Russian Military Capability in a Ten-Year Perspective – 2019

Fredrik Westerlund and Susanne Oxenstierna (eds)
Gudrun Persson, Jonas Kjellén, Johan Norberg, Jakob Hedenskog,
Tomas Malmlöf, Martin Goliath, Johan Engvall and Nils Dahlqvist

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Cover: Russia's President Vladimir Putin chairs a meeting of the Security Council of Russia, in the Kremlin on October 26, 2019. (Photo by Alexei Druzhinin / Russian Presidential Press and Information Office / TASS / Sipa USA)

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Abstract

Comparing current Russian military power to that of a decade ago, Russia has clearly made substantial progress in transforming its military into an efficient fighting force. Observing this achievement, it is relevant to ask: What military capability will Russia possess in another ten years? This report provides a forecast of Russian military capability towards 2029. It is based on analyses of the Armed Forces and their fighting power, and of political and economic factors that affect the development of military capability. The study's primary focus is on regular warfare capabilities.

The report finds that Russia's authoritarian domestic policy and anti-Western foreign policy will continue. Recognition as a great power and establishing a sphere of interest in its neighbourhood will remain main objectives. The impressive pace of improvement of the Armed Forces in the past decade is probably not sustainable. Instead, the next ten years will consolidate previous achievements, notably the ability to launch a regional war. Strategic deterrence, primarily with nuclear forces, will remain the foremost priority. Towards 2029, Russia may only significantly increase its military capability further by sustained political support for determined policy implementation.

Keywords: Russia, military capability, security policy, foreign policy, military expenditure, defence industry, armament deliveries, armed forces, operations

Sammanfattning

Under det senaste decenniet har Ryssland gjort betydande framsteg med att omvandla de Väpnade styrkorna till en effektiv krigsmakt. I ljuset av detta är det relevant att fråga sig vilken militär förmåga Ryssland kommer att ha på ytterligare tio års sikt. Denna rapport tillhandahåller en prognos av rysk militär förmåga framemot 2029. Prognosen bygger på analyser av de Väpnade styrkorna och Rysslands militära handlingsfrihet, samt på politiska och ekonomiska faktorer som påverkar den militära förmågeutvecklingen. Studien har primärt fokuserat på reguljära krigföringsförmågor.

Rysslands auktoritära och västfientliga säkerhetspolitik kommer sannolikt att bestå under det kommande decenniet. Rysslands huvudsakliga målsättningar förblir att bli erkänd som en stormakt och att etablera en intressesfär i sitt närområde. Den höga takt med vilken de Väpnade styrkorna och den militära handlingsfriheten utvecklats under de gångna tio åren kommer dock sannolikt inte kunna bibehållas. Det närmaste decenniet kommer istället präglas av konsolidering av tidigare resultat, främst den uppnådda förmågan att initiera ett regionalt krig. Strategisk avskräckning kommer att förbli högprioriterat, i första hand med kärnvapenstyrkor. Framemot 2029 kommer en väsentlig ökning av Rysslands militära förmåga enbart kunna ske om den politiska ledningen tydligt prioriterar och tilldelar resurser för detta. Om så sker kommer det sannolikt utan förvarning.

Nyckelord: Ryssland, militär förmåga, säkerhetspolitik, utrikespolitik, försvarsutgifter, försvars–industri, Väpnade styrkorna, militära operationer

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This is the ninth in a series of FOI studies of Russian Military Capability published since the completion of the first one, in 1999. As were its predecessors, the present study was commissioned by Sweden's Ministry of Defence, which also provided support during the research process. A number of people have contributed their knowledge and expertise to improving the report.

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Any remaining errors are our own.

Stockholm, December 2019
Gudrun Persson, Deputy Research Director
Russia and Eurasia Studies Programme

Abbreviations

$	US dollar
AADA	air and air defence army
ABM	anti-ballistic missile
AFV	armoured fighting vehicle
AI	artificial intelligence
APC	armoured personnel carrier
ARF	Advanced Research Foundation
ASW	anti-submarine warfare
bbl	barrel
BTG	battalion tactical group
CAA	combined arms army
CAST	Centre for Analysis of Strategies and Technologies (*Tsentr analiza strategii i tekhnologii*)
CBR	chemical, biological and radiological
CIS	Commonwealth of Independent States
CPI	consumer price index
CSTO	Collective Security Treaty Organisation
CREES	Centre for Russian and European Studies, University of Birmingham
DF	defensive force
DIA	Defense Intelligence Agency
EU	European Union
Eurostat	European Statistical Office
FIFA	Fédération Internationale de Football Association
FNDU	Finnish National Defence University
FOI	Swedish Defence Research Agency
FSB	Federal Security Service (*Federalnaia sluzhba bezopastnosti*)
FZ	federal law (*Federalnyi zakon*)
GDP	gross domestic product
GlavPUR	Main Directorate for Political Affairs (*Glavnoe politicheskoe upravlenie*) of the Soviet Union
GOF	group of forces
Goskomstat SSSR	State Committee for Statistics of the Soviet Union (*Gosudarstvennyi komitet po statistike*)
GOZ	State Defence Order (*Gosudarstvennyi oboronnyi zakaz*)
GPD	State Diversification Programme (*Gosudarstvennaia programma po diversifikatsii*)
GPV	State Armament Programme (*Gosudarstvennaia programma vooruzheniia*)

GU	Main [Intelligence] Directorate (*Glavnoe upravlenie*)
ICBM	intercontinental ballistic missile
ICJ	International Court of Justice
IFV	infantry fighting vehicle
IISS	International Institute for Security Studies
IMF	International Monetary Fund
INF	Intermediate-Range Nuclear Forces [Treaty]
INTERPOL	International Criminal Police Organization
ISR	intelligence, surveillance, and reconnaissance
JSC	joint strategic command
KGB	Committee for State Security (*Komitet gosudarstvennoi bezopasnosti*)
LAM	land-attack missile
MALE	medium altitude long endurance
MBT	main battle tank
MD	military district
MED	Ministry of Economic Development of the Russian Federation
MFA	Ministry of Foreign Affairs of the Russian Federation
MIC	Military Industrial Commission
MILEX	total military expenditure
MIT	Ministry of Industry and Trade of the Russian Federation
MoD	Ministry of Defence of the Russian Federation
MoF	Ministry of Finance of the Russian Federation
MRO	modernisation, repair, and overhaul
NATO	North Atlantic Treaty Organisation
OECD	Organisation for Economic Cooperation and Development
OPCW	Organisation for the Prohibition of Chemical Weapons
PMC	private military company
PPP	purchasing power parity
R&D	research & development
RAS	robotics and autonomous systems
RMC	Russian Military Capability [in a Ten-Year Perspective] (FOI reports)
ROB	RUFS Order of Battle database
Rosstat	Federal State Statistics Service of the Russian Federation (*Federalnaia sluzhba gosudarstvennoi statistiki*)
RUB	Russian rouble
RUFS	Russia and Eurasia Studies Programme (at the FOI)
SAM	surface-to-air missile
SCO	Shanghai Cooperation Organisation
SIPRI	Stockholm International Peace Research Institute
SLBM	submarine-launched ballistic missile

SME	small- and medium-sized enterprise
SNA	system of national accounts
SSBN	nuclear-powered ballistic-missile submarine
SSGN	nuclear-powered cruise-missile submarine
SSM	surface-to-surface missile
SSN	nuclear-powered attack submarine
SVR	Foreign Intelligence Service (*Sluzhba vneshnei razvedki*)
TASS	Russian news agency (*Informatsionnoie agentstvo Rossii*)
UAV	unmanned aerial vehicle
UN	United Nations
US	United States of America
VDV	Russia's Airborne Troops (*Vozdushno-desantnye voiska*)
WPR	World Politics Review

Table of Contents

1. Introduction **17**
Susanne Oxenstierna and Fredrik Westerlund
1.1 Objective and limitations 18
1.2 Analytical approach and definitions 18
1.3 Sources 19
1.4 Organization of the study 19
1.5 Scope of the work 20

2. Russia's Armed Forces in 2019 **23**
Jonas Kjellén and Nils Dahlqvist, with maps by Per Wikström
2.1 Factors affecting the availability of forces 23
2.1.1 Manning and mobilisation reserves 23
2.1.2 Overall equipment serviceability 24
2.1.3 Exercises, combat operations, and international cooperation 25
2.2 Organisation of the Armed Forces and availability 25
2.2.1 The Ground Forces 27
2.2.2 The Naval Forces 29
2.2.3 The Aerospace Forces 30
2.2.4 The Airborne Troops 34
2.2.5 The Strategic Missile Forces and the nuclear triad 35
2.2.6 Paramilitary forces 36
2.3 Stand-off strike assets 36
2.4 Available forces of the five JSCs 38
2.4.1 The Western MD 39
2.4.2 The Northern Fleet 40
2.4.3 The Southern MD 41
2.4.4 The Central MD 42
2.4.5 The Eastern MD 42
2.5 Russia’s Armed Forces in a ten-year perspective 43
2.6 Conclusions 43

3. The fighting power of Russia’s Armed Forces in 2019 **59**
Johan Norberg and Martin Goliath, with maps by Per Wikström
3.1 Fighting power in terms of operations 60
3.1.1 Battles 60
3.1.2 Stand-off strikes 61
3.1.3 Force dispositions and reinforcements 63
3.1.4 Geography 63
3.1.5 Military conflicts and potential Russian operations 65

3.2 The European war theatre 65
3.3 The Arctic war theatre 67
3.4 The Central Asia war theatre 69
3.5 The Asia-Pacific war theatre 70
3.6 The fighting power of Russia's Armed Forces in 2019 72
3.7 Fighting power in a ten year-perspective 73
3.8 Conclusions 74

4. Russian security policy 79
Jakob Hedenskog and Gudrun Persson
4.1 Security policy – a definition 79
4.2 Threat perception – the view from Moscow 80
4.3 Domestic security 81
4.4 Foreign security 82
4.4.1 Russia's approach in its neighbourhood 83
4.4.2 Russia's approach outside its neighbourhood 84
4.4.3 Public diplomacy and the involvement of the security services in foreign policy 84
4.4.4 Disinformation 85
4.4.5 Counter-terrorism in foreign policy 86
4.5 Military security – future wars 86
4.5.1 Military-patriotic education 86
4.5.2 Military thought on contemporary conflicts and future war 87
4.5.3 Nuclear and non-nuclear deterrence 89
4.6 Russian security policy in a ten-year perspective 89
4.7 Conclusions 90

5. The economy and military expenditure 97
Susanne Oxenstierna
5.1 Economic development 98
5.1.1 Standard of living and poverty 99
5.1.2 Demography and labour market 100
5.1.3 Potential growth and economic policies 101
5.2 Military expenditure 102
5.2.1 Definitions and data 102
5.2.2 Military expenditure since 2016 105
5.2.3 Personnel costs 107
5.2.4 Procurement costs 108
5.3 Military expenditure in a ten-year perspective 108
5.4 Conclusions 110

6. Russian armament deliveries **115**
Tomas Malmlöf and Johan Engvall
6.1 The defence industrial base 115
6.1.1 The defence industry 115
6.1.2 Defence-related R&D 117
6.2 Arms procurement 118
6.2.1 Overall outcome of GPV-2020 118
6.2.2 GPV-2027 119
6.3 Delivery capacity of Russia's defence industry 120
6.3.1 Arms deliveries 2011–2018 120
6.3.2 Implications for Russia's equipment portfolio 121
6.4 Military equipment holdings in a ten-year perspective 121
6.4.1 Estimates of Russia's equipment portfolio 2029 122
6.4.2 Land 124
6.4.3 Sea 125
6.4.4 Air 125
6.4.5 Strategic nuclear systems 126
6.4.6 Stand-off capability 127
6.5 Conclusions 127
7. Russian military capability in a ten-year perspective **137**
Fredrik Westerlund
7.1 Continuity and change: military capability in a ten-year perspective 137
7.2 Ability to launch a large-scale war with conventional forces 138
7.3 Launching sizeable out-of-area campaigns 140
7.4 A major reduction of military capability 141
7.5 Russian military capability towards 2029 142
7.6 Implications of the findings 143
Contributors **145**

List of tables, figures and maps

Tables

Table 2.1	Planned manning levels 2013–2019, and targets for 2025	24
Table 2.2	Distribution of combat arms, combat support, and logistics support units of the Ground Forces in 2019	28
Table 2.3	Distribution of available BTGs generated from all types of land forces in 2019	29
Table 2.4	Units of the Coastal Troops in 2019	30
Table 2.5	Surface ship combatants and submarines of the Navy according to ship rank in 2019	31
Table 2.6	Distribution of Aerospace Forces' theatre air defence assets in 2019	32
Table 2.7	Assessed available operational-tactical aviation assets in 2019	33
Table 2.8	Assessed available strategic aviation assets in 2019	33
Table 2.9	The Airborne Troops in 2019	34
Table 2.10	Main armed troops and forces outside of the Russian MoD in 2019	36
Table 2.11	Estimated stand-off strike assets in 2019	37
Table A2.1	Centrally subordinated units	46
Table A2.2	Western Military District	46
Table A2.3	Northern Fleet	47
Table A2.4	Southern Military District	48
Table A2.5	Central Military District	50
Table A2.6	Eastern Military District	50
Table A2.7	Systems with stand-off strike capacity against sea targets 2019	52
Table A2.8	Systems with stand-off strike capacity against land targets 2019	53
Table A2.9	Systems with nuclear warheads assigned to short-range weapons against air targets 2019	54
Table A2.10	Systems with nuclear warheads assigned to short-range weapons against sea targets 2019	54
Table A2.11	Systems with nuclear warheads assigned to short-range weapons against land targets 2019	55
Table 3.1	Example of assessed components in a single Russian group of forces (GOF)	61
Table 3.2	Estimate of available missiles for stand-off strikes in assessed war theatres in 2019	62
Table 3.3	Military conflicts and assessment of corresponding operations, formations, and units	65
Table 3.4	Assessment of required Russian stand-off strikes for air power-related land targets in the European war theatre in 2019	67
Table 3.5	Assessment of required Russian stand-off strikes for Chinese air power-related land targets in the Asia-Pacific war theatre in 2019	71
Table 3.6	Estimated selected ground forces formations 2011–2019	73
Table A3.1	Asset allocation for stand-off strikes in one war theatre at a time 2019	75
Table A3.2	Estimated weapon assignments to defeat targets related to air power	76
Table 5.1	Russian economic development 2012–2019	99

Table 5.2	Per capita income and Gini coefficient, Russia 2012–2019	100
Table 5.3	Federal budget 2017–2021	106
Table 5.4	Disaggregated national defence budget 2016–2018	107
Table 5.5	Personnel costs in the Armed Forces 2012–2018	107
Table 5.6	State Defence Order (GOZ) 2012–2018	108
Table 6.1	Assessed shares of selected modernised and new equipment systems in Russian defence industry deliveries 2011–2018	121
Table 6.2	Assessed maximum availability of selected equipment systems for Russia's Armed Forces in 2029	123
Table A6.1	Fixed-wing aircraft	128
Table A6.2	Helicopters	129
Table A6.3	Air defence	129
Table A6.4	Naval systems	130
Table A6.5	Ground forces equipment	131
Table A6.6	Strategic nuclear systems & early-warning radar systems	132
Table A6.7	Stand-off missile weapons in 2029	133

Figures

Figure 2.1	Combat arms of the Ground Forces and their composition in 2019	27
Figure 2.2	Combat arms of the Naval Forces and their composition in 2019	27
Figure 2.3	Combat arms of the Aerospace Forces and their composition in 2019	32
Figure 5.1	Military expenditures of the US, China and Russia in 2018	104
Figure 5.2	Military expenditure and national defence budget as share of GDP 2011–2018	105
Figure 5.3	Estimated increase in total military expenditure under different assumptions of growth and share of GDP 2019–2029	109

Maps

Map 2.1	Strategic nuclear forces in 2019	35
Map 2.2	Selected units of the Western MD in 2019	38
Map 2.3	Selected units of the Northern Fleet in 2019	39
Map 2.4	Selected units of the Southern MD in 2019	40
Map 2.5	Selected units of the Central MD in 2019	41
Map 2.6	Selected units of the Eastern MD in 2019	42
Map 3.1	Preconditions for Russian military operations in 2019	64
Map 3.2	Assessment of the fighting power of Russia's Armed Forces in the European war theatre in 2019	66
Map 3.3	Assessment of the fighting power of Russia's Armed Forces in the Arctic war theatre in 2019	68
Map 3.4	Assessment of the fighting power of Russia's Armed Forces in the Central Asia war theatre in 2019	69
Map 3.5	Assessment of the fighting power of Russia's Armed Forcesin the Asia-Pacific war theatre in 2019	71
Map 3.6	Assessed fighting power of Russia's Armed Forces in 2019	72

1. Introduction

Susanne Oxenstierna and Fredrik Westerlund

Ten years ago, the Russian Federation embarked on a fundamental reformation of its Armed Forces, aiming at significantly increasing Russia's military capability. In 2008, Russia had victoriously come out of a short local war with Georgia, but the reputation of its Armed Forces had suffered; during the campaign, considerable deficiencies in their organization and armament were revealed to both the Russian public and the international community. Since then, Russia has implemented a serious re-armament programme, abolished the Armed Forces' cadre unit organisation, conducted large-scale exercises and readiness controls, and launched military campaigns in Ukraine and Syria. Comparing Russia's current military capabilities to those of a decade ago, it is clear that substantial progress has been made to transform Russia's military into an efficient fighting force. Observing these achievements, it is relevant to ask: What military capability will Russia possess in another ten years?

Russia perceives that possessing a credible military force is a necessary condition for its interests to be respected by the international community. President Vladimir Putin has consistently spoken about the importance of having a strong military, and the emphasis on developing military capabilities is affirmed in Russia's basic strategic documents: the Military Doctrine (2014), the National Security Strategy (2015), and the Foreign Policy Concept (2016). An important driver behind Russia's security policy is its aspiration to be perceived as a great power by others and to ensure Russia's freedom of action internationally. Building military capability has been backed by strong political will, which has been reflected in increasing military spending and a growing share of gross domestic product (GDP) devoted to defence.

Furthermore, Russia's military capability matters, because it provides an important degree of impunity for hostile non-military measures, for which Russia has a wide range of tools and methods. For instance, Russia has been accused of releasing a chemical warfare agent on British soil, attempting to influence an American presidential election, unleashing a destructive and globally damaging cyber-attack by the NotPetya malware[1], and of hacking international and national anti-doping agencies (US Department of Justice 2018). Using such hostile measures would not be sustainable without the backing of a significant military capability. The scope of Russia's future ability to wage war is therefore an important factor to consider in international relations.

This study investigates how Russian military capability will continue to develop towards 2029. The topic is of profound importance in understanding the implications for global security of Russia's military revival. Several recent scholarly works and policy papers thoroughly analyse how we may understand Russia's assertive security policy and its display of military might during the last few years (Facon 2017; Renz 2018; USAWC SSI 2018; Kanet 2019; Howard & Czekaj 2019; RAND 2019a, 2019b; Finnish Ministry of Defence 2019). The annual assessments of the International Institute for Security Studies (IISS), as well as recurring studies by the US Defense Intelligence Agency (DIA) also reflect this development. The *Russian Military Capability* (RMC) reports of the Swedish Defence Research Agency (FOI) have contributed to the area, with in-depth analyses of Russia's Armed Forces, security policy, economy, and defence industry, since the late 1990s. This is the ninth report in this series.

[1] The NotPetya attack is a cyber-attack attributed to the Russian military in statements released by the White House and the British Government on 15 February 2018. This cyber-attack is characterized as "the most destructive and costly cyber-attack in history" because it resulted in billions of dollars in damage across Europe, Asia, and the United States, and significantly disrupted global shipping, trade, and the production of medicine (US Treasury 2018).

1.1 Objective and limitations

The objective of this study is to contribute to the ongoing research on Russian military power and its security policy implications by providing an assessment of Russian military capability towards 2029. The assessment is based on analyses of the Armed Forces and their fighting power in 2019, and of political and economic factors that affect the development of military capability in a ten-year perspective. The study's primary focus is on regular military capabilities, whereas irregular warfare, other force structures, and non-military tools are touched upon to a limited extent. Further, the study is restricted to making a qualitative assessment of Russia's potential to wage war and the ability of the Armed Forces to launch war theatre-level operations. In other words, it is potential capabilities, rather than actual ones, that are assessed here.

The report discusses a number of political and economic factors affecting Russia's military capability in the long-term. These include Russia's policies in domestic, military, and foreign security; its economy and military spending; and its defence industry's ability to deliver armaments, and military research and development (R&D).

The report contributes with an analysis of the general political will in Russia with regard to when and how it would use military force, as this affects its future military capability, but does not consider any plans the country might have for actually waging war against any specific state. Likewise, neither the probability of an armed conflict involving Russia, nor the military capability of other countries or the fighting power of their armed forces, are assessed relative to Russia's.

The study is based exclusively on open sources, which means that the team has not had access to classified data in completing its work. This entails certain disadvantages for the consideration of some of the military issues treated in the study, but has the major advantage that the report may be published and accessed openly. The reader may note that the collection of material and updating of statistical data was completed during August–September 2019.

