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The Evolution of Russian Nuclear Doctrine

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Executive Summary

The purpose of this paper is to examine trends in Russia's nuclear weapons strategy, policy and planning, with a particular focus on substrategic nuclear weapons. The paper focuses on two contexts:

1. Russia's new declaratory policy regarding the war in Ukraine.
2. The changing structure of the international system as it relates to nuclear powers, due to the emergence of China as a third nuclear peer, alongside the US and Russia.

The paper discusses the factors that might lead to both consistency and change in Russian nuclear planning.

Key Findings

Russian nuclear strategy appears to be at an inflection point, driven by two trends, both of which preceded the war in Ukraine. The first is a perceived growth in US capacity for counterforce targeting, using a combination of conventional and nuclear capabilities. The second is the possibility that improved theatre-level air and missile defences in Europe could pose a problem for pre-Ukraine war Russian concepts for using nuclear weapons in a calibrated or dosed way, as part of a regional war.

The counterforce threat creates a strong incentive to employ nuclear weapons at a larger scale than is consistent with dosing, particularly to the extent that the threat depends on theatre-level systems – and given the risks of graduated escalation in the absence of a stable second-strike capability. The performance of Western air defence systems in Ukraine will likely reinforce the second of these concerns.

Both these concerns have been reflected in changes to Russia's declaratory policy since 2020, as well as themes reflected in Russia's military literature and procurement plans during the same period.

While evidence on Russian views regarding the emergence of China as a third nuclear peer is limited, that which does exist suggests that it is not necessarily viewed as an unalloyed good. This may be due to the incentive that China is creating for the emplacement of theatre-ranged US capabilities in the Pacific – a move that Russia perceives as threatening.

This is not to suggest that Russia is on a deterministic path to losing its second-strike capability or its ability to employ substrategic nuclear weapons flexibly. Much depends on the success of efforts from Europe and others to generate both theatre-level integrated air and missile defence (IAMD) and deep strike capabilities, which Russia is likely to view as adjuncts to the US nuclear arsenal. Much also depends on the stability of US commitments to Europe. Equally, Russia has several options to offset the risk posed by conventional prompt strike capabilities in tandem with nuclear weapons and IAMD, including new theatre-ranged systems and more effective counterspace capabilities.

The path ahead is by no means certain. Yet, available evidence suggests that linking investments in IAMD and deep-strike capabilities to Russian concerns in an explicit manner can constrain Russia's freedom to employ nuclear weapons as a coercive tool.

Constraining Russia has a cost, however. Developments that limit Russia's perceived freedom of action before a conflict can also make escalation control within a conflict more difficult – the stability–instability paradox.

Introduction

This paper examines the evolution of Russian nuclear doctrine, with a particular focus on the idea that Russia stands at an inflection point where it could lose some of its options to use nuclear weapons as a coercive tool (rather than a warfighting capability) at the theatre level. Since the end of the Cold War, Russia has progressively developed a suite of flexible nuclear options at the theatre level to offset perceived conventional disadvantages, particularly in relation to NATO. However, a series of strategic, technological and geopolitical developments – many of which are interpreted in Moscow as indicators of a potential US counterforce posture – have altered the calculus underpinning Russian deterrence strategy.

Russia's longstanding concerns about the survivability of its nuclear capabilities in the face of evolving US capabilities – including long-range precision strike, improved missile defence, and the introduction of low-yield nuclear options – have become more acute since 2017 and are key to this transformation. The erosion of arms control agreements (notably the Intermediate-Range Nuclear Forces (INF) Treaty), and the proliferation of NATO systems capable of engaging Russian assets at short notice, have further exacerbated these fears. Compounding the situation, the war in Ukraine has reinforced pre-war concerns regarding the limits of Russia's concepts for employing strike capabilities in a dosed way. This has likely updated pre-war assumptions about platform survivability, and strained planning and ISR capabilities – developments that cast doubt on the feasibility of conventional counterforce in a regional war with NATO.

In response to these developments, the authors assess that Russia could be forced into a position where it must view the use of nuclear weapons not as a coercive instrument for escalation, but rather as a high-risk wartime necessity to ensure the survivability of its broader deterrent. This trajectory poses significant implications for Russia's freedom of maneouvre. This is not a deterministic trend and systems such as the Oreshnik missile, mobile transporter-erector-launchers (TELs) and ballistic missile defence (BMD) systems such as the S-500 offer potential mitigations. It would thus be more accurate to describe Russia as currently being at an inflection point where, on its current trajectory, it risks having its options for coercive flexibility increasingly constrained. Whether this occurs will, however, depend on Allied investments.

The implications for Allied policy are that developments in Europe – including the fielding of more credible integrated air and missile defence (IAMD) and BMD – can constrain Russian assumptions about the feasibility of coercive nuclear

use, when viewed in conjunction with the US arsenal. However, per the stability–instability paradox, the same developments which constrain coercion and contribute to general deterrence also make intra-conflict escalation control more difficult. This trade-off will have to be considered. Chapter I discusses the factors which predict a state's inclination to employ nuclear weapons in a flexible, graduated manner. Chapter II provides a brief discussion of the evolution of Russian nuclear strategy over the last three decades. While much of this chapter summarises work already conducted in this area, it introduces one of the authors' key claims: that Russian fears of US counterforce became especially acute after 2017 and that this risk has the potential to constrain Russia's ability to employ nuclear weapons in a graduated manner (if the risk goes unchecked). Chapters III and IV examine the implications of the Russian strike campaign in Ukraine, including implications for Russian concepts of dosing, the use of force, and the ways in which broader strategic trends are impacting Russia's freedom of action.

The paper does not claim to provide a deterministic assessment of the trajectory of Russia's nuclear doctrine; many of the trends described here are reversable, and the loss of flexibility on the part of Russia is not a foregone conclusion. The paper's function, rather, is to identify the factors and trends which impact Russia's ability to use nuclear weapons as a coercive, flexible tool, and to inform subsequent and more formal analysis by providing an assessment of which factors matter (with tools such as Markov chains, for example).

The analysis is informed by several sources. Russian perceptions are inferred directly, where possible, using sources such as military journals, policy documents and speeches from senior leadership. In areas where the direct observation of Russian beliefs is less viable, given limited contemporary evidence – particularly regarding the strike campaign in Ukraine – the paper relies on the juxtaposition of pre-war Russian perceptions with observed outcomes and makes deductive inferences regarding likely lessons learned. While the inference of lessons learned on a deductive basis is a fraught process, since it makes assumptions about an actor's perceptions, it is possible to make a probabilistic assessment as long as data about the actor's prior assumptions and preferences is known, and the circumstances impacting lessons are understood. This represents what political scientists describe as a hoop test: establishing that the criteria necessary for a hypothesis to be viable have been met and that the hypothesis provides a more likely explanation or prediction than other viable hypotheses (without categorically proving it).[1]

1. Andrew Bennett and Alexander L George, *Case Studies and Theory Development in the Social Sciences* (Cambridge: MIT Press, 2005), p. 117.

I. Understanding Flexibility in Nuclear Planning

A state's nuclear doctrine can vary depending on several parameters. First and most obviously, a state's nuclear thresholds can be either raised or lowered to encompass conventional scenarios, with conventionally weaker actors often embracing lower nuclear thresholds – thereby linking nuclear use to setbacks in conventional warfare.[2] Second is the assumptions underpinning a state's nuclear doctrine – a state which adopts a relatively inflexible posture assumes that the mere threat of nuclear use is deemed sufficiently dangerous to achieve a deterrent effect; in the case of a more flexible approach, a state deems it important to have options for the use of nuclear weapons which an opponent deems believable.[3] Maximising credibility may be desirable in instances where perceived conventional inferiority of a state's military leads a state to rely on its nuclear capabilities for deterrence. An expectation that nuclear weapons may have to be used on one's own territory – namely, in instances of a territorial incursion – may equally incentivise the development of low-yield options.

For example, during the Eisenhower administration, the doctrine of massive retaliation was inflexible, and its prospect was deemed sufficient to deter the USSR, even if the US would likely incur considerable losses in the ensuing exchange. Even the possibility of the threat being realised was expected to serve as a sufficient deterrent. France's nuclear policy, which largely rejects the notion of flexible nuclear employment (except as a pre-strategic warning shot), might also be viewed through this lens. By contrast, the logic of flexible response and the Schlesinger Doctrine[4] envisioned the US president having a range of limited strategic targeting plans, in addition to the Supreme Allied Commander Europe (SACEUR) enjoying even more flexibility with respect to the use of theatre-level weapons (once permitted to use them). This serves as an example of a risk-maximising approach designed to demonstrate to the USSR that, as US Secretary of Defense James Schlesinger put it, the US could employ its nuclear weapons

2. Vipin Narang, *Nuclear Strategy in the Modern Era: Regional Powers and International Conflict* (Princeton, NJ: Princeton University Press, 2018), p. 20.
3. Richard Betts, *Nuclear Blackmail and Nuclear Balance* (Washington, DC: Brookings Institution, 1987), pp. 12–14.
4. Kyle Balzer, '"Knowing Your Enemy": James Schlesinger and the Origins of Competitive, Tailored Deterrence Strategies', *Real Clear Defense*, 8 August 2024, <https://www.realcleardefense.com/articles/2024/08/08/knowing_your_enemy_james_schlesinger_and_the_origins_of_competitive_tailored_deterrence_strategies_1050283.html>, accessed 15 July 2025.

without committing the president to the unpalatable choice between 'suicide or surrender'.[5]

In additional to variable yield options, a flexible response approach might seek to render nuclear weapons usable by limiting target sets. For example, target sets Alpha and Bravo (envisioned under the Schlesinger Doctrine, from which the president could select limited variants) included hundreds of military targets, including nuclear targets under Alpha, but excluded civilian targets and, in some variants of Alpha, core components of the Soviet nuclear arsenal.[6] Alternatively, a flexible response approach might involve the demonstrative use of a nuclear weapon against a target of little or no significance as a coercive step. For example, figures involved in Pakistan's nuclear planning suggested that during a war with India, Pakistan would first employ a single nuclear weapon in the desert (near its border with India) before escalating to the use of tactical nuclear weapons.[7]

Approaches that rely on graduated nuclear coercion generally have three drivers. First, the political stakes of envisioned conflict are too limited to justify mutually catastrophic nuclear use. Second, the state employing a flexible doctrine is unconvinced of its capacity to prevail in a conventional conflict. States that perceive themselves as having conventional advantages regarding a nuclear-armed adversary – such as the USSR during the Cold War, or contemporary India – tend to adopt risk-minimising approaches intended to disabuse an opponent of the notion that nuclear weapons can be a usable instrument with which to offset battlefield disadvantages, without incurring unacceptable costs.[8] Third, flexibility has the greatest value when both a state and its likely opponent have an assured retaliation capability: the ability to retain enough of its capacity, following any conceivable adversary's first strike, to still be able to inflict unacceptable damage on an opponent with certainty. For a state facing the risk of a successful counterforce attack by an opponent which cripples its nuclear arsenal, limited use is an unacceptable risk since an opponent may respond with the disproportionate use of force. A credible counterforce capability need not be one which can eliminate all the weapons in an adversary's nuclear arsenal with certainty, but rather one that reduces an adversary to a minimum retaliation posture from which it cannot inflict unacceptable damage with certainty. In a context where a state does not believe in its capacity for assured retaliation, steps taken to signal limited intent (for example, mating a limited number of warheads with delivery systems) exacerbate the risk of a first strike.

5. *Air & Space Forces Magazine*, 'Schlesinger's Limited Nuclear Options', 1 February 2006, <https://www.airandspaceforces.com/article/0206keeperfile/>, accessed 24 June 2024.
6. Daryl Press and Keir Leiber, *The Myth of the Nuclear Revolution: Power Politics in the Atomic Age* (Ithaca, NY and London: Cornell University Press, 2018), p. 61.
7. Narang, Nuclear Strategy in the Modern Era, p. 81.
8. On Soviet nuclear strategy, see Kimberly Marten Zisk, *Engaging the Enemy: Organizational Theory and Soviet Military Soviet Military Innovation, 1955-1991* (Princeton, NJ: Princeton University Press, 1993).

Paradoxically, however, a state which believes it is capable of counterforce with limited nuclear options may also find the risk of carrying out such a limited attack unpalatable, as it would imply surrendering the element of surprise through the early infliction of limited strikes. For this reason, the US Strategic Air Command opposed Schlesinger's targeting plans at a time when it believed itself (perhaps erroneously) to be on the cusp of achieving a first strike capability.[9]

Besides considerations about lowering or raising the nuclear threshold, and how much flexibility to include in a domestic nuclear doctrine, states' nuclear postures will also be informed by assessments of the level of destruction that needs to be inflicted on an adversary to achieve strategic objectives. Some states may rely on a minimum deterrent posture, in which the prospect of nuclear retaliation at any scale is assessed to be sufficient to deter an opponent from a first strike. Alternatively, a state may adopt an assured retaliation posture which demands that a state be able to achieve a level of damage which is unacceptable. Unacceptable damage is typically defined in terms of the level of damage inflicted, relative to a society's capacity to recover. During the Cold War, for example, the US threshold for being able to inflict unacceptable damage was assessed to be the capacity to deliver 400 warheads against the Soviet homeland; the number was later reduced to 200 by former US Secretary of Defense Harold Brown.[10] Russian definitions are roughly analogous.[11]

Related to this question of the perceived required damage are the conditions for launch. States which fear a first strike or perceive themselves to lack a counterstrike capability with reference to an adversary tend to adopt a launch on warning posture. Those that do not tend to opt for launch on attack or an entirely retaliation-oriented (in other words, 'no first use') approach. There are some exceptions to this, however. China, for example, has maintained a retaliatory posture, despite marked nuclear inferiority to both Russia and the US. This has been driven by the assumption that the mere possibility of Chinese retaliation after a first strike is a sufficient deterrent – although this may be changing.[12]

9. Press and Leiber, *The Myth of the Nuclear Revolution: Power Politics in the Atomic Age.*
10. V M Burenok and Yu A Pechtanov, О критериальных основах ядерного сдерживания ['On the Criterion Bases of Nuclear Deterrence'], *Вооружение и экономика* (Vol. 1, No. 22, 2013), pp. 24–30.
11. *Ibid.*
12. Wu Riqiang, 'Certainty of Uncertainty: Nuclear Strategy with Chinese Characteristics', *Journal of Strategic Studies* (Vol. 36, No. 4, 2013), p. 588.

