The Future of Warfare in Russian Military Thinking

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Bild/Cover: Shutterstock, Moscow. Russia - February 23, 2024 Detection of an aircraft in the sky. Russian soldier with binoculars. Drone detection. A Russian military man looks at the sky through binoculars.

Abstract

The Russo-Ukrainian War exhibits the features of a transitional war, reshaping Russian military thought and force development under pressure. The war has exposed structural weaknesses across the services while catalysing debate over the future of warfare. Russian analysts are divided between preserving traditional concepts of mass, manoeuvre, and firepower, and pursuing adaptations suited to a battlespace defined by transparency, precision strikes, and unmanned systems. Within the Ground Forces, failures in 2022 prompted renewed scrutiny of Soviet-era inheritance and the need to operate effectively under constant surveillance. In the aerospace domain, Russian theorists increasingly emphasise the decisive role of integrated air, space, and information capabilities. Experiences in Ukraine have reinforced the demand for precision-guided weapons, space-enabled targeting, and unmanned systems, all supporting a broader pursuit of information dominance. The Navy maintains its doctrinal importance as an instrument of global presence and deterrence, despite economic constraints. Cyber operations continue to be framed within a holistic concept of information confrontation rather than as a distinct domain. Nuclear forces remain the core of Russian deterrence, with modernisation focused on flexibility and survivability. Overall, the war has intensified debate and adaptation, but Russia's strategic objectives, fiscal limits, and confrontation with the West continue to shape this trajectory, and the Russian view of future warfare.

Keywords: transitional war, Russian military thought, future war, transparent battlefield, ISR, deterrence, adaption

Sammanfattning

Det rysk-ukrainska kriget påminner i många avseenden om ett övergångskrig. Det har fungerat som en katalysator för ryskt militärt tänkande, men också för en forcerad omdaning av de ryska väpnade styrkorna. Kriget har blottlagt strukturella svagheter inom försvarsgrenarna, men ryska analytiker och tänkare är inte eniga om vägen framåt: ska man bevara traditionella koncept och strukturer, eller satsa på större organisationsförändringar när nu omständigheterna har förändrats? Inom markstridskrafterna ledde 2022 års misslyckanden till en slitning mellan sovjettidens arv och behovet av att verka effektivt under ständig övervakning, där har kontinuerlig anpassning har fungerat som en lösning. Inom flyg- och rymdområdet betonar ryska teoretiker i allt högre grad vikten av integrerade luft-, rymd- och informationskapaciteter. Erfarenheterna från Ukraina har förstärkt efterfrågan på precisionsstyrda vapen, rymdförmåga, och obemannade system. Marinen behåller sin betydelse som ett instrument för global närvaro och avskräckning, trots ekonomiska begränsningar. Cyberoperationer förstås fortsatt som ett holistiskt koncept inom ramen för informationskonfrontation, snarare än att utvecklas mot att bli en distinkt domän. Kärnvapenförmågan utgör fortfarande grunden i rysk avskräckning, där en modernisering inriktas på flexibilitet och överlevnadsförmåga. Sammantaget har kriget accentuerat en redan existerande debatt, men Rysslands strategiska mål, ekonomiska begränsningar och konfrontation med väst fortsätter att forma utvecklingen och synen på framtidens krig.

Nyckelord: övergångskrig, Ryskt militärt tänkande, framtidens krig, det transparenta slagfältet, ISR, avskräckning, anpassning

Preface

Since the start of the Russo-Ukrainian War in 2022, the interest in the trajectory of Russian strategic thought has indeed risen among Western scholars, and particularly perhaps, among Armed Forces professionals across NATO. Assessing in which type of war Russia envisions in the future is an important piece in the puzzle of national defence planning. This report aims to provide an overview of the undergoing debate on this topic, against the background of Russia's ongoing war in Ukraine.

This study was commissioned by the Swedish Armed Forces, and is funded by the Support for Strategic Foresight Project and the Russia and Eurasia Studies Programme at FOI. The latter receive its funding from the Swedish Ministry of Defence. It will contribute to the Swedish Armed Forces long-term planning and defence outlook. During the production of this report, ChatGPT was used for a range of different purposes: to adjust footnotes and bibliographical entries into the Chicago Manual of Style 17th Edition, to rephrase sentences as well as restructure paragraphs in the conclusions section.

The authors and editor wish to extend their gratitude to a number of people who made sure that the report came into being. First and foremost, to Krisztián Jójárt (postdoctoral researcher at the Swedish Defence University), who kindly reviewed our draft. To David Lindahl, FOI Division for Cyber Defence and C2 Technology, who reviewed the chapter on Cyber Warfare. To Richard Langlais, who provided the language editing. To Karin Blext, who did the graphic design. They have all contributed to the study's improvement and making.

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Maria Engqvist, *Project Leader of the Russia and Eurasia Studies Programme at FOI*

Stockholm, November 2025

List of abbreviations

AI	Artificial Intelligence
ABM	Anti-Ballistic Missile
AD	Air Defence
ATGM	Anti-Tank Guided Missile
BMD	Ballistic Missile Defence
C2	Command and Control
CEMA	Cyber Electromagnetic Activity
CINC	Commander-In-Chief
FSB	Federalnaia Sluzhba Bezopasnosti (Federal Security Service)
GRU	Glavnyi Razvedivatel'noe Upravlenie (Main Intelligence Directorate)
INF Treaty	Intermediate-range Nuclear Forces treaty
IRBM	Intermediate-Range Ballistic Missile
IP	Internet Protocol
ISR	Intelligence, Surveillance, and Reconnaissance
NATO	North Atlantic Treaty Organization
START	Strategic Arms Reduction Treaty
SVR	Sluzhba Vneshnei Razvedki (Foreign Intelligence Service)
UAV	Unmanned Aerial Vehicle
US	United States
VPN	Virtual Private Network

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1. Introduction

Maria Engqvist

In 2022, Russia's political leadership launched the largest joint operation in the history of the Russian Federation. From a Russian perspective, the fact that the campaign is officially designated as a *spetsial'naia voiennaia operatsiia* (SVO), rather than a war, has had numerous implications for its conduct. For example, conscripts have not been deployed to the front lines, and martial law has not been widely implemented.

However, from the point of view of Russia's military elite, the SVO does not represent how a "real war" should be fought. Yet, in practice, it has evolved far beyond the parameters of an SVO as the political leadership initially envisioned it, given the scale of resources, mobilisation, and strategic adaptation required to sustain it and achieve the objectives: bringing Ukraine back under Russian political and economic control.

The contradictions between Russia's traditional operational concepts and the realities on Ukraine's battlefields have become increasingly evident, not only to outside observers, but also to Russian military thinkers and practitioners. Over the course of the conflict, the Russian Armed Forces have shown a gradually growing ability to adapt, integrating new technologies, modifying tactics, and refining command structures in response to the operational challenges. Furthermore, it is important to underline that Russian military thinkers and practitioners currently do not carry out any discussion regarding the future of warfare isolated from the ongoing war in Ukraine. The SVO is a major event which frames the entire discussion at the time being. Widening the perspective, the Russian Navy (which has not yet played a major role in the SVO, save for the Black Sea Fleet), is rather viewed as a potential instrument of global influence in the future. Accordingly, the purpose of this study is to compile a comprehensive overview of, and examine, how Russian military thinking has evolved as a result of its war against Ukraine. It seeks to answer the overarching question: *What is the Russian view on the future of warfare, in light of the consequences of its war against Ukraine?*

The study aims to address two main lines of inquiry:

1. Russia's strategic outlook:
   - Against which adversaries is Russia preparing for potential future conflict?
   - How has its international strategic position changed?
2. Military-technical lessons from the war in Ukraine:
   a. The Ground Forces
   b. The Aerospace Forces
   c. The Navy
   d. The Cyber domain
   e. Nuclear weapons

The report also seeks to pinpoint and analyse the most prominent discourses in the existing and emerging discussion on the future of warfare at the strategic level, among scholars of Russian military thinking, primarily in Russia but occasionally also in the West.

1.1 Methodology and sources

Methodologically, the approach is comprehensive, and relies on close readings of both primary and secondary Russian-language sources. A key focus has been to establish the point of departure for the Russian Armed Forces prior to their engagement in Ukraine, identifying both changes and continuities in the view of future warfare across the branches of service. The method also involves examining differences relative to 2021 and assessing how and whether or not subsequent events have shaped Russian military thinking. Russian concepts and definitions are prioritised over their Western interpretations; terms such as "hybrid warfare" and "multi-domain" are largely absent as explanatory frameworks. The timeline for the source selections spans from 2021 to the autumn of 2025.

Since the outbreak of the war in 2022, the Western research community has increasingly reflected on the use of Russian sources. While these sources carry biases and political positioning, they remain valuable when analysed critically. This report

relies on publicly available material, emphasising the importance of interpreting both what is stated explicitly in clear text and what is omitted.

The source material itself includes Russian-language monographs, articles from leading military-academic journals, and official policy documents, supplemented by non-Russian analyses of Russian military thought and technology. For example, in the naval domain, Russian planning reflects the strategic thinking of politicians, military officials, and industrial actors, as well as the long timelines inherent in shipbuilding. Even ships not yet laid down, such as corvettes and frigates, reveal the priorities of Russian naval planners, showing how broader debates translate into long-term decisions. "Russian thinking" is therefore interpreted as the intersection of ongoing debate, policy ambition, and tangible measures indicating preferred directions.

Combining military–academic texts with policy statements and technical developments provides a more compound picture: analytical works may reflect conceptual ambitions, while concrete policies indicate practical constraints on realising them. Access to these sources has become increasingly challenging, with Russian-language digital content often blocked to foreign IP addresses, and print publications often difficult to obtain.

Thus, a snowballing methodology was used to collect sources, beginning, for example, with influential figures such as Andrei Kokoshin, whose work helped identify other key contributors to the debate. This was complemented by a systemic review of recent articles (post-2021), in key military scientific and military journals, including *Vestnik Akademii Voennykh Nauk*, and *Voennaia mysl'*, *Armeiskii sbornik*, among others. Among these, *Voiennaia Mysl'* is the most prestigious one, and likely the most difficult to get published in as an individual author, as it is published by the Russian Ministry of Defence.

1.2 Outline

The second chapter provides a background and frames the analysis. It briefly deals with the historical context and evolution of Russian military thinking into the 21st century, and the significance of Russia's strategic objectives as a point of departure for analysing Russian strategic trajectories in military development.

The third chapter scrutinises Russian primary sources post-2022. It is divided into five sections, in which the authors examine Russian scholarly production and views on the future of warfare in five different domains: the Ground Forces (Maria Engqvist), the Aerospace Forces (Emelie Sandvad), the Navy (Jonas Kjellén), the Cyber Domain (Carolina Vendil Pallin), and finally Nuclear Weapons and Deterrence (Kristina Melin). The fourth and concluding chapter summarises and analyses the findings.