1.2 Analytical approach and definitions

In the Western academic literature, there is no unified, theoretically and empirically grounded methodology for assessing current and future military capability, while military capability is studied in a number of ways (Cliff 2015: 4). In this study, as in previous RMC reports, a country's military capability is interpreted as the outcome of not only conditions in the military sector but of a long-term process involving a broad range of underlying factors, for example, the political system and doctrines, social and economic preconditions, technological and industrial development, and global norms and international relations. It follows that the RMC reports are related to conceptual approaches found in assessments of national or military power, such as those produced at RAND (2000: 133–76, 2005), DIA (1983–1990, 2017) and Cliff (2015). The RMC reports' view of military capability is also associated with literature that attempts to capture the determinants of a state's capacity to combine doctrines and resources into effective military power (Brooks & Stanley 2007: 1–26; Gurr 1987). In addition, individual chapters in the report apply scientific methods relevant to their specific research topics.

The broad understanding of the concept of military capability in the RMC reports is based on Russian official definitions. Military capability, or military power, is the ability to influence international politics, either through false demonstrations or by direct use of armed force (*Voenny entsiklopedicheski slovar* 2007: 134). According to the Russian Ministry of Defence, this requires much more than purely military resources. The concept is described as the sum of the martial strength of the country as a whole: the state's material and spiritual possibilities as well as its military policy (Persson 2016: 17). In addition, the military organization of the state is described as a set of military and law enforcement agencies and management bodies; as well as military-political, military economic, military science, and other institutions of military activities; and military officials who safeguard the security interests of the country. Another key term is fighting power, which

is defined as one of the most important parts of the state's military capability. The term denotes the Armed Forces' ability to carry out assigned missions, and depends, amongst other things, on the quantity, quality and readiness of the forces and their command and control.

Thus, military capability is about the country's strength in war, encompassing political, economic, and military aspects, and its ability to influence the international system, whereas fighting power is a narrow concept, describing the Armed Forces' ability to perform war-fighting operations.

1.3 Sources

In the RMC-2016, Persson (2016: 20) notes that trying to assess Russian military capability on the basis of open sources has never been easy and involves complex challenges. The Russian political leadership has tightened its control over the media and the Internet, which entails censorship and self-censorship. Relying on Russian official figures, open doctrines, and public statements entails the risk of assessing Russian military capability not as it is, but as the Russian political and military leadership would want the world to believe it is. Aware of the risk of becoming an amplifier of the official message, we have tried to cross-check our data, applying the academic tools at our disposal. Apart from Russian primary sources and analyses, Western data and analyses have been used, as well as a rich secondary literature. Moreover, discussions with Western and Russian scholars and representatives of relevant institutions to validate data and results have been an important part of the research.

Nevertheless, it may be noted that the challenges regarding Russian economic data have increased since the RMC-2016. The secrecy surrounding the defence budget has grown and sources with reliable information on the Armed Forces have become scarcer. The increasing uncertainty regarding the objectiveness of economic data from state statistical sources makes them more difficult to interpret.

1.4 Organization of the study

The rest of this report is organized in six chapters. The first two discuss Russia's Armed Forces and their fighting power in 2019. The following three chapters explore the main factors affecting military capability: security policy and military thinking; the economy and military spending; and the defence industry's armament deliveries and military R&D. In the final chapter, overall conclusions are drawn and a synthesized assessment of Russia's military capability in a ten-year perspective is presented.

In Chapter 2, Jonas Kjellén and Nils Dahlquist discuss the Armed Forces' available resources in 2019 and the development trends in a ten-year perspective. Taking stock of the higher-level formations initially available for war theatre-level operations in 2019, they find that the Armed Forces have a higher degree of preparedness compared to earlier periods, and that nominal units correspond to a much higher degree to what is available. The Naval Forces are lagging behind the other branches of service in this regard, but are likely to make substantial advances in the coming ten-year period. The impressive pace with which the Armed Forces have been improving is not likely to be maintained. Instead, the next ten years will probably be a period for consolidating previous achievements. The Strategic Nuclear Forces will remain the foremost priority.

In Chapter 3, Johan Norberg and Martin Goliath evaluate the fighting power of the Armed Forces in 2019, in terms of their ability to launch war theatre-level operations in regions in Russia's geographical proximity. The European war theatre has uniquely favourable preconditions for operations. Russia has the vast majority of its military units and railways as well as air and naval bases here, which facilitates launching large-scale operations. In other potential war theatres, with fewer forces and weak supporting infrastructure, an offensive Russian operation may require two months to launch. They note that between 2011 and 2019, Russia increased its fighting power, from being able to conduct offensive operations in one local war, to one regional war. In the coming decade, achieving the ability to initiate two regional wars will require a significant effort: an increase of around 20–40 per cent of forces and, crucially, of command and control capability.

Security policy is a fundamental factor when assessing military capability. In Chapter 4, Jakob

Hedenskog and Gudrun Persson identify the dominant trends in Russian security policy towards 2029. Russia is primarily focused on domestic stability and regime survival, which has resulted in an aggressive foreign policy and authoritarian tendencies at home. They find that, although the political system projects an overall image of stability, this stability is inherently fragile since it rests on one person, the president, and his ability to keep the system in check. Current trends indicate that the authoritarian policy at home and anti-Western policies looking outwards will continue. Being recognised as a great power and establishing a unique sphere of interest in its neighbourhood will remain the main objectives of Russia's foreign policy. The ability of the General Staff to learn from Ukraine and Syria and other conflicts will be vital for the development of a military strategy in the coming ten years.

Economic growth and military spending are strategic factors behind military capability. In Chapter 5, Susanne Oxenstierna analyses Russia's weak economic growth, including its underlying factors, and military spending in the past years. She finds that there is little prospect that economic growth will exceed 1.5–2 per cent in the medium-term, and if this trend continues, growth will be a limiting factor for military spending in a ten-year perspective. However, apart from economic growth, military spending depends on the political priority given to defence, which is assumed to be reflected in the share of military expenditure in GDP, over time and relative to other policy areas. As Russia is an authoritarian state, the leadership can, at any time, increase defence spending and its GDP share, should it find it necessary for national security reasons, thereby rendering the political priority given to defence a decisive role for growth of military expenditure once again.

The defence industry and military R&D are key parts of the strategic resource base for military capability. In Chapter 6, Tomas Malmlöf and Johan Engvall investigate the Russian defence industry, armament deliveries, and planned procurement towards 2029. They find that the increased procurement under the State Armament Programme (GPV) 2011–2020 has stabilised the Russian defence industry financially. In the coming years, the industry needs to complete the transition from modernisation of Soviet designs to serial production of new technology. To foster next-generation systems, the new GPV that runs 2018–2027 has a stronger commitment to military R&D. However, shortages of human capital and innovations, combined with weak ties between the military and civilian sectors, remain major obstacles. The new GPV–2027 demonstrates a more measured course in procurement, and implies that the bulk of Russia's military equipment towards 2029 will consist of modernised and refurbished gap-filling legacy platforms and systems.

Finally, in Chapter 7, Fredrik Westerlund addresses the overall objective of the study: to assess Russian military capability in a ten-year perspective. The chapter synthesizes the results of the preceding chapters and presents overall conclusions and implications. Discussing potential trajectories for Russian military capability, he finds that it will most likely improve incrementally towards 2029 and continue to centre on Europe. Only by determined and sustained policy implementation may Russia significantly increase its military capability. A main implication is that Russia does not seem to risk military overstretch, as it has closed the gap between its foreign policy ambitions and military capability. We can therefore expect Russia to continue its aggressive foreign policy and its use of armed force to sustain Great Power ambitions and protect Russian interests abroad. A final implication is that continuing to follow security policy developments towards 2029 will be of key importance for assessing Russian military capability.

1.5 Scope of the work

During its twenty years of existence, the scope of the RMC reports has changed. Originally, the Swedish Ministry of Defence commissioned the study as an input to the Swedish Defence Commission's recurring report on medium-term defence policy and the Government's proposals in connection with the Swedish Parliament's Defence Report, regarding defence policies, which is renewed every five years. At that time, the RMC report was only written in Swedish and

had a broader format, including more detailed discussions of political, social, and economic factors that could affect military capability in the future. In 2012, after the Swedish RMC-2011 had been published, it was decided to produce a narrower English version of the report, using the existing chapters on the Armed Forces, security policy, defence economics, and defence industry. The main idea behind that step was to produce a report that could reach an international audience and contribute to the international research on on Russian security policy and military matters. Since 2013, the report has been produced in this format, with only slight alterations of the outline in subsequent editions.

Drafting and review process

Planning the report begins about half-a-year before the project starts. It involves setting a timetable for the work process and making decisions about who the report's editor and the authors of its various chapters will be. During the drafting process, each chapter undergoes three seminars: one on the synopsis, a second on the first draft, and finally, the third, a proper review of the second draft. The team undertakes study visits to Moscow to collect data and discuss the issues with Russian experts and institutions. The report is first produced in English, for the English edition, then translated into Swedish, by the authors themselves, for the Swedish edition.

The authors alone bear the full responsibility for the data and conclusions presented in their chapters, but they have nevertheless been aided by the editors' critical reviews and the team's discussions during the seminars. Furthermore, the second draft of each chapter has been reviewed by international referees. In this edition, the following five referees have assisted the team.

Review of Chapter 2

Scott Boston, Senior Defence Analyst at the RAND Corporation. A former US Army officer, he previously worked at the Smith Richardson Foundation and, since joining RAND, has led studies for the US Army on combat vehicle modernization and on Russian military capabilities.

Review of Chapter 3

Petteri Lalu (Lt Col, DMsc), Military Professor and the head of the Russia team at the Finnish National Defence University (FNDU). His military experience includes positions in ground-based air defence, intelligence, and strategic research. His research interests are the Russian art of war and military policy.

Review of Chapter 4

Bettina Renz, Associate Professor at the University of Nottingham's School of Politics & International Relations. Professor Renz's research expertise is in the field of strategic studies, with a particular interest in contemporary Russian defence and security policy. She has published widely on Russian military reforms in the post-Soviet era.

Review of Chapter 5

Julian Cooper, Professor Emeritus of Russian Economic Studies at the Centre for Russian, Eurasian and European Studies (CREES), University of Birmingham, and Associate Senior Fellow of SIPRI. Over a period of many years, Professor Cooper has published widely on the economics of the military in Russia, including defence spending, the defence industry, and arms exports.

Review of Chapter 6

Edward Hunter Christie is an official at NATO's Emerging Security Challenges Division in Brussels. In recent years, his responsibilities have included analyses and reporting on the Russian economy and Russian defence spending, as well as on emerging and disruptive technologies.

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2. Russia's Armed Forces in 2019

Jonas Kjellén and Nils Dahlqvist, with maps by Per Wikström[2]

In the early 2000s, Russia's Armed Forces still relied on a mass-mobilisation system inherited from the Soviet Union, and the entire organisation suffered from chronic underfunding. The Armed Forces were inefficient and unreliable and, although there was an impressive number of military units on paper, far fewer were available in reality. Correcting this was a key objective of the 2008 military reform.

The purpose of this chapter is to assess the state of the Armed Forces in 2019 and the key development trends toward 2029. This is accomplished not merely by outlining what units exist on paper, but also by factoring in availability. By doing this, the chapter attempts to answer the following questions: What available military assets did the Armed Forces have for conducting military operations in 2019? And, What is the outlook in a ten-year perspective?

Military units are here determined as available if they are instantly ready to carry out their assigned combat tasks. To do so, a unit not only needs sufficient manning, equipment serviceability, and training. Availability also relies on moral factors such as cohesion, resilience, and discipline, only briefly discussed here. Deficits in one or several of these factors are assumed to have a negative impact on unit availability. As all units of the Armed Forces are officially on permanent readiness (*Moskovskii Komsomolets* 2019), variations in unit readiness are not examined and therefore not considered. The geographical distribution of available forces is, however, examined more closely, as the vast Russian territory puts restrictions on the rapid concentration of forces.

The Armed Forces are a large, complex organisation; thus, this chapter is limited to outlining its main building blocks and assessing its major features and developments. The availability assessment is confined to covering broad categories of capabilities. This chapter does not draw any conclusions regarding the fighting power of the Armed Forces, as this is left for Chapter 3.

This chapter is based on the Russian military press and statements from the government, as well as secondary analyses of Russian military assets. To outline the organisation and assess availability, we have compiled a database – RUFS Order of Battle database (ROB), summarised in Tables A2.1–6.

This chapter first evaluates general factors that affect unit combat capability; this includes manning, equipment serviceability, and training. Second, it discusses the composition of the branches and independent arms of service as of 2019. Third, assets for stand-off strikes are discussed. Fourth, the chapter outlines the geographical distribution of the available forces across Russia. Fifth, an assessment of the potential development of the Armed Forces in a ten-year perspective is undertaken. Finally, the main conclusions of the chapter are presented.

2.1 Factors affecting the availability of forces

This section discusses factors assumed to be of importance to the availability of forces. Sufficient personnel and high equipment serviceability are assumed to matter the most, but effective and sufficient training and morale are also of importance. Ongoing operations may also affect availability. The analysis shows that there are few systemic deficits in these areas that could significantly lower the ability of the Armed Forces to generate military force; thus, using the order of battle is, in 2019, an effective starting point for gauging the availability of military forces.

2.1.1 Manning and mobilisation reserves

Russia has been striving towards the professionalisation of its Armed Forces by increasing the number of contract soldiers (Ramm 2017a).

[2] With contributions from Martin Goliath, regarding nuclear weapons and stand-off strike assets.

Table 2.1 Planned manning levels 2013–2019, and targets for 2025; *thousands*

	2013	2014	2015	2016	2017	2018	2019	*2025*
1) Number of positions[a]	1 135	1 135	1 135	1 000	1 014	1 014	1 014	
2) Officers	200	200	200	200	220	220	220	
3) NCOs	50	50	50	50	50	50	50	
4) Contracted	220	295	352	384	384	384	394	*476*
5) Conscripts[b]	303	308	297	307	276	261	267	*220*
Total of rows 2–5	**773**	**853**	**899**	**937**	**930**	**915**	**934**	

Sources: Row 1, Presidential Decrees (yearly). Rows 2–5, Norberg & Westerlund 2016: 48. In addition, Row 4, Prezident Rossii 2016, 2017, 2018; TASS 2019; and Row 5, Presidential Decrees on draft of conscripts; Prezident Rossii 2018.

Notes: NCO – Non-commissioned officers. a) refers to the total number of military positions in the Russian Armed Forces, not all of which are necessarily manned. Civilian positions are not included. b) The number of conscripts presented is based on the yearly Presidential Decrees. The actual number of conscripts drafted to the Armed Forces is up to 20 per cent lower, since some conscripts are enlisted in other federal ministries, agencies, and services.

Between 2012 and 2017, the plan was to increase the number of contract soldiers by at least 50 000 men, annually (Decree 2012). The target for 2017 was ambitiously set at 425 000 contract soldiers. As shown in Table 2.1, the MoD has managed a significant recruitment drive, but still fallen short of the original plan. It appears that recruitment is becoming increasingly difficult, as the MoD has found itself in fierce competition with the civilian sector. In 2019, the MoD set a revised target of 476 000 contract soldiers by 2025 (*Prezident Rossii* 2018). This, at any rate, is still a remarkable transformation compared to before the 2008 reform, and has profoundly changed the composition of the Armed Forces.

The MoD has not publicly disclosed the number of officers or whether the target of 220 000 officers by 2017 has been met. There have been reports of deficits in some categories, the most significant being the lack of some 1 600 pilots in 2016 (Dronina 2019). These shortages have been addressed by a combination of increased enrolment and shortened education (Kruglov & Stepovoi 2018). Additionally, there were reportedly 50 000 non-commissioned officers in 2015 (Norberg & Westerlund 2016: 48).

Conscripts still make up a significant part of the Armed Forces. Besides fostering young men to become good patriots, this also leaves room for scalability, as former conscripts constitute a base for both mobilization and the recruitment of reservists (*Krasnaia zvezda* 2019a). Since 2015, the MoD has been forming an active reserve that trains regularly and is used for forming territorial defence units. The amount of men in this reserve is not known, but the target during the experimental phase in 2015 was about 5 000 men (Milkavkaz 2017). In 2018, media reported that the reserve was being implemented fully across the country, but there were no mentions about the number of men involved (Stepovoi *et al.* 2018). Being in its infancy, this reserve did not significantly affect the strength of the Armed Forces in 2019, but the existing structure can be used to expand the reserve in the future.

More broadly, the MoD has been working to improve the prestige of serving in the Armed Forces, and actions to humanize the compulsory service have been taken during the last ten-year period. Salaries and benefits have improved, and measures to lower draft evasion, suicide, and hazing seem to have had some positive results (Golts 2018: 23–27; MoD 2018c). There has also been an increased emphasis on the moral-psychological state of military units, which fits well with the broader importance of military-patriotic education (Kozachenko & Stepovoi 2018), see further Section 4.5.1. Still, changing military culture remains a work in progress.

2.1.2 Overall equipment serviceability

According to the 2020 armament programme, the Armed Forces should consist of 70 per cent modern equipment by 2020. How this modernisation has come about is further detailed in Chapter 6.

In assessing availability, however, the level of modernity is not important in itself. Rather, what matters is how the modernisation has increased the overall equipment serviceability.[3]

The MoD rarely discloses data on equipment serviceability, but in 2016 Defence Minister Shoigu provided estimates on the serviceability of several types of military equipment. Most of these were well over 90 per cent, with especially high figures regarding land force[4] equipment, including armoured fighting vehicles (94 per cent) and artillery systems (93 per cent). However, both the Naval Forces (76 per cent) and the fixed-wing aircraft inventory of the Aerospace Forces (63 per cent) showed significantly lower figures (*VPK Novosti* 2016). In late 2018, equipment serviceability across all branches of service had reportedly risen to 95 per cent, six per cent higher than in 2015. This likely means that the serviceability of the Air Force and the Naval Forces has improved somewhat since 2016 (*Rossiia-24* 2018).

Overall, these figures suggest that the equipment serviceability did not negatively affect the availability of ground forces units in 2019. However, it is likely that poor equipment serviceability still has an adverse impact on the availability of the Aerospace Forces and the Naval Forces. How this plays out in 2019 is further discussed below.

2.1.3 Exercises, combat operations, and international cooperation

The Armed Forces have been holding strategic-level exercises annually since 2009, and they continue to develop in size and complexity (Norberg 2018). The *Vostok*-2018 exercise, allegedly involving up to 300 000 men, was the largest in almost forty years. The MoD has stated that exercises of such scale will be held every five years (*TASS* 2018). In addition, large air-naval exercises were held in 2018 and 2019, and are also planned to be carried out regularly. The number of low- and mid-level military drills has also been increasing gradually, as has individual training, such as the amount of flight hours for pilots (Gavrilov 2018). Since 2013, various snap exercises have also been held regularly. Overall, the quality of training and exercises is improving, and consequently affects unit availability in a positive manner.

The military operations in Donbas and Syria have also provided combat experience for a large part of the Armed Forces. This is especially true for pilots and technical personnel that have operated in Syria (MoD 2018a). Moreover, the Syrian campaign has helped the MoD refine training and tactics and has led to some organisational modifications (Surkov & Ramm 2018). Even though the Armed Forces are still involved in the conflict in eastern Ukraine and maintain a presence in Syria, in 2019 neither operation was of such scope that it appeared to have significantly affected the availability of forces at home.

Russia maintains bilateral military ties with numerous countries, resulting in the holding of several annual joint exercises with countries such as China, India, Belarus, Serbia, and Pakistan. Russia also maintains military cooperation within the Collective Security Treaty Organization (CSTO), the Commonwealth of Independent States, and the Shanghai Cooperation Organization (SCO). Although annual exercises are held within the alliance framework of the CSTO, they add little to the Russian military (Chausovsky 2017). The only noteworthy force multiplier is the air defence cooperation within the Commonwealth of Independent States, which includes regional air defence cooperation with Belarus, Kazakhstan, and Armenia. The integration between Russia and Belarus has come the farthest, and their air defence forces have been on joint combat duty since 2017 (MoD 2017a).

2.2 Organisation of the Armed Forces and availability

In 2019, the Armed Forces had three branches of service, each distinguished by their main arenas of operation: land, sea, and air and space. Each

[3] Overall equipment serviceability is defined as the share of military inventory that meets the degree of functioning required according to its technical documentation (MoD 2019).

[4] Includes units of the Ground Forces, the Airborne Troops, and Naval Infantry.

branch contains several arms of service that are distinguished by equipment, methods, and tasks. Moreover, there are two independent arms that do not sort under any of the three branches of service, namely, the Airborne Troops and the Strategic Missile Forces.

The following section begins by addressing military command and control and support functions. It then describes the overall organisation and availability of combat units in each of the three branches of service and the two independent arms of service. Finally, it discusses paramilitary forces that can be of significance for military operations.

Operational command and control

The Russian president is the supreme commander-in-chief, and ultimately responsible for all military operations. The Defence Ministry and the General Staff coordinate military planning together with other ministries, services, and agencies through the National Defence Management Centre, located in Moscow. The Chief of the General Staff has the central operational command of the Armed Forces. The General Staff, in turn, is responsible for strategic and operational planning and operational command of the Armed Forces. The Armed Forces are divided into five joint strategic commands (JSCs), which command forces in inter-service operations in potential war theatres and coordinate their activities with federal executive organs through regional defence management centres (Cooper 2018: 7). The four military districts and the Northern Fleet each retain the role of a JSC.