II. The Evolution of Russian Nuclear Policy and Strategy Before the 2022 Invasion of Ukraine

The purpose of this chapter is to provide a brief articulation of the evolution of Russian nuclear policy and strategy in the three decades between the breakup of the USSR and the 2022 invasion of Ukraine. There has been considerable pre-existing work in this area, and this chapter does not attempt to examine all debates in the field. Unlike previous work, however, this paper argues that 2020 represented a moment of discontinuity in Russian nuclear strategy in which Russia adopted a declaratory policy, which was at odds with prior efforts to generate options to employ nuclear weapons in a flexible way to inflict dosed damage (in the context of a regional war). This paper argues that by 2017, several converging trends made a longstanding Russian fear of US counterforce capabilities far more acute. The steps that Russia took to counteract this challenge had the effect of significantly undermining previous efforts to create options to inflict carefully dosed 'subjectively unacceptable' damage in the context of a regional war with NATO.[13]

1993–2020: The Evolution of a Russian Variant of Flexible Response

The period immediately following the breakup of the USSR saw Russia attempt to grapple with new strategic realities which forced a fundamental reassessment of its military options and saw Russia abandon the Soviet declaratory 'no first use' policy.[14] Although the USSR had always maintained tactical nuclear options,

13. Nikolai Sokov, 'The New, 2010 Russian Military Doctrine: The Nuclear Angle', Middlebury Institute of International Studies at Monterey, 5 February 2010, <https://nonproliferation.org/new-2010-russian-military-doctrine/>, accessed 23 June 2025.
14. See Eugene Rumer, 'The Primakov (Not Gerasimov) Doctrine In Action', Carnegie Endowment for International Peace, 5 June 2019, <https://carnegieendowment.org/research/2019/06/the-primakov-not-

as the conventionally stronger power in Europe it had maintained a notional no first use policy. This was incentivised by both conventional strength and the risk that theatre nuclear exchanges would asymmetrically impact the Soviet Union, itself a European state. The Soviets thus (despite abortive efforts to agree limits on nuclear use during President Brezhnev's era) maintained a rigid and inflexible policy that denied the potential for limiting nuclear exchanges.[15]

Table 1: Russia's Escalation Ladder

Local War	Regional War	Large-Scale War	Global/Nuclear War
• Grouped use of precision strike to inflict damage on targets on adversary territory • Actions by general purpose forces	• Mass use of precision strike • Single and/or grouped use of non-strategic nuclear weapons (NSNW) on adversary forces • Demonstration use of nuclear weapons by SNF or NSNW	• Mass use of NSNW on adversary forces • Single and/or grouped use of nuclear weapons of SNF and/or NSNW on military-economic targets of the adversary	• Mass use of SNF and NSNW on military-economic targets of the adversary

Source: Michael Kofman, Anya Fink and Jeffry Edmonds, 'Russian Strategy for Escalation Management: Evolution of Key Concepts', Centre for Naval Analysis, March 2020, p. 20, <https://www.cna.org/reports/2020/04/russian-strategy-for-escalation-management-key-concepts>, accessed 23 June 2025.

Note: Orange denotes levels of the escalation ladder which Russia risks losing from its repertoire.

During the first decade following the collapse of the USSR, there was a consensus within Russia that nuclear weapons were the only plausible tool with which to counter the decisive conventional superiority of NATO. In the wake of the conflicts that followed the breakup of Yugoslavia, this concern became especially acute. Some within Russia drew parallels between the events which preceded the NATO intervention and those in Chechnya.[16] This precipitated a shift in declaratory policy from the relatively conservative 1993 military doctrine, which specified a relatively high (if somewhat ambiguous) set of nuclear thresholds for Russia. During this period, Russian military theorists also began to articulate the logic of employing nonstrategic nuclear weapons in roles other than large-scale attacks on military targets.[17]

The view that nuclear weapons represented a means of forestalling such an intervention found expression in the Zapad 1999 exercise, in which Russian

gerasimov-doctrine-in-action?lang=en>, accessed 23 June 2025.

15. Zisk, *Engaging the Enemy*, p. 84.
16. Nikolai Sokov, 'Why do States Rely on Nuclear Weapons? The Case of Russia and Beyond', Nonproliferation Review (Summer 2002), pp. 101–11.
17. Kofman, Fink and Edmonds, 'Russian Strategy for Escalation Management'.

forces simulated using nuclear weapons against NATO military targets.[18] This view was also apparent in Russia's 2000 military doctrine, which seemingly lowered the nuclear threshold to encompass 'large-scale aggression utilizing conventional weapons in situations critical to the national security of the Russian Federation'; this contrasted with the previous threshold in the 1997 military doctrine, which specified that nuclear weapons could be used in situations in which the existence of the Russian state was at risk.[19]

During this period, Russia also began work on lower-yield nuclear weapons. Russia was prompted, according to one CIA assessment, by fears that a future conflict might have to be prosecuted against hostile forces on Russian soil, and by a desire to make nuclear weapons a tool that could be employed against military targets without mass civilian casualties.[20] Notably, in his capacity as prime minister and chair of the security council, Vladimir Putin was an important institutional advocate for this work as well as (apparently) an opponent of the Comprehensive Nuclear-Test-Ban Treaty.[21]

The declaratory threshold for nuclear use was seemingly raised in 2010, with a reversion to language referencing scenarios in which the existence of the Russian state was at risk, a position also reflected in Russia's 2014 military doctrine. These policies also included the concept of conventional deterrence for the first time.[22] Meanwhile, the concepts of subjectively unacceptable damage and damage tailored to an opponent's pain thresholds also entered Russian doctrine in more explicitly defined terms. Although allusions to predetermined damage existed in the 2000 doctrine, the concept had been refined by 2010. This more limited approach contrasted with a more objective approach to assessing necessary damage, which was predicated on a quantifiable assessment of the requirements to destroy a society's ability to reconstitute. The emergent doctrine, involving both conventional and nuclear steps on the escalation ladder, was in certain respects similar to variants of the NATO flexible response doctrine during the Cold War.

The twin changes emphasised both the additional flexibility provided by conventional weapons and a focus on limited nuclear use. They prompted a broad set of discussions within parts of the analytical community about whether

18. Mark Schneider, 'The Nuclear Weapons Policy of the Russian Federation', Presentation to the Defence Science Board.
19. Arms Control Association, 'Russia's Military Doctrine', 2000, <https://www.armscontrol.org/act/2000-05/russias-military-doctrine>, accessed 23 June 2025.
20. CIA, 'Russia: Developing New Warheads at Novaya Zemlya?', Office of European and Russian Analysis, 3 July 1999, <https://nsarchive2.gwu.edu/NSAEBB/NSAEBB200/19990702.pdf>, accessed 23 June 2025.
21. Mary Sarotte, *Not One Inch: America, Russia and the Making of the Post Cold-War Stalemate* (New Haven, CT: Yale University Press, 2022), p. 326.
22. Kristin Ven Bruusgaard, 'Russian Nuclear Strategy and Conventional Inferiority', *Journal of Strategic Studies* (Vol. 44, No. 1, 2021), pp. 3–35.

Russia viewed nuclear blackmail – and potentially even limited use – as a means of achieving war termination on favourable terms.[23] Analysts tended to focus on either the possession of a large number of substrategic weapons or the language emphasising the flexible use of nuclear weapons in documents such as Russia's 2010 military doctrine.[24]

Dissenting scholars, by contrast, emphasised the seemingly high threshold implied by language specifying an existential threat to Russia as the precondition for nuclear use. They argued that a declaratory policy which specified high thresholds undercut the use of nuclear weapons as a coercive tool. While states can, of course, lie about declaratory policy, a strategy which depends on a graduated response tends to require signalling to an opponent ahead of time that one has credible and usable options at multiple levels of the escalation ladder – which is undercut by a high declaratory threshold.[25] Consider, for example, juxtaposing this with US Cold War policy, where figures such as former US Defense Secretary Robert McNamara were much more specific in outlining non-existential thresholds, such as conventional defeat in Europe, as well as the existence of tailored conventional and nuclear responses.[26]

Some scholars thus argued that Russia's improving conventional capabilities, including its conventional precision strike assets, were resulting in a de-emphasis on nuclear weapons in Russian planning – as illustrated by Russia raising its nuclear threshold.[27] The latter view echoed arguments by several Russian officials, including Putin, who argued in a 2012 article:

> The role and importance of nuclear deterrence forces will remain in the structure of the Armed Forces. In any case, until we have other types of weapons, strike systems of a new generation. Including high-precision weapons, which … are capable of solving tasks comparable to those facing the nuclear deterrence forces today.[28]

23. For examples of the view that nonstrategic nuclear weapons represented an offsetting capability, see Katarzyna Zysk, 'Nonstrategic Nuclear Weapons in Russia's Evolving Military Doctrine', *Bulletin of the Atomic Scientists* (Vol. 73, No. 5, 2017), pp. 322–27; Dave Johnson, 'Nuclear Weapons in Russia's Approach to Conflict', Fondation pour la Recherche Stratégique, 8 November 2016, <https://frstrategie.org/en/publications/recherches-et-documents/nuclear-weapons-russias-approach-conflict-2016>, accessed 23 June 2025.
24. *Ibid*.
25. For an example of this view, see Olga Oliker and Andrei Baklitskiy, 'The Nuclear Posture Review and Russian "De-Escalation": A Dangerous Solution to a Nonexistent Problem', *War on the Rocks*, 20 February 2018, <https://warontherocks.com/2018/02/nuclear-posture-review-russian-de-escalation-dangerous-solution-nonexistent-problem/>, accessed 23 June 2025.
26. Carl H Amme, 'NATO Strategy and Flexible Response', *US Naval Institute Proceedings* (Vol. 93/5/77, May 1967).
27. For example, see Ven Bruusgaard, 'Russian Nuclear Strategy and Conventional Inferiority', p. 5.
28. *Pravda*, 'Путин озвучил задачи реформирования армии на ближайшие 10 лет' ['Putin Announced the Tasks of Reforming the Army for the Next 10 Years'], 20 February 2012, <https://www.pravda.ru/amp/

Others saw inconsistency between Russian policy and practice, as illustrated by a number of exercises conducted during this period, such as Tsentr 2008 and Zapad 2009.[29] The view that the evolving doctrine reflected conventional confidence is not without its issues. At the time of the release of the 2010 military doctrine, Russia had not made substantial progress towards reforming a military which had underperformed in the brief 2008 war with Georgia (which Russia won by dint of mass rather than competence). Most of the significant steps towards the modernisation of the Russian military would occur as part of the State Armament Programme (SAP) for 2020.[30] Key systems such as the KH-101 were only entering service in limited numbers in 2010. Indeed, Putin's previously mentioned 2012 remarks appear to make it clear that nuclear weapons had not been superseded by conventional precision strike capabilities in 2010, even if this was viewed as a future possibility. Even by 2020, Russia's throw-weight with respect to conventional precision strike capabilities held across the Russian Navy (Voyenno Morskoi Flot, VMF) and the Russian Air Force (Vozdushno-Kosmicheskiye Sily, VKS) remained limited to around 1,300 cruise missiles. This would represent a modest capability, given the likely numbers of missiles required to suppress hundreds of targets in a European war.[31]

While there was certainly an expressed preference for conventional targeting where possible, much of what Russian officers have written in the last decade regarding the requirements of maintaining a reconnaissance strike complex capable of striking dynamic military targets has suggested that achieving this in a large-scale war was beyond Russia's capabilities and would be for some time. For example, in 2017, Chief of the General Staff General Valery Gerasimov noted that the numbers of precision guided munitions, complex ISR capabilities and processing tools needed to conduct conventional attacks presented high barriers to entry for most states.[32] A Russian article written shortly before the conflict in Ukraine opined that even the US's satellite constellation could, until recently, only realistically deliver a reconnaissance strike complex in a small

news/politics/1108674-putin_ozvuchil_zadachi_reformirovanija_armii_na_blizhaishie_10/>, accessed 23 June 2025.

29. Dmitry Adamsky, 'If War Comes Tomorrow: Russian Thinking About "Regional Nuclear Deterrence"', *Journal of Slavic Military Studies* (Vol. 20, No. 1, 2014), pp. 163–88.
30. Roger McDermott and Charles K Bartles, 'Russia's Military Modernisation: An Assessment', in Douglas Barrie and James Hackett (eds), *Russia's Military Modernisation: An Assessment* (London: International Institute for Strategic Studies, 2021), p. 48.
31. Frederik Westerlund et al., *Russian Military Capability in a Ten-Year Perspective – 2019* (Stockholm: Totalförsvarets Forskningsinstitut, 2020), p. 134. For an estimate of the number of missiles Russia would need to employ in a European war, see Clint Reach et al., *Russia's Evolution Towards a Unified Strategic Operation: The Influence of Geography and Conventional Superiority* (Santa Monica, CA: RAND Corporation, 2023), p. 41.
32. Reach et al., *Russia's Evolution Towards a Unified Strategic Operation*, p. 46.

theatre (such as Iraq in 2003).[33] Other articles similarly suggest that the breadth and diversity of targets that Russia will face across the theatre makes suppression unlikely.[34] This does not mean that suppression of targets, such as aircraft and submarines with conventional weapons, was entirely ruled out. However, even Russian authors who advocated for the importance of conventional precision strike as a counterforce capability conceded that expectations should be managed regarding how effective this would be in the near term.[35] Nuclear weapons remained a necessary component of counterforce targeting in a conflict with NATO, particularly against elusive targets such as submarine-launched cruise missiles (SLCMs) which were, and remain, a target of particular concern for Russian planners.[36] This point was made most explicitly in Russia's 2017 naval strategy in which the ability to destroy a hostile fleet with nuclear weapons was defined as one of the navy's core tasks.[37]

An article written by Director of the Main Operational Directorate of the General Staff Major General Andrei Sterlin and others provides the best indicator of the relationship between conventional and nuclear weapons. According to the article, conventional long-range strike capabilities fill a niche for Russia in local wars between Russia and either a single neighbour or between Russia and multiple parties in a well-bounded area, with each side limiting the means at its disposal.[38] In such a context, the employment of nuclear weapons is not politically feasible, making conventional countervalue targeting more viable. Even so, conventional weapons still lacked the efficiency of nuclear weapons in regional wars conducted at scale with hundreds of target sets.[39] Statements to this effect were also made by Gerasimov, who suggested that conventional strike

33. Nikolai Scherbakov and Andrei Nikulin, « Взгляды руководства вооруженных сил США и их союзников на проблемы информационно-космического обеспечения стратегических операций » ['Views of the Leadership of the US Armed Forces and Their Allies on the Problems of Information and Space Support for Strategic Operations'], *Военная Мысль* (Vol. 10, 2023), p. 134. Author translation.
34. For a summary of these articles, see Reach et al., 'Russia's Evolution Towards a Unified Strategic Operation', pp. 28–30.
35. For an example of this view, see S A Ponomarev, V V Poddubnyi and V I Polegaev, « Критерии и показатели неядерного сдерживания: военный аспект » ['Criteria and Indicators of Non-Nuclear Deterrence: Military Aspect'], *Военная Мысль* (No. 11, 2019), p. 100.
36. V M Burenok, « Системное проектирование развития систем вооружения и нового облика Вооружённых Сил » ['System Design of the Development of Weapons Systems and New Look of the Armed Forces'], *Вооружение и экономика* (No. 2 49, 2009), pp. 14–16; Интерфакс, 'Gerasimov Urges Active Introduction of New Methods to Counter Potential Enemy Military Action in Space', 7 March 2019, <https://ria.ru/20190302/1551498317.html>, accessed 23 May 2025.
37. President of Russia, « Указ Президента Российской Федерации от 20.07.2017 г. № 327 Об утверждении Основ государственной политики Российской Федерации в области военно-морской деятельности на период до 2030 года » ['Decree of the President of the Russian Federation of 20.07.2017 No. 327 on the Fundamentals of the State Policy of the Russian Federation in the Field of Naval Activities for the Period Up to 2030'], 20 July 2017, <http://kremlin.ru/acts/bank/42117>, accessed 23 June 2025.
38. A A Sterlin, A A Protasov and A V Kreidin, « Современные трансформации И концепций и силовых инструментов стратегического сдерживания » ['Modern Transformations of the Concept and Force Instruments of Strategic Deterrence'], *Военная Мысль* (Vol. 8, 2019), pp. 7–17.
39. *Ibid.*

capabilities had considerable utility in limited conflicts, given the fewer political constraints around their use.[40]

The second role for conventional precision strike capabilities according to Sterlin and others is pre-nuclear. Should a local war escalate to a regional conflict involving the whole European theatre, the employment of these capabilities against critical civilian infrastructure would be a means of both providing a policymaker with flexibility before an eventual transition to nuclear employment, and of creating the conditions under which the threat of nuclear use is more credible – presumably because an opponent would have to retaliate in ways that changed the character of a conflict.[41] Conventional weapons, then, represented a bridging capability that could be more credibly used against limited provocations. However, if they were employed against civilian targets, they would compel retaliation by an opponent on a scale that would justify nuclear use. Conventional countervalue, then, made threats of nuclear use more credible (rather than substituting for them).

