles in Asia after the demise of the Intermediate-Range Nuclear Forces (INF) Treaty, from which the U.S. withdrew over Russia's noncompliance. China, which was not a party to the INF Treaty, maintains a large stockpile of INF-range missiles that are at present mostly conventionally equipped.

The Pentagon's 2021 report on China's military described its efforts to establish a nuclear triad. In the assessment of the report's authors, those efforts may have succeeded. The People's Liberation Army (PLA) is making large investments in, and expanding the number of, its land-, sea- and air-based nuclear delivery platforms and the supporting infrastructure. The report found that the PLA's Strategic Rocket Force (PLARF), which is responsible for China's land-based nuclear and conventional missiles, was enhancing its strategic deterrence capabilities.

The PLARF is improving its nuclear-capable missile forces by developing new ICBMs with MIRV capability. The Pentagon report noted the construction of the missile silos and China's likely intention to use them for the deployment of solid-fueled ICBMs, such as the DF-41. China's inventory of road-mobile DF-26 intermediate-range ballistic missiles (IRBMs), which have a range that the INF Treaty prohibited the U.S. and Russia from possessing, is also expanding. These missiles, which can avoid detection by satellites, are capable of conducting nuclear precision strikes against ground targets and conventional strikes against naval targets. In 2020, China fielded the DF-17, a medium-range ballistic missile that is capable of mounting the DF-ZF hypersonic glide vehicle (HGV), making this China's first operational hypersonic weapons system.

The PLA Navy (PLAN) continues to modernize its submarine force. The PLAN has built six Jin-class ballistic missile submarines (SSBNs) of Type 094, which establish China's first credible sea-based

nuclear deterrent. Each of these Jin-class submarines can carry up to 12 JL-2 submarine-launched ballistic missiles (SLBMs). China's next-generation Type 096 SSBN is expected to carry a new type of SLBM. In the Pentagon's assessment, construction of the Type 096 SSBN, which will be in operation concurrently with the Type 094, may have begun at the beginning of this decade. By 2030, China could have eight SSBNs. In addition to the improvements in its ground- and sea-based nuclear capabilities, China is also building the airborne leg of its nuclear triad. In October 2019, the PLA's Air Force (PLAAF) publicly identified the H-6N as its first nuclear-capable air-to-air refuelable bomber. The H-6N can carry an air-launched ballistic missile (ARBM) that may be nuclear capable. China is also developing a stealth bomber that will have a nuclear mission in addition to its conventional role.

China's motivation for this nuclear buildup appears to reflect specific concerns about the country's nuclear deterrent and a broader desire to ensure that China has sufficient military power to command respect at a time of growing competition among the world's great powers. Lewis, the Middlebury Institute's expert, argues that one of China's primary objectives in building the missile silos for likely DF-41 deployments is to maintain the credibility of its nuclear deterrent. China aims to ensure that its nuclear forces could survive a U.S. first strike in sufficient numbers to launch a retaliatory strike that could overcome U.S. missile defense systems.

Chinese nuclear experts also cite the ongoing U.S. program of nuclear modernization as a reason to expand China's nuclear arsenal. The U.S. modernization program aims to upgrade nuclear weapons and delivery systems over the next two decades. Some U.S. delivery systems, including Minuteman ICBMs, have been in service for decades. However, Chinese nuclear experts argue that U.S. nuclear modernization, combined with the development of missile defense systems and high-precision conventional weapons, threaten the credibility of China's nuclear deterrent. Lewis argues that U.S. missile defense and investments in new systems that include an air-launched cruise missile and at least two new types of warheads, are driving China's concerns.

Tong Zhao, a senior fellow at the Carnegie Nuclear Policy Program, argues that Chinese leaders believe Western countries feel threatened by China's rise and now seek to demonize and contain it. The U.S. has identified strategic competition with China as one of the country's foremost national security challenges in the years ahead, and China's tensions with the West have been rising on issues such as human rights, democratic values, the rule of law and international norms. According




to Zhao, Chinese leaders have concluded that their only option is to consolidate their country's power to force Western countries to come to terms with China's strength. An expansion of China's nuclear arsenal appears to be an important part of this effort. Chinese President Xi Jinping, who has consolidated his own personal power to an extent that comes close to one-man rule, has made statements in support of this objective. Shortly after coming to power in 2012, he emphasized the importance of the Second Artillery Corps, as the PLA's missile branch was then known. China later upgraded this branch to a full military service and renamed it the Rocket Force. In March 2021, Xi instructed the PLA to "accelerate the construction of advanced strategic deterrent" capabilities.

Like the Soviet Union during the Cold War, China may now believe that building a strong nuclear force is the only way to achieve political equality with the U.S. In this view, only a strong Chinese military, including a powerful strategic nuclear force, can force the U.S. and other Western countries to abandon their hostility toward China. Zhao identifies worrying signs of a lack of meaningful dialogue on these issues between the U.S. and China, which could lead to a destabilizing nuclear arms race and eventually a dangerous confrontation similar to the Cuban missile crisis.

China's nuclear buildup raises crucial questions about its ultimate purpose. Michael Chase, U.S. deputy assistant secretary of defense for China, wrote in 2019 that several potential pathways lay ahead for China's nuclear policies. First, China could choose to focus exclusively or almost exclusively on assured retaliation. On this pathway, China would most likely adhere to the strategy outlined in its official documents, including NFU, and would probably deploy 300-400 nuclear warheads within the next 10-15 years. Second, China could shift toward "assured retaliation plus." If China were to choose this pathway, then it would aim for assured retaliation plus some more flexible options, at least at the regional level. China might adopt a conditional NFU policy that would lower the nuclear threshold to try to deter conventional attacks against strategic targets. This pathway could entail the deployment of 500-800 nuclear warheads over the next 10-15 years, but most likely without the deployment of tactical nuclear weapons. Third, China could seek nuclear parity with the U.S. and Russia. On this pathway, China would abandon NFU and develop warfighting capabilities. It would deploy 1,000 or more nuclear warheads and might also deploy tactical weapons. The recent evidence suggests that China is pursuing at least the second pathway, and the possibility that it would eventually choose the third pathway cannot be excluded. □

A Chinese 094A Jin-class nuclear submarine maneuvers near eastern China's Shandong province.
GETTY IMAGES



— IMPROVING —

STRATEGIC DETERRENCE

U.S. STRATEGIC COMMAND MODERNIZES ITS CAPABILITIES

By **Brig. Gen. Glenn T. Harris**, U.S. Air Force, and **Maj. John Yanikov**, U.S. Army, U.S. Strategic Command

There is a reason that nuclear deterrence remains the singular most important mission within the United States military. U.S. Navy Adm. Charles Richard, former commander of U.S. Strategic Command (USSTRATCOM), the command in charge of deterring strategic attacks and providing a decisive response should deterrence fail, explains: “Every operational plan in the Department of Defense (DoD), and every other capability we have, rests on an assumption that strategic deterrence will hold. And if strategic deterrence, and in particular nuclear deterrence, doesn’t hold, none of our other plans, and no other capability that we have is going to work as designed.”

To ensure nuclear deterrence remains credible as the bedrock of U.S. national security, it must undergo critical modernization of its traditional triad systems — ground, sea and air platforms that can launch nuclear weapons. In addition, evolving from the conventional operational approach to deterrence to a more robust concept of “integrated deterrence” — in which the capabilities of the nuclear triad are tied to and incorporated with other strategic capabilities such as cyber, space, missile defense and even civilian academia, industry and allies — will help the U.S. maintain its credible nuclear capability for the foreseeable future and ensure stability across the globe.

Nuclear deterrence results from the shared understanding between adversaries that each has a ready and reliable ability to respond in-kind to a nuclear attack. The key traditional component to maintaining nuclear deterrence is fielding viable weapons systems. Today’s U.S. nuclear triad consists of 14 ballistic missile submarines (SSBNs), armed with submarine-launched ballistic missiles (SLBMs), 400 land-based intercontinental ballistic missiles (ICBMs) and more than 60 nuclear-capable heavy



An unarmed Minuteman III intercontinental ballistic missile launches from Vandenberg Air Force Base in California during a test in 2020. U.S. AIR FORCE

bomber aircraft. Collectively, the U.S. triad is intended to ensure that no would-be adversary believes it could launch a strategic attack, under any circumstance, that eliminates the U.S. ability to respond and inflict unacceptable damage. To this end, each of the three legs of the triad provides unique and complementary attributes, making U.S. strategic forces responsive, survivable and flexible.

Minuteman III ICBMs make up the most responsive leg of the nuclear triad. Since 1959, Minuteman missiles have remained on around-the-clock alert, providing a quick-to-respond component of America’s strategic deterrent program. U.S. ICBMs are spread out among 400 hardened underground silos — with another 50 silos kept in “warm” status — assigned to multiple military bases, presenting a targeting problem for any potential

THE SEA-BASED IS THE MOST SURVIVABLE LEG OF THE NUCLEAR TRIAD, IN WHICH THE OHIO-CLASS SSBNS SERVE AS UNDETECTABLE LAUNCH PLATFORMS. THEY ARE DESIGNED SPECIFICALLY FOR STEALTH, EXTENDED PATROLS AND THE PRECISE DELIVERY OF NUCLEAR WARHEADS.



adversary. The hardened and dispersed nature of U.S. ICBMs requires a potential adversary to commit to a massive attack on the U.S. homeland to have a chance of disabling all U.S. ICBMs, thus enhancing deterrence.

The Minuteman III utilizes a routine “remove and replace” update approach that has allowed it to achieve a 100% alert rate since it was first deployed. A variety of secure communication systems provide the U.S. president and secretary of defense with highly reliable, virtually instantaneous direct contact with each launch crew. Launch crews in control centers perform continuous alerts with the remote missile-launch sites. Should command capability be lost between a launch control center and a remote missile launch facility, specially configured E-6B airborne launch control center aircraft automatically assume command and control of the isolated missile(s). Fully qualified airborne missile combat crews would execute the president’s lawful orders, making the land-based ICBM leg of the triad also survivable.

However, the sea-based is the most survivable leg of the nuclear triad, in which the Ohio-class SSBNs serve as undetectable launch platforms. They are designed specifically for stealth, extended patrols and the precise delivery of nuclear warheads. On average, the submarines spend about 80 days at sea followed by about 35 days in port for maintenance. Each submarine has two crews, Blue and Gold, which alternate taking them to sea on patrol. This maximizes the submarine’s strategic availability, reduces the number of submarines required to meet strategic requirements, and allows for proper crew training, readiness and morale. Each SSBN carries up to 20 SLBMs with multiple, independently targeted warheads. U.S. SSBNs carry Trident II D5 missiles, which have a 7,000-kilometer range that allows the U.S. to hold any adversary’s hardened and valued assets at risk. SSBNs are also highly mobile and can be moved to a variety of launch points to avoid overflight concerns, providing additional assurance to allies and increasing operational flexibility.