At the operational level, large formations of the Ground Forces, Naval Forces, and Aerospace forces constitute the link between the strategic and the tactical levels. The two independent arms of service have their own separate chains of command. This is also somewhat true for the support functions.

Combat support

Combat support units are tasked with increasing the efficiency of their own combat units by improving, for example, mobility, survivability, and reconnaissance, while denying the same to the adversary (Vorobev 2003:10–16). The combat support units with the most multifaceted role are organised as arms of service: this includes the Engineer Troops, the Signal Troops, the Chemical, Biological and Radiological (CBR) Defence Troops, and the Electronic Warfare Troops. The Special Forces (*spetsialnoe naznachenie, SpetsNaz*) have a unique place in the military structure. They are an integrated part of the combat support structure since they are responsible for supplying battlefield reconnaissance to military commanders, but they also answer to the military intelligence Main Directorate, the GU (Ramm 2017b; Nikolsky 2017).

The emphasis on combat support capabilities has generally increased in recent years. First, the Signal Troops have a more prominent role, due to the adoption of systems both for integrated automated command-and-control and modern communications (*Kommersant* 2018). Second, Russia has put much effort into increasing unit survivability against high-precision munitions and counteracting air- and space-based reconnaissance. This includes not only camouflaging measures, by both the Engineer and CBR Defence Troops, but also Electronic Warfare measures, whose significance has increased since 2009 (Kjellén 2018). Third, the attention given to military engineering capabilities has increased substantially, while numerous new engineer units have been formed, to increase support to manoeuvre units. Additionally, new types of assault engineer subunits have been introduced, based on experience from urban warfare in Syria (Surkov & Ramm 2018).

Logistics support

Logistics support is about ensuring the sustainability of combat operations by providing replenishments and maintenance. Between 2012 and 2016, a leaner logistics support system replaced the obsolete Soviet rear service system. This led to a massive reduction of storage bases, and many of the military positions were cut and partially replaced by civilians. With the new system, the two former main support functions, for materiel and maintenance support, were merged. Everyday tasks, such as fuel deliveries and sustainment maintenance, were extensively outsourced to private contractors (Serba & Grachev 2018).

Eight logistics centres, one for each military district (MD) and fleet, form the central structure

of the new logistics system, but there are also significant logistics support structures integrated in the three Branches of Service. Examples of this are logistics brigades tied to each combined arms army (CAA), and the auxiliary fleet of the Naval Forces (Serba & Grachev 2018).

There are also arms of service that are part of the logistics system. This includes the Automotive Troops and the Railway Troops; the latter is comprised of some 29 000 men (IISS 2019: 203). Altogether, the military logistics support system employs some 160 000 persons (Khudoleev 2017; Lavrov 2017).

The organisation of combat support and logistics support differs between the branches of service. Land units typically have combat support assets embedded within them, as they require extensive supply chains all the way up to the front line. Naval vessels and aircraft, however, usually take on both combat and combat support roles, and return to base for maintenance, rearming, and refuelling.

2.2.1 The Ground Forces

The Ground Forces are the largest branch of service in the Armed Forces. In 2019, it was organised in eleven CAAs, one tank army, and an army corps. In addition, there were three army corps within the Naval Forces, and as these are essentially ground force units, they are outlined in this section. As shown in Figure 2.1, Russian combined arms warfare has four combat arms.

Tank Troops and Motorized Rifle Troops make up the manoeuvre units, i.e. units that directly engage the enemy in battle. Variations, often determined by climate and topography, are found in especially the Motorized Rifle Troops, with their main equipment being either wheeled or tracked, or distinctly specialised. The Air Defence Troops and the Rocket and Artillery Troops provide fire support with a large variety of capabilities, materialised as both separate units and embedded in the manoeuvre units.

Additionally, combat support and logistic support occupy a prominent place in the Ground Forces, and support units are found at all levels of the CAAs. The distribution of support units across the organisation follows generic patterns. With few exceptions and regardless of the number of manoeuvre units, each CAA as well as each MD has a generic set of fire support, combat support, and logistics support units. In 2019, recently created formations lacked combat support and fire support units, while CAAs of the Eastern MD lacked engineer regiments. These exceptions are probably provisional, and new units will be formed when possible (Surkov *et al.* 2018).

Table 2.2 (overleaf) is compiled from ROB, and shows the composition of the Ground Forces and their distribution in the five JSCs. In 2019, there were 175 units altogether, of which 45 were manoeuvre units, representing a substantial part of the total personnel.

Available ground forces units

As the equipment serviceability is very high, manning levels are the key factor in determining the availability of ground forces units. With

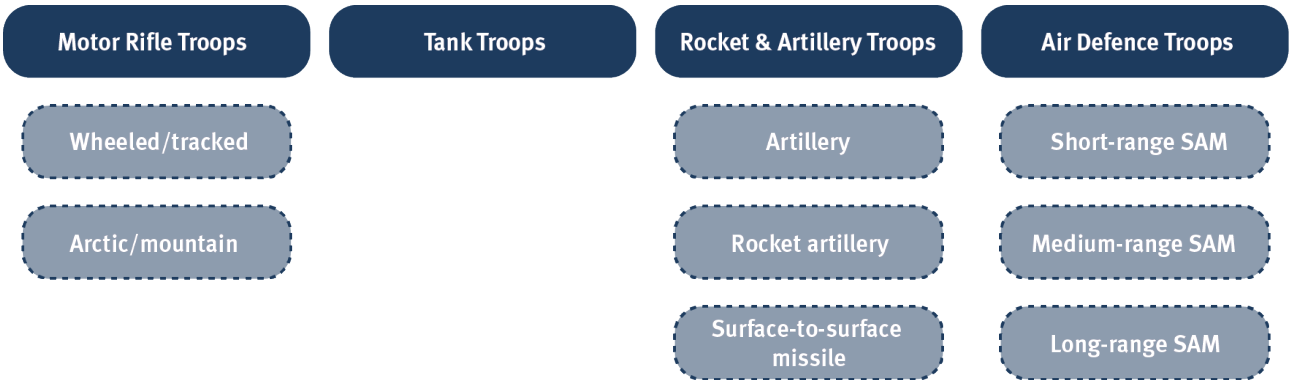


Figure 2.1 Combat arms of the Ground Forces and their composition in 2019

Notes: SAM – surface-to-air missile.

divisions being reintroduced as a principal form of organisation (MoD 2018a), some have suggested that this has resulted in the return of units with reduced manning (Golts 2019). This is not necessarily the case, as new divisions are being formed incrementally, with regiments added one at a time, and all based on one or several already existing brigades[5]. Even though a fourth manoeuvre regiment is being formed in some divisions (*TASS* 2016a), in 2019 divisions of three regiments were still the rule. Thus, so far, less than a doubling of personnel is required to form a division.[6] Filling the ranks of newly formed units seems to have been made possible by the increase of contract soldiers since 2014 (Table 2.1).

Although both manning levels and equipment serviceability seem sufficient, there are two reasons why we do not regard the units listed in Table 2.2 as fully available. First, they are peacetime educational entities that require additional preparations in

Table 2.2 Distribution of combat arms, combat support, and logistics support units of the Ground Forces in 2019; *units*

	Western MD	Northern Fleet	Southern MD	Central MD	Eastern MD
Combat arms, 94 units					
Motorized Rifle Troops, 40 units					
Motorized rifle division	3	–	2	–	1[a]
Motorized rifle brigade/regiment	6	2	6[b]	6	10
Military base (on foreign soil)	–	–	3	1	–
Tank Troops, 5 units					
Tank division	1	–	–	1	–
Tank brigade/regiment	2	–	–	–	1
Missile and Artillery Troops, 32 units					
Artillery brigade/regiment	10	–	7	6	9
Air Defence Troops, 17 units					
Air defence missile brigade/regiment	5	–	5	3	4
Combat support, 67 units					
Reconnaissance, 11 units					
Recce & *SpetsNaz* brigade/regiment	3	–	5	2	1
Signal Troops, 19 units					
Signal or command brigade	5	–	4	4	6
Electronic Warfare Troops, 5 units					
Electronic warfare brigade	2	–	1	1	1
Engineer Troops, 15 units					
Engineer brigade/regiment	6	–	4	3	2
CBR Defence Troops, 17 units					
CBR defence brigade/regiment	3	2	4	3	5
Logistics support, 14 units					
Logistics support units, 14 units					
Logistics brigade/regiment	4	–	3	3	4

Source: ROB – RUFS Order of Battle data base, FOI, September 2019.

Notes: MD – Military District; Recce – Reconnaissance; *SpetsNaz* – *spetsialnoe naznachenie* (special purpose); CBR – Chemical, Biological & Radiological; a) the 18th artillery-machine gun division is here considered to be of brigade-size. b) includes 126th Coastal Defence Brigade on Crimea.

[5] Russian divisions are not made up of brigades, as in e.g. the US, but of regiments. These in turn consist of battalions, which also is the main building block of Russian brigades.

[6] Modern Russian motorized rifle divisions, with three manoeuvre regiments, hold some 8 200 men, and tank divisions hold 6 600 (Kriazhev 2016). The brigades formed after 2008 hold some 4 300 men (Gaidai 2010: 28).

Table 2.3 Distribution of available BTGs generated from all types of land forces in 2019

	Western MD	Northern Fleet	Southern MD	Central MD	Eastern MD	Total
			Available BTGs			
Ground Forces, 110 BTGs						
Available BTGs	40	4	24	18	24	110
Naval Infantry, 12 BTGs						
Available BTGs	2	2	4	–	4	12
Airborne Troops, 24 BTGs						
Available BTGs	12	–	6	2	4	24
Total BTGs in each MD/Fleet	**54**	**6**	**34**	**20**	**32**	**146**

Source: ROB – RUFS Order of Battle data base, FOI, September 2019.

Notes: MD – Military District; BTG – Battalion Tactical Group.

order to function as tactical fighting formations. Second, every third battalion in divisions and brigades consists only of conscripts (Falichev 2018), making it doubtful whether these would be available for fighting early on in a conflict.

In recent years, the MoD has communicated about overall availability by stating how many battalion tactical groups (BTGs) may be generated from each land forces unit. Based on manoeuvre units and reinforced by support units, these are enhanced provisional battalions of 700–900 contract soldiers that can be put together rapidly (*TASS* 2016b). Table 2.3 is an assessment of the quantity and distribution of available BTGs, based on the MoD statement that each regiment or brigade would be able to generate two BTGs (*TASS* 2016b). All land forces units listed in the ROB, not only ground forces but also naval infantry and airborne troops units, are included. Ground Forces divisions are assumed to have three manoeuvre regiments (6 BTGs) whereas the two Airborne Troops divisions have two (4 BTGs).

A total of 146 available BTGs amounts to a force of approximately 100 000–130 000 soldiers. With time for preparations, the Armed Forces could generate additional BTGs, or get larger tactical entities ready, by using subunits manned with conscripts. However, due to the longer time frame needed, such units are not considered available.

2.2.2 The Naval Forces

The Naval Forces consist of four fleets and one separate flotilla, each of which has, in turn, one or several formations, such as naval bases, submarine commands, and army corps. These consist of several types of forces (Figure 2.2). The Naval Forces also include air and ground forces components.

In 2019, the Naval Forces had nearly 270 combat vessels, consisting of 55 submarines and

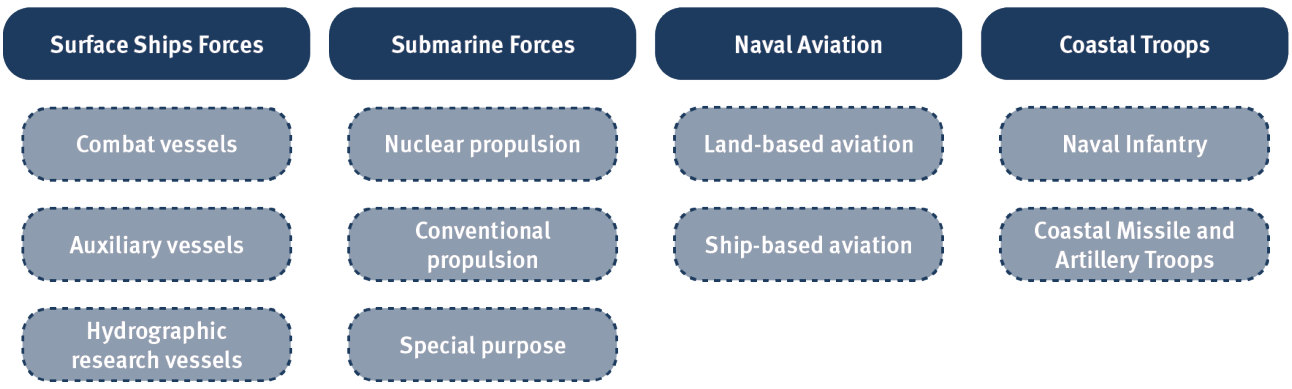


Figure 2.2 Combat arms of the Naval Forces and their composition in 2019

Table 2.4 Units of the Coastal Troops in 2019; *brigades, regiments & centres*

	Western MD *Baltic Fleet*	Northern Fleet	Southern MD *Black Sea Fleet*	Southern MD *Caspian Flotilla*	Eastern MD *Pacific Fleet*
Combat arms, 12 units					
Naval Infantry, 6 units					
Naval Infantry brigades or regiments	1	1	1	1	2
Coastal Missile and Artillery, 6 units					
Coastal missile or artillery brigades	1	1	2	–	2
Combat support, 8 units					
Naval Engineers, 3 units					
Naval engineer regiments	1	1	1	–	–
Electronic Warfare Troops, 5 units					
Electronic warfare centres	1	1	1	–	2

Source: ROB – RUFS Order of Battle data base, FOI, September 2019.
Notes: MD – Military District.

212 surface ships (*RussianShips.info* 2019a). Some were of considerable size, but most were smaller vessels for operations in littoral waters, such as roadstead minesweepers and small missile ships. Diesel-electric attack submarines operate primarily in littoral waters and marginal seas, whereas nuclear-powered submarines operate in oceans. The latter category includes submarines carrying ballistic missiles, as well as multipurpose attack and special purpose submarines. The Naval Forces also possess a small fleet of hydrographic research vessels and a larger auxiliary fleet. In 2019, more than 450 vessels make up the latter, ranging from small harbour tugs to large ocean-going tankers (Biriulin 2019).

Naval Aviation's core capabilities not only include shipborne fixed- and rotary-wing aircraft and anti-submarine aircraft, but also operational-tactical aviation units in Kaliningrad and Crimea, and on the Kola Peninsula. The Coastal Troops comprise the Naval Infantry and the Coastal Missile and Artillery Troops, as shown in Table 2.4. The former is essentially a sea-based manoeuvre unit, with capacity to conduct amphibious operations, whereas the latter are typically positioned to protect naval bases or naval choke points. In recent years, the Naval Forces have renewed the inventory of coastal missile systems, and deployed them in areas such as Kaliningrad, Crimea, and the Arctic (Kretsul *et al.* 2018).

Available Naval Forces

In 2019, the naval inventory was still largely from Soviet times, and this is especially true for surface ships with blue-water capabilities. The availability of such naval vessels is limited by low serviceability. Actions are being taken to modernise several vessels, but this adversely influences the number of available naval vessels in the short run.

Table 2.5 presents an assessment of the surface combatants and submarines, as well as the nominal inventory, available in 2019. First- and second-rank vessels are assessed individually, whereas vessels of lower rank are assumed to have a 75 per cent availability, based on the assessed generic equipment serviceability level of the Navy.

It is illustrative that, in 2019, Russia's sole aircraft carrier and most of the Akula class attack submarines were unavailable, and that neither the Black Sea nor the Baltic Fleet operated a surface combatant larger than a frigate. Adding to this, delays in ship commissioning also resulted in the inclusion of fewer new ships in the inventory of the Naval Forces than anticipated (Zhavoronkov 2018).

2.2.3 The Aerospace Forces

In 2019, the Aerospace Forces were organised in four air and air defence armies (AADA), together with several formations and units of central subordination. In addition, although the AADA of

Table 2.5 Surface ship combatants and submarines of the Navy according to ship rank in 2019; *vessels*

	Western MD *Baltic Fleet*	Northern Fleet	*Black Sea Fleet*	Southern MD *Caspian Flotilla*	Eastern MD *Pacific Fleet*
Surface Fleet, 158 available units (of 212 nominal)					
First-rank (I) surface combatants, 11 available units (of 18 nominal)					
Carriers	–	0 (1)	–	–	–
Cruisers	–	2 (3)	0 (1)	–	1 (1)
Destroyers	0 (1)	3 (5)	–	–	4 (5)
Frigates	–	1 (1)	–	–	–
Second-rank (II) surface combatants, 29 available units (of 36 nominal)					
Frigates (guard ships)	1 (2)	–	5 (6)	2 (2)	–
Corvettes	4 (4)	–	–	–	2 (2)
Large landing ships	4 (4)	4 (5)	3 (7)	–	4 (4)
Third-rank (III) surface combatants, assumed 50 available units (of 67 nominal)					
Small missile ships & patrol ships	(7)	(2)	(7)	(3)	(4)
Anti-submarine warfare corvettes	(6)	(6)	(6)	–	(8)
Small artillery ships	–	–	–	(3)	–
Minesweepers (oceangoing)	(1)	(3)	(7)	–	(2)
Air–cushioned landing craft	(2)	–	–	–	–
Fourth-rank (IV) surface combatants, assumed 68 available units (of 91 nominal)					
Missile boats	(6)	–	(5)	(1)	(11)
Artillery boats	–	(1)	–	(5)	–
Minesweepers	(10)	(7)	(2)	(7)	(8)
Landing boats	(9)	(4)	(5)	(6)	(4)
Submarine Forces, 39 available units (of 55 nominal)					
First-rank (I) submarines, 23 available units (of 35 nominal)					
Nuclear ballistic missile submarines	–	6 (7)	–	–	3 (3)
Nuclear submarines	–	8 (14)	–	–	4 (9)
Nuclear submarines (special)	–	2 (2)	–	–	–
Second-rank (II) submarines, 16 available units (of 20 nominal)					
Conventional submarines	1 (1)	4 (6)	5 (7)	–	6 (6)

Sources: RussianShips.info 2019a; Navy Korabel Blog 2019a & 2019b; and ROB – RUFS Order of Battle data base, FOI, September 2019.

Notes: MD – Military District.

the Northern Fleet is formally part of the Naval Aviation Fleet, in this section its fixed-wing aviation is described together with the Aerospace Forces' assets. Figure 2.3 outlines the main components of the Aerospace Forces.

The Air Force is comprised of several types of aviation. The Military Transport Aviation and Long-Range Aviation commands are centrally subordinated, whereas army aviation and operational-tactical aviation assets are primarily constrained to operations in their respective theatres. Operational-tactical aviation is composed of several types of aviation, such as fighter, interceptor,[7] fighter-bomber, ground attack, reconnaissance, and transport aviation.

The Space Forces manage military and dual-use satellites, conduct rocket launches, and operate the ballistic missiles early warning system (*Ekho*

7 In 2019, the Mig-31 is the standard interceptor of the Armed Forces, used to patrol vast areas to detect and intercept enemy bombers and cruise missiles.

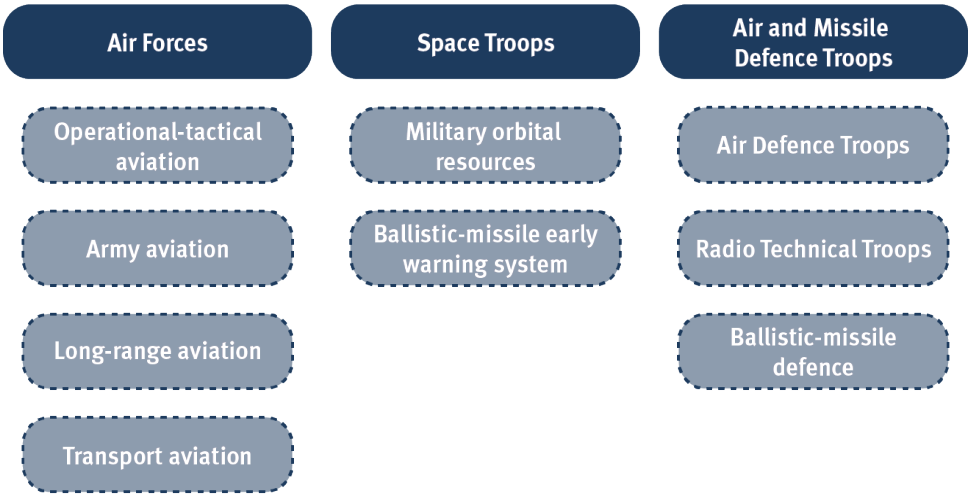


Figure 2.3 Combat arms of the Aerospace Forces and their composition in 2019

Moskvy 2019). In the past decade, this system has been undergoing an extensive renewal, including the addition of new radars and satellites. A general strengthening and rejuvenation of orbital assets has been ongoing for the last ten years, both regarding dual-use systems, such as the global positioning system, *Glonass*, and military intelligence, surveillance, and reconnaissance satellites (*Zvezda Weekly* 2018).