The authors' view, presented in this paper, is that the seemingly contradictory search for flexibility and maintenance of high declaratory thresholds during this period can be explained by the fact that Russia was managing two conflicting imperatives. On the one hand, following the US withdrawal from the Anti-Ballistic Missile (ABM) Treaty in 2004, there were several waves of Russian anxiety regarding the future emergence of a US counterforce capability that would be sufficiently robust to cripple a portion of Russia's arsenal large enough for missile defences to mop up the rest. Sterlin and others encapsulated this challenge by describing strategic stability as a 'substructure' on which coercion at lower levels depended. In the absence of strategic parity, the advantages of the stronger nuclear power (capable as it is of damage limitation) and the weakness of a less capable nuclear power (presented with a 'use it or lose it' dilemma) would draw both parties towards early escalation.[42] This is consistent with the statements of Western policymakers such as McNamara during the Cold War; the ability to absorb a strategic first strike and inflict unacceptable damage is a precondition for the use of nuclear weapons on a limited basis, since in the absence of this ability, an opponent has incentives to escalate directly to a full-scale exchange rather than being dragged to this point incrementally. The less confident Russia was in the long-term security of its second strike, the greater its incentives were to maintain a high declaratory threshold. Simultaneously, however, substrategic nuclear weapons remained integral to avoiding a catastrophic conventional defeat, which incentivised flexibility.

40. *Ibid.*
41. *Ibid.*
42. *Ibid.*

By the end of the 2010s, several trends – which Russian planners had viewed with concern since the early 2000s – became especially acute, leading to the adoption of both a declaratory policy and the procurement of capabilities. This implicitly, if not explicitly, undercut Russian efforts to use substrategic nuclear weapons flexibly.

2017–20: A Period of Eroding Russian Flexibility

In 2020, Russian nuclear doctrine underwent another evolution. While the thresholds set out in 2010 and 2014 remained largely unaltered, the 2020 version of 'Basic Principles of State Policy of the Russian Federation on Nuclear Deterrence' added more detail regarding specific criteria, including a specific emphasis on any launch of a ballistic missile against Russia.[43] The 2020 doctrine also emphasised that an opponent should face uncertainty regarding the likely scope and scale of Russian nuclear use. The elimination of language regarding flexible use is notable, given the use of this language in the context of asymmetrical deterrence. Some experts viewed the omission of flexible use as perplexing.[44]

This paper assesses that two imperatives underpinning Russian planning offer the likely reason for this change. First, the importance of offsetting the risk of a perceived (but arguably not real) emergent counterforce capability gained prominence and compelled the adoption of a declaratory policy which increasingly limited the room for flexibility in nuclear employment. This is not to say that Russian planners wilfully gave up on the idea of flexibility, but rather, the measures they took had the impact of reducing the space to use nuclear weapons flexibly.

The end of the INF Treaty, combined with the Trump administration's pursuit of limited nuclear options and theatre-level missile defence, exacerbated this vulnerability by raising the spectre of an emergent US counterforce capability – one that blended conventional prompt strike (CPS) with more accurate nuclear weapons. Although the accuracy of these Russian assessments is highly debatable – both because of the limitations of systems such as W76-2 and SLCM-N and the fact that they were envisioned as calibrated responses to Russia's own substrategic

43. President of the Russian Federation, 'On Basic Principles of State Policy of the Russian Federation on Nuclear Deterrence', 8 June 2020, <https://rusmilsec.blog/wp-content/uploads/2021/08/nucdet_rf_2020_eng.pdf>, accessed 23 June 2025.
44. See, for example, Nikolai Sokov, 'Russia Clarifies its Nuclear Deterrence Policy', Vienna Centre for Disarmament and Nonproliferation, 3 June 2020, <https://vcdnp.org/russia-clarifies-its-nuclear-deterrence-policy/>, accessed 23 June 2025.

nuclear weapons – their impact was visible in a number of areas. Not only did Russian declaratory policy shift, but the period from 2017 to 2020 saw a rapid uptick in articles by Russian authors regarding both the prospect of an emerging US counterforce capability, and the destabilising effects of limited nuclear war theories. Some articles were written by figures such as Andrei Kokoshin, who had previously been willing to contemplate limited nuclear use (albeit after advocating the inclusion of several conventional steps in the escalation ladder).[45] During this period, the decision to fund a range of weapons was made, and as is argued below, this decision represented a hedge against risks to Russia's second strike. Although preliminary work on many of these projects had begun earlier, it was at this time that they became programmes on record.[46]

Although Russia was not vulnerable in absolute terms, credible deterrence under these conditions required a heightened state of alert, reducing flexibility in nuclear posture. This, in turn, encouraged a risk-averse declaratory stance that stressed the uncontrollability of escalation – reminiscent of Soviet rhetoric about the inseparability of the theatre and strategic levels during the Euromissile crisis, a period of high tension during the Cold War, centring on the deployment of new Soviet and US nuclear missiles in Europe. These developments are discussed in greater detail below.

From 2017 to 2020, there appears to have been an implicit assumption that, against anything short of an integrated massive air attack, Russia's air defences would prove robust comparative to the previously described scenario. As part of the SAP 2020, Russia took delivery of a significant number of air defence systems, including 10 division sets of S-400; this likely reinforced Russia's faith in its air defences.[47] Most Russian military literature produced during this period seems to suggest that Moscow believed that any suppression of enemy air defences in the course of an air campaign against Russia would have to begin with standoff attacks on a massive scale before an adversary's aircraft could safely operate to suppress air bases and other key targets.[48] In turn, Russian offensive counter-

45. Kokoshin's views are reviewed in Alexander Saveliev, 'Where Does the "Escalation Ladder" Lead?', in A A Kokoshin et al., *Issues of Escalation and De-Escalation of Crisis Situations, Armed Conflicts and Wars* (Moscow: Lenand, 2021).
46. For example, slides of the Posideon nuclear torpedo were leaked in 2015. See *BBC News*, 'Russia Reveals Giant Nuclear Torpedo in State TV "Leak"', 12 November 2015; Franz-Stefan Gady, 'US Intelligence: Russia's Nuclear-Capable "Poseidon" Underwater Drone Ready for Service by 2027', *The Diplomat*, 26 March 2019, <https://thediplomat.com/2019/03/us-intelligence-russias-nuclear-capable-poseidon-underwater-drone-ready-for-service-by-2027/>, accessed 23 June 2025.
47. Julian Cooper, 'The Russian State Armament Programme to 2020: A Quantitative Assessment of Implementation 2011–2015', Swedish Defense Research Agency (FOI), March 2016, p. 31, <https://www.foi.se/en/foi/reports/report-summary.html?reportNo=FOI-R--4239--SE>, accessed 23 June 2025.
48. For example, see D V Mikhailov, « Война будущего: возможный порядок нанесения удара средствами воздушного нападения США в многосферной операции на рубеже 2025-2030 годов » ['Future Warfare: Possible Order of US Air Strikes in a Multidomain Operation Towards 2025-2030'], *Воздушно-космические силы. Теория и практика*, December 2019, pp. 44–52, <https://cyberleninka.ru/

air attacks against a conventional defence were expected to lower an opposing air force's tempo of activity by around 66%.[49] To achieve this (within the parameters of what Russian planners deemed to be the required number of missiles on target to suppress) would not necessarily have proven impossible in a regional war. One estimate by a former member of the Russian General Staff suggested that around 500 cruise missiles would be the minimum number of missiles needed to achieve this objective, in tandem with layered air defences operating against tankers and enablers as a second line of defence.[50] By 2020, Russia had considerably more land attack cruise missiles and tactical ballistic missiles.

However, success on one rung of the escalation ladder can create vulnerabilities elsewhere. In Russia's case, the perceived risk was that in a regional war, the US would still enjoy overwhelming conventional superiority due to the sheer scale of US capabilities and have every incentive to use these capabilities in the form of massive aerospace attacks. For example, one (not atypical) estimate of Allied capacity in a regional war with Russia assumed 1,100 to 1,300 fixed wing aircraft, as well as 1,500 cruise missiles, which would be used in five to six waves. Other estimates assessed that future NATO strike capabilities would come to include hypersonic glide vehicles (HGVs) as a first echelon for an 'integrated massed aerospace attack' combining cruise missiles, hypersonic missiles, UAVs and fixed wing aircraft.[51]

An integrated massed aerospace attack at the theatre level, in addition to being beyond Russia's capacity to resist, could be employed as part of a strategic attack in tandem with increasingly accurate submarine-launched ballistic missiles (SLBMs), and low-yield SLCMs in support of a counterforce attack. For many Russian officers, this was presumed to be the real aim of notionally conventional operational concepts such as multidomain operations.[52] Russian authors in this period interpreted the focus of certain concepts (such as multidomain operations focusing on 'penetrating and disintegrating' anti-access/area denial bubbles with theatre-ranged strike capabilities) as a pretext for erecting systems at the

article/n/voyna-buduschego-vozmozhnyy-poryadok-naneseniya-udara-sredstvami-vozdushnogo-napadeniya-ssha-v-mnogosfernoy-operatsii-na-rubezhe-2025>, accessed 25 June 2025.

49. S A Ponomarev, V V Poddubnyi, and V I Polegaev, « Критерии и показатели неядерного сдерживания: Военный аспект » ['Criteria and Indicators of Non-Nuclear Deterrence: Military Aspect'], *Военная Мысль* (No. 11, 2019), p. 100.
50. Konstantin Sivkov, 'Sky Bastions', *ВПК*, 2 February 2019, <https://vpk.name/news/250171_nebesnye_bastiony.html>, accessed 12 March 2025.
51. *Ibid.*; V Selivanov and Y D Illiyn, « Концепция военно-технического асимметричного ответа для сдерживания вероятного противника от развязывания военного конфликта » ['The Concept of Military-Technical Asymmetric Response to Deter a Likely Adversary from Unleashing Military Conflicts'], *Военная Мысль* (No. 2, 2022), pp. 31–38.
52. I V Khrenov and V V Andreev, « Развитие концепции « глобального удара » и трансформация взглядов ее реализации на практике вооружрнными силами США » ['Development of the Concept of Global Strike and Transformation of Views Regarding its Realisation Based on the Practice of the US Military'], *Воздушно-космические силы. Теория и практика*, pp. 34–46.

theatre level which could, jointly with SLBMs, comprise the vanguard element of a first-strike capability. Several articles authored by Russian officers during the period prior to, and after the 2020 doctrine discuss the mid- to long-term risks posed by US prompt global strike capabilities and air and missile defence systems. It would appear that at least some authors seemed to view operational concepts, such as multidomain operations, as a pretext for developing and fielding counterforce capabilities, given their emphasis on both long-range strike and pervasive ISR.[53]

Although the idea that conventional precision strike could serve as a counterforce capability has roots in debates from the mid-2000s (although these debates were eventually set aside), Russia has since revived and reframed the concept. Its contemporary thinking increasingly envisions CPS capabilities as integrated with lower-yield, more accurate SLBMs, forming a unified instrument of strategic effect.[54] This represents a more theoretically credible use case than earlier versions since, while the destruction of a meaningful part of Russia's nuclear arsenal with conventional means is unlikely, CPS capabilities can engage some targets which itself would previously have required a nuclear warhead, expanding a state's functional throw-weight even if its nuclear arsenal does not grow.

This perceived Russian counterforce vulnerability was a response to the growing US focus on theatre-ranged systems and its efforts to generate limited nuclear options, which was a response to Russia's own substrategic nuclear arsenal. This included the testing of an IRBM and work on ground launched cruise missiles.[55] While a US CPS would, in isolation, represent a poor counterforce capability, lower-yield nuclear weapons (which could be used at theatre level) could overcome this shortcoming. Relevant developments included the work

53. For example, see S V Golubchikov, « Основные направления развития стратегических ядерных сил, противоракетной обороны в рамках документов стратегического планирования США » ['Main Directions of Development of Strategic Nuclear Forces, Missile Defence Within the Framework of Documents of US Strategic Planning'], *Воздушно-космические силы. Теория и практика,* (No. 32, 2024), pp. 9–23; V I Stuchinsky and M V Korolkov,« Обоснование боевого приминения авиации для срыва интегрированного массированного воздушного удара в многосферной операции противника » ['Justification of the Use of Aviation for the Disruption of Integrated Massive Air Strike in a Multi-Sphere Operation of an Adversary'], *Воздушно-космические силы. Теория и практика*, 2020, p. 31.
54. I E Afonin et al., « Анализ концепции « Быстрого глобального удара » средств воздушно-космического нападения и обоснование перспективных направлений развития системы воздушно- космической обороны в Арктике в интересах защиты от него » ['Analysis of the Concept of "Rapid Global Strike" of Aerospace Attack Means and Justification of Promising Directions of the Development of the Aerospace Defence System in the Arctic in the Interests of Protection Against It'], *Воздушно-космические силы. Теория и практика,* (No. 20, 2020), pp. 75–87; V V Sukorutchenko and S V Kreidin, « Ядерное сдерживание в условиях глобальной противоракетной обороны США » ['Nuclear Deterrence Under the Conditions of US Global Anti-Missile Defence'], *Военная Мысль* (Vol. 5, 2022), pp. 112–17.
55. Kingston Reif and Shannon Bugos, 'U.S. Aims to Add INF-Range Missiles', Arms Control Association, October 2020, <https://www.armscontrol.org/act/2020-10/news/us-aims-add-inf-range-missiles>, accessed 5 August 2025.

initiated by the Trump administration on the W76-2 SLBM carrying five-kiloton warheads, to provide the US with options for low-yield nuclear use in response to the prospect of Russia's own doctrine. At the same time, work on modernising the W76-1 MK4A warhead with a burst-height compensating fuze – which effectively enabled it to be used for hard target kills in lieu of the W88 – culminated in 2019.[56] Second, Russia faced the prospect of a revival of an intermediate-ranged threat in Europe when the US withdrew from the INF Treaty. Although the cruise missiles launched from systems like Typhon, their conversion to serve nuclear functions is not inherently technically difficult.[57] In 2019 the Trump administration's Missile Defense Review articulated, for the first time, the intent to counter Russian and Chinese missiles (albeit on a regional basis).[58] Although Russia had long complained that the INF Treaty was disadvantageous to Russian interests and refused to engage with efforts to maintain it, the Treaty had prevented the placement in Europe of missiles that can, in the case of ballistic missiles and HGVs, reach Moscow in five minutes from eastern Germany, which not even SLBMs on depressed trajectories could achieve from viable launch positions. Although bitterly opposed to the INF, the end of the Treaty quickly reminded many Russian officers of the disproportionate risk posed by intermediate weapons in the hands of a power whose own command nodes were distant.[59]

This presented Russia with the prospect of an emergent US counterforce capability, since modernised nuclear warheads were more capable of hard target kills with low fallout and freed up higher-yield warheads such as the W88 for other functions. These functions include (but are not limited to) barrage attacks against TELs or retaining their higher yields in conjunction with that of the US ICBM arsenal for residual throw-weight (and thus negotiating power at the point of conflict termination).[60] Even a limited US response using the W76-2 would be difficult to differentiate from the opening stages of a counterforce attack, given the use of a shared SLBM; this means that even a more constrained US response to theatre-level nuclear use would, if it involved several missiles, present Russia's leadership with the spectre of a counterforce attack. Although not offering a hard target kill capability itself, the W76-2 warhead made the

56. US Department of Defense (DoD), 'Nuclear Posture Review', February 2018, p. 30, <https://media.defense.gov/2020/may/18/2002302062/-1/-1/1/2018-nuclear-posture-review-final-report.pdf>, accessed 23 June 2025.
57. Author interview with Frank Rose, former principle deputy administrator of the National Nuclear Security Administration, online, 22 April 2025.
58. US DoD, '2019 Missile Defense Review', January 2019, <https://www.defense.gov/portals/1/interactive/2018/11-2019-missile-defense-review/mdr-fact-sheet-15-jan-2019-updated.pdf>, accessed 23 June 2025.
59. A G Semyonov, « Вооруженная борьба на воздушно-космическом театре военных действий » ['Armed Struggle in the Air and Space Theatre of War'], *Военная Мысль* (Vol. 1, 2023), pp. 19–27.
60. This is an approach which would not be dissimilar to the Schlesinger Doctrine's target plan, Alpha. See Press and Leiber, *The Myth of the Nuclear Revolution,* p. 61.

threat of W76-1 employment more credible. Even if a leadership is not contemplating a risky counterforce attack, a US response will be difficult to distinguish. Moreover, even if the response is successful as a limited strike, this would suggest the inability of Russia to maintain a launch on warning posture. Rather than being a problem, then, the absence of a mechanism for discrimination was arguably an important characteristic of deterrence. Threatening nuclear retaliation against any launch of a ballistic missile (including a low-yield W76-2) was a rational Russian riposte, but also one which eroded the flexibility to use nuclear weapons in a coercive way (that might invite retaliation with a low-yield SLBM).