Bombers are the most flexible leg of the U.S. nuclear triad. Consisting of B-52H Stratofortresses and B-2A Spirit aircraft, each platform provides nuclear strike capability within a short time, anywhere on the globe, while evading most adversaries’ advanced defenses. U.S. bombers have nearly unlimited range, given their mid-air refueling capability and, when combined with the range of their air-launched cruise missiles (ALCMs), can reach a high percentage of targets. They can strike any potential target around the world from their U.S. bases, or be forward deployed during peacetime, crisis or conflict; a tangible reminder to potential adversaries of U.S. commitments to quickly defend the security of its allies and partners.

Both of these bombers can carry nuclear and conventional weapons tailored to their missions. The B-52 is capable of dropping or launching the widest array of weapons in the U.S. inventory, including gravity bombs, cluster bombs, precision guided missiles and joint direct attack munitions. The B-2 provides unmatched penetrating flexibility. Its low-observable “stealth” characteristics give it the unique ability to infiltrate an enemy’s most sophisticated defenses and threaten its most heavily defended targets. These bombers can also be loaded or unloaded under compressed timelines, which allows national leadership the ability to call off a strike after aircraft take off, providing more flexibility than ICBMs or SLBMs.



A B-2 Spirit deployed from Whiteman Air Force Base in Missouri in the United States lands at RAF Fairford in the United Kingdom.

TECH. SGT. MIGUEL LARA III/U.S. AIR FORCE

Combined, these nuclear forces are the ultimate foundation of U.S. national security. This is further illustrated through the U.S. government’s commitment to modernize its triad. Although each weapon system receives regular and routine updates to meet changing technologies and evolving mission requirements, all three legs must be modernized (sometimes referred to as recapitalization) to ensure they continue to retain their deterrent capability. This means that existing platforms will be replaced with completely new weapons systems or will be overhauled from the ground up and equipped with the latest technology. Modernization of the nuclear force during the next 20 years will comprise, at its highest point, about 3.7% of the DoD budget, according to department estimates. Recapitalization programs are already in the works and show promise.

Previous and ongoing updates to the Minuteman III missile have allowed it to expand targeting options while improving accuracy and survivability. However, after conducting an analysis of alternatives, the U.S. Air Force determined that continuing to extend the lifecycle of the Minuteman III would cost about the same as a new,

The Ohio-class ballistic missile submarine USS Nebraska test fires an unarmed Trident II D5 missile off the coast of California in 2018. U.S. NAVY



An artist's rendering of a Columbia-class U.S. ballistic missile submarine that will replace the Ohio-class submarines.

U.S. NAVY ILLUSTRATION

replacement ICBM. In addition, a new ICBM would better meet future requirements while lowering the cost of sustainment over the weapon system's lifecycle. Therefore, the DoD has declared the new Ground Based Strategic Deterrent (GBSD) program, named "Sentinel," to be the future of the ICBM program.

Sentinel will feature a modular architecture that can incorporate emerging technologies in order to adapt to rapidly evolving threat environments. This feature will save money and help the program operate well into the 2070s. The Sentinel program will not only replace the Minuteman III missile, but will also modernize the launch facilities, improve command and control, and increase safety and security. The program will begin this modernization process in 2029.

The sea-based leg of the U.S. nuclear triad is also scheduled to benefit from updated and new weapons systems. After serving longer than any other U.S. nuclear submarine, the 14 Ohio-class SSBNs will be replaced by at least 12 new Columbia-class SSBNs in the coming years. The move will bring advances in navigation, maneuverability, command and control, and quieting technologies. The Columbia-class will likely be the stealthiest submarine to date. It features a nuclear reactor that does not need to be refueled midlife, reducing operational costs while still meeting mission requirements.

In lieu of developing a new SLBM, both the U.S.

Columbia-class and the United Kingdom's Dreadnought-class submarines will utilize the current Trident II D5 SLBM. This joint effort is saving both countries hundreds of millions of dollars while providing greater interoperability between allies. The Columbia-class SSBNs will carry 16 Trident II D5 SLBMs and are designed to operate well into the 2080s. The Trident II D5 SLBM fleet will continue to operate into the 2040s.

The air-based leg of the nuclear triad is replacing one of its aircraft while updating the other. The B-52, originally deployed in 1961, has undergone a number of life extensions and upgrades, and is still slated to remain in service beyond 2040. The B-2 will first be supplemented in the mid-2020s, and then eventually replaced by the newest strategic bomber, the B-21 Raider, which was rolled out by the Air Force in December 2022. The B-21 is a next-generation, low-observable bomber designed to be long-range, highly survivable, and capable of carrying a mix of conventional and nuclear ordnance. With a planned minimum inventory of 100 aircraft, the B-21 will join the nuclear triad as a visible (unless flying stealth missions!) and flexible nuclear deterrent option.

Additionally, to support the air-based leg of the triad, the AGM-86B ALCM, which was first deployed in 1982 and designed to defeat Soviet threats, will be replaced by the Long-Range Standoff (LRSO) missile — a low-observable cruise missile. The LRSO will have improved capabilities, accuracy, range and reliability

over previous generations of ALCMs, which will increase the probability of mission success while decreasing risk to the aircrew.

The success of all parts of the nuclear triad will not be determined only by the modernization of the weapons systems. Just as important is the modernization of a secure nuclear command, control and communications (NC3) system. NC3 is integral to ensuring that nuclear weapons are always available for instant, deliberate use, but never used mistakenly. The NC3 system performs five crucial functions: detection, warning and attack characterization; adaptive nuclear planning; decision-making conferencing; receiving presidential orders; and enabling the management of the force. The system includes terrestrial and space-based sensors that monitor the globe for threats, and a communications architecture that connects the nation's decision-makers to their nuclear forces under any conditions.

To match the new capabilities achieved by modernizing the U.S. nuclear triad, the current NC3 command and control system is being upgraded to NC3 Next. Adm. Richard explained that NC3 Next is not “a thing,” but a rolling initiative of improvements, over time, to all aspects of this complex network. It is composed of over 200 individual platforms, from radios and terminals embedded in about 60 different systems to satellites used to send encrypted strategic communications to nuclear submarines. It includes the E-6B Airborne Command Post, or the E-4B National Airborne Operations Center aircraft (known as the “Doomsday”) that would take control if ground-based systems become neutralized. Adm. Richard describes it as “a very complex system of systems.”

The modernization of one key node to the system is already complete. In 2019, USSTRATCOM opened its Command and Control Facility at Offutt Air Force Base in Nebraska. As the heart of the nation's nuclear command, the facility was the first step in modernizing the entire nuclear enterprise and will support the modernization of all other strategic assets, including the nuclear triad and NC3. The \$1.4 billion, 85,100-square-meter weapons system is manned by over 3,000 personnel and has nearly 1,050 kilometers of IT cable — longer than the distance from London to Prague — to support the long-term viability and credibility of the nation's strategic deterrent force. It is a living, breathing weapons system designed to change and grow as threats and capabilities evolve, enabling the U.S. to adapt and remain flexible far into the future.

While many details of NC3 Next upgrades are classified, its modernization is as important as modernizing each of the three legs of the triad. In addition to its age (some of the platforms of the legacy NC3 system were developed in the 1980s before the roll-out of the internet), China and Russia have developed capabilities that could potentially threaten the current U.S. NC3 system.

The investment in modernizing these strategic

weapons systems seeks to maintain balance, given China's and Russia's high levels of defense spending to modernize their own conventional and nuclear forces. Nuclear weapons are becoming a more important aspect of China's military strategy and remain a foundational aspect of Russia's. According to Adm. Richard, China is in the midst of a “nuclear breakout” — on track to double (if not triple) its nuclear warheads by 2030 while also undertaking tremendous capability and capacity improvements to its missile defense system. The Russian defense ministry has said that 90% of the country's strategic nuclear forces have already been modernized in recent years.



An artist's rendering of a B-21 Raider in a hangar at Ellsworth Air Force Base in South Dakota in the United States, one of the bases expected to host the new stealth bomber. NORTHROP GRUMMAN

Russia and China each have their own nuclear triads, but Adm. Richard cautions against simple comparisons of stockpile sizes. “A nation's nuclear stockpile is a crude measure of its overall capability. We must consider the delivery system, accuracy, range, readiness, training, concept of operations and many other things to fully understand what a nation is capable of doing. Yes ... we have a larger stockpile than China does right now. But two-thirds of what we have is operationally unavailable to me due to treaty constraints. And I have to deter Russia and others, including outliers like North Korea, with what we have, all at the same time.” For that reason, any comparison to the bipolar Cold War, where the U.S. was in nuclear parity with only one peer nation, is lacking. Today's strategic environment is characterized by two nuclear-capable peers that want to change the world order, and one, the U.S. (with our allies), that wants to defend that world order. Both China and Russia have the ability to unilaterally escalate a conflict to any level of hostility, in any domain, in any geographic location, at any time, according to Adm. Richard.

Without the luxury of deterring only one nuclear threat at a time or thinking about each adversary in isolation, it is imperative to view deterrence as more than the

BY CHANGING HOW DETERRENCE IS VIEWED FUNDAMENTALLY, A BETTER UNDERSTANDING CAN BE GAINED ABOUT HOW IT IS STILL APPLICABLE IN TODAY'S ENVIRONMENT, AND HOW IT WILL HELP TO INFORM STRATEGIES WHEN EXECUTING PLANS IN SUPPORT OF A COMMON, COMPREHENSIVE DEFENSE.

modernization of the triad systems and NC3. Moreover, competitor nations continue to develop enhanced capabilities that defy traditional domains and boundaries. An enhanced and expanded view of deterrence looks across all domains, including Integrated Missile Defense (IMD), space and cyber, as well as understanding how partnerships, such as those with allies or with a nation's intellectual and industrial base, are needed to support these capabilities in the future. This integrated deterrence approach provides the inherent flexibility needed to plan and execute tailored strategies for all adversaries.

The integration of missile defense into aspects of the triad, NC3 Next and national nuclear policy increases capabilities and options, and hopefully prevents any conflict from becoming nuclear. IMD is an essential, continuous mission, whether in peacetime, crisis or conflict, helping protect territory, populations and forces against air and missile attacks. The U.S. currently fields three theater-level missile-defense systems to target incoming short-, medium- and intermediate-range ballistic missiles. These are the land-based Patriot Advanced Capability (PAC-3) and Terminal High Altitude Area Defense (THAAD) systems, as well as the sea-based Aegis system, although the Aegis Ashore can also be deployed on land. All three systems target a rocket or missile in its terminal phase — after a warhead re-enters the atmosphere — using different radar and satellite systems to detect, classify and track the threat.