Together with the interceptor and fighter units of the Air Force, the Air and Missile Defence Troops constitute the backbone of the air defence. A large number of air defence regiments equipped with long-range surface-to-air missile (SAM) systems contribute to overall air defence. As shown in Table 2.6, these are not evenly distributed across the country, but rather provide air defence in prioritised regions where strategically important installations are located. To increase flexibility, new mobile SAM units are created in the MDs for use as "mobile reserves" (Ramm *et al.* 2019b). Airspace surveillance is provided by the Radio Technical Troops, and includes both stationary and mobile radar systems. Unique to the Moscow region is the A-135 anti-ballistic missile (ABM) system of the 1st AD and ABM army.

Available air forces

In 2019, the Armed Forces inventory of fixed- and rotary-wing aircraft amounted to more than 3 000, and in the six-year period 2013–2018 alone, more than 1 000 new or modernised aircraft were delivered (*Krasnaia zvezda* 2019b). However, a large share of these are held in reserve and therefore do not reflect the actual number of aircraft in combat units.

In order to acquire a more accurate estimation of how many aircraft are nominally in the Armed Forces organisation, each aviation unit has been

Table 2.6 Distribution of Aerospace Forces' theatre air defence assets in 2019; *brigades & regiments*

	Western MD	Northern Fleet	Southern MD	Central MD	Eastern MD
Air Defence Troops, 42 units					
Air defence regiment: S-400	11	4	3	2	3
Air defence regiment or brigade: S-300	6	1	1	5	3
Air defence regiment: Buk or S-300V	–	–	2[a]		1

Sources: Milkavkaz 2017; Karpychev 2017.

Notes: MD – Military District; a) including one Buk-M1/S-300V unit in Abkhazia.

Table 2.7 Assessed available operational-tactical aviation assets in 2019; *aircraft*

	Western MD	Northern Fleet	Southern MD	Central MD	Eastern MD
Operational-tactical fixed-wing aviation, 521 aircraft available (of 694 nominal)					
Fighter aviation, 305 aircraft available (of 406 nominal)					
Fighters: Su-27/30/35, MiG-29	72 (96)	–	72 (96)	–	54 (72)
Fighters, carrier-based: Su-33, MiG-29K	–	27 (36)	–	–	–
Interceptors: MiG-31	18 (24)	9 (12)	8 (10[a])	36 (48)	9 (12)
Attack aviation, 216 aircraft available (of 288 nominal)					
Attack/reconnaissance: Su-24, Su-34	36 (48)	9 (12)	63 (84)	18 (24)	18 (24)
Ground attack aviation: Su-25	–	–	45 (60)	9 (12)	18 (24)
Army aviation, 652 available aircraft (of 864 nominal)					
Army aviation brigades: helicopters	63 (84)	–	63 (84)	63 (84)	63 (84)
Helicopter regiments: helicopters	100 (132)	–	150 (198)	50 (66)	100 (132)

Source: ROB – RUFS Order of Battle data base, FOI, September 2019.

Notes: MD – Military District; a) ten MiG-31K have supposedly been stationed in the Southern MD since 2018 (*RIA Novosti* 2018a).

assessed individually, regarding aircraft type and size and in terms of number of squadrons,[8] and the result presented in tables A2.1-6. These assessments offer a more accurate nominal count of aircraft in combat units, avoiding overestimation of aircraft by excluding unavailable aircraft held in reserve. At the same time, however, this method instead creates the more imminent risk that the nominal amount of aircraft in aviation units will be underestimated, for several reasons. First, this nominal assessment of aircraft is not comprehensive; for example, neither smaller transport fixed-wing aircraft subordinated to the MDs, nor rotary-wing Naval Aviation aircraft, are included, due to lack of data. Second, as only aviation units larger than a squadron are listed in the ROB, smaller aviation units are omitted. Third, the

[8] Typically, there are 12 aircraft in each fighter or attack aircraft squadron, 9 aircraft in a transport aviation squadron, and 16–24 aircraft in each rotary-wing squadron.

Table 2.8 Assessed available strategic aviation assets in 2019; *aircraft*

	Western MD	Northern Fleet	Southern MD	Central MD	Eastern MD
Strategic aviation, 169 available aircraft (of 235 nominal)					
Strategic transport aviation, 75 available aircraft (of 100 nominal)					
Il-76 (~50 tonnes)	27 (36)	–	14 (18)	27 (36)	–
An-124 (~150 tonnes)	6 (9)	–	–	1 (1)	–
Long-range aviation, 71 available aircraft (of 102 nominal)					
Supersonic strategic bomber: Tu-160	11 (16)	–	–	–	–
Turboprop strategic bomber: Tu-95	10 (15)	–	–	–	20 (28)
Supersonic long-range bomber: Tu-22M	13 (18)	–	–	–	17 (25)
Other aircraft, 23 available aircraft (of 33 nominal)					
Aerial refuelling aircraft: Il-78	11 (15)	–	–	–	–
AEW&C: A-50	14 (18)	–	–	–	–
Naval aviation					
Maritime patrol aircraft, 31 available aircraft (of 44 nominal)					
Tu-142	–	8 (11)	–	–	8 (11)
Il-38	–	7 (10)	–	–	8 (12)

Source: ROB – RUFS Order of Battle data base, FOI, September 2019.

Notes: AEW&C – airborne early warning and control; MD – Military District.

assessment of each aviation unit that consists of one to four squadrons also leads to an underestimation of the aircraft in the units. In addition to the squadrons, most units have additional aircraft in their inventory, including for example those aircraft that are either being replaced or entering service, and aircraft that have been specifically modified, such as, for example, two-seater versions used for training.

The actual number of available aircraft is also less than the nominal number; this is because it is important to factor in the fact that aircraft are recurrently temporarily unavailable, due to planned sustainment measures (service and overhaul). This is a situation the Air Force most likely still suffers from, having had the lowest overall serviceability in 2016, while it is also further impeded by a lack of pilots. Therefore, and as shown in Table 2.7, the available air power is assessed as being only 75 per cent of the nominal number of aircraft.

The assessed availability of strategic air assets is outlined in Table 2.8. As opposed to operational-tactical aviation, these nominal numbers are based on individual aircraft, rather than on squadrons. Combined, Tables 2.7–2.8 list a nominal inventory of some 1 750 aircraft, of which almost 1 350 are assessed as available for combat operations. These figures should be seen as approximations.

2.2.4 The Airborne Troops

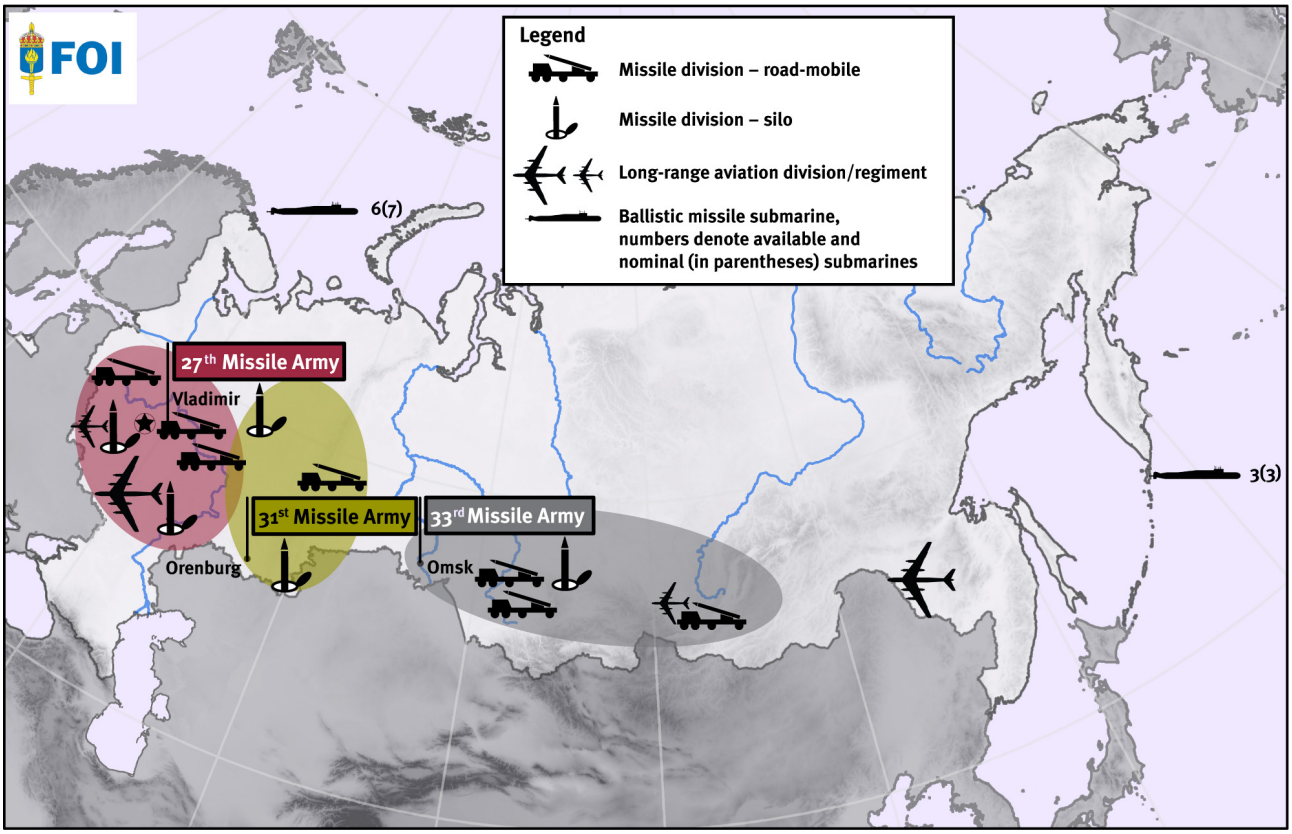
The Airborne Troops are a separate arm of service and constitute the strategic reserve of the supreme commander in chief. The units of the Airborne Troops are shown in Table 2.9. Plans dating from 2014, to substantially expand the Airborne Troops by doubling their manpower to 72 000 men, have not yet been materialised (Sutyagin & Bronk 2017: 50–53), but some steps have been taken to form an additional third regiment in some of their divisions (*TASS* 2016c & *Rossiiskaia gazeta* 2017).

Two features characterise current developments in the Airborne Troops. First, although only two airborne divisions are truly air-droppable, all units retain a strong role as an airborne force, which involves being able to conduct aerial landing operations. Second, the mobility and readiness of the Airborne Troops has emphasised their role as a rapid reaction force. This role sometime requires more firepower than airborne units usually have, and since 2017 the air assault divisions and brigades have acquired tank units. Additionally, recent exercises, such as *Vostok*-2018, have seen airborne forces in tactical helicopter landings (MoD 2018b).

Table 2.9 The Airborne Troops in 2019; *divisions, regiments & separate battalions*

	Western MD	NorthernFleet	Southern MD	Central MD	Eastern MD
Combat units, 8 units					
Airborne Troops, 8 units					
Airborne divisions	2	–	–	–	–
Air-assault divisions	1	–	1	–	–
Air-assault brigades	–	–	1	1	2
Combat support, 2 units					
Reconnaissance, 1 unit					
Special-purpose brigade	1	–	–	–	–
Signal Troops, 1 unit					
Signal regiment	1	–	–	–	–
Logistics support, 1 unit					
Logistics support units, 1 unit					
Logistics battalion	1	–	–	–	–

Source: ROB – RUFS Order of Battle data base, FOI, September 2019.
Notes: MD – Military District.



Map 2.1 Strategic nuclear forces in 2019

Source: ROB – RUFS Order of Battle data base, FOI, September 2019.

Available Airborne Troops

The Airborne Troops are likely to have an availability that is at least equal to or higher than that of Ground Forces units. With four divisions (each with two regiments) and four brigades, there should be about 24 BTGs of Airborne Troops units available (Table 2.4).

2.2.5 The Strategic Missile Forces and the nuclear triad

The Strategic Missile Forces consist of three missile armies, with a total of twelve divisions, as shown on Map 2.1. They number some 50 000 men (IISS 2019: 196), and are equipped with both mobile and silo-based intercontinental ballistic missiles (ICBM), and constitute the land-based and main component of Russia's triad of strategic nuclear weapons. The other two are ICBMs launched from submarines of the Navy, and cruise missiles launched from long-range bombers of the Air Force. Map 2.1 shows their bases.

The nuclear triad provides strategic deterrence through the capability to reach any adversary on the globe and wreak unparalleled destruction. The nuclear triad's reliability requires high readiness and robust command and control systems in all three components. Silos are hardened to resist air blast and ground shock from all but the most proximate explosions, while the road-bound missile launchers and strategic submarines rely on being difficult to find and track for survival. Potential complications for mobile platforms, particularly for submarines, include command and control and that the position and orientation of the platform must be determined with high precision while firing to ensure adequate accuracy. The main advantage of long-range aviation is its mobility, at the cost of being the most vulnerable leg of the triad. It is also a means of strategic signalling, e.g. through forward-basing and changes in patrolling patterns.

In 2019, Russia had a total of roughly 1 600 strategic warheads deployed (Kristensen & Korda 2019: 73). Although the number has been

Table 2.10 Main armed troops and forces outside of the Russian MoD in 2019

Structure	Type	Manning (est.)	Selected Vehicles
Federal Service of the National Guard	Interior Troops	170 000	29 transport aircraft 70 helicopters 1 650 combat vehicles
Federal Security Service (FSB)	Border Troops	100 000	297 border patrol vessels 1 000 combat vehicles
	Special Forces	4 000	200 helicopters 84 fixed-wing aircraft
Ministry of Civil Defence, Emergencies, and Disaster Relief	Military Rescue Units	7 200	56 helicopters 18 fixed-wing aircraft
Private military companies	Contractors	5 000	–
Forces to support military operations		**About 290 000 men**	

Sources: Row 1) *Vedomosti* 2016; Norberg & Westerlund 2016: 59. Row 2) Renz 2018: 100; Norberg & Westerlund 2016: 57; Russianships.info 2019b. Row 3) Decree 2018; MChS 2017. Row 4) Dahlqvist 2018.

Notes: est. – estimated. The total personell numbers for the listed ministry and services are significantly larger.

consistently reduced in recent years, strategic nuclear weapons have always been of vital importance to Russia, and will remain so for the foreseeable future.

2.2.6 Paramilitary forces

There are formations of about 290 000 men and women that fall outside of the structures of the Armed Forces and the MoD, but that nevertheless can support military operations (Table 2.10). Most of the personnel are contracted by the various structures, but some contain conscripts as well.

The largest force is the National Guard, which includes the Interior Troops estimated at 170 000 personnel. Additionally, the Federal Security Service (FSB) employs an estimated 100 000 border guards, as well as a small number of special forces (Renz 2018: 100). The Ministry of Civil Defence, Emergencies, and Disaster Relief employs mostly civilian personnel, but some 7 200 military personnel are found in Military Rescue Units. These units are tasked with protecting the population and valuable infrastructure during times of war, including beyond the borders of the Russian Federation. For example, they have carried out demining operations in Syria (*RIA Novosti* 2018).

Another small (less than 5 000 personnel) but notable force contingent is found in so-called private military companies. They have been used by the Russian government since at least 2014 and deployed to foreign missions where regular forces would have been inappropriate, for political reasons. Such companies have been taking part in combat operations in Ukraine and Syria and have operated in several African countries (Dahlqvist 2018).

2.3 Stand-off strike assets

A potent capacity of Russia's Armed Forces is in their assets for stand-off strikes by ballistic and cruise missiles. All three branches of service within the Armed Forces have units that can deliver stand-off strikes, here defined as strikes with missiles with an operational range beyond 300 kilometres.

In 2019, the Armed Forces had more than 1 300 missiles available for initial stand-off strikes, assuming that missile availability is not a consideration (see Table 2.11). This is a significant increase compared to 2016. For instance, Norberg & Westerlund (2016: 45) estimated the number of missiles available for the Western war theatre to around 600, while a similar calculation in 2019 yields almost 800.

Table 2.11 Estimated stand-off strike assets in 2019; *missiles [nuclear warheads]*

Missile type	Estimated operational range	Western MD	Northern Fleet	Southern MD	Central MD	Eastern MD
Stand-off strike assets, grand total 1 359 [718]						
Stand-off against sea targets, total 469 [116] medium-range anti-ship missiles						
Air-launched from Tu-22M	600 km	20 [20]	–	–	–	25 [25]
Submarine-launched	600–660 km	–	88 [20]	–	–	72 [12]
Surface ship-launched	550–660 km	–	44 [7]	12 [6]	–	16 [2]
Shore-based	350 km	32 [4]	32 [4]	64 [8]	–	64 [8]
Stand-off against land targets, total 890 [602] missiles						
Long-range ALCM from Tu-160/95	3 000 km	53 [53]	–	–	–	40 [40]
Medium-range ALCM from Tu-22M	600 km	20 [20]	–	–	–	25 [25]
Long-range LACM from submarines	1 650 km	–	48 [48]	20 [20]	–	8 [8]
Long-range LACM from surface ships	1 650 km	32 [32]	8 [8]	60 [60]	–	–
Medium-range land-based missiles	500 km	176 [88]	–	80 [40]	80 [40]	192 [96]
Long-range land-based LACM	1 650 km	16 [8]	–	16 [8]	16 [8]	–
Total stand-off strike assets in MDs		**349 [225]**	**220 [87]**	**252 [142]**	**96 [48]**	**442 [216]**

Sources: Authors' estimate based on ROB – RUFS Order of Battle data base, FOI, September 2019; nuclear warhead accounting rules from Sutyagin (2012; 2016); and Tables A2.7–8.

Notes: ALCM – air-launched cruise missile; LACM – land-attack cruise missile; MD – Military District; aviation and naval ships are assumed to deliver one salvo, while units with integral reload capacity fire two salvos.

The table distinguishes between strikes against land and sea targets. Some platforms can carry a combination of missiles for either target type, and the mix will vary depending on the mission. Here, Tu-22M bombers strike 50 per cent sea and 50 per cent land targets. The same holds for sea vessels with *Kalibr* vertical-launch systems, except for small missile ships, which here carry only the land-attack version of the missile. As for Tu-160 and Tu-95 bombers of the Long-Range Aviation, 25 per cent are assumed to be available for non-strategic strikes, the rest being dedicated to their main mission: strategic deterrence. Also included are three SSM battalions that have been rearmed with long-range cruise missiles (Gutschker 2019).

To conclude, the number of stand-off missiles has increased significantly in the past three years, mainly due to the ongoing deployment of *Kalibr* and *Iskander* systems, thus providing enhanced ability to deliver strikes.

Non-strategic nuclear assets

The total number in 2019 of non-strategic nuclear warheads for stand-off systems is estimated to be more than 700. This is a notable increase compared to about 600 in Norberg & Westerlund (2016). The estimated number of nuclear warheads for different weapon systems are presented in square brackets in Table 2.11. Here the method of Sutyagin (2012, 2016) is used, where nuclear-capable military units are assigned a fixed allocation of warheads according to rigid counting rules based on his experience in the Soviet Armed Forces. The method should be viewed as approximate, and the uncertainties regarding the number of non-strategic nuclear warheads is considerable.

Several Russian shorter-range weapon systems are also nuclear-capable. Examples include anti-submarine warfare (ASW) systems, various short-range missiles, gravity bombs, and tube artillery. Based on ROB and accounting rules from Sutyagin

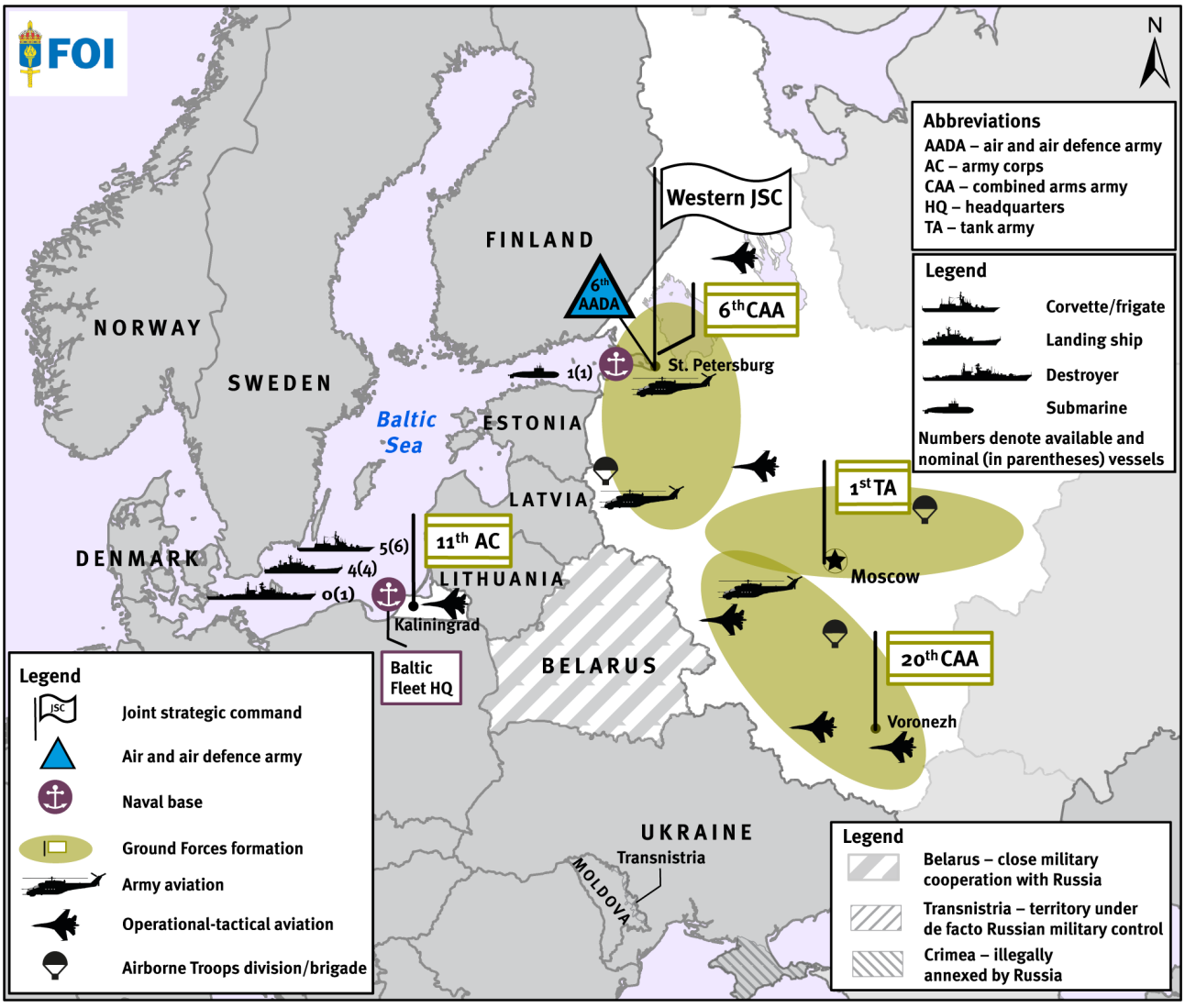
(2012, 2016), the number of warheads for shorter-range systems in 2019 is estimated to about 400, in addition to the ones available for stand-off weapon systems.[9] In Norberg & Westerlund (2016), the estimate was more than 600 warheads. In total, the number of non-strategic nuclear warheads is about the same, but a shift to stand-off systems can be discerned.