Furthermore, theatre-level precision strike capabilities, while not independently a credible counterforce capability, could contribute to a counterforce campaign against soft-skinned targets such as TELs – especially if the US retained the capacity to upload warheads in storage to conventional systems. The risk to Russia was not that it had no response to the risk of counterforce, but rather that viable responses required a level of alertness in a crisis and a declaratory posture designed to preclude limited nuclear exchanges (which could disproportionately impact Russia's position in the strategic balance). For many of the same reasons, Russia was in the position which the USSR found itself in when the Schlesinger Doctrine was articulated.[61]

In addition to the congruence between the first Trump administration's nuclear posture review and a shift in Russian nuclear doctrine, references to counterforce attacks (which began with theatre-level CPSs to, among other things, disable Russian missile and air defence) grew in the journal *Военная Мысль* (*Military Thought*) between 2019 and 2023, with a sharp increase after 2020. The theme also appeared with increasing frequency in other journals such as *Armaments and Economy* and *Aerospace Forces Theory and Practice*.[62] Indirect confirmation that this concern grew in salience has been provided by military officials of Russian allies such as China in track two diplomatic dialogues. Within these dialogues, a series of interrelated developments – including the improving accuracy of SLBMs, CPS, proliferating ISR and processing power – were identified as markers of a supposedly greater US capacity to target Russian nuclear forces.[63]

Another indicator of Russia's self-perceived vulnerability to US theatre-level CPS is the return to the analogous response posture maintained by the Soviets during the Cold War, focused on matching US capacity for low warning strike and thereby reducing asymmetries in vulnerability. During much of the Cold War, the US maintained medium-ranged Pershing II systems in Europe, creating an

61. On the Soviet response to the Schlesinger Doctrine, see Zisk, *Engaging the Enemy*.
62. Author survey of a decade of published journals across the three publications.
63. Author interview with former senior US DoD official, online, 2 May 2025.

asymmetry of vulnerability for the Soviets. The deployment of Soviet ballistic missile submarines (SSBNs) to areas such as the Caribbean was meant to present the US with a risk of low warning nuclear attacks, analogous to that which the Soviets believed they faced in Europe. Similarly, Russian guided missile submarines (SSGNs) are now close to maintaining a year-round posture near US coastlines. Russian SSBNs are also increasingly operating from areas further to the north of the Arctic, allowing them to compress US warning times. For example, one article by academics at the Russian Academy of Artillery and Rocket Sciences pointed to exercises such as the 2021 coordinated test firing of the Bulava SLBM from three Russian SSBNs – which emerged from under 1.5m of ice – as evidence of Russia's capacity to inflict a pre-emptive 'counter-nuclear' attack on the US.[64]

There are, nevertheless, alternative interpretations for such Russian activity. Although V Selivanov and Y D Illiyn, the two academics who authored the above-referenced article, are relatively senior, their opinions are not policy, and a demonstrated under-ice capability would also be consistent with the employment of submarines in a second-strike role. Moreover, some former senior US officials interpret Russia's SSGN deployments as primarily a means of generating international prestige.[65] However, maintaining a year-round presence at reach absorbs a significant portion of the readiness of a still small force of quiet SSGNs. The associated costs, on balance, suggest that this is viewed as strategically significant since intermittent deployments could as easily burnish Russia's military credentials.

That the testing in earnest of capabilities such as the Avangard HGV and the Poseidon intercontinental nuclear torpedo began during this period provides further corroboration that the counterforce threat was taken seriously enough to be translated into programmatic lines of effort, since both systems represent a hedge against first strike vulnerability.[66] Of course, neither project (nor other accompanying projects, such as the nuclear-powered cruise missile Burevestnik) began in 2018 when they were announced as programmes of record under the next SAP. Many had seen their inception as hedges against US withdrawal from the ABM Treaty. However, making a project a programme of record was Russia's decision, as was announcing the existence of these programmes publicly before they were at full operational capability. Of the projects announced by Putin in 2018, Burevestnik saw significant test failures, while another (RS-26) was cancelled.

64. Selivanov and Illiyn, 'The Concept of a Military-Technical Asymmetrical Response to Deter a Likely Adversary from Unleashing Military Conflicts'.
65. Author interview with Rose, online, 22 May 2024.
66. Центр анализа мировой торговли оружием [Centre for Analysis of World Arms Trade], « Траектория полета ракеты «Авангард» проходит на высоте десятков километров » ['The Avangard Rocket's Flight Trajectory Passes at an Altitude of Tens of Kilometers'], 2 March 2018, <https://armstrade.org/includes/periodics/news/2018/0302/103545658/detail.shtml>, accessed 23 June 2025.

Consequently, the choice does not appear to have been driven by the mere fact of existing programmes having matured.[67]

While the authors of this paper did not come across any direct allusions to a loss in credibility of some of Russia's flexible options, this can be deductively inferred on several grounds. First, if Russia needed to pre-empt a campaign led by large-scale missile strikes launched either from maritime platforms, such as submarines, or from ground-based TELs, this would prove difficult to achieve with conventional means alone. This is due to persistent deficiencies in Russian air- and space-based ISR capabilities (which would be needed to track both ground and maritime launch platforms), limited numbers of ASW capabilities such as maritime patrol aircraft and ASW frigates, and the logistical and operational challenges of deploying such systems beyond zones protected by Russian coastal and surface-based air defence systems.[68] References by figures such as Sterlin to the efficiency of nuclear weapons compared with conventional alternatives also puts an emphasis on large-scale employment of nuclear weapons; munition efficiency is of less salience when contemplating strikes on a limited number of targets. Leaked Russian planning documents also suggest that the role of nuclear weapons for tasks such as ASW (using nuclear warheads on the SS-N-14) and anti-surface warfare are of particular importance in a large-scale conflict, even in 2014.[69]

The major shift between 2014 and 2020 appears to be the urgency for early suppression, given improvements in US capabilities, and Russia appears to have lost some flexibility during this period. Contemporary advocates for change in Russian nuclear planning, including the head of the Council for Foreign and Defense Policy Sergey Karaganov, former colonel of Russian military intelligence Dmitri Trenin and former commander of the Russian Pacific Fleet Admiral Sergei Avakyants, have strongly criticised what they saw as a shift to a Cold War-era approach in the employment of nuclear weapons – in effect, a return to a reliance on an inflexible doctrine of large-scale retaliation, linked to a restrictive threshold to meet deterrent requirements.[70]

The prescriptive elements of the position of Karaganov, Trenin and Avakyants may be a poor guide to Russian policy, since figures such as Karaganov are considered to be iconoclasts within the Russian system. What is of more interest

67. For more information regarding Putin's presentation, see Andrew Roth, 'Putin Threatens New Arms Race with New Missiles Declaration', *The Guardian*, 1 March 2018.
68. Sidharth Kaushal et al., *The Balance of Power Between NATO and Russia in the Arctic and High North*, RUSI Whitehall Paper 100 (Abingdon: Taylor & Francis, 2021).
69. Max Seddon and Chris Cook, 'Leaked Russian Military Files Reveal Criteria for Nuclear Strike', *Financial Times*, 28 February 2024.
70. *Интерфакс*, « « К устрашению » »: эксперты предложили свое видение ядерного сдерживания» ['"Towards Intimidation": Experts Offer their Vision of Nuclear Deterrence'], 30 October 2024, <https://www.interfax.ru/russia/989287>, accessed 23 June 2025.

is the diagnostic element of their analysis, namely, their description of existing Russian nuclear policy. Given the level of access to classified data enjoyed until recently by Avakyants, his diagnostic observations are meaningful.

In truth, for the reasons already discussed, this shift from flexible employment options to large-scale retaliation may not have been discretionary.[71] To be sure, this is not to imply that the Russians, like the Soviets before them, could conceive of nothing other than strategic exchanges. Soviet doctrine envisioned the mass employment of theatre-level nuclear weapons, while potentially withholding strategic weapons; Russian concepts for employment appear to have followed a similar logic. However, the employment of nuclear weapons in a graduated manner that is consistent with coercive wartime diplomacy becomes much more difficult to contemplate if Russia perceives a realistic US counterforce threat.

A perceived US posture shift, along the lines of what is envisioned by the Trump administration, thus revived the familiar Russian nightmare of US engagement in limited nuclear warfighting at the theatre level (in a way that blurred the theatre's strategic distinction for Russia). A likely effort to respond to Russia's own massive nuclear stockpile and the re-emergence of flexible nuclear options also highlighted a familiar asymmetry. Russia enjoys insurmountable advantages in numbers of substrategic warheads but what it lacks compared to the US is time and space. It is difficult to make a distinction between a theatre-level strike and the beginning of a strategic attack led by theatre-level systems (which compress warning times). Consequently, any number of US theatre-level systems makes the initiation of theatre nuclear use (and thus the introduction of theatre-level exchanges) an asymmetrically risky proposition for Russia.

This was one reason why the deployment of the Pershing II and Gryphon were of such significance to the USSR: according to figures such as then-Soviet Defence Minister Dmitry Ustinov, a missile such as the Pershing II could serve as a means of decapitation in service of a wider counterforce attack.[72] The Soviets' response was to shift to a launch on warning posture and to warn that the theatre and strategic levels were inseparable; an attack by the US with weapons at any level would incur a response that would involve the US.

The Russian response was to eliminate language related to flexible nuclear use from their 2020 nuclear doctrine, as well as to stipulate that any ballistic missile launch against Russia would be a precondition for nuclear use. The Russians thereby adopted what was essentially a hair trigger posture to deter the

71. *Ibid.*
72. National Security Archive, 'Statement by Soviet Minister of Defense, Dmitry Ustinov at the Extraordinary Session of the Committee of Defense Ministers of Warsaw Pact Member States, Berlin, German Democratic Republic, October 20, 1983, Highly Confidential', 20 October 1983, <https://nsarchive.gwu.edu/document/17318-document-20-statement-soviet-minister>, accessed 23 June 2025.

employment of theatre-ranged US capabilities. Such a posture, however, limits policymakers' options for flexible use (although by no means eliminating them). Escalation cannot be presented as being both controllable – and thus tailored to the situation – and unpredictable. Moreover, the time to target of US SLBMs had already limited to a significant degree the credibility of Russian launch on warning, a challenge that would be compounded by intermediate-range missiles in Europe, especially given the (potentially erroneous) assumption that some CPS capabilities could be used for hard target kills.

In summary, these developments presented the Russians with the spectre of a scenario in which a US president, compelled to use conventional force on a scale which could plausibly result in nuclear exchanges and armed with a credible counterforce capability, might be convinced to opt for a damage-limiting first strike. Offsetting this risk would require the Russians to maintain a level of nuclear alertness early in a conflict which would limit Russia's options for flexible targeting (because graduated employment requires strategic stability). Moreover, the suppression of many theatre-level targets to protect the Russian strategic deterrent would, in this context, have to occur early. This paper argues that Russia was gradually being forced from a coercive, theatre-level posture to a theatre-level warfighting concept which could only be actualised in extreme scenarios and at great risk. This explains Russia's effort to clarify thresholds. Congruence between shifts in US policy and both Russian doctrinal shifts and an increase in articles about the counterforce threat provide corroborating evidence, as do the assessments of several subject matter experts involved in the government during this period.

The specific focus on massed aerospace attack in Russia's recently published version of 'Fundamentals of the State Policy of the Russian Federation on Nuclear Deterrence', and its use of specific and high-level criteria for nuclear employment are likely reflective of the fact that the pre-war trends discussed have not abated, and have indeed intensified.[73] Despite (arguably) having every reason to revert to language around flexible use, Russia opted not to do so, and the only explicit change to its conditions for employment – a massive aerospace attack and a critical threat to the integrity of the state (as opposed to merely its existence) – are possibly still restrictive. A massive aerospace attack could be a component of a counterforce attack, not because flexibility is not viewed as an ideal, but because (this paper argues) the room to threaten graduated use was closing, despite Russia's large number of warheads.[74]

73. Ministry of Foreign Affairs of the Russian Federation, 'Fundamentals of State Policy of the Russian Federation on Nuclear Deterrence', Executive Order No. 991, 3 December 2024, <https://www.mid.ru/en/foreign_policy/international_safety/1434131/>, accessed 15 March 2025.
74. For more on the desirability of flexibility, see M L Tikhonov, « Основные направления совершенствования теории оперативного искусства Ракетных войск стратегического назначения на рубеже 2030-х годов »

Russia is not at immediate risk of losing its entire nuclear arsenal to a first strike, and authors including Colonel General S V Karakaev, the commander of the Strategic Rocket Forces, view the challenge as distant and are still considerably more sanguine about the near-term risks.[75] Regardless of their assessment of the existing risk, most of the Russian authors discussing this subject (including less alarmist ones such as Karakaev) appear convinced that the goal of US conventional concepts that prioritise long-range strike and the blinding of ISR – such as multidomain operations – was to develop a unified concept for the employment of theatre-level and strategic forces. Compounding this is a conviction at the highest levels of the Russian military that present gaps in US capabilities – such as the absence of interceptors with the burnout velocity to target Russian ICBMs from maritime launch platforms – will eventually be overcome.[76] The fear expressed appears to not be the fear of complete disarmament, but rather the risk of Russia being moved from an assured retaliation doctrine to a de facto minimum deterrent.

When assessing Russia's substrategic capabilities, launch platforms are notably more of a limiting factor than warheads or missiles. For example, one 2019 assessment of Russia's standoff capabilities assessed there to be roughly 138 launch platforms for land attack capabilities across the three domains, with bombers and maritime platforms carrying a disproportionate amount of throw-weight at the theatre level.[77] This is a robust, but hardly insurmountable, target set. While the current numbers exceed this level, and the end of the INF Treaty opens a pathway for more survivable ground-based TELs (and is thus not an unalloyed problem for Russia), it should be recognised that the massive advantage in warhead numbers may not automatically translate into strategic advantage.