2. Russian Strategic Objectives and Military Thinking

Maria Engqvist

According to Gudrun Persson, "The development of […] threat perception is closely intertwined with the military thinking on current and future war".[1] Similarly, understanding contemporary Russian perspectives on future warfare requires situating them within their historical and political contexts. Russia has a long-standing historical tradition and experience in military thought, and Russia's strategic objectives in the political realm continuously inform the view on future warfare, as well as the enduring evolution of strategic thinking.[2] In contrast perhaps to modern-day Western views on warfare, it is important to reiterate the fact that the Russian view of what war is, and will be in the future, is compound and holistic by tradition.[3]

Against this background, and by judging from official doctrines, strategies, strategic behaviour and speech acts, it is important to recognize that the Russian political and military leadership at present primarily aim to dimension the full range of their capabilities in relation to those of the United States.[4] This effort does not necessarily reflect how the Russian political and military leaderships decide to use the military (or non-military) means that they have at their disposal in order to achieve their strategic objectives. This is evident from Russia's ongoing war in Ukraine, which from a Russian perspective is seen a defensive measure to prevent Western hegemony from spreading too close to Russia's "sphere of interest". Another example is how the Russian leadership has employed its military means in, for example, Syria or Africa during the past decades.[5] However, it is important to underline that the SVO has served as a propellent not only to Russian military

1 Gudrun Persson, *Russian Military Thought: The Evolution of Strategy Since the Crimean War* (Georgetown University Press, 2025): 130.

2 Persson, *Russian Military Thought*, 130–132.

3 Andrei Kokoshin, *Problemy prikladnoi teorii voiny* (Moskva: Izdatel'stvo Natsional'nogo issledovatelskogo universiteta "Vysshaia shkola ekonomiki," 2018).

4 See, for example, Ukaz Prezidenta Rossiiskoi Federatsii № 400 ot 2 iiulia 2021 g., "O Strategii natsional'noi bezopasnosti Rossiiskoi Federatsii," 3 July 2021, *http://publication.pravo.gov.ru/document/view/0001202107030001* (accessed 11 November 2025).

5 President of Russia, "*O istoricheskom edinstve russkikh i ukraintsev*," published 12 July 2021, *https://en.kremlin.ru/events/president/news/66181* (accessed 11 November 2025).

thought in and of itself. The war has also highlighted and accentuated numerous strategic dilemmas for Russia, such as Russia's increasing dependency on China.

Since the Russian Federation as a state, and the Russian Armed Forces as an organisation, have fewer resources at their disposal compared to their dimensioning opponents, Russian military planners, commanders, FSB operators, diplomats, technocrats, and strategic thinkers have systematically been forced to ensure maximum output with limited tools, combining military and non-military means in order to achieve their strategic objectives. This, in combination with a recognition that the US and the West have proved successful in achieving strategic results through economic attractiveness, informational superiority, and cultural allure, has increased the sense of already existing vulnerability.

In much of the latter-day Western interpretation of Russian strategic thought, a conceptual confusion has emerged, often containing the prefix "hybrid". In Russian sources this term is primarily used to describe the Western understanding of what Russian thinkers would refer to as *nelineinaia voina* (non-linear war), or *assimetrichnaia voina* (asymmetrical war).[6] However, as Persson points out: "For the past thirty years, Russian military thinking has been influenced largely by (1) technological development and (2), the political, economic, and social changes in Russia and the outside world".[7] This remains the case post-2022.

2.1 Russian Military Thinking on Future Warfare: A Situation Report

As a result of the SVO, intense discussions are now underway in the Russian military–scientific community regarding the future of Russia's Armed Forces. These exchanges and opinions are mainly put forward in outlets such as *Voiennaia Mysl'*, *Vestnik Akademii Voiennykh Nauk*, and *Armeiskii Sbornik*, but also in the Russian civilian defence-analysis community.[8]

Even though contemporary Russian military science and thinking rests upon a robust historical tradition, it has been facing a range of epistemological issues for some decades now.[9] This intellectual dissonance has been reinforced since 2022, not only as a result of the repressive nature of the Russian information space, but also against the background of the contradiction in terms of the SVO and Russian

6 Gudrun Persson, *Russian Military Thought: The Evolution of Strategy since the Crimean War* (Georgetown University Press, 2025): 130-131.

7 Persson, *Russian Military Thought*, 131.

8 See, for example, A. V. Lavrov and R. N. Pukhov, eds., *U kraya* (Moskva: CAST, 2025).

9 V. A. Makhonin, "O sostoianii otechestvennoi voennoi nauki i o voine (Reaktsiia na stat'iu S. A. Modestova 'Krizis voennoi nauki i postneklassicheskie perspektivy ego preodoleniia')," *Vestnik Akademii voennykh nauk*, 2025, *https://dlib.eastview.com/browse/doc/106401864*.

operational art.[10] It is a difficult, if not impossible, task for Russian military science to resolve this conceptual overreach made by the political leadership in retrospect. Furthermore, it is perhaps not its core task. This could serve as one plausible explanation for why Russian thinkers display such a variety of interpretations of the lessons drawn from Ukraine, besides that of mere political pressure. Other factors affecting the discussions include positioning in order to safeguard one's own career, and the internal and external hierarchies among the authors. This is vital to take into consideration when analysing this type of source material.

Western analysts and researchers studying Russian military science and strategic thinking currently have the opportunity to draw on a wide array of sources, including observations on tactical behaviour on the battlefield in Ukraine. When it comes to the public discussion on military thinking, however, researchers are forced to draw conclusions from a very limited source material. This mix opens up a wide range of interpretations. For example, one recent report from the Center for Naval Analyses argues that "[…] despite the many setbacks incurred in Ukraine and the rapid pace of technological and tactical innovation, Russian military leaders are largely adhering to the country's prewar military strategic and operational concepts. Instead of revising or updating operational concepts in light of setbacks in the war with Ukraine, they are relying on advanced technology to apply existing ideas onto a 21st-century battlefield".[11]

Contrary to this view, Krisztián Jójárt argues that "[it is] likely that the 2022 Russo-Ukrainian war will be a landmark for Russian military science, similar to the Great Patriotic War, whose lessons will shape military thinking and force planning for decades to come".[12] Thus, there is currently no clear consensus among Western observers on whether the Russian view on future warfare will be fundamentally affected by the Russian experience in Ukraine. However, there are indications and arguments that support this being the case.

10 David M. Glantz, *Soviet Military Operational Art: In Pursuit of Deep Battle*, 1st ed., *Soviet Military Theory and Practice* (London: Cass, 1991).

11 Michael Petersen, Paul Schwartz, and Gabriela Iveliz RosaHernandez, *Russian Concepts of Future Warfare Based on Lessons From the Ukraine War* (Alexandria, VA: CNA Corporation, July 2025), 72.

12 Krisztián Jójárt, "The War Against Ukraine Through the Prism of Russian Military Thought," *Journal of Strategic Studies* 47, nos. 67 (2024): 801–831, *https://doi.org/10.1080/01402390.2024.2414079*.

3. Russian Perspectives on Future Warfare

3.1 The Ground Forces

Maria Engqvist

This section aims to provide an analysis of how Russian military thinkers, often Russian officers, in some cases researchers and analysts, view and perceive the future evolution of ground warfare, especially against the background of the SVO conducted by the Russian Federation in Ukraine.

The Russian Federation and its Ground Forces

On the eve of the Russian invasion of Ukraine in 2022, the Armed Forces of the Russian Federation had gone through more than one decade of reform, transforming from a heavy and expensive Soviet mass-mobilisation army, towards a "Western-style" agile force, more fit to conduct small-scale operations, rather than mobilising the entire society to meet the ends of a war between great powers. The Serdiukov-Makarov reforms reflected the goals and ambitions of the political leadership at the time, and how it envisioned to make use of its armed forces as an extension of its policies in what Russian leaders refer to as Russia's sphere of interest.[13] Thus, this was the type of force which was ordered to invade Ukraine in 2022, albeit efforts of reverse engineering had been made under the leadership of then Minister of Defence Sergei Shoigu and current Chief of the General Staff Valerii Gerasimov.

As a result of its failure to achieve the initial goals of the SVO, the Russian political and military leadership are now facing the consequences of their decision-making, which will reshape the Russian Armed Forces, and particularly the future structure and organisation of the Ground Forces. The task of reconstitution has already been set in motion, and an indication of its direction had already been given in December 2022 by Sergei Shoigu.[14] Nevertheless, this development is dependent

13 Jonas Kjellén, *Bringing the Soldier Back In—Russian Military Manning, Manpower, and Mobilisation in the Light of Russia's War in Ukraine* (Stockholm: FOI, 5 April 2023), FOIR--5461-SE.

14 President of Russia, "*Zasedanie kollegii Ministerstva oborony*," 21 December 2022, *https://www.kremlin.ru/events/president/news/70159* (accessed 11 November 2025).

on what types of war the Russian leadership envisages, and Russia's role in Europe as well as on the global stage, and, of course, what resources the Russian Federation is willing and able to allocate to its vision. It will also depend on when and how the ongoing war in Ukraine ends. Thus, at present (late 2025), the choice of pathway is both open-ended, and subject to negotiation. It is against this background that the Russian military science community enters the stage.

Views on the Future of Ground Warfare

Drawing from the aggregated discussion on the future of ground warfare currently taking place within the field of Russian military thinking, there are a few themes that are prominent and recurrent, and a range of solutions to the problems that have occurred on the battlefield in Ukraine are suggested by the different authors.

Beyond the mere political ends, the SVO is generally now viewed as ground for trial and error for Russia's Ground Forces.[15] The key factor shaping and framing the discussion on the evolution of ground warfare in Russian military thinking is the emergence of the so-called "transparent battlefield". It is from this point of departure that the discussion relating to the development of the ground forces takes place. The resulting *pozitsionnyi tupik* (positional deadlock), and subsequent inability to conduct combined-arms manoeuvre, is identified as the main issue in need of a solution. In this context, the positional deadlock is also viewed as a direct result of Western efforts supporting Ukraine. One writer, corresponding member of the Russian Academy of Military Science Aleksandr Bartosh, for instance, points out that Russia is not only in conflict with the Armed Forces of Ukraine, but also with the West's extended capabilities.[16]

Within the range of solutions that are suggested, which all hold implications of how the different factions of the Russian military elite tentatively envisage a future conflict, two main discourses are predominant; these discourses to a certain degree also represent different factions of military thinking in Russia. While one faction focuses on and argues in favour of evolving and adapting existing structures and organisation, the other advocates for an overhaul of the organisation of the Ground Forces in order to adapt adequately to the tasks it is likely to face in future conflicts.[17]

15 Konstantin Sivkov, "Krakh 'Tsitadeli—2.0,'" *Armeiskii sbornik* 4 (2024).

16 Aleksandr Bartosh, "Modeli eskalatsii sovremennykh voennykh konfliktov," *Voennaia mysl'* 1 (2024): 35.

17 This type of categorization is in itself not new, for example, the Norwegian scholar Tor Bukvoll has provided an overview: Tor Bukkvoll, 'Iron Cannot Fight – The Role of Technology in Current Russian Military Theory', *Journal of Strategic Studies* 34, no. 5 (2011): 681–706, https://doi.org/10.1080/01402390.2011.601094.

The first group stresses the inability of the ground forces to engage in combined-arms manoeuvre, putting "the new conditions" in relation to well-established operational concepts. The question of restoring combined-arms manoeuvre lies at the core of the definition of the problem.[18] In this group, some authors advocate for a larger size of forces as one solution. Also, some authors continue to advocate for fire-superiority as a remedy to the "transparent battlefield".[19] Authors have also argued for the use of airborne assault operations (VDV) to break the positional stalemate, a proposal that reflects the principles of Soviet operational art on "deep battle".[20] Enemy mass and precision strikes are another concern. Some authors also note how remote operation of drones, for example, provides the defending side with much improved capabilities to destroy the equipment of the attacker; this has been a particular issue for the Russian forces in Ukraine.[21] This statement can in itself be read as a comment on the balance between offense and defence.