Although the estimated total number of available non-strategic nuclear weapons, all in all some 1100, is considerable, most weapon systems have a specific purpose, for instance ASW operations or the ABM placed around Moscow (Sutyagin 2012: 10–11). The total number of warheads thus does not translate into a capability to launch a specific type of nuclear attack of that size. However, the wide variety of non-strategic nuclear-capable systems means that nuclear support to a broad spectrum of operations is possible.

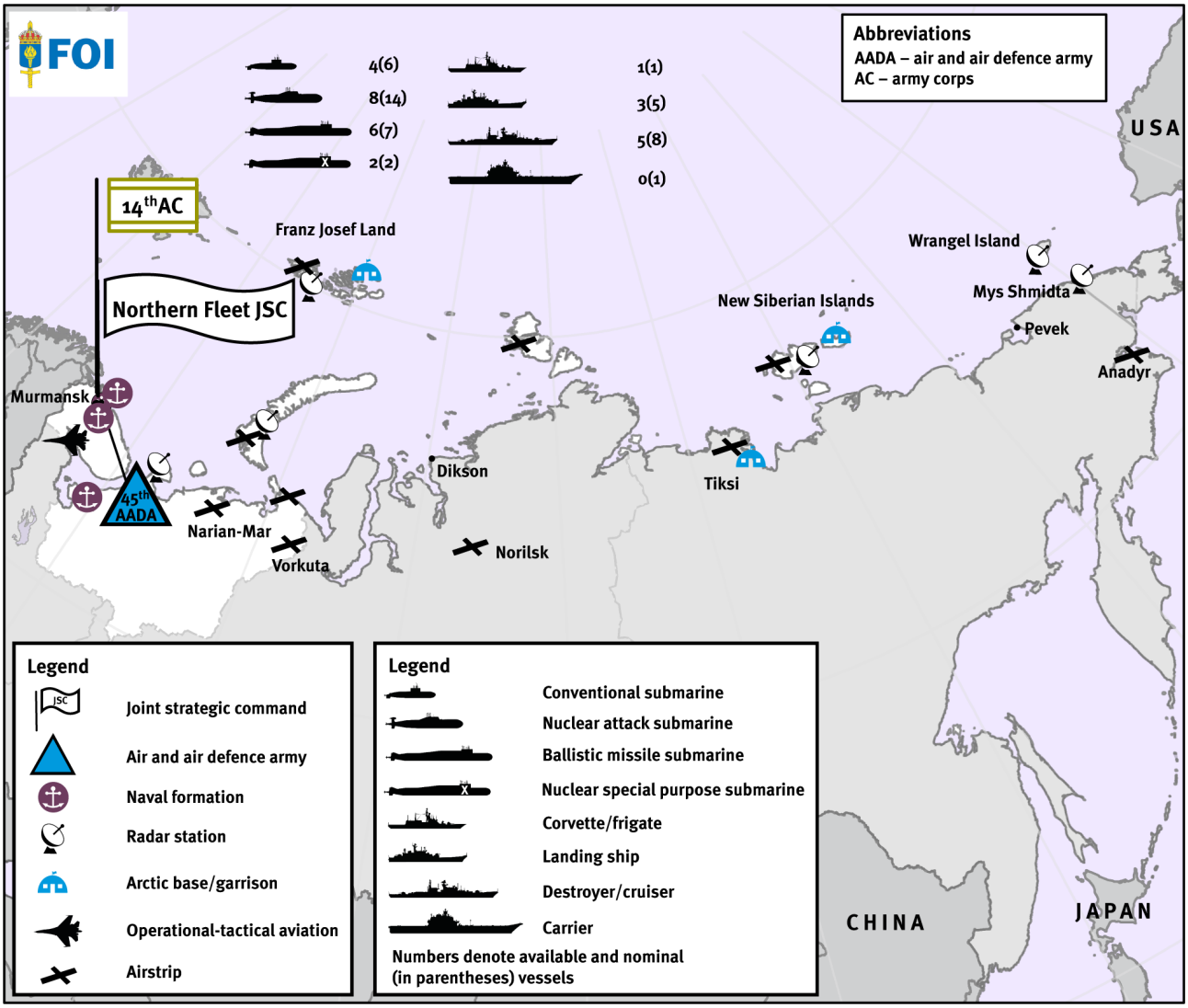
2.4 Available forces of the five JSCs

The operational formations of Russia's five JSCs are described and discussed on the maps below. The Northern Fleet differs substantially from the MDs in this respect, but there are also variations in the disposition of military forces between the four MDs, most often depending on geography and threat perceptions.

[9] This estimate is based on Tables A2.9–11.



Map 2.2 Selected units of the Western MD in 2019



Map 2.3 Selected units of the Northern Fleet in 2019

2.4.1 The Western MD

Covering Moscow and the central industrial region, the Western MD contains several capable military formations. As illustrated on Map 2.2, in 2019 this included two CAAs, one tank army and an army corps, the 6th AADA, and the Baltic Fleet with its two naval bases. The Western MD is also responsible for a small contingent in the Transnistrian region of Moldova (MoD 2017b).

With its 54 available BTGs (36 000–47 000 men), the Western MD has the overall largest available land forces. The relocation of the 20th CAA since 2016 means that the majority of this force is now situated along the western border area, but with some forces (10%) landlocked in Kaliningrad. The combined operational-tactical and army aviation of the MD holds at least some 290 available fixed- and rotary-wing aircraft, as well as a majority of all the strategic aviation in western Russia. The proximity to the Southern MD enables swift reinforcements of additional air power. The naval forces of the Baltic Fleet are concentrated to Baltiisk in the Kaliningrad exclave and a naval base in Kronstadt, in the Gulf of Finland.

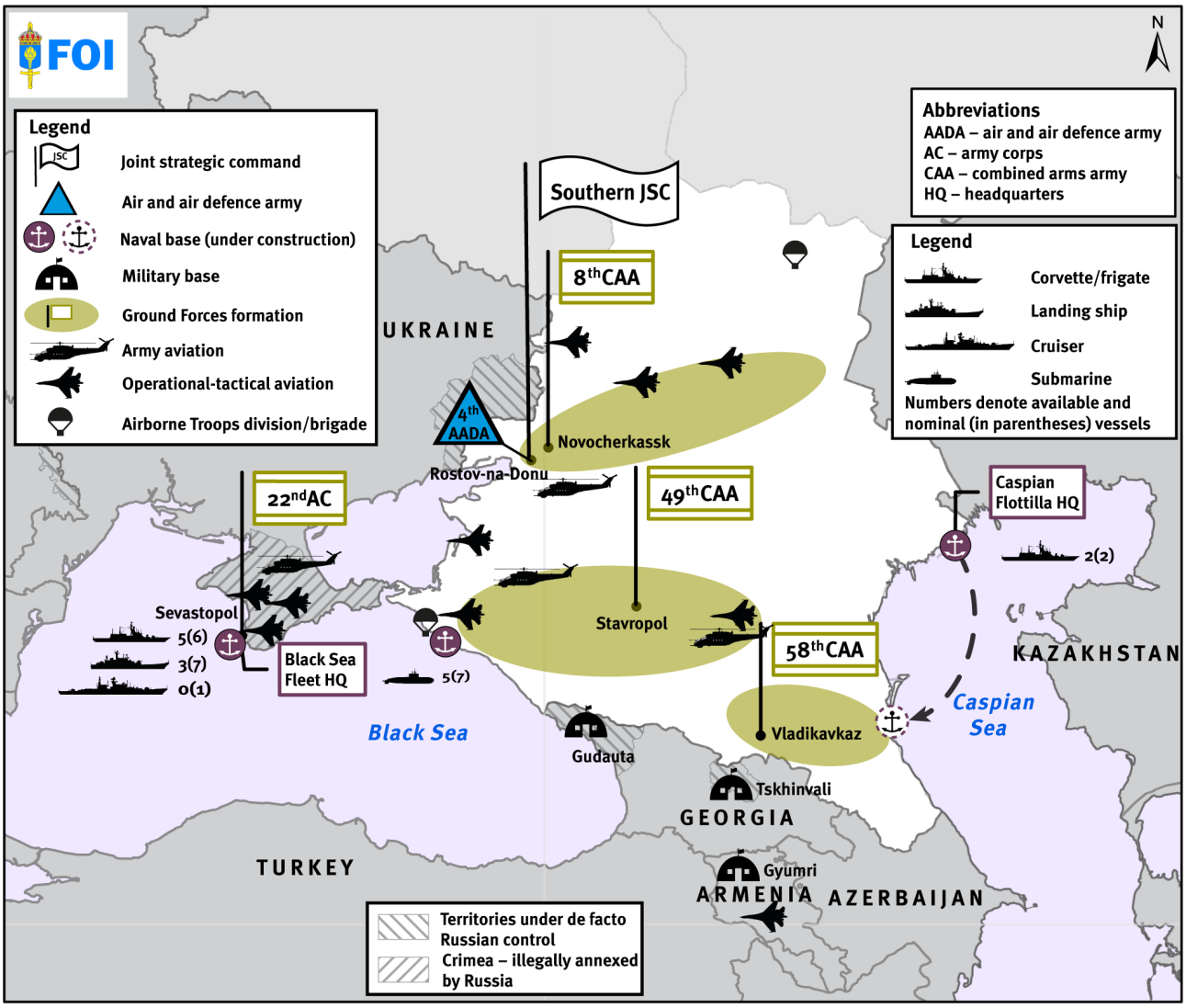
The Western MD has the densest air defence, which is concentrated around Moscow, St Petersburg, and Kaliningrad. This includes an ABM system that in combination with a large number of air defence units protects Moscow.

2.4.2 The Northern Fleet

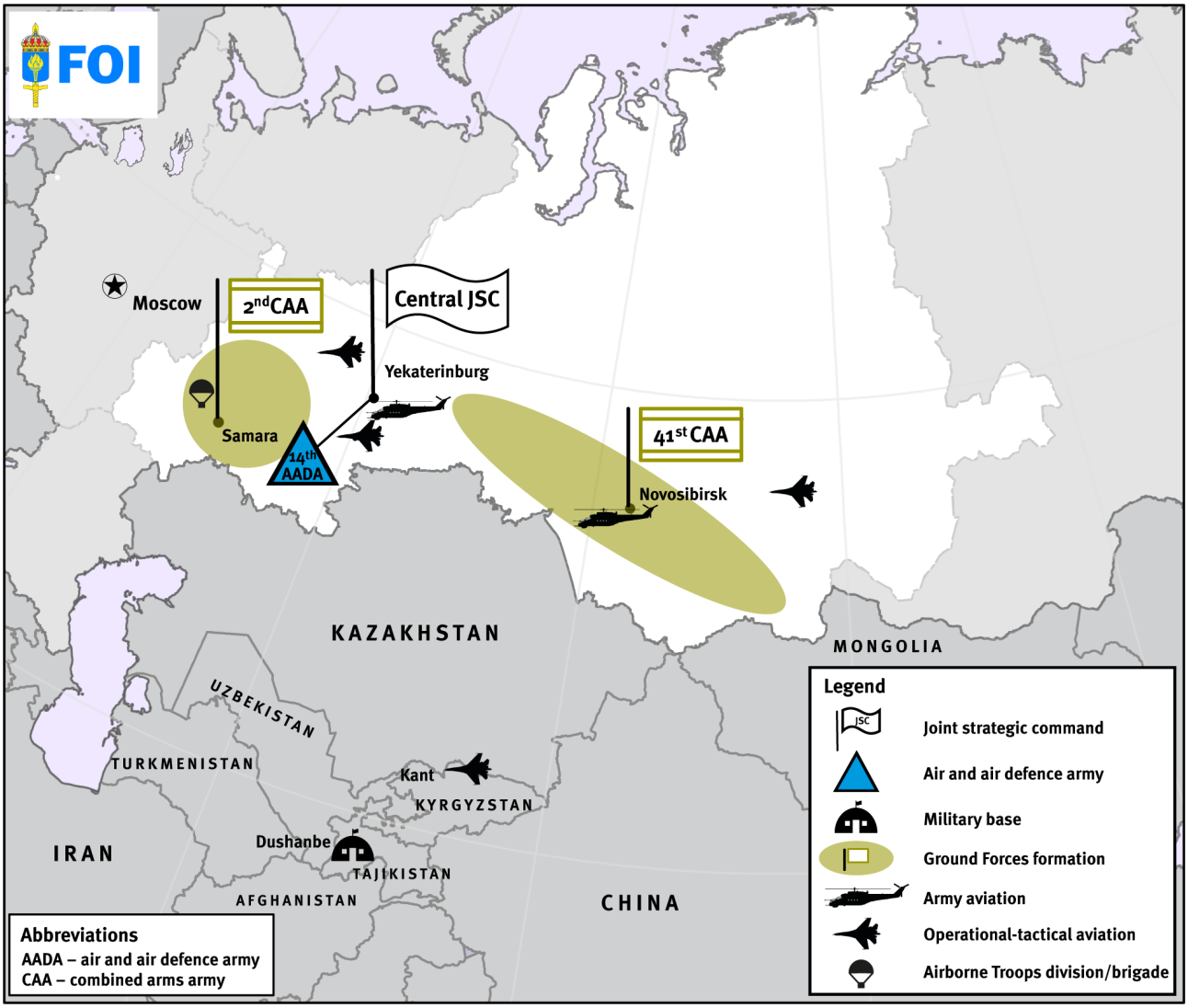
The main military force in the Arctic is the Northern Fleet, which became a fifth JSC in 2015. In 2019, media reported that the Northern Fleet would become a military district by the end of the year (Ramm *et al.* 2019a). As shown in Map 2.3, its garrisons are concentrated to the Kola Peninsula and the Archangelsk area, and include three major naval formations: the Kola Peninsula Flotilla, the White Sea naval base, and the Submarine Forces, together with a naval aviation AADA and an army corps.

The available land force in 2019 is comprised of 6 BTGs (4 000–5 000 men) and is mostly for territorial defence on the Kola Peninsula, but also operations in the greater Arctic region. The availability of naval forces was a mixed picture, with particularly low availability of first-rank surface combatants and submarines, barring the strategic submarines. Some 50 fixed-wing aircraft of Naval Aviation were available.

Forces from adjacent MDs regularly deploy to the Arctic. This includes annual deployments and exercises by the Airborne Troops, arctic patrols by interceptor aircraft from the Pacific Fleet and temporary deployments of strategic bombers to arctic airfields (*Vesti* 2018). Partly for this reason, the military infrastructure in the Arctic has in recent years expanded significantly, with new or upgraded airfields, radar stations, and military bases.



Map 2.4 Selected units of the Southern MD in 2019



Map 2.5 Selected units of the Central MD in 2019

2.4.3 The Southern MD

The Southern MD is the smallest in size but nevertheless contains some of the most capable formations: three CAAs; an AADA of three aviation divisions; and two naval formations – the Black Sea Fleet, with its two naval bases, and the Caspian Flotilla – in their respective seas.

In 2019, there were 34 BTGs (24 000–31 000 personnel) available in the Southern MD. This did not include whatever force might be generated from the Russian bases in Armenia, or bases in the occupied Georgian territories of South Ossetia and Abkhazia. With at least 190 fixed-wing and 210 rotary-wing aircraft, the Southern MD have by far the largest operational-tactical aviation assets in Russia, especially due to the large amount of attack and ground-attack capabilities.

With the illegal annexation of Crimea in 2014, the naval infrastructure disposed by the Black Sea Fleet improved considerably; it has received several new combat and auxiliary vessels. This has enabled the fleet to take a leading role in the Russian permanent presence in the Mediterranean Sea. Also, since 2016, a third CAA, close to the Ukrainian border, as well as an army corps on the Crimean Peninsula, have been formed. The Caspian Flotilla is also relocating its base 300 kilometres south, from Astrakhan to Kaspiisk, which provides quicker access to the central parts of the Caspian Sea.

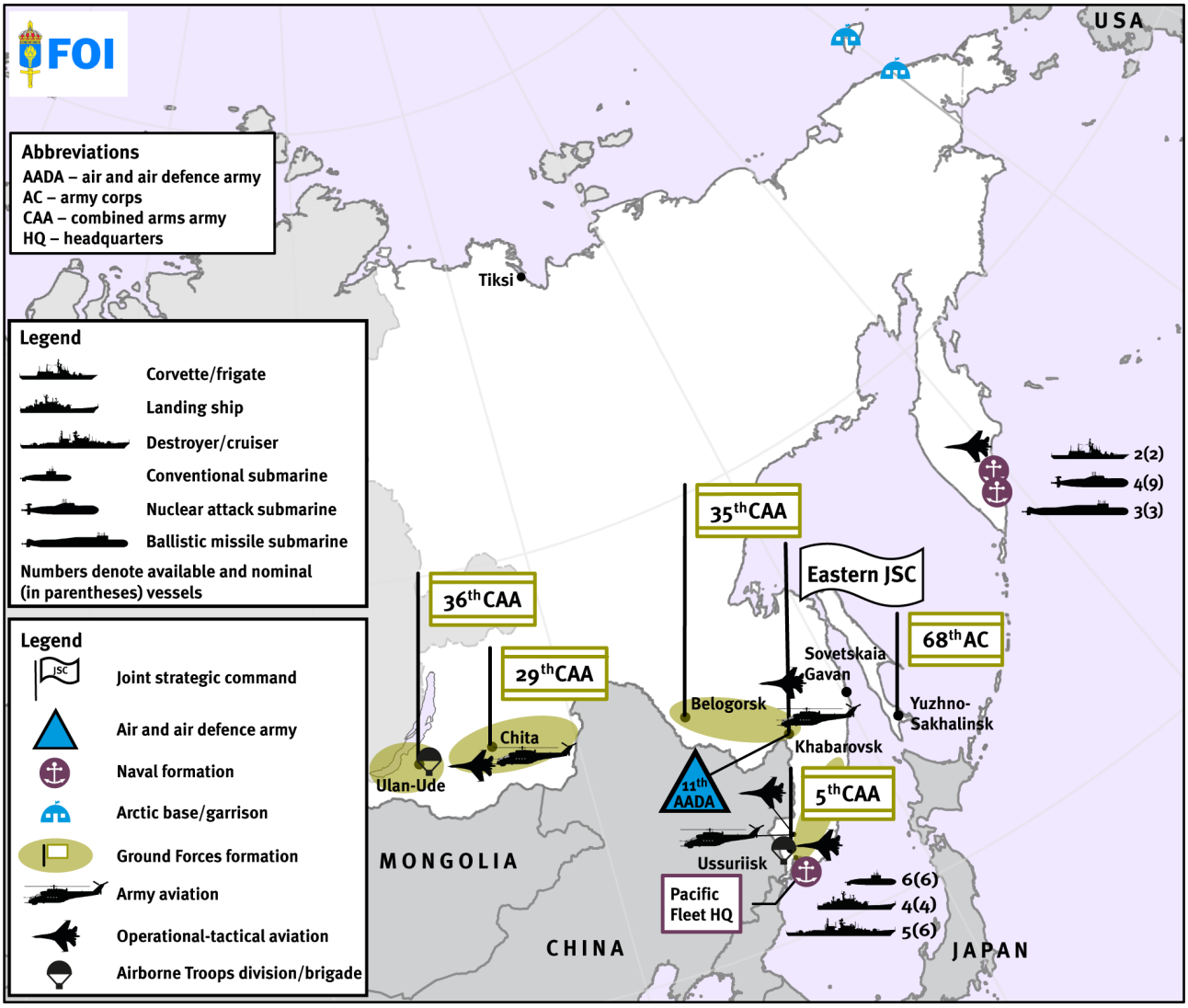
2.4.4 The Central MD

Surrounded by all other MDs and the Northern Fleet, the focus of the vast Central MD is primarily toward the Central Asian region. The shape of the far-reaching Central MD, including units of its two CAAs and AADA, is in stark contrast to that of other MDs, since it is stretched narrowly along the extensive Kazakh border, as shown in Map 2.5. However, Russia maintains a firm military posture in Central Asia due to the tank division directly subordinated to the MD, the large military base in Tajikistan, and a smaller air base in Kyrgyzstan. The forces of the Central MD regularly train with military forces from the Central Asian countries, often within the framework of the CSTO or the SCO.