When the right IMD systems are deployed in the right places, it opens up a range of options while denying a potential adversary the benefit of using a missile attack to achieve its aims. To that end, missile defense establishes a more credible deterrence by encouraging restraint of adversaries. In addition, a robust and reliable missile-defense program imposes costs on competitors by forcing them to spend more resources on their missile arsenals.

China and Russia are already working on advanced platforms, such as the Russian dual-use Zircon and Chinese hypersonic glide vehicles, to challenge current terrestrial-based radar architecture. To address the potential for growing imbalances vis-à-vis its main competitors before its capacities are taxed, the U.S. needs a warning system for the 21st century. Research and development

efforts have already begun on the Next-Generation Interceptor, hypersonic glide interceptors, a high-energy laser and other directed-energy technology to complement existing theater-level missile defense systems and counter future missile threats.

Early warning of advanced missiles of all types also needs to be complemented by global planning to achieve strategic integrated deterrence. Competitors' systems are not designed with regard for boundaries, geographic or operational. In addition to a 21st century warning, tracking and neutralizing system, the U.S. will need an alternative posture to account for instances when there is a lack of warning. The ability to command and control missile defense forces underpins their usefulness in deterrence. NC3 Next and Joint All-Domain Command and Control (JADC2) systems are key parts of integrating missile defense and making it more effective for deterrence. JADC2 will provide a means to more quickly share information across the Joint Force, ensuring the best sensors and shooters are available to counter threats to nuclear and conventional forces. The integration of command-and-control with missile-defense systems can help the U.S. deter adversary weapons, such as low-yield nuclear weapons, without needing to match a competitor system for system.

The triad, command and control and IMD are all linked together as key elements of deterrence. In today's multidomain environment, integration happens across space, cyber and "gray zones" (competitive interactions among state and nonstate actors that fall between traditional war and peace). This complex world means the U.S. military cannot do it alone and will need to integrate academic and industry communities to meet the deterrence challenges of today and tomorrow. While today's nuclear threats are different from those of the past, the benefit of investing in intellectual capacity still applies. In the U.S., the Rand Corp. think tank was created entirely to study the two-party problem of the Cold War and explore the details of deterrence theory. Some of that era's greatest minds, such as Thomas Schelling and Herman Kahn, were able to get "outside the box" of traditional military and government knowledge and thinking on the use of nuclear weapons to create the

A THAAD interceptor is launched during a successful test. U.S. MISSILE DEFENSE AGENCY



initial deterrence theories that served the world well for decades thereafter.

USSTRATCOM is rethinking operational deterrence theory to include a more comprehensive integrated deterrence philosophy. By changing how deterrence is viewed fundamentally, a better understanding can be gained about how it is still applicable in today's environment, and how it will help to inform strategies when executing plans in support of a common, comprehensive defense. Integrated deterrence philosophy prioritizes the incorporation of U.S. allies and partners into all aspects of collective deterrence.

Allied and partner interoperability preserves freedom of action, increases knowledge and options, and enables effective cooperative defense. Efforts to bolster important strategic relationships with partners continue through war games such as Nimble Titan. More than 20 countries and three international organizations participate in this exercise, which focuses on multinational integration aimed at enhancing interoperability and defense concepts. The collaboration reinforces that the U.S. and its allies can be assured against strategic attack when incorporating these integrated deterrence systems. A strong, integrated nuclear deterrent program with allies also contributes to U.S. nonproliferation goals by limiting the incentive for allies to have their own nuclear weapons.

Multilateral exercises also help deter Russia, China and others from believing they can benefit from using

nuclear weapons, or threatening their use, against the U.S. or its allies and partners. In this way, even with the scale and intensity of changes to the strategic environment, integrated deterrence can help keep the world stable and at peace. With each modernization and advancement in the systems that comprise U.S. and allied integrated deterrence, nuclear competitors and potential competitors should increasingly see the investment as too much to overcome and opt instead for joining the U.S. in reducing prospects for nuclear conflict or miscalculation.

While adversary threats continue to grow, the importance of deterrence endures. However, the U.S. and its allies are no longer approaching nuclear deterrence the same way. It is now being tailored and evolving for the dynamic environment being faced. Today's strategic deterrence requires the integration of capabilities across all domains, throughout the entire U.S. military and outside of it. Above and beyond the nuclear triad, modernizing NC3 systems and investment in other capabilities, such as IMD, will increase options and deterrence.

Deterrence has kept the peace since nuclear weapons were introduced and has sustained the test of time. It continues to underwrite all U.S. military operations and diplomacy across the globe. Integrated deterrence will be the backstop and foundation of U.S. national security for the foreseeable future. □



MODERN DETERRENCE

21st Century Warfare Requires 21st Century Deterrence

By Col. Jeffrey W. Pickler, U.S. Army

Australia will purchase U.S. nuclear-powered attack submarines to help counter China's aggression in the Indo-Pacific.

U.S. NAVY PHOTO PROVIDED TO THE ASSOCIATED PRESS



Introduction

After World War II, the United States and the Soviet Union found themselves competing for power and influence throughout the world. As the Soviet Union consolidated its control over the territory it occupied and the U.S. supported economic and political reform in Western Europe, a different type of war emerged. In contrast to previous wars, which saw hundreds of divisions fighting across thousands of miles of battlefields, peace was now kept not only by the presence of large military formations, but also by the presence of nuclear weapons. The risk of escalation to a conflict greater in scope and scale than ever witnessed led to a “Cold War,” with both countries competing below the threshold of traditional conflict. To help prevent the Cold War from becoming “hot,” the U.S. adopted a policy of deterrence.

The U.S. Department of Defense (DoD) defines deterrence as the “prevention of action by the existence of a credible threat of unacceptable counteraction and/or belief that the cost of action outweighs the perceived benefits.” Effective deterrence requires the capability, will and ability to communicate to counter an adversary’s activities through the threat of denial or punishment. Conventional and nuclear deterrence would be the focal point for U.S. security for the next 50 years as the U.S. sought to achieve its strategic objectives while preventing a full-scale war.

Most analysts agree that deterrence prevented a global war between the superpowers. However, deterrence did not end strategic competition between the U.S. and the Soviet Union; it simply pushed it into areas that limited the risk of triggering an “unacceptable counteraction.” While both superpowers used irregular warfare tactics to achieve strategic objectives, technological limitations consequently minimized the effectiveness and impacts of these tactics. This is no longer the case. The pace of technological change, an interconnected global network and a ubiquitous information environment provide opportunities for states to achieve strategic

objectives below the threshold of conventional war. From the Baltics to the Caucasus, Russia has repeatedly demonstrated how subconventional actions can achieve strategic objectives without fear of an unacceptable counteraction. Russia has incorporated changes in the global environment into a strategy in which cost, attribution and risk of escalation are minimized. Therefore, a deterrence policy focused solely on conventional and nuclear forces is no longer sufficient for limiting Russian aggression.

In his reflections on deterrence in the 21st century, former NATO Deputy Secretary General Alexander Vershbow noted that deterrence “requires effective, survivable capabilities and a declaratory posture that leave the adversary in no doubt that it will lose more than it will gain from aggression, whether it is a short-warning conventional attack, nuclear first use to deescalate a conventional conflict, a cyber-attack on critical infrastructure, or a hybrid campaign to destabilize allies’ societies.” Current U.S. deterrence posture does not consider the 21st century operational environment. For deterrence to remain viable, it must be expanded to address conventional and subconventional attacks.

The Evolution of Deterrence

American nuclear strategist Bernard Brodie famously wrote, “Thus far the chief purpose of our military

establishment has been to win wars. From now on its chief purpose must be to avert them.” Following World War II, the U.S. military began a massive demobilization. The country wanted a peace dividend following the nearly \$4 trillion in military spending during World War II, which consumed 36% of U.S. gross domestic product, according to the U.S. Congressional Research Service. The U.S. compensated for a shrinking military through its monopoly on nuclear weapons and alliances such as NATO, which counts “detering Soviet expansionism” as a primary reason for its creation. These changes in the strategic environment led the U.S. to

U.S. President Dwight Eisenhower, right, with Secretary of State John Foster Dulles, who championed a “deterrence through punishment” strategy that threatened massive nuclear retaliation.
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Deterrence by denial is based on an ability to deter actions by making them either infeasible or unlikely to succeed.
Deterrence by punishment threatens severe penalties, whether lethal, economic or informational, should an attack occur.

adopt a policy of deterrence based on a small conventional military, a strong alliance system and a growing arsenal of nuclear weapons.

Deterrence theorist Thomas Schelling argued that deterrence is not about war, but the “art of coercion and intimidation.” Deterrence theory recognizes two basic approaches. Deterrence by denial is based on an ability to deter actions by making them either infeasible or unlikely to succeed. Deterrence by punishment threatens severe penalties, whether lethal, economic or informational, should an attack occur. Fundamental to both are clearly defined national interests, or “red lines,” typically highlighted in national security documents and communicated by leadership. Schelling argued that an effective deterrence policy must combine the capability and willingness to win at all levels of escalation with a potential adversary, while maintaining open communication channels in order to deliver clear and direct messages to prevent unintended escalation.

U.S. Secretary of State James A. Baker III, third from left, sits across from Soviet Foreign Minister Eduard A. Shevardnadze during arms control negotiations in Moscow in February 1990.

THE ASSOCIATED PRESS

As the administration of U.S. President Dwight Eisenhower evaluated the strategic environment after the Korean conflict, it decided to codify the U.S.’s deterrence strategy given the Soviet

Union’s superiority in conventional forces and the growing U.S. nuclear arsenal. First expressed by U.S. Secretary of State John Foster Dulles in 1954, this new strategy communicated a threat of “direct, unrestrained nuclear response of massive scale in case of communist aggression, possibly aimed at the very centers of the enemy’s economic life.” This view was formalized in National Security Policy Paper 162/2. It outlined the need to maintain “a strong military posture, with emphasis on the capability of inflicting massive retaliatory damage by offensive striking power.” This “Massive Retaliation” strategy was based on “deterrence by punishment,” allowing the U.S. to negate the Soviet Union’s conventional numerical advantage by possessing the capability, and clearly communicating the will, to inflict an unacceptable cost should the Soviet Union or any other potential aggressor initiate any action which threatened U.S. national interests.