Another vital counter-measure identified is the application of electronic warfare against enemy space-based ISR, but the implications of this threat against the Ground Forces and its current composition are recognised in a much wider context. The qualitatively new conditions on the battlefield in Ukraine have exposed the inherent vulnerabilities of tanks and armoured vehicles, mainly to UAV strikes, mines, artillery, ATGMs, and the like. In this context, target identification, composition of troops, and detection are explicitly mentioned in relation to space capabilities, and the implications of the provision and transmission of data through platforms like Starlink. In relation to this, airborne ISR platforms are also mentioned as a challenge, alongside the use of UAVs to collect data about Russian formations and force compositions in a battlefield environment.[22]

The second group, which to a larger degree include civilian military analysts, argue in favour of organisational adaption. It is important to note, however, that at the early stages of the war, the tone in the public discussion was much more moderate, and many of the articles were likely written before the outbreak of the war, and does not necessarily reflect these specific developments.[23] For example, authors Pluzhnikov and Usachev are primarily concerned with suggestions pertaining to

18 E. Sukalenko, A. Nagorskiy, and S. Dubchenko, "K voprosu o pozitsionnom tupike," *Armeiskii sbornik* 9 (2024): 191.

19 Vladimir I. Orliansky, "Integrirovannaia boevaia sistema—vysshaia forma organizatsii voisk," *Vestnik Akademii voennykh nauk* 3 (2024): 40.

20 N. G. Mikhailov and A. V. Savitsky, "Razvitie voennogo iskusstva i vozmozhnye puti ego dal'neishego sovershenstvovaniia," *Voennaia mysl'* 2 (2023): 34 Glantz, *Soviet Military Operational Art: In Pursuit of Deep Battle*: 214.

21 Sukalenko, Nagorskiy, and Dubchenko, "K voprosu o pozitsionnom tupike," 188–89.

22 V. I. Orliansky, V. P. Gerasimov, and S. N. Rudenko, "Problema manevra voiskami v usloviiakh primeneniia protivnikom sovremennykh razvedyvatel'nykh sistem," *Voennaia mysl'* 7 (2024): 37.

23 Similar to their Western counterparts, Russian military journals exhibit delays in their publications of articles.

the tactical-level, and thus take a very careful stance on the question of adaption: "The most realistic scenario under modern conditions includes the emergence of regional and local wars and armed conflicts in which the broad use of tactical-level combined-arms formations equipped with high-tech weapons, military and specialized equipment and utilizing effective forms, methods, and techniques of warfare would play a leading role in achieving victory".[24] However, this cautious way of positioning has gradually evolved into a more assertive tone and stance as the war has progressed. It is also dependent on the position and rank of the writer.

As an example of the importance of rank and position of the individual writers in the discussion on the future of warfare, in a *Voiennaia Mysl'* article from August 2024, Lieutenant General V.V. Trushin, chairman of the Military–Science Committee, argues that current guidance on preparing for and conducting combat operations must be reconsidered and updated in light of real-world experience at every level—from tactical to strategic. He stresses that the shortcomings revealed during the recent military operation require thorough analysis and the formulation of effective remedies. To meet this demanding task, he maintains, the Armed Forces need a genuinely systematic framework for studying combat experience, supported by a coherent program-targeted method. Here, it is also worth noting that at the time of publication of the aforementioned article (August 2024), the SVO had progressed significantly, hence perhaps the increased assertiveness in the analysis and tone, apart from Trushin's position itself.[25]

In another *Voiennaia Mysl'* article from early 2025, Lieutenant General Trushin describes the character of future conflict in the following manner: "Today, there is a clear trend towards increasing reconnaissance, command, and control capabilities, allowing the opposing sides to inflict damage on enemy troop groups from long distances with high precision. Therefore, it can be assumed that future operations will involve inflicting profound damage on the enemy at range, creating favourable conditions for its defeat in close combat, and then actually defeating the enemy in close combat".[26]

In contrast to the more careful approach conveyed by Lieutenant General Trushin, who in comparison applies a more careful language which does not necessarily imply major organisational overhaul of the structure and organisation of Russia's Armed Forces, in their October 2025 article for *Russia in Global Affairs*,

24 A. A. Pluzhnikov and O. B. Usachev, "Sovremennye trebovaniia k obshchevoiskovym formirovaniiam takticheskogo zvena," *Voennaia mysl'* 4 (2022): 42. As the article is written in late 2022, such adaptations have de facto already been observed on the battlefield in Ukraine. The quotation is translated by the author of this chapter.

25 V. V. Trushin, "Izuchenie i vnedrenie boevogo opyta – vazhneishaia zadacha organov voennogo upravelniia, vuzov i nauchno-issledovatel'skikh organizatsii," *Voennaia mysl'* 8 (2024): 15. The quotation is translated by the author of this chapter.

26 V. V. Trushin, "Zadachi voennoi nauki v usloviiakh spetsial'noi voennoi operatsii," *Voennaia mysl'* 4 (2025): 15.

retired General Iurii Baluievskii and analyst Ruslan Pukhov highlight what they perceive as a significant shift in Russian military tactics, noting that the current inability to concentrate forces on the battlefield starkly contrasts with long-established operational procedures. They argue that drones are having a "revolutionary impact on military science", driving fundamental changes in both tactics and operational art that necessitate a revision of not just combat operations but also the organisational structure of Russia's Armed Forces. In addition to this, Baluievskii and Pukhov connect military science, the experiences of the Ground Forces in Ukraine, and the economic demands of modern warfare, advocating for a greater role for light infantry fighting vehicles as a cost-effective alternative to tanks. They assert that the "time of 'large battalions' is over", a perspective that directly challenges factions within Russian military thought that argue mass forces are key to overcoming the challenges faced by the Ground Forces in future conflicts.[27]

Finally, the impact of the use of UAVs on a massive scale on the battlefield is widely recognised by both groups mentioned above. The question of how to systematically organise this particular capability, however, spans all of the branches of Russia's Armed Forces. However, as noted below, the only new arms of service that the MoD has announced are Unmanned Systems Forces.[28] This in itself is an indication of the growing significance of UAVs, highlighting their potential to redefine the structure and operational priorities of Russia's Armed Forces.

Conclusions

At the outset of the 2022 invasion of Ukraine, Russia's Ground Forces entered the war as a product of over a decade of reform. This transformation reflected the political leadership's ambition to employ military power as an instrument of influence within Russia's perceived sphere of interest. However, the initial failure of the SVO has exposed the structural and conceptual limitations of these reforms, forcing both political and military leadership to reconsider the future trajectory of the Ground Forces. However, the ongoing reconstitution efforts now hinge on broader strategic choices concerning Russia's envisioned role in future conflicts and the resources available to sustain that vision.

Within the Russian military–scientific community, the debate over how to adapt the Ground Forces to the lessons of the war has intensified. The central conceptual challenge is the "transparent battlefield", where pervasive surveillance and precision fires have led to positional deadlock, and the erosion of traditional combined-arms

27 Iurii Baluevskii and Ruslan Pukhov, "'Tsifrovaia voina' – novaia real'nost,'" *Rossiia v global'noi politike* 23, no. 6 (2025): 60–68.

28 Aleksandr Kots, "Vysshee nebesnoe dron-uchilishche: U Bespilotnykh sil poiavitsia svoi voennyi vuz," *Komsomol'skaia pravda*, 11 November 2025, *https://www.kp.ru/daily/27740/5168521/*.

manoeuvre. Analysts are divided between those advocating incremental adaptation of existing structures and those calling for comprehensive organisational overhaul. While the first group emphasises restoring manoeuvre and achieving fire superiority through quantitative and qualitative improvements, the second group, more often composed of civilian experts, argues for structural innovation and greater flexibility.

By late 2025, this discourse reveals a cautious, yet growing recognition that the character of ground warfare is undergoing fundamental change. Prominent figures, such as Lieutenant General V. V. Trushin, stress the need for military science to prioritise applied, operational problem-solving over theoretical abstraction, while others contend that drones and precision systems are revolutionising military art itself. Their call for smaller, lighter, and more adaptive formations directly challenges the traditional emphasis on mass and heavy armour. The ongoing dialogue thus underscores a broader intellectual struggle within Russian military thought, between continuity and transformation, as the Armed Forces seek to reconcile doctrinal heritage with the demands of a technologically evolving and resource-constrained battlespace.

3.2 The Aerospace Forces

Emelie Sandvad

The aerospace domain is often underlined as crucial in future warfare by Russian military thinkers, not least because it is the sphere through which massive long-distance high-precision attacks could be carried out, regardless of whether the weapons are fired from land, sea, air, or space.[29] In the Russian context, this domain is mainly the responsibility of the Russian Aerospace Forces with its variety of branches and tasks. Each branch of the Aerospace Forces, although related, has its unique challenges. Even so, there are a few main themes when it comes to Russian military–scientific views on future aerospace warfare, all of them in some way influenced and reinforced by experiences from the Russo-Ukrainian war. With a primary focus on air forces, this chapter briefly highlights these themes in three parts: long-distance high-precision weapons, space and reconnaissance systems, and, lastly, UAVs.

29 See, for example, A. Ulanov, "Oblik voin budushchego," *Armeiskii sbornik*, no. 11 (2022).

A non-contact high-precision way of war

The predominant component in the Russian military-academic debate on future warfare in the aerospace domain is long-distance high-precision weapons. Several Russian military writers, including Sergei Dronov, who was Air Force Commander-in-Chief from 2019 to 2024, identify an increasing use of high-precision and high-speed weapons as well as a drive to build considerable missile storages as main development trends. The experiences from the war against Ukraine are seen as having reinforced the role of air-launched long-distance and high-precision weapons for the destruction of critical infrastructure, but at the same time shown that Russia underestimated the amount needed to reach its goals.[30] Writers call for a speedy continued equipping of the Russian Air Force with modernised multifunctional strike aircraft armed with high-precision and especially hypersonic weapons, which modern Air Defence (AD) systems have difficulties intercepting.[31]

Often, the Russian military-academic visualisation of future aerospace warfare is centred around "non-contact war"[32]. By no means a new idea in Russian military thought, non-contact war is simply a war without direct contact, made possible by modern technology (such as long-distance high-precision weapons).[33] Future war is frequently seen as including a massive and quick first phase taking place in the aerospace domain with long-distance high-precision weapons.[34] This way of imagining future war, as large wars between high-tech enemies (often with the US and NATO as the adversaries), is most common. Especially the idea of sudden massive strikes, exemplified by the US concept of "Prompt Global Strike" (which is mentioned as a threat in Russia's Military Doctrine), are continuously perceived as a strong future threat.[35] Naturally, this places a great significance on air and missile defence. The outcome of future war is sometimes simply seen as determined by the battle between forces carrying out aerospace attacks and the forces defending

30 Sergei Dronov, Gennadii Vasilev, and Aleksei Kiriushin, "Osobennosti taktiki aviatsii v sovremennykh boevykh deistviiakh i puti yee sovershenstvovaniia," *Voennaia Mysl'* no. 1 (2024): 16–17; Oleg Ermolin, Nikolai Zubov, and Mikhail Fomin, "Primenenie udarnoi aviatsii Vozdushno-kosmicheskikh sil v voennykh konfliktakh budushchego," *Voennaia Mysl'* no. 2 (2023): 17–19, 26.