In 2019, there were 20 BTGs (14 000–18 000 personnel) of land forces available in the Central MD, not including the available forces of the military base in Tajikistan. The air force of its AADA is also slightly different from other AADAs, as its air assets, due to its vast geography, are mainly composed of interceptors, rather than air superiority fighters. In 2019, the available air forces amounted to some 60 fixed-wing and 110 rotary-wing aircraft. Unlike the other JSCs, the Central MD lacks naval forces.

2.4.5 The Eastern MD

The ground forces of the Eastern MD is, along with much of the MDs aviation assets, as shown on Map 2.6 concentrated along the border with Mongolia, China and North Korea. Territorial defence of the



Map 2.6 Selected units of the Eastern MD in 2019

Sakhalin peninsula and the disputed Kuril Islands is provided by an army corps. The Pacific Fleet, divided between Kamchatka and Vladivostok, has a large area of responsibility, including not only parts of the Arctic and the Pacific Ocean, but also the Indian Ocean all the way to the Suez Canal.

In 2019, there were 32 BTGs (22 500–29 000 personnel) available in the Eastern MD. These were not evenly distributed among the CAAs, however, as the two easternmost CAAs had significantly more manoeuvre units. Available air forces amounted to 100 fixed-wing and 160 rotary-wing operational-tactical aircraft, and some 50 long-range bombers and maritime patrol aircrafts. The availability of larger naval vessels in the Pacific Fleet in 2019 was high, except for a low availability of nuclear attack submarines.

In recent years, more attention has been given to the north-east part of the MD. This is partly due to Russia's enhanced presence in the Arctic, of which the Eastern MD is responsible for the easternmost part, including arctic garrisons at Cape Schmidt and Wrangel Island. With a renewed inventory of ballistic missile submarines, Russia has been improving the military installations on the Kamchatka peninsula.

2.5 Russia's Armed Forces in a ten-year perspective

A dominant view from within the ranks of the Armed Forces as well as among outside observers is that the 2008 reform has put the Armed Forces back on track. A new makeover does not seem likely and the direction of development up to 2029 will most likely not deviate significantly from the 2008 reform. Instead, Russia is poised to consolidate the successes that the previous ten years have brought and incrementally improve military capabilities.

The emphasis on permanent readiness will probably remain, and force availability will continue to take precedence over scalable capabilities. Replacing conscripts with contract soldiers has been vital in this, but lately the recruitment of new contract soldiers has slowed. Retaining a mixed manning system will thus probably be a matter of necessity, not only to fill the ranks but also to sustain a limited amount of reservist territorial defence units.

Even if the equipment modernisation target of 70 per cent is met, the Armed Forces will enter the 2020s with almost a third of its inventory comprised of old, non-modernised equipment. Further modernisation will therefore continue to be central in coming years. Procurement efforts directed towards the rearmament of existing units will probably be prioritized over the creation of additional units. This mean that the Armed Forces will strive to shape more versatile and mobile units, with the capability to take on tasks of territorial defence as well as expeditionary operations.

The capacity to deliver a massive retaliatory nuclear strike will continue to be the foundation of Russia's military strategy. New innovative strategic nuclear systems are being developed. At the same time, the Russian leadership also gives a certain priority to the development of a credible non-nuclear deterrence capability, which is accomplished above all by a continued increase in the number of naval vessels armed with cruise missiles (see Chapter 4, Section 4.5.3).

The Armed Forces will probably continue taking steps to improve its ability to project military force in key locations abroad. The clearest example is the Mediterranean Sea, where the permanent naval task force and military bases in Syria will be the stepping stone for projecting military power in the greater Middle East and North African region.

2.6 Conclusions

In 2019, the forces available to Russia's Armed Forces included at least 90 000 land forces; some 520 fixed-wing and 650 rotary-wing operational-tactical aircraft, together with some 170 strategic aircraft of various types; 79 first- and second-rank vessels comprised of 41 surface combatants and 38 submarines, and another 118 naval vessels of lesser rank; and a total stand-off capacity of more than 1 300 missiles of various types.

While the Armed Forces have formations in all the JSCs, the most capable force is located in the western parts of Russia. The Western MD clearly contains by far the largest amount of ground forces as well as the densest air defence, while the adjacent

Southern MD has the most operational-tactical aviation assets and the Northern fleet has the most able naval forces.

In 2019, the development of land forces pulled in two directions. On the one hand, with large tactical formations being reintroduced along with a reservist system, measures were taken to increase capability to wage prolonged larger wars. On the other, there was a strong emphasis on having forces permanently available, and consisting of numerous small, mobile, and flexible tactical entities for rapid deployment.

The Russian Air Force has probably benefitted most from the experience in Syria, because it provided opportunities to develop air tactics and valuable combat experience to its pilots. Efforts to modernise the aircraft inventory and the surrounding infrastructure were successful in 2019, but the lack of pilots remained a significant bottleneck and lowered availability.

The state of the Naval Forces in 2019 was a mixed picture. Several new lead ships – surface combatants and submarines – had recently been commissioned, but the Navy still awaited deliveries of their series. Due to comprehensive modernisations and overhauls, the Naval Forces also suffered from a particularly low availability of large surface ship combatants and nuclear-propulsion attack submarines, but nevertheless enjoyed high availability of second-rank ships.

Towards 2029, the Armed Forces will most likely continue to improve gradually in key areas to maintain a territorial defence against high-tech opponents with air superiority, as well as to increase its capability to pursue and protect national interests abroad.

Appendices to Chapter 2

Appendices A2.1–6 Armed Forces – 2019 Order of Battle

This appendix consists of an Order of Battle for Russia's Armed Forces, as of September 2019. Included in the tables are strategic formations, including military districts and fleets; operational formations, such as flotillas, armies, and army corps; and tactical formations, such as ship *diviziias*, or motorized rifle divisions. In some cases, separate units at the tactical level are also included.

This Order of Battle relies on several Internet resources, including the *Milkavkaz.com*, *Bmpd.livejournal.com*, and *Navy-korabel.livejournal.com* blogs, and the *Russianships.info* homepage. When possible, this information has been further verified and updated with other sources in order to ensure reliability.

Exceptions and clarifications:

- Lower military entities such as units or subunits are omitted, with two exceptions: the large (first- and second-rank) surface combatants and submarines of the Naval Forces and the aviation regiments of aviation divisions. These are included due to their irregular composition. These entities are marked in italics.
- Only military units on permanent readiness are included. Military storage bases, exercise ranges, and military academies are all omitted. Logistics support entities are only included where they are embedded in combat or combat support formations. Units and vessels of the Hydrographic Service, the Railway Troops, and the Automotive Troops are omitted.
- The Russian Special Purpose formations (*SpetsNaz*) are here subordinated to the military districts, even though they also have affiliation to the military intelligence service, the GU. However, neither GU signal intelligence units, nor MoD intelligence centres, are included in the table.
- Units/vessels assessed as unavailable in September 2019 are placed within square brackets: [ ].

Abbreviations in tables:

a/c	aircraft
AADA	Air and air defence army
ABM	Anti-ballistic missile
AD	Air defence
ASW	Anti-submarine warfare
BA	Bomber Aviation
Bn	Battalion
Bde	Brigade
CA	Composite aviation
CAA	Combined arms army
CBR	Chemical, biological, and radiological
CTA	Composite transport aviation
Div	Division
Eng	Engineer
EW	Electronic warfare
FA	Fighter aviation
GAA	Ground attack aviation
GUGI	Main Directorate of Deep-Sea Research
HBA	Heavy bomber aviation
JSC	Joint strategic command
Log	Logistic
LRA	Long-range aviation
MAW	Missile attack warning
Maint-evac	Maintenance-evacuation
MR	Motorized rifle
MTA	Military transport aviation
NAA	Naval attack aviation
Prob	Probably
RA	Radar aviation (long-range)
Recce	Reconnaissance
Reg	Regiment
SAM	Surface-to-air missile
SSM	Surface-to-surface missile
Sqn	Squadron(s)

Table A2.1 Centrally subordinated units

Units	Comment
General Staff, Moscow	
1st Rifle Reg	
15th EW Bde	
1st Eng Bde	
45th Eng Reg	Formed in June 2017
28th Pontoon-bridge Eng Bde	
1st CBR Bde	
9th CBR Recce Reg	
100th Log Reg	
Aerospace Forces, Moscow	
555th Aviation Group	Hmeimim (Syria)
8th Aviation Div	
1st AD and ABM Army	
5th AD Div	2 reg S-400; 2 reg S-300
4th AD Div	3 reg S-400; 1 reg S-300
9th ABM Div	
15th Aerospace Forces Army	
820th MAW Centre	
821st Space Surveillance Centre	
153rd Space Control Centre	
1st State Test Cosmodrome	Plesetsk
LRA Command	
22nd HBA Div	
...th HBA Reg	2 sqn Tu-160, 16 A/C; 2 sqn Tu-95, 15 A/C
52nd HBA Reg	2 sqn Tu-22M3, 18 A/C
326th HBA Div	
...th HBA Reg	Prob 2 sqn Tu-95, 28 a/c
200th HBA Reg	2 sqn: Tu-22M, 25 a/c
40th CA Reg	No permanent basing of a/c
203rd Aerial Refuelling Reg	2 sqn Il-78, 18 a/c
MTA Command	
144th RA Reg	A-50/A-50U, 21 a/c
12th MTA Div	
334th MTA Reg	2 sqn Il-76, 18 a/c
566th MTA Reg	1 sqn An-124, 9 a/c
196th MTA Reg	2 sqn Il-76, 18 a/c
18th MTA Div	Formed 1 Dec 2017
117th MTA Reg	1 sqn Il-76, 9 a/c (1 sqn transferred to 235th reg)
708th MTA Reg	2 sqn Il-76, 18 a/c
235th MTA Reg	Formed 1 Dec 2017; 2 sqn Il-76, 18 a/c; An-124, 1 a/c
Strategic Missile Forces, Moscow	
27th Missile Army	**Vladimir**
7th Missile Div	
28th Missile Div	
54th Missile Div	
60th Missile Div	
14th Missile Div	
33rd Missile Army	**Omsk**
35th Missile Div	
39th Missile Div	
29th Missile Div	
62nd Missile Div	
31st Missile Army	**Orenburg**
13th Missile Div	
42nd Missile Div	
8th Missile Div	
Airborne Troops, Moscow	
7th Air-Assault Div	Mountain division
76th Air-Assault Div	
98th Airborne Div	
106th Airborne Div	
11th Air-Assault Bde	
31st Air-Assault Bde	
56th Air-Assault Bde	
83rd Air-Assault Bde	
45th Special Purpose Bde	
38th Signal Reg	
150th Maint-evac Bn	

Table A2.2 Western Military District

Units	Comment
Western JSC, St Petersburg	
Russian group of forces	In Moldova
2nd Special Purpose Bde	
16th Special Purpose Bde	
79th Rocket Artillery Bde	
45th Heavy Artillery Bde	
202nd SAM Bde	
27th CBR Defence Bde	
16th EW Bde	
1st Command Bde	
132nd Signal Bde	
96th Reconnaissance Bde	
1st Tank Army	**Bakovka**
27th MR Bde	
2nd MR Div	
4th Tank Div	

6th Tank Bde	
112th SSM Bde	
288th Artillery Bde	
49th SAM Bde	
… Eng Reg	Formed 1 Dec 2018
20th CBR Defence Reg	
69th Log Bde	
60th Command Bde	
6th CAA	**Agalatovo**
25th MR Bde	
138th MR Bde	
9th Artillery Bde	
26th SSM Bde	
5th SAM Bde	
30th Eng Reg	
6th CBR Defence Reg	
95th Command Bde	
51st Log Bde	
20th CAA	**Voronezh**
144th MR Div	
3rd MR Div	
448th SSM Bde	
236th Artillery Bde	Formed 1 Dec 2017
53rd SAM Bde	
9th Command Bde	
… Eng Reg	Formed in 2017 2017
…th Log Bde	Formed in 2017
6th AADA	**St Petersburg**
15th Army Aviation Bde	4 sqn, 84 a/c
549th Helicopter Reg	3 sqn, 66 a/c, formed 2016
… Helicopter Reg	3 sqn, 66 a/c, formed 2017
105th CA Div	
47th CA Reg	2 sqn Su-34, 24 a/c
4th Recce Squadron	1 sqn Su-24MR, 12 a/c
159th FA Reg	3 sqn Su-35S, 24 a/c; Su-27, 12 a/c
790th FA Reg	3 sqn MiG-31, 24 a/c; Su-35S, 12 a/c
14th FA Reg	2 sqn Su-30SM, 24 a/c
33rd CTA Reg	
2nd AD Div	4 reg S-400; 1 reg S-300
32nd AD Div	2 reg S-300
44th AD Div	2 reg S-400
Baltic Fleet, Kaliningrad	
132nd CA Div (Naval Aviation)	Formed in 2019
4th NAA Reg	2 sqn: Su-24, 12 a/c; Su-30SM, 12 a/c
689th FA Reg	1 sqn Su-27, 12 a/c
… *Helicopter Reg*	Formed in 2019
Leningrad Naval Base	**Kronstadt**
3rd Submarine Div	
B-806 Dmitrov	KILO class
105th Coastal Ship Bde	
Baltiisk Naval Base	**Baltiisk**
128th Surface Ship Bde	
[Nastoichivyi]	SOVREMENNYI class
[Neustrashimyi]	NEUSTRASHIMYI class
Iaroslavl Mudryi	NEUSTRASHIMYI class
Steregushchii	STEREGUSHCHII class
Soobrazitelnyi	STEREGUSHCHII class
Boikii	STEREGUSHCHII class
Stoikii	STEREGUSHCHII class
71st Landing Ship Bde	
Kaliningrad	ROPUCHA class
Aleksandr Shabalin	ROPUCHA class
Minsk	ROPUCHA class
Korolev	ROPUCHA class
64th Coastal Ship Bde	
72nd Intelligence Ship Div	
36th Missile Ship Bde	
336th Naval Infantry Bde	
25th Coastal Missile Bde	
69th Naval Eng Reg	
841st EW Centre	
561st Special Purpose Station	
11th Army Corps	**Kaliningrad**
7th MR Reg	
79th MR Bde	
11th Tank Reg	Prob formed in 2018
152nd SSM Bde	
244th Artillery Bde	
22nd SAM Reg	

Table A2.3 Northern Fleet

Units	Comment
Northern Fleet JSC, Severomorsk	
43rd Missile Ship Diviziia	
[Admiral Kuznetsov]	KUZNETSOV class
[Admiral Nakhimov]	KIROV class
Petr Velikii	KIROV class
Marshal Ustinov	SLAVA class
Admiral Ushakov	SOVREMENNYI class
Admiral Gorshkov	GORSHKOV class

518th Intelligence Ship Div	
61st Naval Infantry Bde	
63rd Naval Eng Reg	Formed in December 2018
99th Tactical Group	"Severnyi Klever", Kotelnyi Island
...th Tactical Group	"Arktichsekii Trilistnik", Franz Josef Land
Kola Flotilla of Combined Forces	**Poliarnyi**
14th ASW Ship Bde	
[Admiral Chabanenko]	UDALOY class
[Admiral Levchenko]	UDALOY class
Severomorsk	UDALOY class
Vitse-admiral Kulakov	UDALOY class
121st Landing Ship Bde	
Ivan Gren	IVAN GREN class
[Olenegorskii Gorniak]	ROPUCHA class
Georgii Pobedonosets	ROPUCHA class
Kondopoga	ROPUCHA class
Aleksandr Otrakovskii	ROPUCHA class
161st Submarine Bde	
[B-585 Sankt-Peterburg]	SANKT PETERBURG class
B-177 Lipetsk	KILO class
B-459 Vladikavkaz	KILO class
B-471 Magnitogorsk	KILO class
B-800 Kaluga	KILO class
[B-808 Iaroslav]	KILO class
7th Coastal Ship Bde	
536th Coastal Missile Bde	
186th EW Centre	
420th Special Purpose Station	
White Sea Naval Base	**Severodvinsk**
43rd Coastal Ship Bde	
Northern Fleet Submarine Forces	**Gadzhievo**
7th Submarine Diviziia	
B-336 Pskov	SIERRA II class
B-534 Nizhnyi Novgorod	SIERRA II class
[B-448 Tambov]	VICTOR III class
11th Submarine Diviziia	
K-560 Severodvinsk	SEVERODVINSK class
K-119 Voronezh	OSCAR II class
K-266 Orel	OSCAR II class
K-410 Smolensk	OSCAR II class
B-138 Obninsk	VICTOR III
18th Submarine Diviziia	
24th Submarine Diviziia	
[K-154 Tigr]	AKULA class
[K-157 Vepr]	AKULA class
[K-317 Pantera]	AKULA class
[K-328 Leopard]	AKULA class
K-335 Gepard	AKULA class
[K-461 Volk]	AKULA class
31st Submarine Diviziia	
K-535 Iurii Dolgorukii	DOLGORUKII class
K-18 Kareliia	DELTA IV class
K-51 Verkhoture	DELTA IV class
K-84 Ekatrinburg	DELTA IV class
K-114 Tula	DELTA IV class
[K-117 Briansk]	DELTA IV class
K-407 Novomoskovsk	DELTA IV class
29th Submarine Diviziia (GUGI)	Recently formed from bde
BS-136 Orenburg	DELTA III Stretch class
BS-64 Podmoskovie	DELTA IV Stretch class
14th Army Corps	**Murmansk**
80th MR Bde	Arctic brigade
200th MR Bde	
45th AADA	**Severomorsk**
98th CA Reg	2 sqn: Su-24M/MR, 12 a/c; MiG-31, 12 a/c
1st AD Div	1 reg S-300; 3 reg S-400
[3rd AD Div]	1 reg S-400; being formed in Tiksi in 2019
100th FA Reg (Shipborne)	2 sqn MiG-29K/KUB
279th FA Reg (Shipborne)	1 sqn Su-33
7050th Aviation Base	10 a/c Il-38; 11 a/c Tu-142

Table A2.4 Southern Military District

Units	Comment
Southern JSC, Rostov-na-Donu	
102nd Military Base	In Armenia
10th Special Purpose Bde	
22nd Special Purpose Bde	
346th Special Purpose Bde	
439th Rocket Artillery Bde	
77th SAM Bde	
11th Eng Bde	
28th CBR Defence Bde	
175th Command Bde	
176th Signal Bde	
19th EW Bde	
10th Maint-evac Reg	
100th Recce Bde	
1061st Log Centre	
8th CAA	**Novocherkassk**
20th MR Bde	
150th MR Div	

39th CBR Defence Reg	
[... SSM Bde]	To be formed in 2019
... SAM Bde	Formed in late 2016
... Eng Reg	Formed in 2018
49th CAA	**Stavropol**
205th MR Bde	
34th MR Bde	
7th Military Base	In Abkhazia
1st SSM Bde	
227th Artillery Bde	
90th SAM Bde	Formed in late 2016
25th Special Purpose Reg	
66th Command Bde	
99th Log Bde	
32nd Eng Reg	Formed in late 2016
58th CAA	**Vladikavkaz**
42nd MR Div	
19th MR Bde	
136th MR Bde	
4th Military Base	In South Ossetia
12th SSM Bde	
291st Artillery Bde	
67th SAM Bde	
40th CBR Defence Reg	
34th Command Bde	
78th Log Bde	
31st Eng Reg	
4th Air and AD Army	**Rostov-na-Donu**
55th Helicopter Reg	3 sqn, 66 a/c
16th Army Aviation Bde	4 sqn, 84 a/c
487th Helicopter Reg	3 sqn, 66 a/c
1st CA Div	
559th BA Reg	3 sqn Su-34, 36 a/c
368th GAA Reg	2 sqn Su-25, 24 a/c
31st FA Reg	2 sqn Su-30SM, 24 a/c
3rd CA Reg	2 sqn Su-27, 21 a/c
4th CA Div	
11th CA Reg	2 sqn Su-24MR, 12 a/c; Su-24M, 12 a/c
960th GAA Reg	2 sqn Su-25, 24 a/c
27th CA Div	
37th CA Reg	2 sqn Su-24, 12 a/c; Su-25, 12 a/c
38th FA Reg	2 sqn Su-27SM, 12 a/c; Su-27/30, 12 a/c
39th Helicopter Reg	Formed in 2014
30th CTA Reg	
3624th Air Base (Armenia)	1 sqn MiG-29, 12 a/c