As the Soviet Union achieved nuclear parity with the U.S. and both powers further developed their arsenals and capabilities, the U.S. was forced to reconsider the effectiveness of its deterrence policy. Massive Retaliation changed to “Mutually Assured Destruction” (MAD), but critics labeled MAD a geopolitical suicide pact that limited national leadership’s ability to control the escalation of all emerging crises. Retired U.S. Army Chief of Staff Maxwell Taylor sharply criticized the U.S. reliance on nuclear deterrence for deterring



and responding to limited forms of war. The strategic environment had again changed, and the U.S. needed to change its military strategy to better facilitate deterrence. After John F. Kennedy was elected president in 1960, he established a “Flexible Response” strategy that sought to provide a number of military and nonmilitary options to provocations. Flexible Response later evolved into “Flexible Deterrent Options,” which remains a component of contemporary military doctrine. It is defined in Joint Publication 5-0 as “preplanned, deterrence-oriented actions tailored to signal to and influence an adversary’s actions.” The intent behind Flexible Deterrent Options is to leverage all elements of national power to de-escalate an emerging crisis and avoid provoking full-scale combat. Both Flexible Response and Flexible Deterrent Options recognized that deterrence strategies must include more than the threat of nuclear annihilation, but neither adequately addressed subconventional threats.

Cold War deterrence was effective because the U.S. strategy prevented large-scale conflict between major powers and kept adversarial competition below the threshold of war. In an article for “War on the Rocks,” Michael Kofman writes: “Effective nuclear and conventional deterrence has long resulted in what Glenn Snyder described as a stability-instability paradox. This holds that the more stable the nuclear balance, the more likely powers will engage in conflicts below the threshold of war.” This was true during the Cold War and remains true today. A U.S. State Department report from 1981 highlights actions taken by the Soviet Union in the Cold War, including “control of the press in foreign countries; outright and partial forgery of documents; use of rumors, insinuation, altered facts, and lies; use of international and local front organizations; clandestine operation of radio stations; exploitation of a nation’s academic, political, economic, and media figures as collaborators to influence policies of the nation.” However, these efforts failed to achieve any significant strategic impact due

to limitations of technology and the geopolitical environment at the time. Today, the strategic environment has again changed, and these types of actions have a greater effect on U.S. national security. Russian interference in the 2016 U.S. presidential election and the 2020 SolarWinds data breach show that our adversaries can accomplish strategic objectives in the subconventional environment. Therefore, it is time to reevaluate strategies to foster deterrence and ensure it remains relevant in the 21st century.

Deterrence in the Current Strategic Environment

The 2018 U.S. National Defense Strategy states that the DoD’s “enduring mission is to provide combat-credible military forces needed to deter war and protect the security of our nation.” This suggests that the same Cold War strategy will deter contemporary threats. However, as Mark Galeotti notes in his recent book, “The Weaponisation of Everything”:

“The world is now more complex and above all more inextricably interconnected than ever before. It used to be orthodoxy that interdependence stopped wars. In a way, it did — but the pressures that led to wars never went away, so instead interdependence became the new battleground. Wars without warfare, non-military conflicts fought with all kinds of other means, from subversion to sanctions, memes to murder, may be becoming the new normal.”

This interconnectedness has changed the strategic environment and undermines our current deterrence strategy. “Taken together,” Andrew F. Krepinevich Jr., writes in a 2019 article in “Foreign Affairs,” “these developments lead to an inescapable — and disturbing — conclusion: the greatest strategic challenge of the current era is neither the return of great-power rivalries nor the spread of advanced weaponry. It is the decline of deterrence.”

Russian soldiers invade Georgia in 2008. Six years later, Russia invaded Ukraine.

AFP/GETTY IMAGES



Kofman captured the Russian approach to war, noting, “If war is not an option and direct competition is foolish in light of U.S. advantages, raiding is a viable alternative that could succeed over time. Therefore, Russia has become the guerilla in the international system, not seeking territorial dominion but raiding to achieve its political objectives.” Russia has spent years perfecting this “raiding,” which stands in stark contrast to how the U.S. approaches warfare. Russia effectively coordinates a whole-of-government approach to war and works to integrate all elements of national power to achieve its strategic aims. Its successful subconventional operations cover “the entire ‘competition space,’ including subversive, economic, information, and diplomatic means, as well as the use of military forces,” Mason Clark wrote in a 2008 paper for the Institute for the Study of War. Their military continues to play a critical role as well, adapting their core doctrine to train and equip for these types of operations. Russian Chief of the General Staff Valery Gerasimov noted in 2016 that the “very ‘rules of war’ have changed. The role of nonmilitary means of achieving political and strategic goals has grown and, in many cases, they have exceeded the power of force of weapons in their effectiveness.” In an article for the Modern War Institute at West Point, Sandor Fabian and Janis Berzins describe how this can be seen in Russia’s tactics, which, in some cases, subordinate lethal operations to nonlethal operations.

The U.S. approach to deterrence remains largely the same as during the Cold War. The emphasis is on a conventional and nuclear deterrence model based on advanced weapons systems and capability developments to deter and, if necessary, defeat a peer enemy on the battlefield. The U.S. Army’s current modernization efforts, as described in its “2019 Army Modernization Strategy: Investing in the Future,” prioritize battlefield lethality, with billions of dollars being poured into long-range precision fires, next generation combat vehicles, future vertical lift platforms, the modernization of army network technologies, air and missile defense systems, and increasing the capability of individual weapons. The U.S. Army’s Combat Training Centers continue to train maneuver brigades against a peer threat on a battlefield, assessing each rotational unit’s ability to close with and destroy an “enemy force” through fire and maneuver. Division, corps and theater-level Army warfighter exercises focus largely on each staff’s ability to destroy a peer threat on contested terrain with mass and precision fires. These efforts facilitate conventional deterrence, but as the past 15 years have shown, they do not deter cyberattacks, use of proxies, disinformation campaigns and other forms of subconventional operations that dominate the current strategic environment. On the contrary, current training and procurement initiatives only serve to reinforce Russia’s efforts to combat us where we are not investing our defense budget or focusing our training. As former CIA Director Leon Panetta noted, the “next Pearl Harbor that we confront could very well be a cyberattack that cripples America’s electrical grid and its security and financial systems.” This sentiment is echoed by many other former and current national leaders and reveals their concern that our current deterrence model fails to adequately address these emerging threats.

While conventional and modern nuclear forces continue to provide the foundation of our deterrence model, they are no longer sufficient. Contemporary deterrence requires both military and nonmilitary capabilities to counter adversary tactics. Creating a strategy that deters potential adversaries through both punishment and denial will be crucial to facilitating 21st century deterrence. In the increasingly blurred lines between peace and war, we must be able to clearly articulate an unacceptable cost to subconventional threats aimed at destabilizing our society or threatening critical infrastructure, as we would against a conventional attack or nuclear threat. Vershbow maintains that deterrence will only remain credible if the U.S. has the capability and will to clearly communicate its willingness to punish or deny adversarial actions. The strategic environment has again changed, and our strategy must change with it for deterrence to remain relevant. Some countries, such as new NATO member Finland, have updated their strategies for fostering deterrence because of changes in the operational environment.

Deterrence in Finland

Finland, which gained its independence from Russia in 1918, is an operative example of successful deterrence. The 1,340-kilometer border between Finland and Russia has remained stable in spite of Finland’s military nonalignment. Many analysts believe Finland has maintained its independence and territorial integrity despite its geographic location, and economic and military inferiority, because of its strategy of “Total Defense.” This strategy helps deter Russian conventional provocative actions and subconventional tactics, such as election interference, disinformation and cyberattacks.

Finland’s Total Defense is “a combination of deterrence, resilience, and defensive as well as offensive actions to constrain adversaries’ hybrid activities in all situations,” wrote Finland Defence Forces Brig. Gen. Juha Pyykönen and Finnish security expert Dr. Stefan Forss in a study for the U.S. Army War College. The strategy is an integrated effort that works to educate its citizens and leaders, integrate government agencies with civil society organizations and businesses, and develop the necessary conventional and subconventional capabilities to protect national security. These efforts help ensure that all elements of society and government understand the threats and work together to mitigate them. Finland has a robust conventional capability and routinely conducts large-scale military exercises with NATO and non-NATO forces. It maintains a high state of readiness through specialized “readiness units,” which, according to an article by Michael Peck in “The National Interest,” are led by professional soldiers and are meant to “respond rapidly to a threat, perhaps within hours [and] be deployed nationally [with] sufficient independent firepower and endurance to engage even a well-armed adversary.” This force structure ensures any invading military might accomplish initial gains, but will face a formidable defense in depth, capable of inflicting an unaffordable cost. These efforts, investments, and exercises demonstrate why Finland has one of the highest levels of military spending per capita in Europe.



Finnish civilians dig trenches in Helsinki at the start of the Finnish-Soviet war in 1939. Finland's whole-of-society defense strategy has deterred Russian aggression for more than 75 years.

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Finnish subconventional deterrence initiatives focus on a whole-of-society approach by coordinating efforts across governmental and private entities, educating leaders and society on threats, integrating efforts to better deter those

threats and developing exercises to demonstrate capabilities across all domains. To counter Russian disinformation, Finland organized a Ministry of Defense Security Committee to link government agencies and nongovernmental entities to bypass typical bureaucratic problems, quickly share information, coordinate responses and keep the Finnish population informed regarding known disinformation efforts. Finland's schools educate children to spot disinformation almost as soon as they learn how to read. Media and technology literacy education efforts help ensure the entire Finnish society can delineate fact from fiction, fostering government legitimacy. Finland also developed a National Defense Course to educate participants on threats, security and defense policies, and their roles in national security. Realizing the threat from cyberattacks, Finland is a leader in cyber defense and is the home for the European Centre of Excellence for Countering Hybrid Threats, or Hybrid CoE. The Hybrid CoE includes 31 partner countries from the European Union and NATO and is focused on hybrid threats emanating from Russia and nonstate actors. These efforts demonstrate Finland's understanding of how to effectively deter subconventional threats.

Many of these same initiatives can be incorporated into the U.S. European Command (EUCOM) to develop a more comprehensive, coordinated, and integrated deterrence model that clearly communicates the capability and will to deter all forms of Russian aggression.

Improving EUCOM's Ability to Facilitate Deterrence

The U.S. has previously adopted a number of strategies to foster deterrence in changing strategic environments. Today's strategic environment again requires change to facilitate deterrence. Effective conventional and nuclear deterrence forms the foundation of deterrence, but this effectiveness is also what drove conflict into areas where deterrence did not exist. Our adversaries' subconventional actions now threaten national security and must be addressed. The new U.S. National Defense Strategy, released in October 2022, notes this challenge and attempts to mitigate it through the concept of "Integrated Deterrence." U.S. Undersecretary of Defense for Policy Colin Kahl explained, "... in terms of integrated ... we mean, integrated across domains, so conventional, nuclear, cyber, space, informational [and] integrated across theaters of competition and potential conflict [and] integrated across the spectrum of conflict from high intensity to the gray zone." Deterrence in the 21st century will only be effective, Lithuanian National Defense Ministry official Vytautas Keršanskas writes in a paper for the Hybrid CoE, "if governments have a specific strategy for each actor they want to deter." As we seek to better integrate all aspects of national power into deterrence, it is imperative that our policies are

based on an adversary's strategic goals, interests, rationales and vulnerabilities. Within EUCOM's operational environment, integrated deterrence should include allowing other government entities and business leaders to participate in EUCOM's planning, operations and exercises, and developing information warfare capabilities that organize, educate and train our personnel to defend against Russian disinformation and cyber activity. These recommendations can be implemented quickly and within EUCOM's current organizational structure, but most importantly, foster subconventional deterrence by addressing specific vulnerabilities within the operational environment where Russia continues to attack with near impunity.