31 Ermolin, Zubov, and Fomin, "Primenenie udarnoi aviatsii Vozdushno-kosmicheskikh sil v voennykh konfliktakh budushchego," 26–27.

32 In Russian, *bezkontaktnaia voina*.

33 Robert Dalsjö, Kaan Korkmaz, and Gudrun Persson, "Örnen, Björnen och Draken: Militärt tänkande i tre stormakter," FOI-R--4103--SE (September 2015), 58.

34 Vladimir Andreev, Nikolai Kriventsov, Dmitrii Pakhmelkin, and Andrei Antipov, "Osobennosti primeneniia gruppirovok aviatsii v voennykh konfliktakh budushchego," *Voennaia Mysl'* no. 6 (2022): 40–41.

35 Andreev, et al., "Osobennosti primeneniia gruppirovok aviatsii v voennykh konfliktakh budushchego," 43; A. Petrov and D. Stoliarov, "Neitralizuia bystryi globalnyi udar," *Armeiskii sbornik* no. 8 (2024): 69; Voennaia doktrina Rossiiskoi Federatsii, 2014.

against them.[36] The development of high-precision and hypersonic weapons, the massive use of those weapons together with UAVs, and the ability to carry out aerospace attacks rapidly thanks to improved reconnaissance systems, are acknowledged as challenges for AD resources onwards.[37]

Space and reconnaissance as deciding factors

Space is underlined as a crucial factor in future warfare by Russian military thinkers. In general, they describe space as a domain developing from a purely supporting role, including for example reconnaissance and navigation, to an active role carrying out defensive or offensive attacks.[38] Although the importance of space is not new in Russian views of future warfare, experiences from the war against Ukraine has certainly strengthened the notion. From the perspective of several Russian military writers, the effective use of air and space reconnaissance by the US and NATO in support of Ukraine, and, in contrast, the limited use by Russia, is the main reason for the Air Force's difficulties in creating air supremacy during the war.[39]

Logically, this drives Russian efforts both to utilise space more efficiently and to create ways to counter the perceived NATO advantage. Sergei Dronov and his co-writers call for wider use of global navigation satellite systems and reconnaissance satellites for the benefit of a unified information environment and improved command and control (C2), as well as broader incorporation of electronic warfare capabilities in reconnaissance satellites.[40] In addition, the disruption of enemy C2 by destroying the ground infrastructure supporting space systems is highlighted as an important goal in future war, and viewed as one of the most vulnerable spots for the US and NATO. Writers stress the need to develop principles on how to use aviation to achieve space supremacy, including air strikes against ground infrastructure, such as launch sites and C2 and reconnaissance data-processing sites.[41]

As briefly mentioned above, space is vital to another recurrent component in the military–academic debate on future war: the creation of a unified information

36 Iurii Krinitskii, "Napravleniia razvitiia form i sposobov deistvii voisk (sil) vozdushno-kosmicheskoi oborony," *Voennaia Mysl* no. 3 (2022): 43.

37 Iurii Krinitskii, "Napravleniia razvitiia form i sposobov deistvii voisk (sil) vozdushno-kosmicheskoi oborony," *Voennaia Mysl* no. 3 (2022): 47–48; M. Fomin, N. Zubov and O. Ermolin, "O vozmozhnykh izmeneniiakh v tendentsiiakh razvitiia boevoi aviatsii v svete opyta sovremennykh voennykh konfliktov", *Vestnik akademii voennykh nauk* no. 4 (2025): 38.

38 Andreev, et al., "Osobennosti primeneniia gruppirovok aviatsii v voennykh konfliktakh budushchego," 41.

39 Dronov, Vasilev, and Kiriushin, "Osobennosti taktiki aviatsii v sovremennykh boevykh deistviiakh i puti yee sovershenstvovaniia," 17.

40 Ibid., 21.

41 Andreev, et al., "Osobennosti primeneniia gruppirovok aviatsii v voennykh konfliktakh budushchego," 41–42.

environment and reconnaissance-strike complexes, with the goal of improving C2 and shortening the time between detection and destruction.[42] Quick dissemination of information to all participants involved in a military task and the implementation of AI are seen as essential to achieving success in modern aerospace warfare. Insufficient reconnaissance support is considered one of the limiting factors for the Air Force in the war against Ukraine.[43]

Redefining the roles of manned and unmanned aircraft

The role of UAVs is, not surprisingly, another dominating development trend stressed in Russian military–academic thinking about future warfare. Russian military writers underline that UAVs have played a significant role in the Russo-Ukrainian war, a role that at least in some cases can be compared to, or even prevail over, that of manned aircraft.[44] Consequently, this raises questions about what tasks are best carried out by manned versus unmanned aircraft, or combinations of the two. Commenting on the unprecedented massive use of UAVs in the Russo-Ukrainian war, writers note that it will most certainly influence future redistribution of tasks within the Aerospace Forces.[45]

Certain writers see a diminishing role for manned aviation. For example, one writer identifies a development leading to the full rejection of manned aircraft for the benefit of using missiles and UAVs only.[46] Others claim that the role of aviation in the war against Ukraine has been reduced to that of merely a carrier of weapons, unable to act even in the vicinity of enemy AD. Their hopes rest on sixth-generation fighters to restore the role of aviation.[47] Still, most writers make room for both manned and unmanned aircraft in future war. In one example concerning continued incorporation of UAVs into the Aerospace Forces, writers stress that all air divisions should include air reconnaissance units equipped with both manned and unmanned aviation systems, including reconnaissance-strike variants, and units with attack UAVs that can act independently as well as together with

42 Ermolin, Zubov, and Fomin, "Primenenie udarnoi aviatsii Vozdushno-kosmicheskikh sil v voennykh konfliktakh budushchego," 19.

43 Dronov, Vasilev, and Kiriushin, "Osobennosti taktiki aviatsii v sovremennykh boevykh deistviiakh i puti yee sovershenstvovaniia," 17-19.

44 Dronov, Vasilev, and Kiriushin, "Osobennosti taktiki aviatsii v sovremennykh boevykh deistviiakh i puti yee sovershenstvovaniia," 17; Ermolin, Zubov, and Fomin, "Primenenie udarnoi aviatsii Vozdushno-kosmicheskikh sil v voennykh konfliktakh budushchego," 26.

45 Ibid., 26.

46 Iurii Krinitskii, "Napravleniia razvitiia form i sposobov deistvii voisk (sil) vozdushno-kosmicheskoi oborony," *Voennaia Mysl'* no. 3 (2022): 47.

47 V. Lazukin, V. Malyshev, and V. Len, "Rol i mesto operativno-takticheskoi aviatsii v voennykh konfliktakh sovremennosti i budushchego," *Vestnik Akademii Voennykh Nauk* no. 1 (2025): 54–55.

manned systems in mixed tactical groups.[48] Looking at developments in the US, such as the Next-Generation Air Dominance programme, other Russian writers, similarly, see a future where warfare in the aerospace domain is carried out by a family of systems consisting of manned and unmanned aircraft and satellites, the manned aircraft functioning more as a command post while UAVs can carry out reconnaissance, attacks, and air-to-air combat.[49]

In 2021, the Ministry of Defence decided to gradually rearm reconnaissance squadrons within the Aerospace forces with UAVs, replacing the existing Soviet-era reconnaissance aircraft of type Su-24MR.[50] This is one example of redistribution of tasks from manned to unmanned aircraft within the Aerospace Forces organisation. However, the announcement in June 2025 of the creation of the Unmanned Systems Forces as a separate type of troops makes the road ahead blurrier.[51] While this step signifies the importance put on unmanned systems, it is yet unclear how the new troops will integrate or cooperate with the Aerospace Forces or other branches of the Russian Armed Forces. The tricky question is how Russia will create an organisation, tactics, and systems that employ the potential seen in UAVs and the interplay between manned and unmanned systems.

Conclusions

The military–academic debate on future warfare in the aerospace domain since 2022 reinforces already existing themes and development trends, in particular a growing importance of long-distance high-precision weapons, space and reconnaissance systems, and UAVs. From a Russian perspective, the experiences from the Russo-Ukrainian war have further highlighted the significance of these themes. Another common factor is that all themes are closely intertwined with ongoing and prospective technical developments.

Considering the perceived threat of massive high-precision strikes and space systems in future war, Russia will naturally continue giving high priority to air and missile defence forces and an increasing priority to space forces and counter-space capabilities. When it comes to UAVs, their massive use during the war and the

48 Ermolin, Zubov, and Fomin, "Primenenie udarnoi aviatsii Vozdushno-kosmicheskikh sil v voennykh konfliktakh budushchego," 20.

49 A. Lukashov, V. Maksimov, A. Bashkirov, and O. Panferov, "Vzgliad na budushchee voennoi aviatsii," *Armeiskii sbornik* no. 8 (2022).

50 Roman Kretsul and Anna Cherepanova, "Vstat v roi: podrazdeleniia VKS perekhodiat na bespilotnuiu razvedku," *Izvestiia*, 12 May 2021. *https://iz.ru/1162513/roman-kretcul-anna-cherepanova/vstat-v-roi-podrazdeleniia-vks-perekhodiat-na-bespilotnuiu-razvedku* (accessed 6 November 2025).

51 President of Russia, "*Soveshchanie po rassmotreniiu osnovnykh parametrov proekta gosudarstvennoi programmy vooruzheniia na 2027–2036 gody*," 12 June 2025, *https://kremlin.ru/events/president/news/77194*

creation of the Unmanned Systems Forces set the stage for a rapidly growing role of unmanned systems within the Russian Armed Forces. Moreover, air defence, space systems, and UAVs are all among the main priorities in the upcoming Russian State Armament Programme.[52]

The debate on aviation in future war, however, involves a greater degree of uncertainty and differing views. The Air Force's difficulties in battling AD systems along with the prominent role of UAVs during the war against Ukraine give rise to views that are renegotiating, and in some cases questioning, the role of aviation.

3.3 The Navy

Jonas Kjellén

This section aims to examine how future naval warfare is perceived in Russia. While naval warfare is clearly the domain of the Navy, it is not its only concern. Peacetime tasks of naval diplomacy, deterrence, and pursuing state interests are equally central tasks for the Russian Navy as the preparation to engage in naval combat. That this broader perspective is central to the Russian Navy is apparent when studying the debate on its future role and place. This section outlines the following three key aspects of the future development of the Russian Navy. First, the future importance of the Navy, implicitly in relation to other military service branches. Second, the main priorities of the Russian Navy in coming years. Third, how technological and geophysical developments are changing Russian naval warfare.

Russia as a great sea power

Great ambitions in the naval and maritime domain are not a matter of course for Moscow. Often characterised as a continental power, Russia is not geographically a natural sea power like the US or Britain. Considering Russia's experiences from the war in Ukraine, reconstituting the Ground Forces also seems far more urgent than embarking on an extravagant naval build-up. Nonetheless, Russian ambitions in the naval domain have remained high.