Per this paper's argument, then, by the end of the last decade, Russian authors had become convinced that the US would be incentivised to immediately move several rungs up the escalation ladder to a regional war (in which they would enjoy superiority, so as to avoid an unfavourable local war). However, escalation to a regional war would risk a Russian nuclear response, which Moscow expected to serve as sufficient deterrent. The above assumptions may have incentivised

['Main Directions in the Perfection of Theory of Operational Art of Strategic Rocket Forces Toward 2030'], *Военная мысль* (No. 7, 2023), pp. 30–31. For more on the risk of counterforce, see R O Nogin, « О роли и месте Ракетных войск стратегического назначения в перспективной системе комплексного стратегического ядерного сдерживания возможной агрессии против Российской Федерации » ['On the Role and Place of Strategic Rocket Forces in the Future System of Complex Strategic Nuclear Deterrence of a Possible Aggression Against the Russian Federation'], *Военная мысль* (No. 7, 2022), pp. 41–47. Since both authors are from the Strategic Rocket Forces, their views (while not automatically identical) should reflect institutional consensus.

75. S V Karakaev, « К вопросу о применении Ракетных войск стратегического назначения в войнах будущего » ['Towards the Use of Strategic Missile Forces in the Wars of the Future'], *Военная мысль* (No. 2, 2023), p. 10.
76. Gerasimov, as quoted by Rose in author interview, online, 22 April 2025.
77. Westerlund et al., *Russian Military Capability in a Ten-Year Perspective – 2019*, p. 133.

the elimination of language regarding flexibility in Russia's nuclear doctrine and the maintenance of a high declaratory threshold for use through to the end of the 2010s. References from 2018 to nuclear retaliation (in response to the use of nuclear weapons of any yield), including in a presidential address to the Federal Assembly, can be understood as a direct reflection of this perceived threat.

III. Continuity and Change: Lessons from Ukraine and the Evolving Strategic and Operating Environment

The war in Ukraine has tested several Russian concepts in terms of the employment of strategic non-nuclear weapons and dual-use systems, which Russia would employ for nuclear use at operational-strategic and operational-tactical depths. The juxtaposition of expectations and outcomes of the effectiveness of these systems, as well as the (admittedly still nascent) Russian discussions regarding the implications of the conflict for Russian nuclear planning, is thus instructive. Furthermore, the conflict in Ukraine has occurred concurrently with the progression of several trends that preceded it. Examples include the growth of China's nuclear arsenal; the emergence of a two-peer problem for the US; and the further development of US CPS capabilities (such as the joint Army–Navy HGV, which was successfully tested in 2024).[78]

While the conflict in Ukraine has remained conventional, it has ramifications for Russian nuclear planning, given the close relationship between conventional and nuclear strategic operations in Russian thinking. The conflict has likely reinforced lessons for Russia on the challenges of conventional counterforce strikes against NATO in a local conflict, and has raised questions about the survivability of many of the platforms on which Russia has thus far relied for both conventional and substrategic nuclear use. The conflict would therefore appear to have challenged at least some of Russia's assumptions regarding its compounding conventional advantages, particularly with respect to both Russian and Allied offensive and defensive counterair operations. These are concerns that were already emerging in the years prior to the 2022 invasion of Ukraine. Some of these lessons also have implications for Russian capabilities in a regional war. As this chapter explains, these lessons should undermine previous Russian assumptions that a conflict

78. US DoD, 'Army and Navy Successfully Test Conventional Hypersonic Missile', 12 December 2024, <https://www.defense.gov/News/Releases/Release/Article/3999835/army-and-navy-successfully-test-conventional-hypersonic-missile/>, accessed 1 February 2024.

could be contained to a local war, and further undermine any Russian conceptions that it could maintain nuclear escalation dominance.

The War in Ukraine and its Implications for Russian Nuclear Deterrence

The performance of the Russian military in Ukraine, and especially its conventional strike campaign, has important implications for Russian planning for a regional war. While not without successes, Russia has employed far more missiles than it likely initially expected to, particularly after the introduction of Western air defence systems. This has the potential to reinforce pre-war Russian fears regarding both the limited potential for conventional precision strike to suppress targets related to a massed aerospace assault, and the difficulty of dosing damage if large numbers of warheads need to be mated to missiles and employed to hit a single target.

This paper does not argue that this is a linear trend, as it depends on several factors. Among them are the success of ongoing European efforts to field air and missile defences through initiatives such as Sky Shield and the inability of Russia to offset improvements in IAMD (in some areas) with capabilities such as Oreshnik, for example, because of improvements in European upper-tier BMD, which is currently limited.

The authors propose, therefore, not a deterministic trend, but a cause-and-effect relationship between improving European IAMD and Russian nuclear planning.

The Test of Russian Concepts for Employing Long-Range Strike

The ongoing conflict in Ukraine has tested several Russian pre-war assumptions, which may provide further incentives for Russia to move to a theatre-level nuclear warfighting construct, rather than a coercive one. That Russia has had to expend cruise missiles at a rate that appears to exceed pre-war expectations against military targets in Ukraine. Furthermore, that Moscow has lost large numbers of missiles to Western air defences, make theatre-level conventional suppression of air assets in a war with NATO an even more distant prospect. Moreover, the high intercept rates achieved against Russian theatre-level strike systems by Ukraine's air defences also problematises the calibration of damage, since multiple missiles must be mated with nuclear warheads and used to achieve effects on target. The deductions from Ukraine can further shift Russia towards

a theatre-level nuclear warfighting posture, which is difficult to operationalise except in extreme scenarios.

This is not an absolute certainty, and this paper is not suggesting that Russia would prefer to not have flexible options. Rather, it is an assessed direction of travel, all else being equal. Russia appears to have significantly underestimated the size of the salvos needed to cause meaningful damage to key operational targets. The realisation of the greater-than-assumed required capabilities to suppress key strategic operational targets is likely to further exacerbate Russian assumptions of an emerging vulnerability, both in a local and regional conflict. For example, Ukraine's Ozerne Air Base was struck with six to eight cruise missiles on 25 February 2022, while the Starokonstiantyniv Air Base was struck with five cruise missiles the following day.[79] In March 2022, Vasylkiv Air Base was targeted with eight KH-101 missiles and then an Iskander SRBM, with reported heavy damage.[80] It would seem, then, that Russian estimates of the salvo sizes needed to suppress airbases – on which figures such as the 500 cruise missiles previously cited were presumably based – assumed limited numbers needed per airbase.

While the numbers used might reflect disdain for the Ukrainian Air Force, there is some further evidence that Russian assessments of the number of missiles needed for airbase suppression were modest. For example, an article by Konstantin Sivkov, formerly of the General Staff, suggested that around 18 missiles would be required to significantly impact operations at an airbase in a large war, even accounting for air defences.[81] In 2017, Russian military officials assumed the US's 59 Tomahawk salvo was in excess of what was necessary to render Shayrat Airbase in Homs, Syria unsalvageable (and were surprised when it did not fully destroy the base).[82] In practice, the impact of Russian attacks on Ukraine's air bases appears to have been mixed, and Russia does not appear to have achieved a high level of destruction of Ukrainian aircraft. While the sortie rate of Ukrainian aircraft during the war's first year was low, this is more likely to be attributed to limited opportunities to employ Ukrainian air capabilities

79. Ian Williams, *Putin's Missile War* (Washington, DC: Center for Strategic & International Studies [CSIS], 2023), p. 37; *Ukrinform*, 'Military Airfield Near Zhytomyr Comes Under Attack', 26 February 2022, <https://www.ukrinform.net/rubric-ato/3413518-military-airfield-near-zhytomyr-comes-under-missile-attack.html>, accessed 23 June 2025; GlobalSecurity, 'Starokostiantyniv AB', <https://www.globalsecurity.org/military/world/ukraine/starokostiantyniv-ab.htm#google_vignette>, accessed 23 June 2025.
80. *Reuters*, 'Russian Rockets Destroy Ukrainian Airbase in Kyiv Region: Interfax Quoting Mayor', 12 March 2022, <https://www.reuters.com/world/europe/russian-rockets-destroy-ukrainian-airbase-kyiv-region-interfax-quoting-mayor-2022-03-12/>, accessed 4 July 2025.
81. Konstantin Sivkov, 'Loaves with a Twist', *Military Industrial Courier* No. 13 (2018), <https://vpk.name/news/211120_batony_s_izyuminkoi.html>, accessed 4 July 2025.
82. Pavel Ivanov, « Бородатые «Томагавки »» ['Bearded "Tomahawks"'] *ВПК* (No. 14, 678, 2017) <https://vpk.name/news/179082_borodatye_tomagavki.html>, accessed 23 June 2025.

against robust Russian air defences after the chaotic initial attack on Kyiv, rather than meaningful Russian degradation of Ukrainian capabilities.[83]

The effectiveness of the air defence systems provided by Western partners to Ukraine represents a further challenge to both conventional counterforce attacks on targets such as airbases and dosing of nuclear damage. Systems such as the IRIS-T short-range infrared homing air-to-air missile achieved an 82% success rate against Russian missiles in the early stages of their deployment – albeit at a considerable cost in munitions – while the average interception rate claimed by the Ukrainian Armed Forces against cruise missiles such as the KH-101 and the 3M-14 Kalibr is around 67%.[84] Even missiles such as the KH-47M2 Kinzhal appear susceptible to intercept by the PAC-3 Patriot missile. Ukrainian forces claimed an intercept rate of 25%; this number likely understates the effectiveness of the PAC-3 Patriot, given that they arrived in Ukraine in mid-2023 after several Kinzhal strikes had occurred.[85]

A threefold increase in the number of cruise missiles employed against targets such as airbases, assuming a 67% loss rate for missiles such as the KH-101, would impact pre-war assessments regarding the number of missiles needed to mount conventional attacks in a regional war leading to an increase in the assessed number of missiles needed. This would amount to something which reinforced, rather than invalidated, many pre-war assessments of the scale of employment needed in a regional war, along with the inherent incentives for nuclear use that this created.[86] However, there were at least some pre-war discussions of Kinzhal and other conventional systems in a pre-nuclear role against critical targets to substantially increase the effectiveness of nuclear forces when these were eventually used.[87] (These discussions were likely alluding to Combined Air Operations Centres and BMD radar.) The assessment that conventional precision strike could serve as a breaching capability, or that nuclear weapons could be

83. Justin Bronk, Jack Watling and Nick Reynolds, 'The Russian Air War and Ukraine's Requirements for Air Defence', RUSI, 7 November 2022, pp. 27–29, <https://www.rusi.org/explore-our-research/publications/special-resources/russian-air-war-and-ukrainian-requirements-air-defence>, accessed 24 June 2025.
84. *IntelliNews*, 'Ukraine Discloses for the First Time Real Missile Interception Rates Against the Various Kinds of Russian Missiles', 24 August 2024, <https://www.intellinews.com/ukraine-discloses-for-the-first-time-real-missile-interception-rates-against-the-various-kinds-of-russian-missiles-340139/>, accessed 24 June 2025; Jack Watling, 'Long-Range Precision Fires in the Russo-Ukrainian War', in Justin Bronk and Dag Henriksen (eds), *The Air War in Ukraine: The First Year of the Conflict* (Abingdon: Routledge, 2024), p. 72.
85. Joseph Trevithick and Thomas Newdick, 'We Now Know the Types of Patriot Missiles Being Used in Ukraine', *The Warzone*, 10 August 2023, <https://www.twz.com/we-now-know-the-types-of-patriot-missiles-being-used-in-ukraine>, accessed 18 February 2025.
86. A A Protasov, S V Kreidin and I A Kublo, « Современные аспекты развития инструментов силового воздействия и концепции стратегического сдерживания » ['Current Aspects of the Development of Force Instruments and the Concept of Strategic Deterrence'], *Военная мысль* (Vol. 3, No. 76, 2021), pp. 44–45.
87. E V Evsyukov and S V Khryapin, « Роль новых стратегических систем вооружения в стратегическом сдерживании » ['The Role of New Strategic Weapon Systems in Strategic Deterrence'], *Военная мысль* (Vol. 12, 2020), p. 27.

used in single or grouped strikes as envisioned during the 2010s, could be challenged.[88]

Certainly, publicly available intercept data must be read with caveats, both because of the spurious reliability of claims, and because intercept rates may reflect, for example, a capability being used to shape or displace air defences. However, even considering these factors, pre-war assessments of impact appear to have been comparatively optimistic.

Increasing production of attack capabilities can allow Russia to sustain a higher rate of missile expenditure, but both magazine depth – especially when some systems have to be kept in reserve for nuclear use – and the complex planning required to counter IAMD represent limitations on operational tempo.[89] Over the course of the conflict, Russia has averaged around 20 missile launches per day, with attacks on airbases such as Starokostiantyniv (from which SU-24MRs equipped with Storm Shadow missiles operate) rarely exceeding five to ten KH-101 cruise missiles (along with two to three KH-47M2, on occasion).[90] Since this figure does not include the use of Shahed UAVs, it is an undercount; nonetheless, cruise missile salvo sizes still fall short of the rates of expenditure that the US, for instance, was able to achieve in Desert Storm against a more limited target set than Russia would have in a regional war.[91]

While the absence of evidence that Russian planners can support much larger-scale activity is not evidence of absence, it is worth noting that the Russian system is improving from a comparatively low baseline in this area. Before the conflict, authors in Russian military journals had written that a coordinated command-and-control (C2) architecture for the planning and execution of strikes did not exist, with ultimate authority typically held by the OSK (Joint Strategic Command) commander and his staff, who were usually ground force officers.[92] While Russia has improved considerably in its C2 capabilities, at no point during the conflict in Ukraine has Russia been publicly known to have launched more than 82 missiles in a single day (with typical salvos being considerably smaller), and there are

88. For a further discussion of the concepts of single or grouped strikes, see Kofman, Fink and Edmonds, 'Russian Strategy for Escalation Management'.
89. On cruise missile production, see Army Recognition Group Global Defense News, 'Focus: Russia Set to Ramp Up Missile Production in 2025 with 750 Iskander and 560 Kh-101 Missiles', 25 February 2025, <https://armyrecognition.com/news/army-news/2025/focus-russia-set-to-ramp-up-missile-production-in-2025-with-750-iskander-and-560-kh-101-missiles>, accessed 23 June 2025.
90. Yuri Zoria, 'Ukraine Intercepts All Russian Missiles and Most Drones in Overnight Attack on Air Base', Euromaidan Press, 12 July 2022, <https://euromaidanpress.com/2024/07/12/ukraine-intercepts-all-russian-missiles-and-most-drones-in-overnight-attack-on-air-base/>, accessed 24 June 2025.
91. Steve Froggett, 'Tomahawks in the Desert', *USNI Proceedings* (Vol. 118, No. 1, January 1992), 24 June 2025.
92. I A Fedotov, 'Direction of Development of Operational-Strategic Command of the Military District at the Modern Stage of Construction of the Armed Forces of the Russian Federation', *Bulletin of the Academy of Military Sciences* (Vol. 4, No. 57, 2016), pp. 65–70.

typically intervals of several days between cruise missile strikes.[93] Planning air campaigns is a staff-intensive activity – the aforementioned US air campaign against Iraq involved 300 planners for strike planning and additional planning teams to conduct mission planning.[94] While the planning capacity of the Russian military is currently not publicly available, several indicators would point to constraints. Among these are the organisational turf battles over the management of aerospace attack and defence through much of the 2010s, the early confusion of the war in Ukraine, and the relative difficulty faced by Russian forces in striking dynamic targets (although improvements in this area have occurred).[95]

There is also the question of generating sufficient geographic information system data to enable advanced target development and route planning. Russia has not appeared to have faced any challenges on this front in Ukraine, but the question of whether it has the underlying data to support a larger strike campaign over an even larger area, in which it may not enjoy the same degree of human intelligence for target development, is still open. A Russian article from 2018 notes the inherent data intensiveness of strike campaigns and alludes to the fact that supporting databases were being developed.[96]

Russian shortcomings in suppressing Allied air defence and eliminating key strategic targets are not irreversible trends. At present, NATO's limited air defence coverage means the threat is not yet acute without the surging of US systems to the theatre, which may become less viable as the Indo-Pacific draws US assets. The absence of hardened air shelters in many European airbases is notable. Moreover, missile systems such as Oreshnik, which can penetrate lower-tier defences such as the PAC-3 Patriot, could restore Russia's ability to strike selected targets with limited salvos.