EUCOM currently develops and rehearses its operational plans through strategic roundtables focused on Russia and chaired by the combatant commander. In October 2021, the then-EUCOM commander, U.S. Air Force Gen. Tod D. Wolters, stated these roundtables “serve an important role in keeping our nation's senior-most military leaders synchronized both strategically and operationally on key issues related to global campaigning and competition.” Limited in participation to senior military and DoD officials, strategic roundtables omit key stakeholders from industry and other governmental and nongovernmental agencies operating in Europe. Including these additional participants would provide a more comprehensive understanding of the threat and unique perspectives and expertise that would not otherwise be included in a military-only meeting. Akin to Finland's Ministry of Defence Security Committee and its National Defence University, this recommendation would help develop a more thorough vulnerability assessment, educate participants on Russian subconventional tactics, and develop a whole-of-society approach to increase our understanding of the problems and develop capabilities to more effectively deter them. A challenge to this recommendation is the current classification level for the Russia Strategic Roundtable as “Top Secret.” Incorporating participants without security clearances risks generalizing the discussion to a level that will not be beneficial to any participant.

To mitigate this, efforts must be made to declassify as much as possible, while also developing opportunities for those outside of the DoD to receive security clearances so these discussions continue to be worthwhile for all participants.

The information space presents another challenge for subconventional deterrence. The U.S. Government Accountability Office noted in 2021 that “DOD made little progress in implementing its information operations strategy and had challenges conducting information operations.” U.S. Marine Corps Lt. Gen. Dennis Crall, the joint staff director for Command, Control, Communications, and Computers/Cyber and chief information officer, stated in February 2022: “Combatant commanders too often think of information operations as an afterthought. We understand



A poster shows Russian intelligence officers charged in a series of hacking and malware operations targeting other countries. GETTY IMAGES

Russia has already demonstrated the effectiveness of integrating all elements of information warfare and EUCOM must do the same.

kinetic operations very well. Culturally, we distrust some of the ways that we practice information operations. The attitude is to ‘sprinkle some IO on that.’ Information operations need to be used — as commanders do in kinetic operations — to condition a battlefield.” The Congressional Research Service recently described Information Warfare as “as a strategy for the use and management of information to pursue a competitive

advantage, including both offensive and defensive operations.” EUCOM must develop an information warfare fusion cell that employs civilian and military experts to more effectively integrate information warfare into all of its operations. This cell will also educate and train our personnel and other leaders to better understand the threat and their role in the information space, including how to integrate offensive and defensive information warfare. Currently, these personnel are fragmented across the staff based on their specialty, tucked away in Sensitive Compartmented Information Facilities, basement offices or within

a special staff section. Russia has already demonstrated the effectiveness of integrating all elements of information warfare and EUCOM must do the same. Initiatives such as the recent deployment of a U.S. “cyber squad” to Lithuania to defend forward against Russian aggression is a step in the right direction, but still demonstrates the current compartmentalization of cyber operations. Expertise in information warfare cannot exist within a select few offices, hidden behind classification limitations or isolated named operations; all leaders need to gain experience, exposure, and opportunities to better understand information warfare capabilities and how best to integrate them into all operations. A EUCOM information warfare fusion cell would help educate all personnel, government agencies and private business leaders on information warfare.

This recommendation would also build better media and technology literacy across EUCOM's ranks and throughout its operational environment, which would have an immediate effect against Russian disinformation efforts. Finally, the fusion cell must integrate respected and proven warfighters with operational experience into their ranks. This would ensure its members have a seat at the table, where commanders and senior leaders within the organization espouse their value in front of the entire organization. These efforts will grow information warfare into a more capable, comprehensive and integrated effort against Russian subconventional attacks. Separate, specialized commands and new initiatives such as the U.S. Army's Multi-Domain Task Force aim to accomplish many of the same things noted above, but are too compartmentalized and specialized to be fully integrated into the military's entire operational framework. There are also similar challenges with regard to current classification levels of many of the Army's current information warfare initiatives. Effective information warfare can no longer be isolated to special operations, its own unique combatant command or compartmentalized programs that require specific clearances to participate. This recommendation would allow EUCOM to develop this capability within its own command structure and more effectively deter Russia's current disinformation campaigns and cyberattacks. An additional challenge is the U.S. military's reluctance to lead with information without gaining prior consent through various command channels. This reluctance does not allow our information warfare to move at the speed of relevance, which is the most important requirement within this domain. For this recommendation to be effective, EUCOM leaders must become more comfortable with the potential for operational missteps and be willing to underwrite mistakes in order to give the practitioners the confidence to continue the fight.

EUCOM and its subordinate commands host nearly 30 exercises in a calendar year, focusing primarily on U.S., allied, and partner interoperability. These exercises demonstrate military strength and our commitment to alliances and partnerships, but do little to deter subconventional aggression. This is because the current exercises are focused on lethal operations and do not effectively integrate other government agencies, private industry or nongovernmental organizations to develop and rehearse our own subconventional capabilities outside of the military domain. For the above recommendations to foster subconventional deterrence, they need to be incorporated into an updated and more robust exercise program. Sweden's Total Defense 2021-2025 plan involves armed forces, government, industry and civil society to build capabilities and partnerships that will ensure Sweden is less vulnerable, more resilient, and capable of learning best practices to defeat conventional and subconventional aggression. EUCOM should incorporate the recommendations from the restructured Russia Strategic Roundtable into its existing exercises and better develop, incorporate and assess our ability to defeat subconventional attacks within an operational exercise framework, as laid out by American Enterprise Institute senior fellow Elisabeth Braw in her article "Countering Aggression in the Gray Zone." These exercises could also serve as an opportunity to rehearse and evaluate the integration of information

warfare into the tactical, operational and strategic levels of military operations. This would provide all participants experience on the effective use of information warfare. Ultimately, exercises such as this would clearly communicate our capability and will to deter and defeat all forms of aggression and improve the societal resilience required to facilitate subconventional aggression. The ongoing Russian invasion of Ukraine has also driven much of the current discussion on deterrence back into conventional capabilities and military power. This presents a perfect opportunity for the U.S. to gain ground in the subconventional environment and continue to refine our own capabilities. After Russia's actions in Ukraine are complete, many experts believe it will return to a robust subconventional campaign and will amplify its attacks against the U.S. and its allies as it seeks to rebuild conventional capability. This presents a unique opportunity for the U.S. to improve deterrence against subconventional aggression.

In his proposal for the Hybrid CoE regarding hybrid threats, Keršanskas states that successful deterrence "in the form of a decision not to pursue intended action, is induced in the mind of the hostile actor, meaning both public and private communication plays an important role in shaping the perception." U.S. President Joe Biden's recent remarks on our "sacred obligation under Article 5 to defend each and every inch of NATO territory with the full force of our collective power," coupled with his decision to expeditiously declassify U.S. intelligence regarding Russia's planned invasion of Ukraine, are examples of effective communication. However, we must do more. We must also communicate tangible resolve and a willingness and capability to implement forceful solutions against all forms of Russian aggression, as detailed by Keir Giles in his 2021 paper for Chatham House. These recommendations will improve subconventional deterrence and can be accomplished within EUCOM's current organizational structure. By better developing a whole-of-society approach to the Russian threat, integrating information warfare into all aspects of our operations, and effectively exercising our capabilities, we communicate to Russia and other adversaries that the U.S. has the necessary capability and will to deter aggression.

Conclusion

Our nuclear triad, strong alliance system and technologically advanced military continue to deter Russian conventional attacks against the U.S. and NATO allies. However, as NATO Secretary-General Jens Stoltenberg recently noted, "... having a strong military is fundamental to our security. But our military cannot be strong if our societies are weak. So, our first line of defense must be strong societies." By developing a whole-of-society approach where leaders from all sectors within the U.S. work together to better identify, understand and mitigate Russian subconventional aggression, deterrence will be strengthened. The U.S. has repeatedly demonstrated its ability to change strategies with the strategic environment to foster deterrence. These recommended changes continue that tradition and reinforce deterrence so that the U.S. will remain relevant in the 21st century and facilitate international stability for years to come. □

STRATEGIC STABILITY



A Russian Defense Ministry photo shows a ground-based intercontinental ballistic missile test in northwest Russia in 2020.
THE ASSOCIATED PRESS

AND THE FUTURE OF ARMS CONTROL

By **Anna Péczeli**, senior fellow, Center for Global Security Research, Lawrence Livermore National Laboratory

During the Cold War, the United States and the Soviet Union accepted strategic stability as a useful tool to manage great power competition and avoid major war. At the heart of the concept was parity in strategic nuclear capabilities. In contrast to this nuclear-centric and bilateral logic, today's security architecture is more complex. In the current multi-lateral and multidomain environment, the concept of strategic stability is stretched both horizontally and vertically.

Horizontally, the bilateral logic of the Cold War is no longer applicable since the rise of China means that there are now three great powers that need to find a way to manage their strategic competition. Vertically, the primary challenge is that there is a greater variety of tools — nuclear and non-nuclear — that are able to create strategic effects. The great powers' increased reliance on emerging and disruptive technologies has created new incentives to compete for strategic advantage, and stability between these states can no longer rest exclusively on strategic nuclear parity. These changes have important implications for the future of arms control, and for the toolkit needed to meet these new realities.

STRATEGIC STABILITY AND ARMS CONTROL

As the Cold War continued, the U.S. and the Soviet Union came to the realization that mutual vulnerability was inescapable, and that the arms race alone could not provide the desired security benefits. This feeling of mutual vulnerability and fears over a surprise attack from the other side eventually led the great powers to pursue strategic stability and put limits on the most destabilizing weapons and behaviors. The term “strategic stability” was originally used as a guidance to avoid war by ensuring that both sides had the ability to respond in case the adversary attempted a disarming first strike. This early interpretation of strategic stability came to be known as first-strike stability. Over time, other interpretations emerged. Crisis stability was understood as a slightly broader term, referring to the lack of incentives to use any form of military power first in a crisis. While first-strike stability emphasized the need to increase the survivability of nuclear forces and

their support structures, crisis stability focused on reducing escalatory pressures in a conflict. The third interpretation of strategic stability was arms race stability, which meant that neither side could improve their position relative to the other side by simply building up nuclear forces. Pursuing these goals simultaneously set clear limits to the strategic competition in the Cold War, put a cap on the most destabilizing capabilities, led to actual force reductions and created crisis management tools designed to avoid unintended escalation based on miscalculation and misunderstandings.