52 Anastasiia Semko, "Belousov perechislil osnovnye prioritety gosprogrammy vooruzheniia", *Argumenty i fakty*, 29 August 2025. https://aif.ru/society/belousov-perechislil-osnovnye-prioritety-gosprogrammy-vooruzheniy (accessed 19 November 2025).

In its latest iteration of the Naval Doctrine of July 2017, Moscow stated the goal of being "the world's second sea power".[53] Already then, this seemed overly ambitious and unrealistic, especially considering China's rapid naval growth.[54] Russia's Maritime Strategy from July 2022 used the more modest wording of maintaining the status as "a great sea power", but it nevertheless showed that, even six months into Russia's full-scale invasion of Ukraine, Russia's determination to consolidate its status as a major sea power remained strong.[55] The Navy Commander-in-Chief has since then reiterated the Navy's objective to remain the world's second Navy.[56]

Since 2010, Russia has largely managed to reverse the post-Soviet decline of its Navy, even though Russian shipbuilding has faced serious challenges due to Western sanctions. During this time, Russia has increased naval presence and activities close to its shores as well as in more distant waters, such as the Mediterranean Sea. This is not, however, the end goal. In August 2024, the long-term strengthening of Russian sea power received new impetus by the creation of a collegial body, the Russian Maritime Board. Led from the former director of the FSB, Nikolai Patrushev, its purpose is to consolidate Russia's place in the world as a maritime and naval power. Less than a year later, in June 2025, the Russian president approved a long-term strategy for developing the Navy through 2050, with USD 106.3 billion allocated for its first phase up to 2035.[57]

A balanced navy

NATO gradually moving its infrastructure and increasing its military activities closer to Russian borders is one of the more frequently recurring themes in Russian security debate.[58] From Moscow's horizon, this is a threat that is further exacerbated by Russia lagging behind technologically in several areas. Western dominance in both precision-strike and ballistic-missile defence (BMD) capabilities is perceived as a threat to Russian critical infrastructure, especially as the mere existence of Western

53 The full name of the Naval Doctrine is *Fundamentals of the State Policy of the Russian Federation in the Field of Naval Operations for the Period Until 2030,* Chapter I, Article 1.8.

54 Dmitry Gorenburg, "Russia's New and Unrealistic Naval Doctrine," *War on the Rocks*, 26 July 2017, *https://warontherocks.com/2017/07/russias-new-and-unrealistic-naval-doctrine/*; Oscar Almén et al., *Studying China's Military Power: Analytical Framework and Methods*, FOI-R--5760--SE (August 2025), 72.

55 Maritime Doctrine, Chapter II, Article 8.

56 Aleksandr Moiseev, "Mesto i rol Voenno-Morskogo Flota v strategicheskom neiadernom sderzhivanii," *Voennaia Mysl'*, no. 8 (2025): 48.

57 Sergei Guneev, "Strategic Depth. Patrushev Name New Targets for Russian Fleet," *Argumenty i Fakty*, 11 June 2025, *https://aif.ru/politics/russia/strategicheskaya-glubina-patrushev-nazval-novye-celi-dlya-rossiyskogo-flota*.

58 N. Evmenov, A. Puchnin, and A. Evshchenko, "Main Trends in the Change of the Nature and Context of Military Threats to the Russian Federation from Ocean and Sea Directions," 22.

submarines lingering in waters close to Russian soil could jeopardise the credibility of Moscow's nuclear deterrence regime.[59] To Russia, these challenges are particularly salient in the Arctic, as receding seasonal ice due to the effects of global warming is opening up the Arctic marginal seas for navigation. Similarly, its position in the Black Sea is uncertain because of the ongoing war in Ukraine, and from Moscow's perspective the West is trying to turn the Baltic Sea into a NATO lake.[60] In the Asia-Pacific region, Moscow's rapprochement with China and North Korea has accentuated the dividing lines, with strong naval powers such as the US, South Korea, and Japan on the opposing side of Russia's Pacific Fleet.[61]

Considering its many naval predicaments close to home, it is not surprising that the notion that Russia has intentionally focused on the development of green-water capabilities to transform its Navy into a predominantly coastal defence force is widespread.[62] However, the many military threats envisioned in waters adjacent to Russia do not mean that its Navy de-emphasises its role abroad. Indeed, small surface combatants and submarines have dominated shipyard production over the course of the last 15 years, but this reflects provisional limitations in shipbuilding and design rather than long-term ambition. Instead, one of the key drivers of the strengthening of the Russian Navy is the emergence of a multipolar world order.[63] As strategic competition among states with significant sea power increases, the ability to protect national interests in the world's oceans will become ever more

59 Evmenov, Puchnin, and Evshchenko, "Main Trends," 23–26; Moiseev, Aleksandr. "Strategicheskie trebovaniia k razvitiiu voenno-morskogo potentsiala Rossii s uchetom opyta spetsialnoi voennoi operatsii na Ukraine," *Voennaia Mysl'*, no. 9 (2024): 9–10; A. A. Mikhlin, V. V. Molochnyi, and T. M. Koemets, "Morskaia gibridnaia voina v strategiiakh SShA i NATO: sut, soderzhanie i vozmozhnye mery protivodeistvie," *Voennaia Mysl'*, no. 4 (2023): 6–22; and O. V. Alioshin, A. N. Popov, and V. V. Puchnin, "Voenno-morskaia moshch Rossii v sovremennykh geopolicheskikh usloviakh," *Voennaia Mysl'*, no. 7 (2016): 12–17.

60 Maksim Gabrielian, "Zakharova predostergela NATO ot popytok prevratit odno morie v svoie vnutrenneie ozero," *Lenta*, 13 November 2024, *https://lenta.ru/news/2024/11/13/zaharova-predostereglanato-ot-popytok-prevratit-odno-more-v-svoe-vnutrennee-ozero/*.

61 Kostiukov, I.O., "US actions and plans to increase its military presence in th Asia-Pacific region" [Deistviia i plany SShA po narashchivaniiu voiennogo prisutstviia v Aziatsko-Tikhookeanskom regione], *Voennaia mysl'* no. 7 (2023). Ivan Egorov, "Nikolai Patrushev: The West Is Trying to Limit Our Activities in the World Oceans" [*Nikolai Patrushev: Zapad pytaetsia ogranichit nashu deiatelnost v Mirovom okeane*], *Rossiiskaia gazeta*, 28 January 2025.

62 Dmitry Gorenburg, "Russia's Future Naval Capabilities," in *The Sea in Russian Strategy*, ed. Andrew Monaghan and Richard Connolly (Manchester: Manchester University Press, 2023), 168; Liv Karin Parnemo, "Russia's Naval Development—Grand Ambitions and Tactical Pragmatism," *The Journal of Slavic Military Studies* 32, no. 1 (2019): 41–69.

63 President of Russia, "*Meeting on the Navy Development Strategy*", 11 April 2025; and Aleksandr Moiseev, "Strategic Requirements for the Development of Russia's Naval Potential, Taking into Account the Experience of the Special Military Operation in Ukraine" [*Strategicheskie trebovaniia k razvitiiu voenno-morskogo potentsiala Rossii s uchetom opyta spetsialnoi voennoi operatsii na Ukraine*], *Voennaia mysl'*, no. 9 (2024): 8–21.

important to Moscow.[64] Western disapproval of the so-called Russian "shadow fleet", is a recurring example in Russia of how Western countries strive to counteract its activities at sea.[65]

With higher ambitions on the world's seas and the notion of increasing challenges in waters close to Russia, Moscow is striving for a balanced fleet in several aspects.[66] It must be capable of both pursuing national interests on a global scale and at the same time protect Russia from aggression. Moreover, it must be geographically balanced so that all of Russia's four fleets can independently carry out these main missions. Lastly, a balance, or perhaps distinction, between general-purpose forces and naval strategic nuclear-deterrence forces will also be maintained, even though this dichotomy is increasingly challenged by technological development.

Russian revolutions in naval affairs?

Naval inventories of navies from all over the world are constantly and incrementally improved in terms of sensors, propulsion, automation, weapon range, crew size, and more. This is also the case in Russian shipbuilding and naval weaponry design. In most cases, this is not much to get excited about, but from time to time these developments fundamentally alter the conditions for naval operations. Two emerging technologies that have enjoyed much attention in the Russian debate, largely because of their potentially disruptive effects, are, first, the introduction of uncrewed vehicles and, second, the way long-range precision weapons are changing the Navy's role in strategic deterrence.

The use of unmanned vehicles in naval warfare in all domains (air/surface/underwater) is both perceived as an opportunity as well as a challenge to the Russian Navy. The latter not least because of Russia's experiences in the Black Sea where the Black Sea Fleet has been seriously stymied by a state essentially lacking naval forces. In April 2025, President Putin highlighted that the introduction of autonomous and unmanned systems will require the Navy to adopt a "new look", which usually means substantial organisational adaptations.[67]

64 Ismailov, et al., "National interests of the Russian Federation in the World Ocean and instruments of state policy for their protection," December 2020; and Nikolai Evmenov, "The role and place of the Navy in wars and armed conflicts," November 2022.

65 Moiseev, "Strategic Requirements," 9; and Ivan Egorov, "Nikolai Patrushev: The West Is Trying to Limit Our Activities in the World Oceans" [*Nikolai Patrushev: Zapad pytaetsia ogranichit nashu deiatelnost v Mirovom okeane*], *Rossiiskaia gazeta*, 28 January 2025.

66 The need for Moscow to have "a balanced" fleet is attributed to the longest-serving Soviet naval chief, Admiral Sergei G. Gorshkov.

67 President of Russia, "*Meeting on the Navy Development Strategy*," 2025.

Russia has long made a clear distinction between the "naval strategic nuclear deterrence forces" and "naval general-purpose forces".[68] While the strategic ballistic-missile submarines remain the backbone of the naval component of Russia's nuclear deterrence, the notion of non-nuclear deterrence has started to play a greater role in Russian naval debates.[69] Holding critical infrastructure of a potential adversary at risk by long-range, high-precision munitions, presents a means of strategic deterrence that is more flexible than nuclear deterrence.[70] Over the course of the last 10 to 15 years, Russia has successively increased its number of naval platforms equipped with long-range cruise missiles. Relatedly, the incumbent Navy commander-in-chief (CINC) has recently floated the idea of once again routinely equipping its general-purpose naval forces with tactical nuclear weapons as a way to counter a perceived imbalance in non-nuclear deterrence capabilities.[71]

It is not, however, only military-technological developments that prompt the Russian Navy to novel thinking. A much-discussed topic in Russian naval circles is how climate change affects Russia's military–geographical circumstances in the Arctic, especially how to defend Russian national interests such as controlling natural resources and the Northern Sea Route.[72] As a more navigable Arctic creates both opportunities as well as liabilities for the Russian Federation, Moscow has over the last 10 to 12 years expended considerable effort to strengthen its military posture in the Arctic region. A part of this has been to purposefully shape the Navy's ship inventory, and to alter mission planning to prepare the Navy for Arctic operations.