However, initiatives to expand air defences, such as the German-led Sky Shield project, the deployment of BMD systems like Arrow-3 in Europe, and the development of European long-range strike capabilities, all have the potential to constrain Russian planning. Rather than demonstrating Russia's inability to strike targets in absolute terms, Russia has demonstrated that complications imposed by a robust air defence network constrain its ability to conventionally strike targets at the level needed in a regional war (in other words, quickly

93. Yasir Atalan, 'Russian Firepower Strike Tracker: Analyzing Russian Missile Strikes in Ukraine', CSIS, pp. 65–70, <https://www.csis.org/programs/futures-lab/projects/russian-firepower-strike-tracker-analyzing-missile-attacks-ukraine>, accessed 24 June 2025.
94. Froggett, 'Tomahawks in the Desert'.
95. Bronk, Watling and Reynolds, 'The Russian Air War and Ukrainian Requirements for Air Defence', p. 26.
96. S N Yeltsin, *Missile Planning Training Manual* (St Petersburg: University of St Petersburg, 2018), p. 56.

enough to dominate the initial period of war). These complications have reinforced pre-war beliefs about the need for efficiency, which nuclear weapons provide.[97]

The offensive threat to platforms, on which Russia's substrategic throw-weight depends, is also worth consideration. For instance, the war has made clear the level of precise intelligence that members of NATO appear to have regarding the locations and preparation of Russian strategic bombers. Ukraine appears to derive a relatively precise early warning from its allies regarding the preparation for launch, and subsequent take-off, of Russian strategic bombers; this would imply relatively high-fidelity Allied intelligence. This has extended to the maritime domain, where the Russian Black Sea fleet lost a third of its ships; this will likely reinforce pre-war assessments regarding the survivability of the VMF. If Moscow expects that many of the delivery platforms for Russia's non-strategic nuclear weapons will be lost as a conflict progresses, the likelihood of a reduction in Russia's throw-weight for substrategic nuclear weapons will increase the longer the conflict remains in its conventional phase.

A more robust defence of European airbases and key counterforce targets, as well as a demonstrated Allied capability to engage the launch platforms needed for both conventional and nuclear strikes, will compress the space available to Russian planners for solely conventional targeting in a regional war. Consequently, conventional strikes will likely be heavily focused on civilian targets in a manner more analogous to a Russian variant of pre-strategic use before large-scale nuclear use – which has already been hinted at by Sterlin and others before the war in Ukraine.[98]

Moreover, if multiple missiles need to be used to engage a target, the intervening step of limited nuclear use will prove difficult to restore unless no significant improvements in European IAMD occur. This was understood before the conflict by some Russian theorists and these concerns have been validated.[99] The implication of this would be Russia having the sole option of theatre nuclear warfighting at scale – an option both more threatening and more difficult to operationalise (hence the tendency to group it under activities associated with a large-scale war). This remains a contingent prediction, however. If, for example, European IAMD

97. Sterlin, Protasov and Kreidin, 'Modern Transformations of the Concept and Force Instruments of Strategic Deterrence'.
98. 'Warning shot' is a term derived from French nuclear doctrine. It describes the single use of nuclear weapons on a limited basis, before rapid escalation to the strategic level. The concept has been the basis for some Russian thinking on dosed damage. For more detail, see Dave Johnson, 'Russia's Conventional Precision Strike Capabilities: Regional Conflicts and Nuclear Thresholds', Livermore Papers on Global Security No. 3, Lawrence Livermore National Laboratory, 2018, p. 52, <https://cgsr.llnl.gov/sites/cgsr/files/2024-08/Precision-Strike-Capabilities-report-v3-7.pdf>, accessed 24 June 2025.
99. On these pre-war concerns, see Kofman, Fink and Edmonds, 'Russian Strategy for Escalation Management', p. 75.

capacity does not increase, Russia's growing missile stockpiles and improving planning capacity may incentivise greater reliance on conventional tools.

Russia's Other Potential Lessons from Ukraine

The lessons of Ukraine challenge, but do not invalidate, Moscow's assumptions regarding Russia's advantages in local wars. (Although Russian leaders have, at least publicly, described the Ukraine war as a regional one involving NATO.)

In a regional war, core assumptions (such as the notion that suppression of Russian air defences must necessarily involve a standoff-led mass aerospace attack) have not been tested, since the Ukrainian Air Force had no fixed-wing stealth capability. The scale at which Western standoff capabilities had to be employed to penetrate the Russian IADS, and the enablement needed to do so, might even provide superficial validation to the pre-conflict assumption that only a large-scale air attack involving hundreds (if not thousands) of munitions would penetrate Russia's IAMD.[100]

What can be asserted with greater confidence is that Russia's incentives to employ nuclear weapons in a regional war increase in a much more unambiguous way, given the numbers of conventional long-range precision strike systems expended even in a local war. The risk to launch platforms for theatre-level nuclear weapons provides a further incentive for early nuclear escalation.

Furthermore, nuclear escalation under these conditions would likely occur at scale, rather than as a limited first strike (which the Russians would prefer). In addition to the perceived threat to the survivability of Russian theatre-level platforms and strategic systems posed by a large-scale Allied attack, the more recent realisation that Russia would likely require greater use of force than previously expected to suppress Allied air defences adds a further incentive to employ nuclear weapons at scale against military targets. This would not necessarily change the fundamental assumptions of Russian nuclear planning, which were evolving in this direction in the late 2010s and early 2020s, but would reinforce the tendency towards limited flexibility.

If European air and missile defence systems expand in parallel with the development of long-range strike capabilities, this could create a rationale for earlier and larger-scale nuclear use at the theatre level. This would be especially

100. See Justin Bronk and Jack Watling, 'Rebalancing European Joint Fires to Deter Russia', *RUSI Occasional Papers* (April 2025), p. 8, <https://www.rusi.org/explore-our-research/publications/occasional-papers/rebalancing-european-joint-fires-deter-russia>, accessed 5 July 2025. The superficiality of this assessment largely stems from an apparent Russian belief that any suppression of enemy air defences campaign must begin with the massive employment of cruise missiles, which is (arguably) a poor assessment of Western doctrine.

true if improvements in European BMD accompany enhancements in air defence. While one might object that European BMD poses no real threat to Russia's strategic arsenal (due to physical limitations, such as interceptor burnout velocities), senior Russian figures, including Gerasimov, have nonetheless brushed off the objections of US interlocutors on these grounds, on the basis that these limitations will be overcome.[101] This view, while highly questionable, is not without some theoretical basis. Interceptors such as the now-cancelled SM-3 IIB would have had some utility against Russian ICBMs, albeit from positions which placed the launching vessel at unacceptable risk.[102]

Reliably suppressing BMD capabilities by conventional means will prove challenging, and the urgency to eliminate them early (given apparent Russian assumptions) will be considerable. When discussing the targeting of transportable systems, several Russian authors obliquely concede Russia's limited ability to destroy these systems with conventional means, since the kill chains they describe as being necessary exceed Russia's (likely) current and future capacity to deliver. For example, one article describes the destruction of Terminal High-Altitude Area Defence (THAAD) at reach as a task requiring the collaborative use of UAVs, fixed-wing aircraft, satellites and long-range missiles.[103] Given Russia's difficulties with engaging Ukraine's mobile S-300 batteries early in the war, and that prompt targeting at operational depths beyond 200 km does not represent an area where Russia has improved (to a degree which would fundamentally challenge this observation), the suppression of air and missile defences as a precondition for both conventional and nuclear targeting would become challenging for Russia to achieve with conventional means (if Allied air defences improve). This also applies to other fleeting targets, such as mobile long-range strike systems such as Typhon and the LRHW being fielded by the second Multi-Domain Task Force.

The challenges faced by Russia in the maritime domain during the war bear special consideration, given the salience of this domain to both strike and IAMD. Some Russian authors, including retired senior officers, have acknowledged that the VMF lacks many of the components of a force capable of contesting a stronger navy with conventional weapons.[104] Russia's relative

101. Author interview with Rose based on Rose's conversations with Gerasimov, online, 22 April 2025.
102. Jaganath Sankaran, 'The United States' European Phased Adaptive Approach Missile Defense System: Defending Against Iranian Missile Threats Without Diluting the Russian Deterrent', RAND, February 2015, p. 38, <https://www.rand.org/pubs/research_reports/RR957.html>, accessed 24 June 2025.
103. A A Glushak and D A Peresypkin, « Пространственно-временная модель поражения объектов противоракетной обороны противника оперативно-тактической авиацией с применением высокоточного оружия » ['A Spatial and Temporal Model of the Defeat of Missile Defence Facilities of the Enemy by Use of Operational Tactical Aviation with the Use of High Precision Weapons'], *Военная мысль* (No. 10, 2023), p. 49.
104. Viktor Patrushev, « Флот не готов к большой войне » ['The Navy is Not Ready for a Big War'], *Военно-промышленный курьер* (No. 25, 888, 6 July 2021).

lack of success in replacing the Soviet Tselina and Legenda satellite constellations, and the limited survivability of its surface fleet (which is built around smaller green water vessels) have been noted. The difficulties faced in tracking dynamic Ukrainian targets such as the Yuri Olefirenko and the losses sustained by the Russian fleet in Sevastopol likely reinforce the notion that the Russian surface fleet cannot compete with conventional weapons. A failure to maintain situational awareness in very favourable conditions bodes poorly for a blue water engagement.

Should Russia be convinced that it does indeed suffer from conventional inferiority, it is therefore faced with a dilemma: failing to escalate to the large-scale employment of substrategic nuclear weapons exacerbates the threat Russia faces from theatre-level systems linked to the US strategic deterrent. Expending nuclear weapons at scale, however, is a threat which is difficult to make credible, in a context where Russia faces a credible counterforce threat from the US. Russia's capacity to use nuclear weapons purposefully, rather than reactively, erodes unless it can strengthen its second-strike capabilities. For members of NATO, the implication is that elusive platforms such as TELs, SLCM-equipped submarines and improved IAMD capabilities all present Russia with a strategic dilemma. Leaving these systems intact in a local war places Russia at considerable risk if the war escalates to a regional or large-scale war. Russia would be forced to escalate to large-scale nuclear use or would risk the incapacitation of its nuclear deterrent if it did not escalate.

Nuclear weapons are no panacea against maritime platforms at sea or against failures to at least imperfectly localise targets, but they do offer a greater margin of error. A nuclear-armed cruise missile can achieve overpressure sufficient to damage a hull from around 3 km out, for example, while a nuclear torpedo or depth charge with a 1 megaton payload (comparable to a system such as Poseidon) can impact a submarine out to 6 km away.[105] Targets such as nuclear-powered general-purpose attack submarines (SSNs) in port, however, can be much more reliably destroyed with nuclear weapons, as can ground-based TELs. It should thus be assumed that one indicator of the 'preparations for a massed aerospace attack', which current Russian doctrine treats as a condition for nuclear use, is Russia's detection of the posturing of vessels capable of launching cruise missiles.[106]

However, pre-emptively destroying these systems in the context of a local war precludes the war from being kept local (and perhaps even regional). The susceptibility of Russia to strategic binding – in which its capabilities are difficult

105. Tom Stefanick, *Strategic Antisubmarine Warfare and Naval Strategy* (Lexington, VA: Lexington Books, 1987), p. 77.
106. Ministry of Foreign Affairs of the Russian Federation, 'Fundamentals of State Policy of the Russian Federation on Nuclear Deterrence'.

to employ in a rational way – aligned with its political aims is an important deduction for the Alliance. The Alliance thus stands to both benefit from and accept risks associated with the stability–instability paradox. The difficulty of calibrating the use of force for Russia will contribute to general deterrence but also to intra-war escalation.

Russia's Options for Mitigation

It should be reiterated that everything discussed above is a deduction based on the current trajectory. The lessons learned from the war in Ukraine do not automatically compel Russia to alter its nuclear thresholds. The development of new capabilities, many of which are already underway, may help offset some of the perceived asymmetries in vulnerability. For example, intermediate-range ballistic missiles (IRBMs) such as Oreshnik may have a high probability of penetrating air defences, enabling limited nuclear strikes with a high degree of confidence in target destruction. Additionally, road-mobile systems offer a hedge against the vulnerability of fixed theatre-level launch platforms, serving as a potential mitigation against a limited counterforce strike targeting nuclear assets, especially theatre-level ones without aiming to destroy the Russian strategic deterrent (similar to some variants of a Target Set Alpha envisioned by Schlesinger).

Road-mobile systems, which are more difficult to detect, offer a hedge against the vulnerability of Allied theatre-level nuclear launch platforms, such as bombers or surface vessels. Indeed, it was precisely the concern over theatre-level vulnerability that prompted the Soviet Union to develop systems like the SS-20 during the Cold War. Russia's investment in Oreshnik, a variant of the RS-26 intermediate-range ballistic missile, may be viewed similarly. Notably, the SS-20 faced opposition from figures such as Marshal Grechko, who argued that deploying a road-mobile system signalled a willingness to absorb a first strike, rather than pre-empt one.[107] Viewed through this lens, Oreshnik may reflect an effort to extend the decision-making window for a Russian leader, allowing for theatre-level nuclear use (even if key substrategic platforms were neutralised during the conventional phase of a conflict).

However, the mobility of TELs is a double-edged sword: dispersing them in a crisis carries escalatory risks, while failing to do so increases the chance of their destruction in a pre-emptive strike. Moreover, TELs do not offer absolute protection, particularly in an environment shaped by pervasive US ISR capabilities and increasingly accurate conventional and nuclear strike systems. Strategic

107. James Farquhar Cant, 'The Development of the SS-20: A Case Study of Soviet Defence Decision Making During the Brezhnev Era', PhD Thesis, University of Glasgow, 1998, p. 77, <https://theses.gla.ac.uk/4814/>, accessed 26 June 2025.

missiles are typically launched from pre-prepared sites, many of which are likely known to an adversary.[108] Nevertheless, increasing the number of mobile ground targets complicates the adversary's targeting calculus at the theatre level – and potentially even at the strategic level – by imposing significant ISR and strike resource burdens. This requires Russia to be confident in both the effectiveness of a (likely limited) number of theatre-level ground launched missiles against NATO IAMD, and confident that improvements in the Alliance's own strike capabilities and ISR do not obviate the impact of mobility.