Following the above logic, Cold War-era arms control negotiations between the U.S. and the Soviet Union primarily focused on capabilities that affected strategic stability. As a result, several treaties were concluded between Washington and Moscow that limited their nuclear weapons and missile defense capabilities. These agreements enhanced first-strike stability by eliminating incentives for a disarming first strike by shaping the structure of forces and limiting the capabilities that increased relative vulnerabilities. Crisis stability was reinforced not only by reducing the urgency to preempt, but also by reducing the likelihood of strategic surprise and miscalculations through increased transparency and predictability, and by establishing lines of communication and debate-resolution mechanisms. Arms control also enhanced arms race stability by placing qualitative and quantitative limits on certain capabilities to avoid action-reaction military buildups and reduce the likelihood of achieving military dominance by either side.

THE CHALLENGES OF MULTIPOLARITY

In the post-Cold War era, the application of the above principles is problematic for several reasons. The first set of issues is related to the changes in the global power structure. The shift from a bipolar security architecture to a multipolar environment means that strategic stability is no longer a bilateral business between Washington and Moscow. China's growing role in international relations and its nuclear buildup have become important factors in U.S. and Russian force structure decisions, as well as their thinking about strategic stability and arms control.



China's space rocket technologies are displayed during the 2021 China International Aviation and Aerospace Exhibition.
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So far, China has not been transparent about its force expansion, and it has refused to join any arms control or strategic stability discussions, despite repeated U.S. invitations. In fact, China is very skeptical about using Cold War terms and logic to define its relationship with Washington. China has been demanding an official U.S. recognition of mutual vulnerability, and it believes that the U.S. rejection of such a statement is indicative of Washington's desire to pursue absolute security. The one instance where China applies the logic of the Cold War is in its claim that a strategic stability relationship only makes sense among nuclear equals, thus it has no role to play in its relationship with the U.S. Beijing believes that U.S. engagement efforts are primarily aimed at capping China's military modernizations and locking in its vulnerabilities vis-à-vis the U.S.

China argues that because the U.S. and Russia possess over 90% of global nuclear forces, it is their responsibility to continue the arms control process bilaterally. China is also skeptical about transparency measures, claiming that they are a trick to exploit vulnerabilities in an asymmetric relationship. According to Beijing, the U.S. is the one

that generates instability in the Asia-Pacific region, thus it falls on Washington to implement greater transparency and take measures to reduce the chances of misunderstandings in a crisis. In light of these concerns, it is not likely that China will join formal arms control efforts anytime soon. The conclusion that arms control is only used as a plot by the U.S. to constrain adversaries is a widely held belief among Chinese political and military elites.

China's rise to great power status and the challenge of multipolarity has two important implications for the future of arms control. First, in order to continue the arms control process, the U.S., which remains committed to restoring its leadership in this arena, has to find incentives to bring its adversaries to the table. While China is a strong skeptic of the process, Russia has a poor track record of compliance with its arms control obligations — the U.S. State Department has officially accused Moscow of violating almost every arms control agreement over the past 10 years — and it remains reluctant to join a new round of talks unless the two other NATO nuclear powers (the United Kingdom and France) also join. In addition to the lack of willingness to engage, the deep-seated mistrust in both directions

makes it extremely challenging to put forward any arms control proposal. Bilateral relations are at their lowest point with Russia since the end of the Cold War, and all sides tend to operate under worst-case assumptions about the other's intentions. So far, little constructive thinking has taken place about incentives either through rewards or punishment. For Washington to overcome these difficulties, it will be important to coordinate with allies and discuss what they are willing to put on the table in exchange for Russian and Chinese constraints on their arsenals, and what specific benefits they want to achieve through arms control.

The second important implication of multipolarity is the increased complexity of the negotiating process, which might force the U.S. to make more compromises and agree to fewer comprehensive agreements. The U.S., Russia and China have very different force structures, which makes it difficult to conclude agreements similar to the SALT or START treaties. This could lead to concessions on both the scope and the verification mechanisms of future agreements. Furthermore, in a multilateral negotiating process, Russia and China could team up against the U.S. to extort an unfair deal that would provide asymmetric benefits to them.

THE CHALLENGES OF THE GROWING TOOLKIT

Besides the growth in the number of great powers, there is considerable growth in the number of tools that can inflict strategic effects. While parity in strategic nuclear capabilities was used to define the Cold War understanding of strategic stability, the strategic postures of the U.S., Russia and China are increasingly reliant on concepts and capabilities in different operating domains. In and of itself, the idea of multidomain warfare is not new. What is new is the growing number of capabilities that are powerful enough to trigger nuclear escalation.

Thus, in addition to the size of nuclear arsenals, today's strategic competition is also defined by a race to develop a range of emerging and disruptive technologies (EDTs), such as missile defenses, long-range conventional strike weapons, cyber and counterspace capabilities. These new capabilities blur the lines between nuclear and conventional warfighting doctrines, and blend nuclear, space, cyber and conventional concepts. The complexity of this multidomain strategic environment also makes it more difficult to distinguish between stability and instability.

The literature on emerging and disruptive technologies suggests that strategic stability can be both strengthened and undermined by these new capabilities. On the one hand, first-strike stability could be supported because EDTs make a disarming first strike more difficult to accomplish in the face of a greater variety of strategic tools. A bigger toolkit also means that retaliation is more likely after a first strike. EDTs can also increase the survivability of forces and enhance the efficiency of command and control (C2) systems, making a surprise attack less likely to succeed. On the other hand, EDTs could also undermine stability by increasing the speed and accuracy of attacks, which could make preemption more tempting to military and political leaders.

The crisis stability benefits of EDTs include a higher credibility to threats under the nuclear threshold due to the increased number of military options, and improvements in intelligence, surveillance and reconnaissance (ISR). This reduces escalatory dangers because it makes enemy risk calculus more difficult. Improved ISR also reduces the chances of misunderstandings by feeding better information into the decision-making process and helping to create more direct channels of communication between world leaders. At the same time, crisis stability can be undermined by these new technologies because the increased speed of warfare (hypersonic weapons, for example) significantly reduces decision times to detect an attack, deliberate and respond. The shrinking timeframe to consult and deliberate makes it more likely that information cannot be verified and that mistakes will be made. It also creates incentives to reduce human control and automate certain processes. This creates a need for reliable and accurate information, opening new vulnerabilities for information manipulation by adversaries.



Then-U.S. President Barack Obama, left, and then-Russian President Dmitry Medvedev sign the New START treaty in Prague in 2010. GETTY IMAGES

In terms of arms race stability, optimists use Cold War logic and argue that the new vulnerabilities created by EDTs are going to force the great powers to the negotiating table once they recognize that mutual vulnerability is inescapable. First-come advantages in these new domains are likely to be short-lived and once the great powers catch up to each other or develop countermeasures, arms-racing incentives will be reduced. At the same time, instabilities could grow because some EDTs provide such a significant military advantage to the first to deploy a new technology (quantum computing, for example) that the promise of battlefield advantages will continue to incentivize the great powers to compete. As long as the U.S., Russia and China judge that the benefits of these emerging technologies outweigh the risks of competition, they will not pursue mutual restraint and arms control measures in the new domains. Because of these conflicting dynamics, the future of strategic stability and arms control will largely depend on how the great powers apply these technologies,



Chinese vehicles carrying hypersonic ballistic nuclear missiles roll past crowds during a parade in Beijing.

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and it is very likely that elements of cooperation and competition will coexist in some form.

There are two additional implications of this multidomain environment. First, the traditional concept of strategic stability needs to be revisited. In light of the growing significance of these new technologies, it is clear that the strategic balance between the U.S., Russia and China is no longer exclusively defined by nuclear weapons. While parity in strategic nuclear capabilities remains a desired goal between the U.S. and Russia, stability will also depend on the balance of these new nonnuclear strategic systems. Moscow has long argued that there are growing instabilities between the U.S. and Russia due to U.S. developments in missile defense and conventional precision-strike capabilities. They have repeatedly accused the U.S. of pursuing unilateral domination and a disarming first-strike capability. Thus, the Russian approach to strategic stability has expanded to include nuclear weapons, conventional precision-strike capabilities, missile defense, and EDTs in the cyber and space domains. Information warfare and broader political factors also influence Russia's strategic stability relationship with the U.S.

On the Chinese side, there is a similarly broad understanding that military balance is not primarily defined by quantitative factors; it is the qualitative relationship that actually matters. It is also unclear to what extent Russian and Chinese modernization efforts have been motivated by a desire to restore strategic stability. Both states argue that their military buildup was motivated by U.S. advancements in missile defense and conventional precision-strike capabilities, but in reality they have come a long way from just "restoring" the status quo ante — especially considering their advancements in directed energy and counterspace weapons. It seems that rather than strategic stability considerations, their modernization efforts were primarily motivated by pursuing disrupting advantages, which makes it very unlikely that they are ready for arms control measures in the new domains. While certain U.S. force structure decisions are still guided by a desire to maintain strategic stability, in practice this notion has only constrained U.S. modernization programs, not the Russian or Chinese efforts.

The dialogue between these great powers is further complicated by the fact that the U.S., Russia and China have different interpretations

of the military utility of the new domains, and they have developed different concepts for warfighting and escalation control. For example, while Russia and China consider information warfare to be a critical tool to shape the political environment not just in a conflict but also in peacetime, the U.S. still primarily uses cyber tools in a tactical way, as part of signals intelligence.

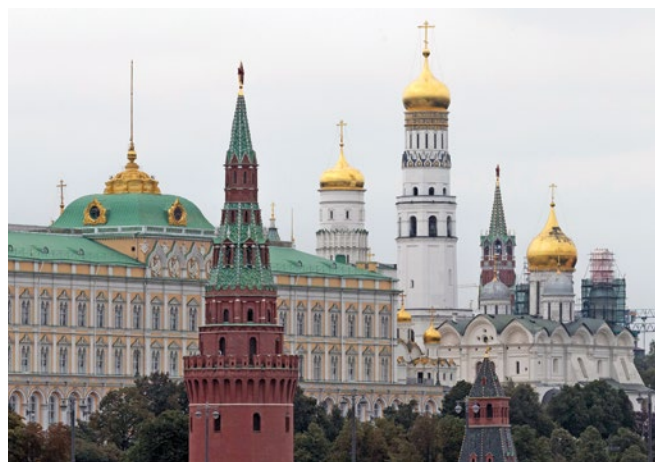
The second important implication of the multidomain environment that arms control will need to account for is the growing number of qualitative and quantitative asymmetries. Outside of the U.S.-Russia de facto parity in strategic nuclear forces, there are huge asymmetries in the force structure of the great powers. Past arms control measures offer three distinct options to address this problem. First, asymmetry of reductions, which means that the signatories agree to the same limit, but in practice, the implementation requires greater reductions from one side. Second, asymmetry of ceilings, which means that the signatories limit similar capabilities at different levels. And third, asymmetry of domains, which means that the signatories agree to similar limitations but in different domains and capabilities. Due to their flexibility, these mechanisms are likely to play an increased role in future arms control negotiations, but handling these growing asymmetries also creates a lot of difficult challenges for trade-offs, counting rules and verification.