Conclusions

A general impression is that Russian military theorists habitually take their starting point in the notion that their country has entered a period of long-term rivalry with NATO, and one that will remain even if the war in Ukraine were to be settled anytime soon. Thus, an end to the war in Ukraine will surely not diminish but rather increase the role of the Navy, as failure to pursuit state interests and maintain deterrence near and abroad is, from Moscow's perspective, in the long term as dangerous as war. A saying often attributed to czar Alexander III (1845–1894) stated that Russia only has two allies: its army and its fleet. Seemingly, this still applies as

68 Evmenov, Puchnin, and Eshchenko, "Main Trends," 5.

69 Aleksandr Moiseev, "The Place and Role of the Navy in Strategic Non-nuclear Deterrence" [*Mesto i rol Voenno-Morskogo Flota v strategicheskom neiadernom sderzhivanii*], *Voennaia mysl'*, no. 8 (2025): 41–52.

70 Moiseev, "The Place and Role," 41–52.

71 Moiseev, "Strategic Requirements," 19.

72 See, for example, Aleksandr Morozov, Aleksei Zubariov, and Aleksei Khriapov, "Current Challenges to the Military Security of the Russian Federation in the Arctic" [*Sovremennye vyzovy voennoi bezopasnosti Rossiiskoi Federatsii v Arktike*], *Voennaia mysl'*, no. 12 (2022): 6–11.

there is no indication in contemporary Russian military thinking that recent experiences in Ukraine have resulted in a primacy of the Army over the Navy. Given how Russia is grappling with the effects of Western sanctions and other economic consequences of the war such as high inflation and labour shortages, post-war reconstituting the Armed Forces will be economically severe regardless of the priority it is given. Even if economic reality catches up, the Navy is no lower priority than the Army and Moscow will want to keep domestic shipyards busy.

3.4 Cyber Warfare

Carolina Vendil Pallin

This section describes Russia's experiences of cyber warfare in its war against Ukraine and how they have shaped Russian thinking about cyber domain in future conflicts. In doing so, it examines both offensive and defensive aspects of Russian experiences and thinking on cyber warfare. The section also traces the debate on Russia's future cyber warfare at a strategic and tactical level; at different phases of a war; and from an organisational perspective.

Cyber warfare and the full-scale invasion

Before the war, the prefix "cyber" was used only rarely in Russian official documents and statements. Instead, Russia uses the term "information war" as an overarching category.[73] Consequently, much of Russia's focus has been on the ability to control the information space, not least inside Russia and against foreign ideas. There is also, however, increasing attention on the dangers posed to critical information infrastructure. In 2019, the Chief of the General Staff, Valerii Gerasimov, in his address to the Academy of Military Science, pointed to information technology as one of the most important future weapons. He singled out attacks on critical infrastructure and the ability to influence the population from a distance and without being detected.[74] This statement encapsulates how Russia discusses cyberwarfare as

73 President of Russia, *National Security Strategy of the Russian Federation*, 2021; President of Russia, *Information Security Doctrine of the Russian Federation,* 2016; Ministry of Defence, *Conceptual Views on the Activity of the Armed Forces in the Information Sphere*, 2011; President of Russia, *Strategy Developing the Information Society in Russia 2017–2030*, 2017; the only exception is the Ministry of Foreign Affairs' *The Concept of the Foreign Policy of the Russian Federation,* 2023, and then only in the context of Russia's goal of changing international governance in cyberspace.

74 Valerii Gerasimov, "Razvitie voennoi strategii v sovremennykh usloviiakh. Zadachi voeenoi nauki," *Vestnik akademii voennykh nauk*, no. 2 (2019): 6–11, 10.

embedded in the larger concept of information warfare. However, when pushed, Russian policymakers and officials do make a distinction between psychological and technical information warfare.[75] The latter concept, technical information warfare, is what comes closest to cyberwarfare, the topic in this section.

Russia have used cyber measures in its war against Ukraine, but analysts arrive at different conclusions as to how effective these efforts have been. There were preparations made before the invasion as well as a spike in cyberattacks during the initial stages. A good example of this mode of operation is the cyberattack against ViaSat's satellite network, activated just hours before the invasion to prevent Ukraine's Armed Forces from using satellite communications. The attack has been attributed to Russia's military intelligence (GRU) and preparations were in place long before the actual invasion.[76]

However, there are relatively few examples of successful coordination of targeted cyberattacks with kinetic force.[77] There are a number of possible explanations as to why cyber warfare did not play a bigger role: Ukraine was well prepared, expectations were inflated regarding what cyber measures could achieve, and we overestimated Russia's capabilities, to mention but a few hypotheses.[78] The aim of Russia's cyberattacks was probably to gather intelligence before the invasion; to undermine Ukraine's will to defend and ability to mount a successful defence. In this, Russia was only partially successful.

Less attention has been devoted to Russia's cyber defence during the invasion. From 24 February 2022, Russia was the target of massive cyberattacks; less sophisticated attacks to start with, but soon more advanced ones that penetrated Russian official authorities and industrial control systems.[79] Russia quickly had to implement measures to defend its critical infrastructure, its information space, and business community.

On a tactical and tactical–operational level, cyber warfare in Russia's war against Ukraine intertwines with electronic warfare. The way the war has developed, with a transparent battlefield and an increased role for drone warfare, has made the realm

75 Keir Giles, *Handbook of Russian Information Warfare*, Fellowship Monograph, No. 9, NATO Defense College, November 2016, 8; Martti J. Kari, *Russian Strategic Culture in Cyberspace*, JYU Dissertations 122, Jyväskylä, University of Jyväskylä—Faculty of Information Technology, 2019, 16.

76 Clémence Poirier, *Hacking the Cosmos: Cyber operations against the space sector—A case study from the war in Ukraine,* Cyber Defense Report, Zürich, Center for Security Studies (CSS), ETH, October 2024, 4.

77 Jon Bateman, *Russia's Wartime Cyber Operations in Ukraine: Military Impacts, Influences, and Implications*, Carnegie Working Paper, December 2022; see, also, Grace B. Mueller, et al., *Cyber Operations During the Russo-Ukrainian War: From Strange Patterns to Alternative Futures*, CSIS, On Future War, July 2023.

78 Per-Erik Nilsson, *Unraveling the Myth of Cyberwar—Five Hypotheses on Cyberwarfare in the Russo-Ukrainian War (2014–2023)*, FOI-R--5513--SE, December 2023.

79 Carolina Vendil Pallin, *Rysslands cyberberedskap på hemmaplan* [Russia's Cyber Preparedness at Home], FOI-R--5611--SE, August 2024.

of cyber electromagnetic activity (CEMA) the main theatre for cyber warfare in the field.[80] The war has thus rekindled thinking inside the Russian Armed Forces on cyber warfare as part of electronic warfare.[81]

The future of cyberwarfare

The debate on cyber warfare takes place within a limited room for manoeuvre, and almost always within an information-warfare context. Considerable ink is still spilled on attempts to establish a definition of what "cyber" is and to refute such attempts.[82] This indicates that the debate is still only maturing and that more revolutionary cyber thinking is still not entering planning processes, or conceptual thinking, or resulted in radical organisational transformation. Much focus is still devoted to the need to protect a cognitive sphere and traditional Russian values from Western influence, what Russia sees as part of information and hybrid warfare against Russia.[83] Andrei Kokoshin, however, has noted that from a historic perspective, cyber operations are the only news when it comes to hybrid warfare.[84]

80 Traditionally, there has been a boundary between cyber warfare, targeting or protecting computers and networks, on the one hand, and electronic warfare, efforts to control the electromagnetic spectrum, on the other; see Christian Vestlund, *Cyber och ElektroMagnetisk Aktivitet* [Cyber and ElectroMagnetic Activities], FOI-D--1386--SE, May 2025.

81 On this debate prior to the war, see Ulrik Franke, *War by non-military means: Understanding Russian information warfare*, FOI-R--4065--SE, March 2015; Juha Kukkola, *Digital Soviet Union: The Russian National Segment of the Internet as a Closed National Network Shaped by Strategic Cultural Ideas* (Helsinki: National Defence University, 2020): 139–142. On the creation of Russia's Cyber Troops in 2009 and their growing importance inside the Armed Forces, see Jonas Kjellén, *Russian Electronic Warfare: The Role of Electronic Warfare in the Russian Armed Forces*, FOI-R--4625--SE, September 2018. See, also, A. S. Korzhevskii (ed.), *Prognoziruemye vyzovy i ygrozy natsionalnoi bezopasnosti Rossiiskoi Federatsii i napravleniia ikh neitralizatsii* (Moscow: Russian State University for the Humanities (RGGU) 2021), 387–392.

82 See, for example, A. A. Bartosh, "Protivoborstvo v kiberneticheskoi i informatsionno-psikhologicheskoi sferakh gibridnoi voiny," *Vestnik akademii voennykh nauk*, no. 3 (2024): 39–47; A. Yu. Dobrodeev, "Kiberbezopasnost v Rossiiskoi Federatsii. Modnyi termin ili prioritetnoe tekhnologicheskot napravlenie obespecheniia natsionalnoi i mezhdunarodnoi bezopasnosti XXI veka," *Voprosy kiberbezopasnosti*, no. 4 (2021): 61–72; Yu. Yazov, "Ob opredelenii poniatiia 'kiberbezopasnost' i sviazanykh s nim terminov," *Voprosy kiberbezopasnosti,* no. 1 (2025): 2–6, for attempt to define "cyber." V. I. Orlianskii, "K voprosu ob informatsionnoi protivoborstve", *Vestnik akademii voennykh nauk*, no. 3 (2024): 48–57, quickly suggested there was an inherent danger basing a definition on "foreign views, theories, attitudes, and conceptual apparatus," (p. 54).

83 See, for example, A. A. Kulakov, "Informatsionnye aspekty globalnogo protivostoiania SShA i Rossiiskoi Federatsii", *Vestnik akademii voennykh nauk*, no. 1 (2025): 16–23; Piotr Wawrzeniuk and Markus Balázs Göransson, "Visions of Future Warfare in Russian Military Publications," *Journal on Baltic Security* 7, no. 2 (2021): 27–37, 30–32.

84 Andrei Kokoshin, *Voprosy prikladnoi teorii voiny* (Moscow: Vyshaia shkola ekonomiki, 2018), 99.

Tactical vs. strategic level

In a book from the Military Academy of the General Staff in 2021, there is a clear division between a tactical (or even tactical–operative) level for conducting cyber warfare and a strategic one. At the strategic level, cyber war consists of, for example, attacks against targets such as critical infrastructure and key government resources. It also encompasses cyber espionage, and information influence directed against the Russian population.[85] On this level, "military hackers" (*boevye khakery*) commit "military crimes" as they tunnel into computers and steal secret documents or perhaps even establish control over critical military sites.[86] Although much focus is on cognitive or even "mental" warfare at this level, there is an emerging literature on cyber warfare and on the need to take a more directed interest in protecting especially critical infrastructure from cyberattacks.[87] The experience from 2022 resulted in an analysis emanating from the Military Academy of the General Staff in 2024 stating that: "Russia found itself at the centre of a quickly expanding 'cyber storm'". The reason was not only "an almost official 'digital' aggression from unfriendly states" but also poor preparedness when it came to domestic information-technology infrastructure.[88] At the strategic level, it still seems to be the special services such as the Federal Security Service (FSB), the Foreign Intelligence Service (SVR), and the military intelligence, the GRU, that are mainly responsible for both offensive and defensive measures.[89] There is also a tactical level of cyberspace, where one conducts cyberattacks (attacks by kinetic or virtual cyber actions) against one's opponent and use cyber measures to build walls and domes (*kiberzavesy* and *kiberkupoly*).[90] This increased dependence on information technologies has made cyber security a pressing issue in future warfare.[91]

85 See, also, Kulakov, "Informatsionnye aspekty globalnogo protivostoiania SShA i Rossiiskoi Federatsii," 16–23, 19.

86 A. S. Safonov, "Internet kak instrument psikhologicheskoi voiny: sovremennye tendentsii i tekhnologicheskie vosmozhnosti," *Voennaia mysl'*, no. 7 (2024): 78–86, 85–86.