This raises the question of neutralising space-based ISR. Russian authors have noted the scale at which low latency ISR has been provided to the Ukrainians using US space-based ISR assets; Russian literature has repeatedly pointed to shortcomings in Russian aerospace capabilities and in Russia's ability to disrupt Allied systems. This is despite the deployment of electronic warfare systems such as Murmansk-BN, which were expected to disrupt adversary capabilities but have failed to do so during the war in Ukraine. Space represents an operating environment within which the US has considerably more dependencies than Russia.[109]

It is difficult to assess whether, like the maritime domain, the Russians deem outer space to be a domain in which two requirements incentivise nuclear use: first, the requirement to suppress adversary capabilities; and second, the limited conventional options for suppression. However, Russia's perceived inferiority in the space domain – combined with repeated recognition in Russian literature of the increasing centrality of space to modern warfare – may lead Moscow to conclude that nuclear use in space may be necessary to counter this asymmetry. The prospect of nuclear weapons use in space has been discussed in theoretical terms for some time by Russian academics working for state institutions.[110] In 2024, US intelligence suggested that Russia was planning to deploy a nuclear weapons system in space, though some analysis suggests that this may be Ekipazh (a space-based jamming system which is nuclear-powered, but not a nuclear weapon).[111] If nuclear weapons were used in space, particularly against satellites in geostationary orbit, the risk posed to US early warning systems such as the Space-based Infrared System (SBIRS) would rapidly make the theatre- and

108. This is one reason why the People's Liberation Army does not have absolute confidence in the survivability of the DF-41. See Wu Riqiang, 'Certainty of Uncertainty: Nuclear Strategy with Chinese Characteristics', *Journal of Strategic Studies* (Vol. 36, No. 4, 2013), p. 588.
109. This extends to nuclear early warning. See Pavel Podvig, 'Russia Lost All its Early-Warning Satellites', Russian Strategic Nuclear Forces blog, 11 February 2015, <https://russianforces.org/blog/2015/02/russia_lost_all_its_early-warn.shtml>, accessed 26 June 2025.
110. B A Andrushchenko and E L Stupitsky, 'Numerical Studies of the Structure of Eruptive Regions Formed by Powerful Explosions at Different Heights', *Computer Research and Modeling* (Vol. 12, No. 1, 2020), pp. 97–140.
111. For a short discussion of analysts' views, see Dana Goward, 'Russia's Space-Based Nuclear Weapon? Here's an Educated Guess', *GPS World*, 20 February 2024, <https://www.gpsworld.com/russias-space-based-nuclear-weapon-heres-an-educated-guess/>, accessed 26 June 2025; Kofman, Fink and Edmonds, 'Russian Strategy for Escalation Management'.

strategic-level indistinguishable for both the US and Russia. Preparations for this would provide some corroboration of Russian counterforce fears – the only type of threat against which this would make sense.

However, preliminary research is not evidence, and Russian authors also dedicate considerable focus to effects such as plasma fields. This represents a subcomponent of a wider field of research on counter-space capabilities (including nuclear-powered plasma generators).[112] Moreover, Russia deploys directed energy weapons, such as Peresvet, with road-mobile ICBMs such as the RS-24, suggesting it does believe that it has non-nuclear options for counterspace activity.[113] Placing a nuclear weapon in space will be a bellwether for intelligence communities, indicating the degree to which Russia views options for flexible escalation as having been eroded.

The war in Ukraine has tested and reinforced Russia's greatest apprehensions about the viability of conventional operations in a regional war against NATO, especially regarding precision strike effectiveness, platform survivability, and air and missile defence suppression. Russia's heavy cruise missile expenditure, the limited success of conventional strikes on key airbases, and the resilience of Ukrainian air defences (supported by NATO) suggest that conventional counterforce operations in a high-end conflict would be more demanding than pre-war Russian estimates assumed. These lessons, combined with broader trends such as NATO's improving IAMD and the expansion of Allied long-range strike capabilities, are likely to further shift Russian thinking toward a theatre nuclear-warfighting model, albeit in extremis. This trajectory is not inevitable – new systems like Oreshnik and road-mobile TELs may help mitigate some perceived vulnerabilities – but the survivability challenges for Russian delivery platforms, both conventional and nuclear, have grown. Moreover, enduring gaps in Russian ISR, planning bandwidth, and maritime and space-based capabilities heighten the perceived asymmetries in a regional conflict. Faced with the risk of early platform attrition and diminishing conventional leverage, Moscow may feel compelled to escalate earlier and at a larger scale with sub-strategic nuclear weapons. For NATO, the implication is both a benefit and a risk. A state which does not believe that it can control escalation often is deterred from war;[114] however, this also involves a heightened risk of large-scale nuclear use early in a conflict. This reinforces the need to manage escalation dynamics carefully, while continuing to invest in mobility, air defence and ISR resilience.

112. D S Moiseeva, A A Motorin and E L Stupitsky, 'Assessment of the Ionization Effect During the Propagation of a Toroidal Plasma Bunch in a Diluted Atmosphere', *Geomagnetisim and Aeronomy* (Vol. 59, No. 4, 2019), pp. 482–91.
113. Bart Hendrickx, 'Peresvet: a Russian Mobile Laser System to Dazzle Enemy Satellites', *Space Review*, 15 June 2020, <https://www.thespacereview.com/article/3967/1>, accessed 26 June 2025.
114. Forrest E Morgan et al., 'Dangerous Thesholds: Managing Escalation in the 21st Century, RAND, July 2008, <https://www.rand.org/pubs/monographs/MG614.html>, accessed 24 June 2025.

IV. The Evolving Strategic Balance with the US

The conceptual linkage of multidomain operations, CPS, missile defence and counterforce remain enduring characteristics of Russian thinking. Concerns in this regard have been reinforced by several factors, however.

First, Finland and Sweden's accession to NATO placed many sensitive Russian facilities (such as Olenegorsk and Severomorsk) within range of tactical ground-based missiles, further compounding the challenge of a theatre-strategic link.[115] Moreover, in 2024, the Biden administration announced the deployment of the Dark Eagle HGV and the Typhon system, capable of launching the Tomahawk cruise missile, as part of the second Multi-Domain Task Force by 2026.

The positioning of Dark Eagle in Germany would be significant as it would be able to reach Moscow in under five minutes. Based on what is known about the testing of HTV-2 (a HGV with Mach 10 speeds that can penetrate 40 m of concrete at a 1,500-km range) this paper's calculations suggest a lower penetration depth of 15 m for Dark Eagle (as earlier estimates were based on assumptions of a 1,000-kg penetrator, as opposed to the 225-kg warhead on Dark Eagle).[116] The upper bound estimate would not allow for the destruction of command posts such as Chekhov-3, but would comfortably penetrate targets such as the Central Command Post of the Strategic Rockets Forces.[117] The lower bound estimate would fall short of the penetration depths required against C2 nodes, although HGVs could pose a risk. Limited warning to other targets, such as the Don-2N radar or A-235 launchers of the Moscow BMD system, creates the possibility for

115. See V V Selivanov and Y D Illin, « Тенденции развития средств вооруженной борьбы в современных военных конфликтах, их влияние на развитие и смену поколений вооружения, военной и специальной техники » ['Trends in the Development of Means of Armed Struggle in Modern Military Conflicts, Their Impact Development and Generational Change of Armaments, Military and Specialised Equipment'], *Военная мысль* (Vol. 9, 2022), pp. 29–45.
116. For more information on the 40-m estimate, see James M Acton, 'Silver Bullet? Asking the Right Questions About Conventional Prompt Global Strike', Carnegie Endowment for International Peace, 3 September 2013, <https://carnegieendowment.org/research/2014/11/silver-bullet-asking-the-right-questions-about-conventional-prompt-global-strike?lang=en>, accessed 7 July 2025; for more information on Dark Eagle, see Bryan Clark, 'DoD is Running the Wrong Way in the Hypersonics Race', Hudson Institute, 21 April 2020, <https://www.hudson.org/national-security-defense/do-d-is-running-the-wrong-way-in-the-hypersonics-race>, accessed 26 June 2025.
117. See Leonard Ryabikhin, 'Russia's Nuclear NC3 and Early Warning Systems', Technology for Global Security, Special Report, 2019, <https://securityandtechnology.org/wp-content/uploads/2020/07/russia_nc3_IST_july_11-2019_3.pdf>, accessed 26 June 2025.

SLBMs to be used against command posts – which would align with the often-expressed view that hypersonic missiles would be used to suppress Russian radar.[118]

It is also possible that Russian planners work under the assumption of a higher penetration depth, since they have repeatedly expressed the view to US interlocutors that CPSs threaten their silos (which are typically also protected by 30 m of concrete).[119] Cruise missiles equipped with conventional warheads have considerably less utility against a hardened target. The conversion of cruise missiles for nuclear use is not technically difficult, and Russian officers have long worried about US capacity to upload warheads stored after the end of the Cold War.[120]

Hitting individual command posts, either with CPS or with nuclear systems enabled by CPS, would not cut the Russian centre from its arsenal. It would, however, add time to the process of launch, with the longest (and most centralised) reversionary process via the 'Perimeter' system taking 40 minutes in the early 2000s.[121] Even a significantly improved response time of around 10 minutes would likely pose problems for maintaining a credible LoW posture, if a significant number of missiles can reach their targets before this point.[122]

This intersects with the risk posed by the adoption of the modernised W76-1 warhead on US SSBNs, the functional equivalent of a step change in the accuracy of the missile, although the modernised W76-1 does not have a lower CEP (circular error probable) than its predecessor, the missile super-fuzes – allowing for flexibility in its burst height altitude. Accordingly, this allows the missile to adjust the altitude at which it detonates. The discrepancy between its measured and real altitude in terminal phase can be used to measure whether the missile is likely to land either up-range or down-range. Adjusting burst height based on this measurement allows for detonation above a target, at altitudes which ensure that the overpressure generated will destroy a hardened target with a high level of probability.[123]

118. Selivanov and Illiyn, 'The Concept of a Military-Technical Asymmetrical Response to Deter a Likely Adversary from Unleashing Military Conflicts'; Stuchinsky and Korolkov, « Обоснование боевого приминения авиации для срыва интегрированного массированного воздушного удара в многосферной операции противника » ['Justification of the Use of Aviation for the Disruption of Integrated Massive Air Strike in a Multi-Sphere Operation of an Adversary'], pp. 29–36.
119. Author interview with Rose, online, 22 April 2025.
120. *Ibid.*; upload capacity was discussed in author interview with Michael Kofman, Senior Fellow of the Carnegie Institute Russia and Eurasia programme, online, 30 April 2025.
121. Valery E Yarynich, *C3: Nuclear Command, Control, Cooperation* (Washington, DC: Center for Defence Information Control, 2003), p. 159.
122. Bruce G Blair and Chen Yali, 'The Fallacy of Nuclear Primacy', *China Security* (Autumn 2006), p. 59.
123. Hans Kristensen, 'Warhead "Super-Fuze" Increases Targeting Capability of US SSBN Force', Federation of American Scientists, 2017, <https://fas.org/publication/super-fuze/>, accessed 24 June 2025.

Therefore, US capacity to destroy hardened targets such as missile silos and command posts with SLBMs – previously limited to its 400 or so W88 warheads – could increase by around 800 warheads. This both reduces the probability of kill needed to achieve certainty of effect and frees up higher-yield warheads, such as the W88, for other tasks. Higher-yield warheads could be held in reserve for conflict termination on favourable terms (which are defined partially in terms of surviving throw-weight) or for targeting mobile ICBMs under conditions where the margin of error in an assessed location may be greater.

Even on a depressed trajectory, SLBMs would cover ranges of 1,800 km in seven minutes, which is cited by A G Semyonov (former commander of the Air and Space Missile Forces) as the absolute minimum time in which Russian C2 could respond.[124] To launch an SLBM against targets such as silos, SSBNs would have to be placed at risk – at the very heart of the Russian naval bastion – making this launch unlikely. Yet, C2 nodes near Moscow could be targeted in these timeframes from these patrolling areas and a disruption to the systems response speeds can enable follow-on attacks on targets such as silos. In his article, Semyonov describes both intermediate-range systems in Europe and SLBMs posing a risk to C2 and also discusses hypersonic missiles – corroborating evidence from interviews that Russian estimates of the penetrating capabilities of hypersonics tends toward upper bound estimates.

Despite concerns regarding Russian efforts to employ nuclear overmatch in Europe, then, it is far from clear that Russia views the matter in similar terms. The concern appears to be a relatively stable one, appearing in articles by academics and senior officers written both before and after the invasion of Ukraine.[125] For example, in the second year of the invasion, Semyonov coauthored an article which held that a future conflict at scale would likely begin with a massive decapitating or disarming strike as its first phase, with general purpose forces only becoming engaged if an opponent had not admitted defeat. For Semyonov, the major challenge facing Russia is that SLBMs fired from the North and Barents seas, or IRBMs fired from Europe, present Russia with five to seven minutes of early warning – a problem which will be exacerbated by the fielding of HGVs, which can further reduce these warning times.[126] A similar view was expressed by S A Zhmurin, former chief of the Air Force and Air Defence forces of the Eastern Military District, who held that the range and speed of strike

124. A G Semyonov, « Вооруженная борьба на воздушно-космическом театре военных действий » ['Armed Struggle in the Air and Space Theatre of War'], *Военная мысль* (Vol. 1, 2023), pp. 19–27.
125. For an example of a pre-conflict article, see Stuchinsky and Korolkov, « Обоснование боевого приминения авиации для срыва интегрированного массированного воздушного удара в многосферной операции противника » ['Justification of the Use of Aviation for the Disruption of Integrated Massive Air Strike in a Multi-Sphere Operation of an Adversary'], pp. 29–36.
126. Semyonov, 'Armed Struggle in the Air and Space Theatre of War'.

capabilities required the unification of air operations (including nuclear activity) into a single strategic effort rather than a conceptually divided one.[127]

Karakaev expressed a subtly different position in an article during the same period, expressing the view that the US was increasingly working to integrate conventional and nuclear planning.[128] According to his assessment, integrating conventional and nuclear planning was the ultimate aim of multidomain operational concepts such as Joint Vision 2020. He goes on to describe the risk of decapitation, followed by strikes on silo and ground-based systems, but then dismisses the view that Russia's nuclear arsenal could be thus disarmed (arguing that this primarily poses a risk to lesser nuclear powers).[129] Few minor nuclear powers employ silo-based missiles, however. While Karakaev may have been alluding to China, which maintains a smaller arsenal than Russia and the US, the fact that his discussion covers US capabilities held in Europe (such as gravity bombs held on the F-35A) suggests otherwise. Another way of reading Karakaev's analysis is that, while Russia believes itself to be presently secure against a counterforce attack, it assesses the US as being in the process of actively attempting to alter this balance.

The analysis above is not intended to suggest that Russia is necessarily at immediate risk of being disarmed; any attempt at a counterforce strike would occur at considerable risk. Even in a catastrophic scenario, it would be more appropriate to describe Russia as being moved from assured retaliation to having a minimum deterrent. However, Sterlin's description of assured retaliation as a substructure, which allows a state to compete in world affairs with the tools it can more readily employ, is worth recalling here. A position of confidence in rough strategic parity is a precondition for nuclear coercion and flexible nuclear use. If Russia views its strategic parity with the US as being threatened, it has far less room for coercive risk manipulation. Options such as a limited counterforce posture, comparable to those envisioned under the Schlesinger Doctrine, become viable for the US.

Notably, the rise of China does not appear to visibly feature as a factor in Russian strategists' calculations, even though the addition of a third nuclear peer would seem to solve some of Russia's conundrums.[130] Instead, there appears to be some concern that countering China provides the US with the pretext to posture

127. S A Zhmurin and Ya Kirintsky, « Воздушно-космический театр военных действий как закономерный результат эволюции вооруженной борьбы » ['Air and Space Theatre of Operations as a Natural Result of the Evolution of Armed Struggle'], *Военная мысль* (Vol. 7, 2022), pp. 49–57.
128. Karakaev, 'Towards the Use of Strategic Missile Forces in the Wars of the Future', p. 10.
129. *Ibid.*
130. The only exception to this observed by this paper's authors was in an article by Y V Bespalov and M L Tikhonov, « Анализ концепций ведущих государств по применению перспективных неядерных средств поражения » ['Analysis of the Concepts of Leading States on the Use of Advanced Non-Nuclear Means of Destruction'], *Военная мысль* (Vol. 11, 2022), pp. 6–12. The authors discuss the risks of using

capabilities, which could be used in a global strike campaign against Russia. This view was expressed by Deputy Director of the GRU I O Kostulov in a 2023 article, and the concept of the unification of the Pacific and Atlantic theatres was reiterated by Gerasimov in his New Year's address.[131] The relative paucity of direct references to the Chinese arsenal, except to the extent that it provides a basis for the US to progress its CPS capabilities, makes a text-based analysis of Russian beliefs difficult to gauge. (Granted, those statements originate from figures senior enough to suggest the expressed views have policy relevance.) While actions such as Russian support for China's fast breeder reactor programme, and cooperation with China's National Command Control Communications and Intelligence Network make it clear that Russia would prefer a strong Chinese arsenal, it is not obvious that Russia views this development as one which will automatically shift the balance vis the US in its favour.