IMPLICATIONS FOR ARMS CONTROL

The U.S. has long tried to discuss strategic stability with Russia and China. The official Strategic Stability Dialogue (SSD) framework offers an opportunity for the great powers to discuss the fundamentals of their strategic relationship, and to talk about arms control, threat perceptions, red lines and the rules of the game. Besides the high-level dialogue, it also offers the option of more in-depth discussions on certain topics in a working group format. For many years, the U.S. has been trying to get China more involved in these discussions, but Beijing has repeatedly refused to engage on the topic of strategic stability at a meaningful level. Although U.S.-Russian SSD talks occasionally take place, they have been sporadic and unproductive. Considering the horizontal and vertical expansion of strategic stability, it seems that a new approach is needed. The desire by Russia and China to compete in the new domains has created a number of military advantages that are likely to require a competitive response from the U.S. and its allies — especially in the space and cyber domains. However, this does not mean that stability can only be restored through competition.

The U.S. and its allies need to talk about the norms and the format of restraint in areas where Russia and China might show a willingness to engage in risk reduction and arms control talks. A few basic principles are still valid for future strategic stability engagement. First, stability only makes sense if it includes some kind of equilibrium, or some degree of mutual restraint. Second, the Cold War logic of mutual vulnerability is still crucial for the 21st century strategic stability concept. And third, some kind of structured mechanism is needed to bring the great powers together to formally engage on strategic

stability topics. Advancing these principles will be difficult, and it will also require an acknowledgement of the link between arms control and deterrence, as well as between cooperation and competition.



Russian state cyber hackers are said to be behind espionage campaigns against the United States and its allies. THE ASSOCIATED PRESS

Regarding the arms control toolkit, the bottom line is that strategic arms control can no longer be just bilateral or nuclear. The negotiating framework and the verification mechanisms will need to adjust to a multilateral and multidomain environment. Many of the new domains resist effective verification based on counting rules or traditional measures, such as on-site inspections. Furthermore, most new technologies are dual-purpose and dual-use, which means that a blanket ban is unlikely to work. Instead, future arms control mechanisms will need to focus on limiting certain applications and certain behaviors. Negotiations and verification tools also need to account for the fact that many of these new military assets and much of the knowhow are held by the private sector, which means that enforcement will be more difficult and complex. There are many areas where traditional, legally binding arms control measures will be difficult to achieve. Instead of focusing on quantitative reductions in a single weapons category, it might be more feasible to focus on behavioral limits and setting norms and best practices. In terms of less formal arms control measures, negotiations should focus on discussing the most likely pathways to nuclear use, understanding the adversary's thresholds and preventing unintended escalation. Informal arms control measures also have the added benefit of a faster negotiation process, an important advantage in this fast-paced strategic environment. However, for any of these mechanisms to work, the great powers will need to show a political willingness to engage, and the leadership to put proposals on the table and carry on with the process. □

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MARSHALL CENTER PHOTO BY CHRISTINE LUNZ



CELEBRATING A MILESTONE

The Marshall Center Turns 30 Amid a Zeitenwende

By **Dr. Katrin Bastian** and **Dr. Ralf Roloff**, Marshall Center professors

On June 5, 2023, the George C. Marshall European Center for Security Studies celebrated its 30th anniversary amid tremendous disruption on the European continent caused by Russia's unprovoked and unlawful invasion of Ukraine on February 24, 2022. To most Europeans — although warned by previous Russian aggression in Ukraine and the annexation of Crimea in 2014 — the unthinkable happened: the violation of territorial sovereignty by full-scale war. The Marshall Center responded quickly by operationalizing the full bandwidth of its programs to focus on the impact of the attack and its implications for the trans-Atlantic alliance, the European Union and beyond. More than 30 years after the fall of the Iron Curtain and the collapse of the Soviet Union, the Kremlin shocked the world again with the degree of revanchism and sheer brutality. It was also a vivid reminder of why the Marshall Center was established in the first place.

In the early 1990s, the Marshall Center started as a strong German-American partnership. Germany and the United States agreed to establish a center for security studies that could support the challenging transformation of the former communist states and societies into democratic and well-governed countries that would eventually

integrate into Western security structures, such as NATO and the EU. Establishing a working system of security cooperation with former Warsaw Pact countries and former Soviet republics was at the core of the Marshall Center's work during its first decade. Security sector reform and democratic control of armed forces were the main areas of focus of studies and programs. Courses initially lasted for nine months, not just due to the quantity of subject matter to be covered, but also to establish the working interpersonal relationships and networks that are fundamental to security cooperation.

The post-Cold War decade ended abruptly with the terrorist attacks against the U.S. on September 11, 2001. This date marks a significant shift in world politics, and again, a remarkable mission change for the Marshall Center. Building a global coalition for the war on terror became a major focus. This shift in mission resulted in the creation of one of the very first programs on countering terrorism worldwide. With the ongoing global efforts in this regard, and the large military interventions in Afghanistan and Iraq, demand grew for support by qualified academic programs at a strategic level. New resident programs were developed focusing on stability, reconstruction and transformation, the limits of military and civilian interventions, operations and missions, and a program on homeland security and internal crisis management that compared U.S. and European approaches. These new programs were a strong response to the growing demand from partner countries, as well as from American and German stakeholders.



Then-German Defence Minister Ursula von der Leyen, right, and then-U.S. Secretary of Defense Jim Mattis shake hands at a commemoration of the 70th anniversary of the Marshall Plan at the Marshall Center in 2017.

THE ASSOCIATED PRESS



Col. Sami Teber, from the Ministry of Defense in Tunisia, attends a lecture on countering violent extremism as part of the Program on Terrorism and Security Studies. MARSHALL CENTER PHOTO BY KARL-HEINZ WEDHORN

Building a global coalition for the war on terror became a major focus. This shift in mission resulted in the creation of one of the very first programs on countering terrorism worldwide.

Academic programs developed further in the direction of analyzing transnational security challenges, and soon included a full-fledged resident program on countering organized crime. As cyberspace morphed into the backbone of the international economy, society and security, the Marshall Center engaged at a very early stage in developing a cybersecurity program that went beyond technical questions to take a broader strategic look. In many aspects, matters of interest moved from regional toward transnational and global issues.

This discussion was surpassed by real live events: In 2008, the Russia-Georgia war brought regional security issues back onto the agenda. Furthermore, the Ukraine crisis and Russia's annexation of Crimea in 2014 vividly illustrated that the European security order was under serious threat and the spirit of the Charter of Paris of 1990 was gone. The Marshall Center quickly adapted to this new reality by introducing a Seminar on Regional Security (SRS), and a European Security Seminars series (ESS-Series). The curriculum addresses in-depth relevant security issues in an ever-changing and challenging European and global environment, while the College for Security Studies has significantly increased the number of nonresident and outreach events. It is of note that the high academic standard of the curriculum grants the College's seminars accreditation under the Bologna process, enabling students to collect credit points for their graduate-level programs.

In order to participate more systematically in the German, U.S. and international security discourse, the Marshall Center began to engage in strategic initiatives with well-established institutions and think tanks, such as the

As cyberspace morphed into the backbone of the international economy, society and security, the Marshall Center engaged at a very early stage in developing a cybersecurity program that went beyond technical questions to take a broader strategic look.

Members of the Senior Advisory Council and Consortium Steering Committee of the Partnership for Peace Consortium discuss curriculum development and the creation of a cybersecurity group. Attendees came from Austria, Bulgaria, Canada, Finland, France, Georgia, Germany, Poland, Romania, Sweden, Switzerland and the U.S.

MARSHALL CENTER PHOTO BY CHRISTINE JUNE



Munich Security Conference, the German Marshall Fund, the Federal Academy for Security Policy/Bundesakademie für Sicherheitspolitik, the Aspen Institute and the German Council on Foreign Relations/Deutsche Gesellschaft für Auswärtige Politik.

In spring 2020, all in-person events abruptly ended. And like most other colleges, schools and academies around the globe, the COVID-19 pandemic forced the Marshall Center to switch to virtual teaching and learning. With networking and personal interaction being at the core of its mission, social distancing posed a true challenge. Adapting to the new restrictions, faculty and participants switched to digital learning and the Marshall Center continued to invest in sustaining its alumni network of security professionals. In May 2022, the Center celebrated the graduation of its 15,000th alum.

The pandemic affected not only individual lives, but also disrupted the world economy and global supply chains — reshuffling the cards in the game of strategic competition. The downsides of global connectivity suddenly became perceptible. Strategic competition soon became a key theme of research in Marshall Center programs looking at the whole spectrum of international competition for natural resources and economic weight, military power, political influence and philosophical beliefs.

Internally, the Marshall Center reflected on its own structure to adapt to these global changes. It engaged in a process

to more clearly define its mission, vision and strategy. This involved a thorough organizational optimization to include bringing back the Ambassador-in-Residence position and creating an integrated Strategic Communication unit. The Center initiated a curriculum review to further scrutinize the choice of topics and the academic quality of knowledge transfer in light of the new reality and European political events since 2020.

Russia's second invasion of Ukraine, in February 2022, came as a shock, but eventually had the effect of (re)uniting the “political West” with a more robust alignment within the trans-Atlantic alliance, the EU and the G-7. Instead of dividing the West, the Kremlin's actions motivated Finland and Sweden to apply to join NATO. Ultimately, Russian aggression yielded the opposite of its intended result, further enhancing EU-NATO cooperation and coordination.

In response to the increase of gray-zone conflict and information warfare, the Marshall Center moved forward to place special emphasis on Russia and strategic competition, cybersecurity and irregular warfare/hybrid threats. At the same time, the Center expanded to include the persistent and increasingly important challenges of climate change and its nexus to human and national security, the weaponization of interdependence, the battle for political narratives, and the liberal world order. This is showcased in the prioritization of activities in the Western Balkans, supporting the path of six Southeast European accession candidates



Oksana Syroyid, then-deputy speaker of the Verkhova Rada (Ukraine's Parliament), speaks about Russia's 2014 invasion of her country during a regional security seminar. MARSHALL CENTER PHOTO BY JAMES BROOKS

In response to the increase of gray-zone conflict and information warfare, **the Marshall Center moved forward to place special emphasis on Russia and strategic competition, cybersecurity and irregular warfare/hybrid threats.**

toward EU membership, and in its programs with Ukraine, Moldova and Georgia.