51st AD Div	1 reg S-400; 1 reg S-300; 1 reg Buk-M2; 1 reg S-300V and Buk-M1
31st AD Div	2 reg S-400
The Black Sea Fleet, Sevastopol	
318th CA (Naval) Reg	
43rd Attack Aviation Reg	2 sqn Su-30SM, 12 a/c; Su-24M/MR, 12 a/c
Crimean Naval Base	**Sevastopol**
30th Surface Ship Bde	
[Moskva]	SLAVA class
Admiral Grigorovich	GRIGOROVICH class
Admiral Essen	GRIGOROVICH class
Admrial Makarov	GRIGOROVICH class
[Ladnyi]	KRIVAK class
Pytlivyi	KRIVAK class
Smetlivyi	KASHIN class
197th Landing Ship Bde	
[Novocherkassk]	ROPUCHA II class
Azov	ROPUCHA III class
[Iamal]	ROPUCHA II class
Tsesar Kunikov	ROPUCHA II class
Orsk	ALLIGATOR class
[Saratov]	ALLIGATOR class
[Nikolai Filchenkov]	ALLIGATOR class
68th Coastal Ship Bde	
41st Missile Ship Bde	
519th Intelligence Ship Div	
15th Coastal Missile Bde	
475th EW Centre	
388th Special Purpose Station	
Novorossiisk Naval Base	**Novorossiisk**
184th Coastal Ship Bde	
4th Submarine Bde	
B-261 Novorossiisk	KILO class
[B-237 Rostov-na-Donu]	KILO class
B-262 Staryi Oskol	KILO class
B-265 Krasnodar	KILO class
B-268 Velikii Novgorod	KILO class
B-271 Kolpino	KILO class
[B-871 Alrosa]	KILO class
97th Surface Ship Div	
810th Naval Infantry Bde	
68th Naval Eng Reg	
11th Coastal Missile Bde	
22th Army Corps	**Sevastopol**
126th Coastal Defence Bde	
8th Artillery Reg	

127th Reconnaissance Bde	
133rd Log Bde	
1096th SAM Reg	
4th CBR Defence Reg	
Caspian Sea Flotilla, Astrakhan	
106th Surface Ship Bde	
Tatarstan	GEPARD class
Dagestan	GEPARD class
73rd Coastal Ship Bde	
177th Naval Infantry Reg	Formed 1 Dec 2018

Table A2.5 Central Military District

Units	Comment
Central JSC, Yekaterinburg	
201st Military Base	In Tajikistan; brigade-size since 1 Dec 2016
90th Tank Div	Formed 1 Dec 2016
3rd Special Purpose Bde	
24th Special Purpose Bde	
232nd Rocket Artillery Bde	
28th SAM Bde	
29th CBR Defence Bde	
12th Eng Bde	
59th Command Bde	
179th Signal Bde	
18th EW Bde	
… Maint-evac Reg	Formed in Dec 2018
2th CAA	**Samara**
30th MR Bde	Formed 1 Dec 2016
15th MR Bde	
21st MR Bde	
92nd SSM Bde	
385th Artillery Bde	
950th Rocket Artillery Reg	
297th SAM Bde	
39th Eng Reg	Formed 1 Dec 2017
2nd CBR Defence Reg	
91st Command Bde	
105th Log Bde	
41st CAA	**Novosibirsk**
35th MR Bde	
55th MR Bde	Mountain brigade
74th MR Bde	
119th SSM Bde	
120th Artillery Bde	
61st SAM Bde	
24th Eng Reg	Formed in autumn 2018
10th CBR Defence Reg	
35th Command Bde	
106th Log Bde	
14th AADA	**Yekaterinburg**
17th Army Aviation Bde	4 sqn, 84 a/c, formed 2018
337th Helicopter Reg	3 sqn, 66 a/c, formed 2018
21st CA Div	
2nd CA Reg	2 sqn Su-34, 24 a/c
764th FA Reg	2 sqn MiG-31, 24 a/c
712th FA Reg	2 sqn MiG-31, 24 a/c
32nd CTA Reg	Previously 390th TA Reg
999th Air Base	In Kyrgyzstan; 1 sqn Su-25, 12 a/c
76th AD Div	1 reg S-400; 2 reg S-300
41st AD Div	1 reg S-400; 2 reg S-300; 1 bde S-300

Table A2.6 Eastern Military District

Units	Comment
Eastern JSC, Khabarovsk	
14th Special Purpose Bde	
338th Rocket Artillery Bde	
16th CBR Defence Bde	
104th Command Bde	
106th Signal Bde	
17th EW Bde	
14th Eng Bde	
5th CAA	**Ussuriisk**
70th MR Bde	
59th MR Bde	Reorganizes into 127th MR Div
57th MR Bde	
60th MR Bde	
20th SSM Bde	
305th Artillery Bde	
8th AD Missile Bde	
25th CBR Defence Reg	
80th Command Bde	
101th Log Bde	
35th CAA	**Belogorsk**
64th MR Bde	
69th MR Bde	Cover/protection brigade
38th MR Bde	
71st AD Missile Bde	
107th SSM Bde	
165th Artillery Bde	
35th CBR Defence Reg	

54th Command Bde	
103rd Log Bde	
36th CAA	**Ulan-Ude**
5th Tank Bde	
37th MR Bde	
30th Artillery Bde	
35th SAM Bde	Formed 1 Dec 2016
103rd SSM Bde	
26th CBR Defence Reg	
75th Command Bde	
102nd Log Bde	
29th CAA	**Chita**
36th MR Bde	
200th Artillery Bde	
3rd SSM Bde	Formed in 2016
140th SAM Bde	
19th CBR Defence Reg	
101st Command Bde	
104th Log Bde	
68th Army Corps	**Iuzhno-Sakhalinsk**
18th Machine-gun Artillery Div	Located on Kurile islands
39th MR Bde	
11th AADA	**Khabarovsk**
18th Army Aviation Bde	4 sqn, 84 a/c, formed 2016
112th Helicopter Reg	3 sqn, 66 a/c, formed 2017
319th Helicopter Reg	3 sqn, 66 a/c
120th CA Reg	2 sqn Su-30SM, 24 a/c
[266th GAA Reg]	Possibly being re-enacted
303rd CA Div	
277th BA Reg	2 sqn Su-34, 24 a/c
18th GAA Reg	2 sqn Su-25SM, 24 a/c
22nd FA Reg	3 sqn: MiG-31, 12 a/c; Su-27/30/35, 24 a/c
23nd FA Reg	2 sqn: Su-35, 24 a/c
93rd AD Div	2 reg S-400
25th AD Div	2 reg S-300; 1 reg S-300V
26th AD Div	1 reg S-300
Pacific Fleet, Vladivostok	
...th Arctic Tactical Group	Cape Shmidt
...th Arctic Tactical Group	"Poliarnaia Zvezda", Wrangel Island
Primorsk Flotilla	**Fokino**
36th Surface Ship Diviziia	
Variag	SLAVA class
Bystryi	SOVREMENNYI class
[Marshal Shaposhnikov]	UDALOY II class
Admiral Pantaleev	UDALOY II class
Admiral Tributs	UDALOY II class
Admiral Vinogradov	UDALOY II class
100th Landing Ship Bde	
Admiral Nevelskoi	ROPUCHA class
Osliabia	ROPUCHA II class
Peresvet	ROPUCHA III class
Nikolai Vilkov	ALLIGATOR class
165th Surface Ship Bde	
19th Submarine Bde	
B-187 Komsomolsk-na-Amur	KILO class
B-190 Krasnokamensk	KILO class
B-345 Mogocha	KILO class
B-394 Nurlat	KILO class
B-464 Ust-Kamchatsk	KILO class
B-494 Ust-Bolsheretsk	KILO class
515th Intelligence ship Div	
155th Naval Infantry Bde	
72nd Coastal Missile Reg	
474th EW Centre	
7062nd Naval Air Base	12 a/c Il-38; 11 a/c Tu-142
42nd Special Purpose Station	
North Eastern Group of Forces	**Petropavlovsk**
114th Coastal Ship Bde	
Sovershennyi	STEREGUSHCHII class
Gromkii	STEREGUSHCHII class
40th Naval Infantry Bde	
520th Coastal Missile Bde	
471st EW Centre	
7062nd Naval Air Base	
317th CA Reg	1 sqn MiG-31, 12 a/c
53rd AD Div	1 reg S-400
Submarine Command	**Viliuchinsk**
10th Submarine *Diviziia*	
[K-132 Irkutsk]	OSCAR II class
K-150 Tomsk	OSCAR II class
K-186 Omsk	OSCAR II class
[K-442 Cheliabinsk]	OSCAR II class
K-456 Tver	OSCAR II class
[K-295 Samara]	AKULA class
[K-331 Magadan]	AKULA class
[K-391 Bratsk]	AKULA class
K-419 Kuzbass	AKULA class
25th Submarine *Diviziia*	
K-550 Aleksandr Nevskii	DOLGORUKII class
K-551 Vladimir Monomakh	DOLGORUKII class
K-44 Riazan	DELTA III class

Appendices A2.7–11 Accounting rules for stand-off assets and nuclear warheads

Tables A2.7-A2.11 specify the assumptions and accounting rules for stand-off missiles and nuclear warheads that underlie the data in Table 2.11, and the estimate of nuclear warheads for short-range weapon systems in Section 2.3.

Missiles with an operational range of less than 300 km are not considered stand-off, regardless of the mobility of the firing platform. The reason is that such platforms must expose themselves to enemy weapon systems with a range of less than 300 km. Unless otherwise stated, nuclear warhead assignments are from Sutyagin (2012), and estimates of available platforms are from ROB as of September 2019 (see Tables A2.1–A2.6). Since exact technical assessments of operational ranges for missiles are not in focus here, data from Wikipedia has been deemed sufficient as rough estimates. Assigned nuclear warheads does not translate into actual warhead configurations; that depends on each individual mission.

Table A2.7 Systems with stand-off strike capacity against sea targets 2019

Platform	Missile	A	B	C	D	E	F	Authors' assumptions
Tu-22M3 (Backfire)	Kh-22 (AS-4 Kitchen)	600	3	1.5	1.5	30	a/c	50% of a/c available for sea targets (factored into assumed number of missiles), 1 NW/ALCM (Sutyagin 2012 assumes 34 NW/Regt)
OSCAR II	P-700 Granit (SS-N-19 Shipwreck)	625	24	24	4	6	SSGN	NW assignment from Sutyagin (2016)
SEVERODVINSK	P-800 Oniks (SS-N-26 Strobile) 3M54K Kalibr (SS-N-27 Sizzler)	600 660	32	16	8	1	SSGN	4 out of 8 missile silos assigned AShM, 4 AShM/silo, NW assignment from Sutyagin (2016)
KUZNETSOV	P-700 Granit (SS-N-19 Shipwreck)	625	12	12	3	0	CV	NW assignment from Sutyagin (2016)
KIROV	P-700 Granit (SS-N-19 Shipwreck)	625	20	20	3	1	CGN	
SLAVA	P-500 Bazalt (SS-N-12 Sandbox)	550	16	16	2	2	CG	
GORSHKOV	P-800 Oniks (SS-N-26 Strobile) 3M54T Kalibr (SS-N-27 Sizzler)	600 660	16	8	2	1	FFG	8 out of 16 missile silos assigned AShM, NW assignment from Sutyagin (2016)
GRIGOROVICH	P-800 Oniks (SS-N-26 Strobile) 3M54T Kalibr (SS-N-27 Sizzler)	600 660	8	4	2	3	FFG	4 out of 8 missile silos assigned AShM, NW assignment in line with Admiral Gorshkov
Shore-based AShM	K-300 P Bastion (SSC-5 Stooge)	350	16	16	2	12	Bn	2 Bn Bastion/CM Bde, 4 TEL/Bn, 2+2 AShM/TEL

Notes: Column A – operational range (km); B – maximum number of missiles per platform entity; C – assumed number of missiles per platform entity; D – NW assignment per platform entity; E – available number of platform entities; F – platform entity. a/c – aircraft; ALCM – air-launched cruise missile; AShM – anti-ship missile; Bde – brigade; Bn – battalion; CG – guided-missile cruiser; CGN – guided-missile cruiser, nuclear propulsion; CM – coastal missile; CV – aircraft carrier; FFG – guided-missile frigate; NW – nuclear warhead; Regt – regiment; SSGN – guided-missile submarine, nuclear propulsion; TEL – transporter-erector-launcher.

Table A2.8 Systems with stand-off strike capacity against land targets 2019

Platform	Missile	A	B	C	D	E	F	Authors' assumptions
Tu-160 (Blackjack)	Kh-55/101/102 (AS-15 Kent)	3000	12	3	3	11	a/c	25% of a/c available for non-strategic missions (factored into assumed number of missiles); 1 NW/ALCM
Tu-95 (Bear)	Kh-55/101/102 (AS-15 Kent)	3000	8	2	2	30	a/c	25% of a/c available for non-strategic missions (factored into assumed number of missiles); 1 NW/ALCM
Tu-22M3 (Backfire)	Kh-22 (AS-4 Kitchen)	600	3	1.5	1.5	30	a/c	50% of a/c available for land targets (factored into assumed number of missiles), 1 NW/ALCM (Sutyagin 2012 assumes 34 NW/Regt)
VICTOR III	S-10 Granat (SS-N-21 Sampson) 3M14K Kalibr (SS-N-30A)	3000 1650	16	4	4	1	SSGN	1 out of 4 tubes with LACM, 4 LACM/tube, 1 NW/LACM
SIERRA II	S-10 Granat (SS-N-21 Sampson) 3M14K Kalibr (SS-N-30A)	3000 1650	24	8	8	2	SSGN	2 out of 6 tubes with LACM, 4 LACM/tube, 1 NW/LACM
AKULA	S-10 Granat (SS-N-21 Sampson) 3M14K Kalibr (SS-N-30A)	3000 1650	16	8	8	2	SSGN	2 out of 4 tubes with LACM, 4 LACM/tube, 1 NW/LACM
SEVERODVINSK	3M14K Kalibr (SS-N-30A)	1650	40	20	20	1	SSGN	4 out of 8 missile silos assigned LACM, 5 LACM/silo, 1 NW/LACM (Sutyagin 2016 assumes 16 NW for LACM/SSGN)
KILO	3M14K Kalibr (SS-N-30A)	1650	4	4	4	5	SSG	4 out of 4 missile silos assigned LACM, 1 LACM/silo, 1 NW/LACM
GORSHKOV	3M14T Kalibr (SS-N-30A)	1650	16	8	8	1	FFG	8 out of 16 missile silos assigned LACM, 1 LACM/silo, 1 NW/LACM in line with similar vessels (Sutyagin 2016 assumes no NW for LACM)
GRIGOROVICH	3M14T Kalibr (SS-N-30A)	1650	8	4	4	3	FFG	4 out of 8 missile silos assigned LACM, 1 LACM/silo, NW assignment in line with Admiral Gorshkov
GEPARD	3M14T Kalibr (SS-N-30A)	1650	8	8	8	1	FFG	1 of 2 FFG with LACM, 8 out of 8 missile silos assigned LACM, 1 LACM/silo, 1 NW/LACM in line with similar vessels (Sutyagin 2016 assumes 8–12 NW for LACM)
GRAD SVIIAZHSK	3M14T Kalibr (SS-N-30A)	1650	8	8	8	7	CRG	2 in Baltic Fleet, 2 in Black Sea Fleet, and 3 in Caspian Flotilla; 8 out of 8 missile silos assigned LACM, 1 LACM/silo, 1 NW/LACM in line with similar vessels (Sutyagin 2016 assumes 8–12 NW for LACM)
URAGAN	3M14T Kalibr (SS-N-30A)	1650	8	8	8	2	CRG	2 in Baltic Fleet; 8 out of 8 missile silos assigned LACM, 1 LACM/silo, 1 NW/LACM in line with assumptions for Buyan-M
Iskander system	9K720 Iskander-M (SS-26 Stone)	500	16	16	8	33	Bn	12 Bde less 3 Bn rearmed with land-based Kalibr; 4 TEL/Bn, 2+2 SSM/TEL, NW assignment 8/Bn (Sutyagin 2016 assumes 8–12 NW/Bn)
Land-based Kalibr	9M729 Kalibr (SSC-8 Stone)	1650	16	16	8	3	Bn	3 SSM Bn rearmed from Iskander to land-based Kalibr – one each in 112. (Shuya), 12. (Mozdok), 119. (Kamyshlov) SSM Bde; 4 TEL/Bn, 2+2 LACM/TEL, NW assignment 8/Bn in line with assumption for Iskander

Notes: Column A – operational range (km); B – maximum number of missiles per platform entity; C – assumed number of missiles per platform entity; D – NW assignment per platform entity; E – available number of platform entities; F – platform entity. a/c – aircraft; ALCM – air-launched cruise missile; Bde – brigade; Bn – battalion; CRG – guided-missile corvette; FFG – guided-missile frigate; LACM – land-attack cruise missile; NW – nuclear warhead; Regt – regiment; SSG – guided-missile submarine; SSGN – guided-missile submarine, nuclear propulsion; TEL – transporter-erector-launcher.

Table A2.9 Systems with nuclear warheads assigned to short-range weapons against air targets 2019

Platform	Missile	A	B	C	Authors' assumptions
ABM system around Moscow	A-135M (ABM-3 Gazelle)	1	80	missile	Number of missiles from Sutyagin (2016)
S-300 (SA-10 Grumble, SA-20-Gargoyle) S-400 (SA-21 Growler)		-	-	-	No NW for these systems, neither on land nor on surface ships (Sutyagin 2012 assumes 0–1 NW/SAM Bn)

Notes: Column A – NW assignment per platform entity; B – available number of platform entities; C – platform entity. Bn – battalion; NW – nuclear warhead; SAM – surface-to-air missile.

Table A2.10 Systems with nuclear warheads assigned to short-range weapons against sea targets 2019

Platform	Weapon	A	B	C	Authors' assumptions
SSGN	ASW torpedos and missiles	2	12	SSGN	
Submarines (all other classes)	ASW torpedos and missiles	2	25	SS*	Including 9 SSBN
KUZNETSOV	ASW depth bombs	8	0	CV	
KIROV	RPK-2 Vyuga (SS-N-15 Starfish) ASW ASW depth bombs	2 2	1	CGN	
SLAVA	ASW depth bombs	2	2	CG	
SOVREMENNYI	P-270 Moskit (SS-N-22 Sunburn) AShM ASW depth bombs	1 2	2	DDG	
UDALOY	Metel (SS-N-14 Silex) ASW ASW depth bombs	1 2	2	DDG	
UDALOY II	P-270 Moskit (SS-N-22 Sunburn) AShM RPK-2 Vyuga (SS-N-15 Starfish) ASW ASW depth bombs	1 2 2	3	DDG	
KRIVAK II	Metel (SS-N-14 Silex) ASW	1	1	FFG	
KASHIN	Metel (SS-N-14 Silex) ASW	1	1	FFG	
NEUSTRASHIMYI	RPK-2 Vyuga (SS-N-15 Starfish) ASW ASW depth bombs	1 1	1	FFG	
GORSHKOV	3M54T Kalibr (SS-N-27 Sizzler) ASW ASW depth bombs	1 2	1	FFG	
GRIGOROVICH	3M54T Kalibr (SS-N-27 Sizzler) ASW ASW depth bombs	1 2	3	FFG	NW assignment for ASW in line with Admiral Gorshkov
GEPARD	3M24 Uran (SS-N-25 Switchblade) AShM ASW depth bombs	0.5 2	2	FFG	1 of 2 FFG with AShM and 1 NW/FFG for AShM
STEREGUSHII	ASW depth bombs	1	6	CR	
GRAD SVIIAZHSK	ASW depth bombs	2	7	CRG	
URAGAN	ASW depth bombs	2	2	CRG	Same assignment as for Buyan-M
DERGACH	P-270 Moskit (SS-N-22 Sunburn) AShM	1	2	CRG	
NANUCHKA	P-120 Malakit (SS-N-9 Siren) AShM	1	10	CRG	
Shore-based aviation	ASW depth bombs	24	3	Regt	Sutyagin assumes 1 ASW aviation Regt in each of NF, S MD, and E MD
Shore-based AShM	Kh-35 Bal (SSC-6 Sennight) AShM	2	6	Bn	1 Bn Bal/CM Bde

Notes: Column A – NW assignment per platform entity; B – available number of platform entities; C – platform entity. AShM – anti-ship missile; ASW – anti-submarine warfare; Bn – battalion; CG – guided-missile cruiser; CGN – guided-missile cruiser, nuclear propulsion; CM Bde – coastal missile brigade; CRG – guided-missile corvette; CV – aircraft carrier; DDG – guided-missile destroyer; E MD – Eastern Military District; FFG – guided-missile frigate; NF – Northern Fleet; NW – nuclear warhead; Regt – regiment; S MD – Southern Military District; SS* – submarine (all classes); SSBN – ballistic-missile submarine, nuclear propulsion; SSGN – guided-missile submarine, nuclear propulsion.