87 Gerasimov, op cit; Yu. I. Starodubtsev, P. V. Zakalkin, and V. G. Ivanov, "Kiberoruzhie kak osnovnoe sredstvo vozdejstviia na kriticheskuiu infrastruktury gosudarstv," *Vestnik akademii voennykh nauk*, no. 1 (2022): 24–32; Yu. I. Starodubtsev, V. G. Ivanov and P. V. Zakalkin, "Predlozheniia po obosnovaniiu sozdaniia kibervoisk kak novogo vida Vooruzhennykh Sil Rossiiskoj Federatsii" , *Voennaia mysl'*, no. 3 (2025): 60–68.

88 V. B. Zarudnitskii (ed.), *Sovremennye tendentsii mezhdunarodnykh otnoshenii i ikh vliianie na natsionalnuju bezopasnost Rossiiskoi Federatsii v XXI veke* (Moscow: The Military Academy of the General Staff of the Armed Forces of the Russian Federation, 2024), 554.

89 V. B. Zarudnitskii (ed.), *Sovremennye tendentsii mezhdunarodnykh otnoshenii i ikh vliianie na natsionalnuju bezopasnost Rossiiskoi Federatsii v XXI veke* (Moscow: The Military Academy of the General Staff of the Armed Forces of the Russian Federation, 2024), xxx.

90 V. B. Zarudnitskii, *Sovremennye tendentsii mezhdunarodnykh otnoshenii i ikh vliianie na natsionalnuju bezopasnost Rossiiskoi Federatsii v XXI veke* (Moscow: The Military Academy of the General Staff of the Armed Forces of the Russian Federation, 2024), 388–389.

91 A. Zhukov and M. Gavrilov, "Dereviannoe kope i iskustvennyi intellect: sovremennye tekhnologii v armii", *Armeiskii sbornik*, no. 1 (2025): 121–130, 125–129.

Different phases of war

In Russian thinking, information warfare, of which cyber warfare is a part, is ongoing at all phases of a conflict.[92] However, experiences from Russia's second invasion of Ukraine suggest that different kinds of cyber operations are important in different phases. Cyber espionage, establishing presence in industrial control systems and high-value targets such as top-government administration and military organisations, was key to shaping the battlefield. The kind of warfare executed by intelligence and security services is ongoing during the first phase as well as during the open conflict, but Russia intensified its strategic cyber warfare in the second phase of the war, the actual invasion. Malware and harvested vulnerabilities are expensive assets and their value is lost once the cyberattack is detected. However, in the third phase of the war, when it had become one of attrition, the constant battle between CEMA measures and counter-measures came to the fore; tactical cyberwar became a focal point. There is also evidence that the war against Ukraine has changed the thinking regarding the need for digital technical development generally and in order to keep up with the rapid race to improve situational awareness, targeting, and to create future capabilities such as drone swarms and the integration of artificial intelligence in warfare. This thinking is mixed with apprehension as Russia fears lagging behind even further in technical development in the coming years.[93]

Cyber warfare inside Russia's military organisation

Andrei Kokoshin in 2024 noted that the civilian, commercial scientific–technological sector was developing at high speed. One lesson from the war against Ukraine was "the constantly growing, broad range of information and communication technologies and means for intelligence, for targeting, for electronic warfare, for command and control in battle as well as for carrying out operations in the cyber sphere". He also noted that the effect of all kinds of drone warfare was dependent on these technologies.[94] The only new arms of service that the MoD has announced are the Unmanned Systems Forces. In spite of much writing, especially in Western media and analyses, on Russian "cyber troops", there is no evidence of them existing within

92 V. V. Gerasimov, "Osnovnye tendentsii razvitiia form i sposobov primeneniia VS, aktualnye zadachi voennoi nauki po ikh sovershenstvovaniiu", *Vestnik akademii voennykh nauk*, no. 2 (2019): 6–11, 25.

93 Johan Engvall, Pär Gustafsson Kurki and Carolina Vendil Pallin, *Framtid med förhinder: Rysk teknisk FoU till 2030*, Stockholm, FOI-R--5204--SE, December 2021.

94 Andrei Kokoshin, "O voine vchera i segodnia: razvitie sredstv vooruzhennoi borby i voennoi mysli v usloviiakh globalnogo protivostoianiia", *RIAC Commentary*. 29 August 2024, *https://russiancouncil.ru/analytics-and-comments/comments/o-voyne-vchera-i-segodnya-razvitie-sredstv-vooruzhennoy-borby-i-voennoy-mysli-v-usloviyakh-globalnog/*.

the Armed Forces as an arm of service. Quite the reverse, a number of Russian articles see a need for them, indicating their absence.[95] This indicates that cyberwarfare on the tactical or even tactical–operational level will continue to be dispersed throughout the Armed Forces, with more training, education, and innovation taking place mainly inside the troops for electronic warfare and the newly established Unmanned Systems Forces.

The units that engage in cyber operations on the strategic level are part of the GRU within the Armed Forces, but also inside the military organisation as a whole, the FSB and the SVR. At the strategic level, moreover, Russia sees a need to protect its infrastructure but also the minds of its population. There is a tendency among Russian military thinkers to regard the internet foremost as a threat and tool for psychological information operations.[96] However, the high level of cyberattacks on government assets, business, and regular internet users from February 2022 will probably force Russia to adopt more of a whole-of-government approach to cyber defence. The Ukrainian operation "Spiderweb", which used local mobile internet to direct drones to strike against Russian military airbases, was a vivid reminder of how cyber-enabled attacks can strike deep in the heartland. Russia's defence so far consists of local authorities asking the mobile operators to shut down mobile internet access.

Conclusions

To conclude, Russia does not think about future warfare in terms of a separate cyber domain, but is rather still integrating its cyber thinking into the larger concept of information warfare, especially on the strategic level. This notwithstanding, Russia used strategic cyber operations to shape the battlefield in Ukraine and as a supporting element of its invasion in February 2022. We will also probably see rapid development in Russian thinking when it comes to tactical warfare within the CEMA field, as well as in integrating cyber defence measures at all levels, strategic, operational, and tactical.

95 There are even calls for a completely new arm of the Armed Forces, see, for example, Starodubtsev, Ivanov, and Zakalkin, "Predlozheniia po obosnovaniiu sozdaniia kibervoisk kak novogo vida Vooruzhennykh Sil Rossiiskoj Federatsii," 60–68. See, also, calls for creating cyber units inside Rosgvardiia, Daria Zhukova, "Gorelkin prizval sozdat v Rosgvardii podrazdelenie kibervoisk," *Parlamententskaia gazeta*, 26 June 2023, *https://www.pnp.ru/social/gorelkin-prizval-sozdat-v-rosgvardii-podrazdelenie-kibervoysk.html*.

96 See, for example, Safonov, "Internet kak instrument psikhologicheskoi voiny: sovremennye tendentsii i tekhnologicheskie vosmozhnosti," 78–86, 85.

3.5 Nuclear Weapons

Kristina Melin

Nuclear weapons are the main instrument in preventing aggression against Russia and form the central pillar of the Russian concept of strategic deterrence. In case of a large-scale or nuclear attack, Russia relies on the ability to launch a nuclear retaliatory strike under any conditions to cause "unacceptable damage" to an adversary.[97]

Short of preventing large-scale aggression, the Russian strategic deterrence concept also encompasses the active application of armed force, or the threat thereof, as part of a strategy of coercion. The aim is to shape the strategic environment in accordance with Russian priorities, prevent the outbreak of conflict, and manage escalation in war. Nuclear and conventional weapons complement each other, and conventional measures are typically considered before nuclear options. As a conflict intensifies, nuclear employment becomes less about coercion and more about warfighting.[98]

Nothing in the Russian military–academic debate up to 2025 suggests that nuclear weapons will perform a radically different role in the future. However, Russian writers identify emerging challenges to Russian nuclear deterrence. How Russia deals with these issues will determine how Russia implements nuclear deterrence in future conflicts. However, nuclear capability development takes time. The weapons systems currently under development set the conditions for the future.

Addressing challenges to strategic stability

In the military-academic publications reviewed, two long-standing challenges to strategic stability stand out. First, Russian writers express concern that the development and deployment of US BMD systems could threaten Russia's ability to cause unacceptable damage. The largest concern is around space-based and naval BMD systems.[99]

97 President of Russia, "*Basic Principles of Nuclear Deterrence (Osnovy gosudarstvennoi politiki Rossii v oblasti iadernogo sderzhivaniia, utverzhdeny ukazom Prezidenta Rossiiskoi Federatsii ot 19 noiabria 2024 g. No.991)"*, 2024, art. 10, http://kremlin.ru/acts/news/75598 (accessed 9 July 2025).

98 For an overview, see: Michael Kofman, Anya Fink, and Jeffery Edmonds, *Russian Strategy for Escalation Management: Evolution of Key Concepts* (Washington: Center for Naval Analysis, 2020), 18–29; Dima Adamsky, *The Russian Way of Deterrence—Strategic Culture, Coercion, and War* (Stanford University Press, 2023).

99 Vadim Sukhorutchenko and Sergei Kreidin, "Iadernoe sderzhivanie v usloviiakh razvitiia global-noi sistemy protivoraketnoi oborony SShA," *Voennaia mysl'*, no. 5 (2022).

Second, there is discussion about the development of long-range precision strike systems by the US and its allies. The concern is that a massive conventional air strike campaign against strategic targets early in a conflict could endanger Russia's ability to adequately respond with nuclear weapons.[100] Writers especially note the threat of intelligence, surveillance, and reconnaissance systems being placed in space for enhanced target acquisition.[101] Likewise, there are concerns that conventional weapons systems empowered by artificial intelligence (AI) can aggravate the vulnerability of strategic assets. However, Russian military writers also note the potential benefits to Russia of AI in nuclear security systems and early warning systems. There is general agreement that AI should not make independent decisions in nuclear employment.[102]

Further, Russian writers expect that their nuclear command and control and early warning systems may be targeted by cyberattacks in a future high-intensity conflict scenario, and call for increased protective measures. There is also an active debate on how to prevent adversary information operations designed to undermine strategic forces personnel on combat duty (boevoi dezhurstvo). Scholars call for military-political work and efforts to actively shield personnel from "negative information influence".[103] Informational and cyber threats are a persistent theme in Russian military thinking, also discussed in the chapter on the Cyber Domain.