The complex challenges to U.S. and European security and values such as peace, democracy, freedom and human rights, call for the continuation of a strong German-American partnership. Germany's declared intent to initiate a "Zeitenwende" and invest more in security and defense has been a strong signal of alignment with Washington and an implicit admission that the formula "change through trade" has reached its limits. The war in Ukraine has demonstrated to the U.S. the importance to further engage and invest in Europe's regional security.

The George C. Marshall European Center for Security Studies is in an excellent position to promote the trans-Atlantic, U.S.-European bond and friendship now and in the future. Over the past 30 years, the Center has proved that there is a need for such an institution with exclusive value in the security landscape. With the mission to educate, engage and empower security partners to collectively affect regional, transnational and global challenges, the Marshall Center is on the right track toward its vision: to be the unique German-American partnership and trusted global network that promotes common values and advances collaborative geostrategic solutions. Happy birthday, Marshall Center! □

TRADITIONAL DETERRENCE, CONTEMPORARY INSECURITY

EDITED BY: Alex S. Wilner and Andreas Wegner

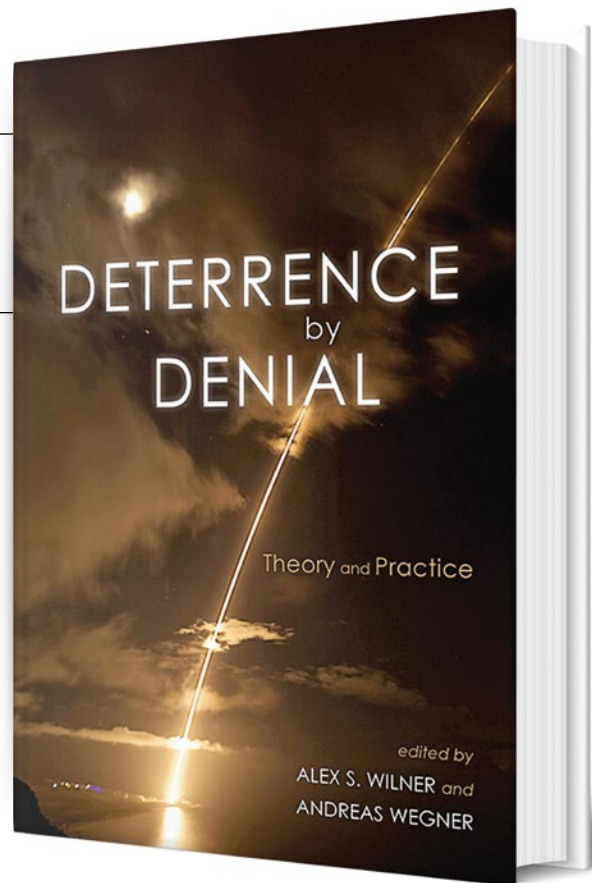
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Deterrence against an adversary comes in three varieties: punishment, retaliation and denial. A state may deter an adversary of relatively equal strength with threats of punishment and retaliation. Deterrence by denial convinces an adversary that there is a high probability of failure. It's as simple to understand as securing one's car. Security measures, such as cameras, theft-prevention devices or simply not leaving valuables in the car, reduce the perceived benefits and make it more likely that bad actors will turn to easier targets. To paraphrase Chinese strategist Sun Tzu, it is the acme of skill to deny an adversary access or acquisition to one's means without raising one's hand in anger.

All of this is spelled out in the book "Deterrence by Denial: Theory and Practice," described by the publisher as the first study to focus exclusively on contemporary denial. It was conceived and drafted to bridge the theoretical gap between classical deterrence theory and contemporary insecurity. Edited by Alex S. Wilner, an associate professor of international affairs at Carleton University in Ottawa, and Andreas Wegner, a professor of international and Swiss security policy at ETH Zurich, the book employs empirically driven and policy-relevant contributions from international scholars.

The editors present a history of deterrence by denial from the Cold War to today and then explain why they believe the international community has entered a "dawn of a new deterrence" by denial. A chapter examines the social psychology of denial and how one



can dissuade by denial in counterterrorism operations. The book then presents how one would employ deterrence by denial as a strategy, including case studies that look at denial deterrence in cyberspace.

The power of deterrence by denial is dissuading one party from doing something, rather than compelling a party to do something it might not otherwise have done. Sanctions over Ukraine may punish Russia by denying some economic benefits, but on their own they have not compelled Russia to withdraw or to stand down. Deterrence by denial succeeds when bad actors are convinced that they will be denied the fruits of their aggression.

A potential policy shortfall is thinking deterrence alone can prevent the outbreak of war and failing to plan for the possibility an opponent finds a way around. “Deterrence failure,” writes contributor James Wirtz, a professor at the U.S. Naval Postgraduate School, transforms “the conflict into a test of who is willing to engage in an attritional struggle to reverse the status quo. The party challenging the deterrent threat is in fact banking on the fact the party relying on deterrence will fail that test.” Thus, deterrence-by-denial strategies must remain dynamic, something that is neither easy nor inexpensive. Contributor Martin Libicki, a U.S. Naval Academy professor, acknowledges that it is key to keep the enemy from starting a fight — even a fight they may lose. One way to do that is by demonstrating that even success at operational cyberwar, for instance, will yield little of military consequence.

Contributor Patrick Morgan, a professor at the University of California, Irvine, reviews how denial fits into broader facets of deterrence and notes how the concept of denial has evolved to reflect “the changing nature of interstate security and conflict.” Wilner reconceptualizes and repurposes denial into three unique concepts: intra-conflict denial, cumulative denial and communicative denial. He illustrates how these might work in different security contexts. University of Toronto professors Janice Gross Stein and Ron Levi provide a theoretical and empirical assessment of denial in contemporary counterterrorism to tackle substate threats and challenges.

The second part of this volume empirically assesses contemporary denial, presenting lessons derived from interstate and regional conflict. Wirtz illustrates how and why contemporary adversaries of the United States have come to believe that they can defeat American deterrence and what U.S. policymakers can do about it. Policy consultant Jonathan Trexel offers an in-depth exploration of Japan’s evolving deterrent relationship with North Korea. He explains the nature of Japanese denial and its effect on North Korean behavior, providing lessons for other countries and rivalries. And policy consultant Dmitry Adamsky examines Israeli practices of deterrence with traditional or classical interpretation, and how Israel’s practices evolved into a denial strategy to fit its security requirements. Libicki considers the application and practice of cyberspace coercion. Gauging success, Libicki contends, may depend in part on whether a defender is trying to defeat a cyberattack altogether, or

simply to affect, limit or dampen what a cyberattack is meant to accomplish in such areas as infrastructure and deployed forces. He dubs it “indirect denial through resilience.”

Morgan states that deterrence by denial involves active and passive threats designed to make a potential attack appear unlikely to succeed and to convince the attacker to abandon the endeavor. The use of force may also be used to make a real attack unsuccessful, thereby causing the attacker to abandon it. Or the defender can make the achievement of a successful attack so difficult and costly that no further attacks are mounted.

Deterrence by denial is useful for facing real — not just possible — threats that are numerous but limited in scale, Morgan says. It covers preparations meant to inhibit future attacks, military or otherwise. The denier must threaten to resist harshly any attacker and be prepared to carry out that threat when necessary. “A denial threat also aims to shape the opponent’s decisions, not just psychologically but, if necessary, by physically limiting what the attack would accomplish. The two types of threats are distinct but overlap. Their objective is the same, as is how the deterrence involved should work — frustrating the opponent’s plans by threatening unacceptable harm.”

The editors remind readers that defenses do not need to be perfect, just good enough to convince a challenger that an attack will fail or be very costly. “If the challenger is highly motivated, even a high likelihood of failure might not deter them from going through with an attack ... This is why strategists often add a cost element by linking denial to punishment.” Active defenses provide visible protection to populations and increase the uncertainty for adversaries without risking the escalation a kinetic counterstrike might bring.

Through the specialized chapters, this book illustrates how and why the processes of defense, punishment and denial are inherently linked. Areas to explore further include the risks decision-makers take when blending these concepts, conceptually and practically; and whether they would be naturalizing terrorism and cyberattacks by treating them as but one shifting point on a spectrum. In theory, the editors contend, denial woven with punishment permits the national authority to use diplomacy, statecraft, intelligence, economics and other methods to shape and manipulate an adversary’s behavior. But what conflicts may emerge between disparate civilian and military leaders? This book is a good place to begin that important discussion. □

Resident Courses

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Check the Marshall Center Website for Updates on Course Schedules

PROGRAM ON APPLIED SECURITY STUDIES (PASS)

The Marshall Center's flagship resident program provides graduate-level education in security policy, defense affairs, international relations and related topics such as international law and counterterrorism. A theme addressed throughout the program is the need for international, interagency and interdisciplinary cooperation.

PROGRAM ON COUNTERING TRANSNATIONAL ORGANIZED CRIME (CTOC)

This resident program focuses on the national security threats posed by illicit trafficking and other criminal activities. The course is designed for government and state officials and practitioners who are engaged in policy development, law enforcement, intelligence and interdiction activities.

PROGRAM ON TERRORISM AND SECURITY STUDIES (PTSS)

This program is designed for government officials and military officers employed in midlevel and upper-level management of counterterrorism organizations and will provide instruction on both the nature and magnitude of today's terrorism threat. The program improves participants' ability to counter terrorism's regional implications by providing a common framework of knowledge and understanding that will enable national security officials to cooperate at an international level.

SENIOR EXECUTIVE SEMINAR (SES)

This intensive seminar focuses on new topics of key global interest that will generate new perspectives, ideas and cooperative discussions and possible solutions. Participants include general officers, senior diplomats, ambassadors, ministers, deputy ministers and parliamentarians. The SES includes formal presentations by senior officials and recognized experts followed by in-depth discussions in seminar groups.

PROGRAM ON CYBER SECURITY STUDIES (PCSS)

The PCSS focuses on ways to address challenges in the cyber environment while adhering to fundamental values of democratic society. This nontechnical program helps participants appreciate the nature of today's threats.

SEMINAR ON REGIONAL SECURITY (SRS)

The seminar aims at systematically analyzing the character of the selected crises, the impact of regional actors, as well as the effects of international assistance measures.



Russian tanks participate in the International Army Games held near Moscow in August 2022. GETTY IMAGES

In the next issue of per Concordiam:

STRATEGIC COMPETITION IN THE 21ST CENTURY

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