One plausible reason for this is that, because the Russians assess both conventional and nuclear capabilities in their understanding of the nuclear balance, increases in the US' conventional throw-weight and improvements in the accuracy of its SLBMs render the balance of forces – in Russian eyes – favourable to the US, even with two nuclear peers. In some respects, Russia is in the position of the third party in any triangular arms race. The improvements that one party (the US) makes to deter its most immediate rival also appear to increase its overmatch vis a Russia which views new US operating concepts as sub-components of counterforce.

Russian Views of the Strategic Impact of Third Parties

Relatedly, Russia now pays considerably more attention to theatre-range missiles held by US allies. Russia's 2024 revised nuclear doctrine underscored the fact that Russia would treat any attack by a non-nuclear state, with the participation or support of a nuclear state or an alliance/coalition, as a joint attack.[132] This principle is not new and echoes language from the nuclear doctrines signed into law since the end of the 1990s, which caveated commitments to non-nuclear

nuclear weapons in a multipolar world where a third party stands to be the ultimate beneficiary. The authors then suggest that the addition of prompt global strike capabilities offsets this risk for the US.

131. I O Kostulov, « Действия и планы США по увеличению военного присутствия в Азиатско-Тихоокеанском регионе » ['US Actions and Plans to Increase Military Presence in the Asia-Pacific Region'], *Военная мысль* (Vol. 6, 2023) pp. 6–16; *ВПК*, 'Army General Valery Gerasimov Held a Briefing for Foreign Military Attachés', 22 December 2023, <https://vpk.name/news/807733_general_armii_valerii_gerasimov_provel_brifing_dlya_inostrannyh_voennyh_attashe.html>, accessed 24 June 2025.

132. Ministry of Foreign Affairs of the Russian Federation, 'Fundamentals of State Policy of the Russian Federation on Nuclear Deterrence'.

states based on whether they were allied to a nuclear power.[133] The somewhat more ambiguous language likely reflects a conflict in which Russia has grappled with the precision strike capabilities of a state not formally allied with a nuclear state. The conflict in Ukraine has demonstrated that non-nuclear states armed with conventional long-range capabilities can, if enabled by a partner, destroy elements of Russia's nuclear warning system as well as destroying platforms upon which its nuclear deterrent depends. During the conflict, Ukrainian UAVs have struck a Voronezh early warning radar at Armavir, and Ukrainian forces have damaged three Russian strategic bombers (two Tu-22M3s and one Tu-95MS) on the ground.[134] In the future geostrategic environment, Russia must contemplate the possibility of local or regional wars with states or coalitions which do not possess nuclear weapons, but which do possess the means to strike targets that are relevant to the Russian nuclear deterrent. This challenge will likely grow as the long-range strike capabilities of states such as Japan, Turkey and South Korea grow; Russian figures such as Nikolai Patrushev have singled out Japan's procurement of 400 Tomahawk land attack missiles for specific criticism.[135] While prior references to states which are allied with nuclear powers would likely have covered Japan, Turkey and South Korea, there are conceivable scenarios involving each state which would not fall within the remit of existing US Alliance commitments. For example, it is an open question whether a Russo-Turkish clash, which began in the Middle East would immediately trigger Article 5 (with historical precedents like the Falklands War suggesting it would not).

In this situation, Russia would face a conundrum: namely, that if an ally of a non-nuclear state intervened directly after a period of initially localised conflict (in which the former had inflicted a degree of damage on Russian early warning systems or on parts of the Russian nuclear deterrent), the intervening nuclear partner would enter the conflict from a position of marked nuclear superiority. In the initial stages of such a conflict, the partner in question may be able to use its own sovereign capabilities but would likely remain reliant on the US for the data needed to support target development. The specific broadening of the definition of support is likely to be a recognition of this possibility.

This implies that the conventional precision strike capabilities of frontline states within NATO are accorded a de facto catalytic effect in Russian doctrine. This

133. Federation of Atomic Scientists, 'The Basic Provisions of the Military Doctrine of the Russian Federation', Edict No. 1833, 2 November 1993, <https://nuke.fas.org/guide/russia/doctrine/russia-mil-doc.html>, accessed 6 June 2025.
134. Oryx, 'List of Aircraft Losses During the Russian Invasion of Ukraine', 20 March 2022, <https://www.oryxspioenkop.com/2022/03/list-of-aircraft-losses-during-2022.html>, accessed 26 June 2025; Xiaodon Liang, 'Ukraine Strikes Russian Early-Warning Radars', *Arms Control Today*, July/August 2024, <https://www.armscontrol.org/act/2024-07/news/ukraine-strikes-russian-early-warning-radars>, accessed 26 June 2025.
135. Интерфакс, « Патрушев отметил усиление военно-морских сил Японии при поддержке США » ['Patrushev Noted the Strengthening of the Japanese Naval Forces with the Support of the United States'], 2 September 2024, <https://www.interfax.ru/russia/979244>, accessed 15 July 2025.

raises the question of whether, as more frontline states accrue long-range strike, the gap between local and regional wars is closed for the Russians – given the policy of treating certain types of attacks by a single state as a joint attack involving its nuclear ally.

V. Procurement and Capability Employment

Russian procurement has recently indicated concerns regarding future second-strike assurance. The Poseidon nuclear armed torpedo is one such example. The torpedo has its origins in the T-15, a concept designed by Andrei Sakharov at Joseph Stalin's behest when the survivability of the Soviet bomber force was considered relatively low; the T-15 was subsequently scrapped due to its inherent inefficiency relative to ballistic missiles.[136] The deployment of the Avangard HGV on the silo-based R-36 and RS-28, and the allocation of a large portion of Russian throw-weight to silo-based systems could, similarly, suggest concerns regarding second-strike survivability. This represents a more ambiguous example, given that silo-based missiles have often been considered a first strike tool due to the vulnerability of fixed sites to attack, and due to the fact that silo-based missiles can be prepared for launch covertly. The Soviet and Russian view has for some time been that the ability to launch under attack, along with the heavy throw-weights of silo-based systems, make silo-based missiles an important guarantor of national second-strike capabilities.[137]

Russia appears to be on the cusp of maintaining a year-long nuclear submarine presence off the coast of the US. According to the commander of US Northern Command, it is Russia's *Yasen*-class submarine which is being deployed in this role. This is notable because Russia currently only fields five of this class of vessel, and a persistent presence would absorb the capacity of the entire available Yasen fleet (on the assumption that vessels operate on 100-day rotations and that one to two vessels are in maintenance and workup at any time).[138] Committing a high-value asset in this way appears more than symbolic (despite the high profile of Russian *Yasen*-class patrols in the Caribbean). It instead harks back to the USSR's analogous response policy of deploying SSBNs near the US as a means of offsetting the proximate perceived threat posed to Soviet C2 by the Pershing missile.

Russia is also investing in long-range cruise missiles, such as the 6,500-km Kh-BD, which appear to have a transcontinental role, since these ranges are

136. Norman Polmar, 'Atomic Fish', *USNI Proceedings* (Vol. 20, No. 4, 2006), <https://www.usni.org/magazines/naval-history-magazine/2006/august/atomic-fish>, accessed 6 June 2025.
137. Pavel Podvig, 'In Defense of Silo-Based MIRVed ICBMs', Russian Strategic Nuclear Forces blog, <https://russianforces.org/blog/2021/06/in_defense_of_silo-based_icbms.shtml>, accessed 26 June 2025.
138. Joseph Trevithick, 'Russia's Newest Submarines Are "On Par With Ours" According to Senior American General', *The War Zone*, 16 June 2021, <https://www.twz.com/41105/russias-new-cruise-missile-submarines-are-on-par-with-ours-says-senior-u-s-general>, accessed 26 June 2025.

superfluous in Europe. One rationale for this may be to target the surface-based radar underpinning US ballistic missile defences which a missile such as Kh-BD can underfly (that is, fly under the radar horizon for much of their trajectory).

However, other developments could restore Russia's confidence in its nuclear capabilities. Russia has invested considerable effort into improving its defences against ballistic missiles, through both the A-235 and the S-500. The S-500 is also ostensibly meant to act as a defensive system against HGVs. The 77N-6 interceptor employed on the S-500 is described as a capability to be employed in near space, which would suggest a function similar to high endo-atmospheric interceptors such as THAAD and Arrow-2. This, coupled with the missiles' purported 'functionality against hypersonic targets' – a term which the Russians take to include ballistic missiles – would point to a focus on intermediate-range systems including SLBMs fired on depressed trajectory. In the view of the Commission on the Strategic Posture of the United States, the introduction of BMD for areas beyond Moscow will complicate US planning.[139] This being said, every defensive tool is subject to countermeasures. Russia still lacks an exo-atmospheric interceptor, which would be an integral part of most Western BMD (though this may be an architectural choice, rather than a technical limitation). The measures and countermeasures each party might take are beyond the scope of this discussion. What is salient is that, if Russia both delivers S-500 in significant numbers and is confident of the system's performance, the loss of flexibility – which this paper attributes to an erosion of Russia's strategic position compared with the US, and is driven by SLBMs in particular – will be reversed.

Similarly, the Russian investment in Oreshnik could plausibly restore some flexibility to Russian nuclear use, through the introduction of a more survivable road-mobile system. This system will enjoy a high likelihood of penetrating most European air defence systems, given the deficiency of exo-atmospheric BMD in Europe. The fielding of Oreshnik would likely have mixed ramifications for flexible nuclear use, however, since it solves some problems (the potentially low single shot probability of kill of existing missiles) while introducing others. Based on the RS-26, this missile shares a booster with the RS-24, meaning that on launch it likely appears similar to the sensors on the US' SBIRS system. (This is one reason, alongside normative factors, for Russia's decision to use existing stabilisation mechanisms to forewarn the US regarding the launch of the Oreshnik against Dnipro).[140] This counters the logic of flexible targeting, which typically

139. Madelyn R Creedon et al., *America's Strategic Posture: Final Report of the Commission on the Strategic Posture of the United States* (Washington, DC: Congressional Commission on the Strategic Posture of the United States, 2023), p. 281.
140. Sonya Bandouil, 'Russia Pre-Notified US of 'Oreshnik' Missile Strike Before Attack on Dnipro', *Kyiv Independent*, 22 November 2024, <https://kyivindependent.com/russia-pre-notified-us-of-oreshnik-missile-strike-before-attack-on-dnipro/>, accessed 26 June 2025.

requires nuclear weapons to be used in a limited way to be easily discriminated from those capabilities employed in a more unrestricted way. This typically takes the form of very short-range systems (as in the case of the French Pluton missile system and the Pakistani Nasr missile system) or cruise missiles, which can be distinguished from longer-range ballistic targets.

All things considered, it may be reasonable to interpret Russian strategy as being at an inflection point. Should Russia's margin of safety be restored by its own BMD capabilities, it may perceive itself as enjoying the nuclear sub-structure (to paraphrase Sterlin) to leverage its theatre-level nuclear capabilities coercively. If, on the other hand, European BMD and deep strike capabilities improve to the point of being seen as a credible addition to an already perceived counterforce threat – compelling Russia to opt for ever-higher readiness and more risk-acceptant offsets to limit its risks – this flexibility will be removed from its escalation ladder.

VI. Implications for Allied Deterrence

The main finding of this paper is that Russia's nuclear posture appears to be at an inflection point. While Russia retains a preference for the ability to employ nuclear weapons as a coercive scalpel, several developments have the potential to constrain its ability to do so. The fielding of low-yield SLBMs, SLCMs and theatre-level CPS capabilities by the US, taken collectively, present Russia with a credible counterforce capability which could be employed either on a limited basis or in a more unrestricted manner. This closes the space for Russia to entertain the prospect of limited nuclear use, something which currently carries far greater risk.

The performance of Russian theatre-level missiles in Ukraine, and the demonstrated vulnerabilities of some of its existing launch platforms, suggest that the fielding of credible theatre-level IAMD in Europe further constrain Russia's flexibility in a regional war.

The maturation of several longstanding concerns should inform European assessments about the deterrent effects of specific capabilities, which will be viewed by Russia in the context of these trends. This is particularly true of both IAMD and long-range strike capabilities, as well as of efforts by NATO members (such as the UK) to increase the number of warheads at sea. The impact of these capabilities on intra-conflict deterrence, and the perceived inability on the part of an initiator to control escalation, are both major factors in general deterrence.[141] Investments in capabilities which constrain Russia's flexibility and push it towards high-risk nuclear options, then, are (arguably) justifiable and allow longstanding Russian concerns to be used to undercut its pre-war theory of victory.

Russian authors have long acknowledged that nuclear use in a regional war or large-scale war would be necessary. However, the scale at which this use would likely have to occur (to achieve effects such as suppressing key threat platforms), together with the need to maintain the strategic nuclear forces on high alert, means that escalation control is difficult to achieve – especially given that escalation management requires a graduated approach to posturing systems to avoid escalation to strategic exchanges. Theatre-level nuclear warfighting is a tool to be employed in extreme cases, not an easily employable coercive tool.

141. See Alexander L George and Richard Smoke, *Deterrence in American Foreign Policy: Theory and Practice* (New York, NY: Columbia University Press, 1974), p. 35.

The authors would like to underscore, however, that this trajectory is by no means deterministic and is dependent on several factors. Among them are the ability of states within Europe to deliver credible IAMD over the next decade, since many of the systems which proved technically effective in Ukraine are fielded in very small numbers. This is also true of deep strike capabilities, which may be useful against platforms like vessels and bombers.

Second, the degree to which Russia perceives itself as having rectified strategic balance, through the fielding of a larger number of ground-based systems like Oreshnik and the S-500, will be a determinative factor. The perceived credibility of European BMD systems such as Germany's Arrow-3 will be one factor in this balance, as will both sides' assessment of whether S-500 provides a hedge against the threat of SLBMs fired on a depressed trajectory.

As such, the Alliance has incentives to pay specific attention to indicators which might suggest a shift in the Russian posture. Among these would be the reworking of a relatively centralised warhead storage system, overseen by 12 GU MO (the 12th Chief Directorate of the Ministry of Defence), to enable the more rapid mating of platforms to warheads. The preparation of SSNs and SSGNs to carry nuclear warheads in peacetime, and the fielding of missiles which are 'hot swappable', might be other indicators.

Finally, the Alliance has an important choice to make regarding its approach to damage limitation, currently a US policy. If the procurement of IAMD and long-range strike by European members of the Alliance is explicitly tied to an Alliance-wide damage limitation policy, this could significantly constrain Russia's coercive freedom of action, albeit at a cost in terms of intra-conflict stability. Given the limited avenues for arms control, manipulating counterforce concerns may, then, be a viable pathway towards shrinking the space for theatre-level use by Russia at a level consistent with a political objective. Should longer-term stabilising measures be deemed desirable, this could be linked to mutual arms reductions in the future in a manner not dissimilar to the Harmel formula.[142]

142. NATO, 'Harmel Report', last updated 1 July 2022, <https://www.nato.int/cps/en/natohq/topics_67927.htm>, accessed 7 July 2025.

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