In the outlets reviewed, there is no notable discussion on the Chinese nuclear build-up as a threat to Russia. On one hand, the lack of public debate is unsurprising given the ever-closer relations between the two countries. On the other, it appears unlikely that the Russian military would not discuss the potential consequences for Russian security. However, there is some open debate about the consequences for US–Russian strategic arms control.[104]

100 Kokoshin, *Problemy prikladnoi teorii voiny*, 67–68; Roman Nogin, "O roli i meste Raketnykh voisk strategicheskogo naznacheniia v perspektivnoi sisteme kompleksnogo strategicheskogo iadernogo sderzhivaniia vozmozhnoi agressii protiv Rossiiskoi Federatsii," *Voennaia mysl'*, no. 7 (2022); Iaroslav Bespalov and Mikhail Tikhonov, "Analiz kontseptsii vedushchikh gosudarstv po primeneniiu perspektivnykh neiadernykh sredstv porazheniia," *Voennaia mysl'*, no. 11 (2022).

101 Roman Nogin, "Ob ugrozakh obiektam Raketnykh voisk strategicheskogo naznacheniia ot udarov sredstv vozdushno-kosmicheskogo napadeniia," *Voennaia mysl'*, no. 5 (2022): 143.

102 Oleg Shakirov, *Russian thinking on AI integration and interaction with nuclear command and control, force structure, and decision-making* (London: European Leadership Network, 2023).

103 Nogin, "O roli i meste Raketnykh voisk strategicheskogo naznacheniia v perspektivnoi sisteme kompleksnogo strategicheskogo iadernogo sderzhivaniia vozmozhnoi agressii protiv Rossiiskoi Federatsii," 93.; Roman Nogin, Dmitrii Palachev, and Sergei Kornev, "Vozmozhnye podkhody k razrabotke kompleksa meropriiatii po sovershenstvovaniiu boevogo dezhurstva v RVSN v sovremennoi voenno-politicheskoi obstanovke," *Voennaia mysl'*, no. 9 (2024): 34–39; Sergei Karakaev, "K voprosu o primenenii Raketnykh voisk strategicheskogo naznacheniia v voinakh budushchego," *Voennaia mysl'*, no. 2 (2023).

104 Aleksei Stepanov, Osnovnye tendentsii razvitiia kitaiskikh raketno-iadernykh sil (Moscow: Russian International Affairs Council, 2025).

Russia is in the late stages of a multi-decade modernisation programme of all legs of the nuclear triad, replacing Soviet-era systems that are nearing the end of their service life. Russia is also developing a variety of delivery systems with increased speed, range, and manoeuvrability, designed to avoid adversary BMD systems. Notable examples of these efforts include the hypersonic glide vehicle Avangard, the nuclear-powered underwater Poseidon, and the nuclear-powered cruise missile Burevestnik. Additionally, strategic missile bases have recently been upgraded with new air- and perimeter-defence systems.[105]

Military analysts underline the importance of continuing these modernisation efforts to address the challenges to strategic stability and to ensure the future effectiveness and survivability of Russia's nuclear forces. Looking ahead, they recommend additional measures. For example, the current commander of the Strategic Rocket Forces, Sergei Karakaev, suggests developing domestic BMD systems to protect missile bases and mobile platforms.[106] Colonels Vadim Sukhorutchenko and Sergei Kreidin, both members of the Russian Academy of Military Sciences, propose to keep Russian missiles out of BMD interception range during vulnerable stages of their trajectory. They also note the importance of developing countermeasures to adversary space-based BMD systems.[107] US officials warned in 2024 that Russia might be developing space-based anti-satellite nuclear weapons. While Russia has rejected the claim, Western concerns have not been dispelled.[108]

Major General Roman Nogin of the Peter the Great Military Academy of Strategic Missile Forces has suggested that Russia increase the number of deployed nuclear weapons to overwhelm adversary BMD systems.[109] However, other civilian experts have cautioned against a nuclear arms race. They argue that Russia should instead pursue an asymmetric strategy emphasising the military–technical, political, and psychological readiness to use nuclear weapons.[110] Russia has declared it will abide by the numerical caps on deployed strategic nuclear weapons despite

105 For an overview of Russian nuclear forces and modernisation, see: Hans Kristensen, Matt Korda, Eliana Johns, and Mackenzie Knight, "Russian Nuclear Weapons, 2025," *Bulletin of the Atomic Scientists* 81, no. 3 (2025): 208–37.

106 Karakaev, "K voprosu o primenenii Raketnykh voisk strategicheskogo naznacheniia v voinakh budushchego," 15–16.

107 Sukhorutchenko and Kreidin, "Iadernoe sderzhivanie v usloviiakh razvitiia global-noi sistemy protivoraketnoi oborony SShA."

108 Jonas Schneider and Juliana Süß, *Potential Destructive Consequences in Space, Escalation on Earth, and Damage to Arms Control*, SWP Comment 2025/C 21 (Berlin: Sicherheits- & Verteidigungspolitik, 2025).

109 Nogin, "O roli i meste Raketnykh voisk strategicheskogo naznacheniia v perspektivnoi sisteme kompleksnogo strategicheskogo iadernogo sderzhivaniia vozmozhnoi agressii protiv Rossiiskoi Federatsii," 45.

110 Dmitry Trenin, Sergei Avakiants and Sergei Karaganov, *Ot sderzhivaniia k ustrashneniiu, iadernoe oruzhie, geopolitik, koalitsionnaia strategiia* (Moscow: Molodaia gvardiia, 2024).

suspending its participation in 2023 in the strategic arms control agreement New START, if the US does the same.

Non-strategic nuclear weapons and non-nuclear deterrence

The Russian approach to deterrence and escalation management plays out differently at the separate levels of war, as defined by Russian military doctrine.[111] At the local level of war, non-nuclear measures dominate. At the regional level of war, non-strategic nuclear weapons have a central role. However, over the last decades, non-nuclear deterrence has become an increasingly important complementary instrument for regional power projection.[112] Both Russian military thinking and capability development point to a sustained approach of combining nuclear and non-nuclear means in regional deterrence. The development of dual-capable intermediate-range ballistic missile systems (IRBMs) previously banned by the Intermediate-Range Nuclear Forces (INF) Treaty underlines the trend.[113]

Coercive credibility and declaratory policy

Russian military and political analysts credit nuclear deterrence with preventing Western direct intervention in the war in Ukraine. However, they acknowledge that the nuclear warnings and rhetoric by Russian political leadership have not prevented Western military aid to Ukraine. This has resulted in a debate among analysts on how to reinstate fear of nuclear weapons in the West. Suggestions have ranged from updates in declaratory policy to posture changes, nuclear testing, demonstrative nuclear employment, and even direct nuclear strikes against adversaries. Political commentators, not military professionals, have offered the harshest recommendations. In effect, it amounts to a discussion on how to increase the coercive credibility of Russian nuclear threats.[114] While it is likely that this debate is encouraged by the Russian political leadership to reinforce its wartime rhetoric, it may also reflect a serious conversation on how to execute its strategy of nuclear

111 Voennaia doktrina, 2014.

112 William Alberque, *Russian Military Thought and Doctrine Related to Non-strategic Nuclear Weapons: Change and Continuity* (London: Institute for International Security Studies, 2024).

113 Sidharth Kaushal, and Matthew Savil, *The Oreshnik Ballistic Missile: From Russia with Love?* (London: Royal United Services Institute, 2024); Kokoshin, *Voprosy prikladnoi teorii voiny*), 178–81.

114 For an overview of the debate, see: Anya Fink, Gabriela Iveliz Rosa-Hernandez and Cornell Overfield, *Moscow Does Not Believe in Tears—Russia's Political-Military Establishment Debates Credibility of Nuclear Threats and Potential Nuclear Employment* (Washington: Centre for Naval Analysis, CNA, 2024).

coercion in practice. If so, it may hold consequences for Russian coercive actions in coming conflicts.

The 2024 update in Russia's declaratory nuclear policy suggests a widened mission for nuclear deterrence, addressing more security concerns and extending nuclear deterrence to Belarus. It followed Russian announcements of the deployment of Russian non-strategic nuclear weapons to Belarus.[115] Some Western analysts see the policy update as nuclear intimidation while others interpret it as a readiness to use nuclear weapons earlier in a conflict.[116] It is not yet clear what the policy shift means in practice. Until we see concrete change in Russia's nuclear posture or planning, we should be hesitant to draw conclusions about its nuclear doctrine.

Conclusions

Current Russian military thought shows that nuclear weapons will continue to be central to Russian security and defence in the future. The coercive nuclear threats issued by the Russian political leadership during the war in Ukraine fall in line with this thinking, even though they have refrained from actual employment. Indeed, non-nuclear deterrence will continue to be important predominantly in a regional context. Modernisation programmes currently under way and nearing completion indicate that Russia will maintain a varied and flexible nuclear force. Russia will likely continue efforts to overcome adversary BMD and ensure the survivability of its nuclear forces, including with new systems and protection measures. However, the modernisation programme has suffered significant delays that may persist in the future. Other issues are more uncertain, including whether wartime developments have shifted Russian thinking on nuclear employment in conflict and how Russia will choose to handle the perceived decline in effectiveness of nuclear threats.

115 Kristina Melin, *Russia's Updated Basic Principles for Nuclear Deterrence: A Broom for All Corners?* FOI Memo 8829 (Stockholm: Swedish Defence Research Agency, 2025).

116 Rishi Paul, *Bluff and bluster: Why Putin revised Russia's nuclear doctrine* (London: European Leadership Network, 2024); Alexander Taranov, "Russia Updates Nuclear Doctrine, Lowering Threshold for Use of Nuclear Weapons (Part 1)," *Eurasia Daily Monitor*, 2024, vol. 21, no. 142.

4. Conclusions

Maria Engqvist

The purpose of this report has been to address the research question: *What is the Russian view of future warfare in the light of its war against Ukraine?* In many respects, Russia's war in Ukraine bears the characteristics of a transitional war. By late 2025, Russian military thought and force development present a picture of adaptation under pressure. The war in Ukraine serves both as a catalyst and a constraint for ongoing reform across the arms of service. It has exposed structural weaknesses, while simultaneously invigorating an intellectual reassessment of the future character of warfare, even as Russia's strategic orientation holds fast. Across the military establishment, from the Ground Forces to the Aerospace Forces, the Navy, the cyber domain, and the nuclear deterrent, Russian debates reveal a tension between continuity and transformation, between the preservation of traditional concepts and the necessity to adapt to technological, operational, and economic realities.

Taken together, these debates may illustrate a period of intellectual change within Russian military thought on the character of future warfare, but the main points of focus remain the same (see Chapter 2). However, Russia's strategic objectives and financial constraints will continue to set the framework for development in the years to come, a trajectory that is also contingent on how and when the war in Ukraine ends. The US and the West will remain the principal, defining threat to Russia in a number of domains, and the competition over influence, especially in Africa, Central, and South East Asia, will continue as the Russian leadership seeks to counter Western presence and expand its own foothold.

Furthermore, when it comes to technological development, Russia mirrors its ambitions on Western capabilities and progress. This is evident in its pursuit of advancements in AI, cyber, and defence technologies. However, persistent constraints, such as limited access to global supply chains, continue to hinder Russia's ability to replicate and compete with the West, and by extension, with China.

The war in Ukraine has not yet produced a doctrinal change at the strategic level; the 2014 iteration of the Military Doctrine remains in place. However, it has sparked a debate in the military–scientific community, has reinforced the perception that future conflicts will be information-centric, and has underlined that the "transparent battlefield" is here to stay. This, in turn, still necessitates significant adaptation and adjustment to achieve the desired outcome: victory, in Ukraine, as well as in future conflicts.

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