Table A2.11 Systems with nuclear warheads assigned to short-range weapons against land targets 2019

Platform	Weapon	A	B	C	Authors' assumptions
Su-24M (Fencer D)	Kh-58 (AS-11 Kilter), Kh-59 (AS-13 Kingbolt, AS-18 Kazoo) gravity bombs	0.75	32	a/c	24 a/c per Regt, NW in line with Sutyagin (2012), who assumes 18 NW/Regt; 50% of a/c assumed attack versions and the rest for reconnaissance
Su-34 (Fullback)	Kh-58 (AS-11 Kilter), Kh-59 (AS-13 Kingbolt, AS-18 Kazoo) gravity bombs	0.75	81	a/c	24 a/c per Regt, NW in line with Sutyagin (2012), who assumes 18 NW/Regt
2A36 Giatsint-B 152mm towed gun, 2S5 Giatsint-S (M1981) 152mm SP gun 2S7 Pion (m-1975) 203mm SP gun 2S4 Tyulpan (M-1975) 240mm SP gun		1	13	Bn	3 Bn in W MD, 10 Bn in E MD in line with Sutyagin (2012); 1 NW/Bn (Sutyagin 2012 assumes 0-2 NW/Bn)

Notes: Column A – NW assignment per platform entity; B – available number of platform entities; C – platform entity. a/c – aircraft; Bn – battalion; E MD – Eastern Military District; NW – nuclear warhead; Regt – regiment; SP – self-propelled; W MD – Western Military District.

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3. The fighting power of Russia's Armed Forces in 2019

Johan Norberg and Martin Goliath, with maps by Per Wikström[10]

Military power is a key expression of a state's national power, ultimately its armed forces' ability to wage combat operations (RAND 2000: 133, 158). Since 2008, Russia has carried out a determined defence transformation effort to increase its military power. Its launching of military operations in Georgia, Crimea, Donbas, and Syria has security implications for other countries. It is thus important to gauge how Russia's current and future military power may materialise.

According to a Russian definition,[11] military power materialises in two ways: through the fighting power of its armed forces and the military organization of the state (*Voenny Entsiklopedicheski Slovar* 2007: 134). While the former is the focus of this chapter, the latter is not subject to further analysis here. Fighting power, a force's ability to carry out assigned missions, stems, *inter alia*, from the quantity and quality of forces, their command and control, and combat readiness (*ibid*.: 87). To carry out a mission means the ability to launch warfighting operations.

This chapter aims to assess the fighting power of Russia's Armed Forces in 2019 and to explore how it may develop to 2029. The research question is: What is the Armed Forces' ability to launch war-fighting operations in 2019? The outline in Chapter 2 of Russia's available forces in 2019, and the Armed Forces' nominal organisation constitute the basis for the assessment. This, in turn, builds on the conceptual and practical foundations of Russian operations, and on how geography, force disposition, and reinforcements may affect Russian operations in different potential war theatres.

Assessing the likelihood of Russia carrying out different potential measures easily becomes speculative. Therefore, we focus only on what is most dangerous for other states: the maximum-level, most concentrated use of Russia's military power that is conceivable in each war theatre, given the forces available, the geography, and the possible adversaries.

An assessment of potential Russian military operations requires assumptions, delimitations, and estimates, since the operations are complex and open sources only provide a fraction of the information required. That Russia wants to prevail swiftly in a war is a key assumption here that entails two subsidiary assumptions. First, Russia will initiate military operations to increase the chance of success. Second, to reduce the risk of a protracted or escalated war, Russia will deliver a large initial strike to adapt the balance of forces in its favour. Thus, the emphasis of this chapter is on those offensive capabilities that in our assessment can be available to Russia in one month.

The assessment proceeds on the basis of three broad delimitations. First, its focus is on warfighting. This rules out analysis of: the use of military force to threaten or coerce other states; limited actions as proposed by the Russian Chief of the General Staff (Gerasimov 2019); operations other than war (such as anti-terror, peacekeeping, and counter-insurgency); and so-called hybrid warfare. Second, the assessment concerns the Armed Forces' ability to launch operations. Assessment of such matters as the effects of Russian measures and enemy countermeasures, or the outcome of a war, requires war-gaming, which was not part of the method used here. Third, since Russia is a military land power (Grau & Bartles 2018a), the geographical focus is Eurasia. Additional assumptions, delimitations, and estimates appear throughout the rest of the assessment.

To explain and illustrate fighting power in 2019, as well as the factors that will shape its development

[10] The authors have greatly benefitted from the advice of FOI technical experts Erik Berglund, Niklas Granholm, Martin Hagström, Andreas Hörnedal, Patrik Lundberg, Mats Nordin, and Niclas Stensbäck.

[11] Russian military terms reflect Russia´s unique preconditions and experience. Straightforward translations into English are not always possible. Conversely, applying English terms for Russian phenomena may be inadequate or even wrong. The way ahead has for us been to select and translate Russian terminology as a base for the notions used here.

in the coming decade, Section 3.1 explores fighting power in terms of the ability to launch operations and the role of force dispositions and geography. The ensuing sections show how the Armed Forces' fighting power materialises in different potential war theatres: Section 3.2 deals with Europe, 3.3 the Arctic, 3.4 Central Asia, and 3.5, Asia-Pacific. Section 3.6 offers conclusions about the Armed Forces' fighting power in 2019. The following section, 3.7, briefly discusses how Russian fighting power might evolve until 2029, while the final section, 3.8, offers some overall conclusions.

3.1 Fighting power in terms of operations

This section outlines, in terms of battles and stand-off strikes, our understanding of a Russian operation. It also discusses how Russia's force dispositions and geography may affect operations in potential war theatres. Finally, it also provides an overview of a Russian understanding of different military conflicts. This is then used to deliberate, in the ensuing sections, on the Armed Forces' fighting power in different war theatres.

In short, according to a Russian definition, an operation is a series of battles and strikes under one intent to carry out a mission at war theatre-level. Here, this means that the core is the battle delivered by a group of forces (GOF) under a joint strategic command (JSC). A GOF's organisation is not fixed, but tailored to each unique mission, depending on, for example, the mission, assessed enemy forces, and geography. A GOF's nucleus is comprised of large ground force formations with support from air and naval forces. Cruise and ballistic missiles deliver stand-off strikes that affect the wider war theatre beyond the battles area (*Voenny entsiklopedicheski slovar* 2007: 220, 497–8; Surovikin & Kuleshov 2017).

In FOI:s 2016 assessment of Russia's military capability in a ten-year perspective, our notion Joint Inter-Service Combat Operations, JISCO (Westerlund och Norberg 2016: 67-73) pertained both to an activity, the military operation, and to the forces carrying out the operation. Here, based on Russian notions, we distinguish the activity (battle, *srazhenie*) from the force (GOF, *gruppirovka voisk*). The JISCO notion is therefore not used in this report.

In our analysis, the noun "operation" pertains only to a Russian JSC in command of a GOF in offensive military actions at the war theatre-level in combination with stand-off strikes. The adjective "operational" pertains to the level and scope of military actions. A war theatre may consist of vast territories of a continent, with surrounding seas and the air and space above, where formations of armed forces deploy for strategic-level military actions (*Voenny entsiklopedicheski slovar* 2007: 717-8). "Combat actions" refers to what individual units, formations, or services do, and primarily to the tactical level.

3.1.1 Battles

A battle is the totality of combat actions and tactical-level strikes executed to achieve the objective of an operation. For Russia, battles often pertain to actions by large ground force combined-arms formations that are cooperating with air forces and, in coastal regions and along major rivers, with naval forces (*Voenny entsiklopedicheski slovar* 2007: 687). Here, the notion of "battles" implies both a force and an area. The force is an inter-service GOF in an operation tailored to carry out a strategic-level mission. The area is where Russia focuses its military effort on defeating a peer adversary's forces.

Battles imply high-intensity warfighting in areas of some 300 x 300 kilometres, depending on assigned mission, terrain, infrastructure and both Russia's and the adversary's force dispositions. That area corresponds broadly to Russian notions of operational depth (Grau & Bartles 2018b) and historical limits to the logistics of supplying large ground forces by road only (Van Creveld 1977: 143), and to Russian and Soviet notions of operations with several combined-arms armies, CAAs (*Voennaia entsiklopedia* 2002: 77–9; *Voenny entsiklopedicheski slovar* 1986: 515).

Table 3.1 Example of assessed components in a single Russian group of forces (GOF)

Services	Servicemen
Ground forces[a]	50 000–100 000
2–4 combined arms armies	
2–4 C3 support brigades	
6–12 manoeuvre brigade equivalents	
1–2 air assault divisions	
1–2 air assault brigades	
2–4 artillery brigades	
2–4 SSM brigades	
2–4 SAM brigades (short-/medium-range)	
1 SAM brigade (medium-/long-range)[b]	
2–4 engineer brigades	
2–4 logistics brigades	
Aerospace Forces[c]	15 000–30 000
up to 6 fighter/multi-role squadrons (80 aircraft)	
up to 4 fighter-bomber/attack squadrons (50 aircraft)	
up to 12 helicopter squadrons (40 helicopters)	
up to 3 light transport aircraft squadrons (30 aircraft)	
1 medium transport aircraft squadron (10 aircraft)	
Naval Forces	
1 naval infantry brigade	
Landing ships	
Naval task force from fleets in war theatre	
Total	65 000–130 000

Sources: Chapter 2; IISS (2019: 202) for light/medium transport aircraft.

Notes: C3 – command, control, and communications. SAM – surface-to-air missile. SSM – surface-to-surface missile. a) Around 50 per cent of the ground forces' servicemen are in manoeuvre formations and units, the rest in support functions; b) SAM brigades with S-300V exist only in the Western, Southern, and Central MDs; c) a squadron is here standardised to 12 aircraft/helicopters. In reality, figures vary. Airborne/air assault actions require additional heavy transport aircraft. Helicopters include both transport and attack platforms.

We assume that a GOF's main function is to defeat enemy forces. The area involved is smaller if the forces are operating beyond Russian-gauge railways and larger when along them. The maps in this chapter depict squares, 300-kilometres to a side, denoting the battle area of a Russian GOF and, in brackets, the assessed number of CAAs.[12] A GOF is offensive. A defensive force, which consists of only one CAA or army corps and shown on the maps as a square labelled "DF", has a much more limited offensive capability. Regarding forces for battle, Table 3.1 outlines an example of a possible GOF.

A JSC is probably the key command and control function for offensive operations with several CAAs in a GOF. JSC field headquarters are the mobile command and control assets that can deploy with reinforcements into a prioritised war theatre. The CAA is the key component for command and control of ground forces in offensive actions and probably a node for coordination of tactical ground-, naval-, and air forces.[13] The core of a GOF is 2–4 CAAs, since more could pose a coordination challenge for a JSC.[14] Naval forces from the nearest fleet support ground forces through sea denial actions, preventing enemy forces from using sea areas for their own purposes, or sea control, ensuring use of sea areas for their own purposes (based on Speller 2014: 96, 98). The nearest Air Force and Air Defence Army forces provide support with air defence, and direct fire support for actions by ground forces. Here, air forces presumably focus on supporting in the GOF area, but may also strike beyond it.

3.1.2 Stand-off strikes

A strike is the short and simultaneous destruction of enemy forces, or of land, sea, or air objects, through the powerful impact of weapons or attacking forces. It can include the use of land-, air-, or sea-based missiles, with conventional, or nuclear, warheads (*Voenny entsiklopedicheski slovar*

[12] Here, the Western MD's 1st Tank Army counts as a CAA.

[13] Russia's four army corps could possibly do the same, but their isolated locations, the Kola Peninsula, Kaliningrad, Crimea, and Sakhalin presumably indicate mainly defensive tasks.

[14] The *Vostok*-2018 exercise saw the Eastern and Central Military Districts, presumably their JSC mobile field headquarters, commanding three and two CAAs respectively (Kofman 2018). Historically, Soviet *fronts*, the then level above CAA, ideally commanded 3–5 CAAs (DoD 1988: 71).

2007: 743).[15] Here, the notion of "strikes" pertains only to the effects of precision stand-off weapons against sea and land targets of operational-strategic- and operational-level importance outside the battles area. The range of such operational-level stand-off strikes, beyond 300 kilometres, reduces exposure of Russian launchers to direct enemy measures.

For simplicity, missile warheads here come in two types: 500-kilogram conventional and 100-kiloton nuclear. Soft and small targets, such as radars, require a few conventional warheads. Hard or big targets, underground bunkers, and air and naval bases require many conventional warheads or fewer nuclear. To avoid speculation about what would trigger use of nuclear warheads, the assumption is that Russia uses the warheads for maximum military effect in the operation. Once a war has begun, the point is to win, or at least to avoid defeat.

The focus here is on the effect of missiles, i.e. what they can destroy. The assessments builds on their range, precision and the effect of their warheads (Goliath *et al.* 2017: 15), as well as on a Russian ambition that strikes at operational-level targets should generate a reduction in enemy forces' combat potential (Johnson 2018: 53–54). In reality, a concentration of stand-off strikes in time and space is likely for maximum operational effect, but such elaborations are not part of this analysis.

An entire war theatre arguably has several thousand potential targets for enemy command and control, air and missile defence, reception, staging, and onward movement of follow-on forces, such as command installations, air force bases and command posts, air and sea radars, and major seaports. Altering the balance of forces with a peer enemy in a regional war probably requires several thousand conventional-warhead land-attack missiles (LAM). During the 2003 Iraq War, the coalition led by the United States (US) launched 800 LAMs (Stezano 2017).

Russia presumably prioritises reducing the enemy's ability to prevent a swift and successful Russian operation. Prevailing in war is hard if the enemy dominates the air. Here, Russian stand-off strikes against land targets therefore include enemy air power infrastructure, such as airbases and radars. Five assumptions underpin the assessed effects. First, land targets are fixed. Second, destruction of an airbase assessed as average, with some 20 aircraft, half in hardened hangars, requires 35 conventional or five nuclear warheads (based on Goliath *et al.* 2017; Lindstedt & Thorén 2015). Third, the assured destruction of a radar requires two conventional warheads. Fourth, enemy countermeasures have little effect. Finally, Russian targeting is adequate.

The emphasis is on Russian stand-off strikes at enemy air power, but sea targets are also mentioned in certain cases. They are presumably, enemy aircraft carrier groups and naval task forces, such as amphibious forces. Table 3.2 is our estimate of Russia's ability to concentrate stand-off strike assets

Table 3.2 Estimate of available missiles for stand-off strikes in assessed war theatres in 2019

War theatre	Total number of missiles	Those armed with nuclear warheads
Europe		
Sea targets	300	100
Land targets	650	500
Arctic		
Sea targets	200	100
Land targets	300	250
Central Asia		
Sea targets	–	–
Land targets	500	400
Asia-Pacific		
Sea targets	200	50
Land targets	350	250

Source: Authors' calculations based on Tables 2.11, A2.7, A2.8, and A3.1.

Notes: In this table, reinforcements between Military Districts (MDs) have been assumed, which gives higher numbers than in Table 2.11 for each MD. Figures have been rounded off to the nearest 50 and denote the assessed maximum available missiles in one war theatre at a time. Based on the sources for this table, figures given for each potential war theatre may vary slightly. The number of nuclear warheads is the estimated maximum number.

[15] We omit strategic nuclear weapons. Russia presumably uses intercontinental ballistic missiles according to their unique capability to reach beyond Eurasian war theatres.

in one potential war theatre at a time. Assessed targets appear in the tables or text.

Three systems of LAMs are in focus here. First, the sea-based *Kalibr* cruise missiles and, second, the land-based ballistic surface-to-surface missile *Iskander,* presumably carry conventional or nuclear warheads. The shares of nuclear warheads vary, since estimates here build on assumed standard assignments of nuclear warheads for each launch platform type. The third system is air-launced cruise missiles, with the assumption that a quarter of Russia's Tu-95 and Tu-160 bombers contribute some 100 LAMs for operations in Eurasia (see Table 2.11). Tu-22M3 bombers presumably focus on operations in Eurasia and can strike at both sea and land targets.

In sum, here a Russian operation is offensive in nature and consists of one or more GOFs, each fighting in an area of combat actions roughly 300 x 300 kilometres in size and supported by stand-off strikes primarily to reduce the enemy's ability to launch air actions that can delay the operation.

3.1.3 Force dispositions and reinforcements

Russian force dispositions here rest on four estimates. First, the forces Russia has available to launch an operation are those from the nearest military district (MD) plus reinforcements from other MDs. Russia's annual strategic exercises regularly include redeployments across Russia (Norberg 2018), mainly by rail. Second, exercises indicate that after a political decision it takes about one month to assemble forces for an offensive operation west of the Urals (ibid.), and probably up to two months, to their east. Around half of the forces are possibly available even sooner, since, as noted in Section 2.2.1, high-readiness Battalion Tactical Groups make up a large share of the ground forces manoeuvre units. Air force reinforcements from elsewhere in Russia probably arrive within a week.

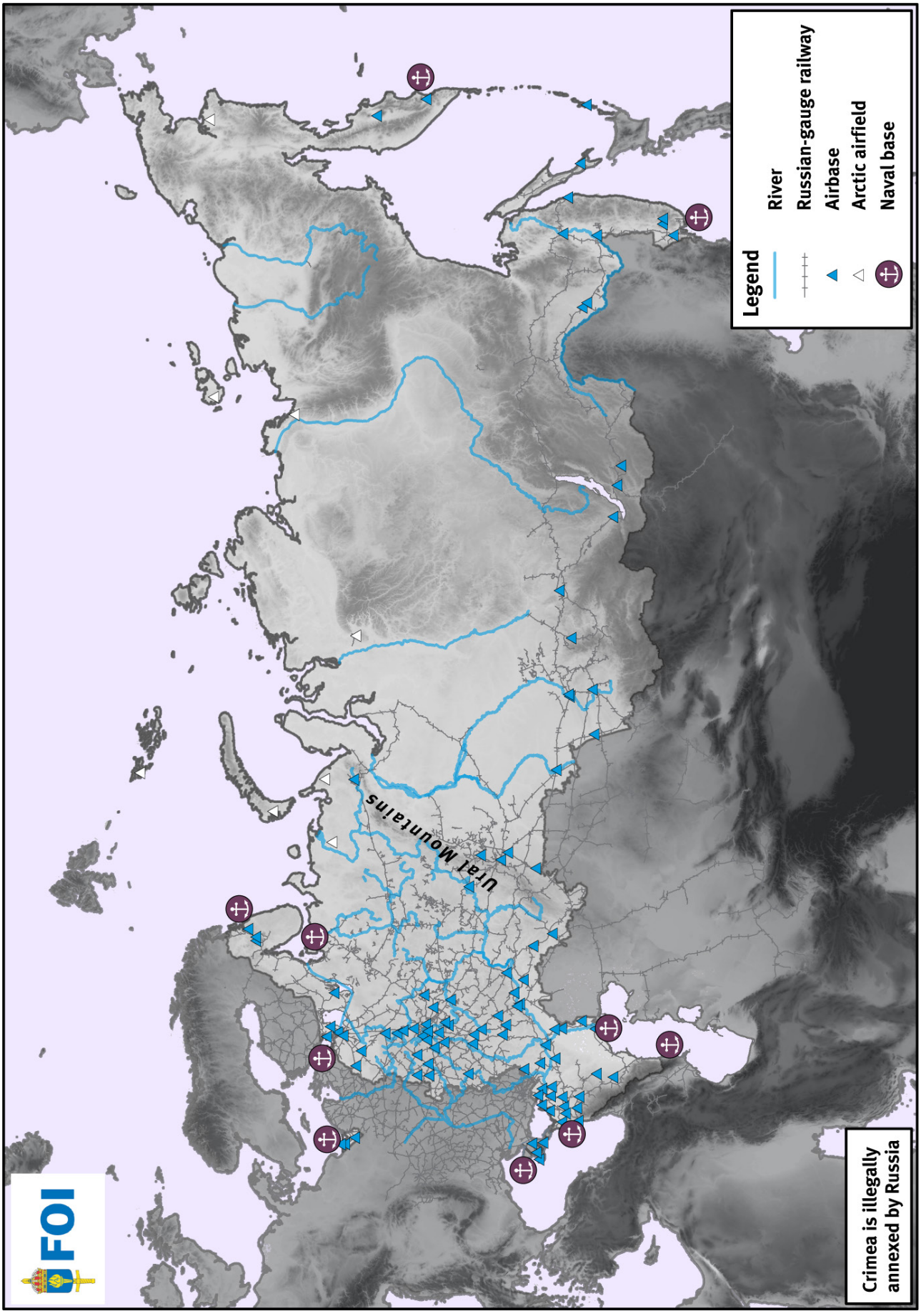
Third, we estimate that naval forces remain in their respective war theatres. Fourth, all ground and air forces with command and control assets are available for redeployment across Russia, with three exceptions, where they remain in place: military bases abroad, army corps in remote parts of Russia, and minimal joint defensive forces, with one CAA plus some air forces support remaining in each war theatre except the Arctic. All formations are presumably equal in their capabilities, despite differences, such as between the 29th CAA, which has one manoeuvre brigade, and the 5th CAA, which has four (see Table A2.6).

3.1.4 Geography

The key geographic factor affecting operations is Russia's vast territory, 9 000 kilometres from west to east, a huge challenge when concentrating forces in time and space. This analysis considers two geographic factors: infrastructure that enables Russia to launch operations and terrain that impedes them. Presumably, Russia can use all the infrastructure it needs to launch operations, which in reality may not be the case abroad. Tactical level features, such as bridges, swamps, and dense forests, are outside this analysis.

Map 3.1 shows some geographic preconditions for operations. There are two types of enabling infrastructure. The first type is Russian-gauge railways across the former Soviet Union and tsarist Russia as well as Mongolia, which are crucial for moving ground forces. West of the Urals, the railways have a dense web-like structure, while further east they decrease down to two main east–west railway lines, in Russia's Asia-Pacific region. The second type is bases for air and naval forces. Russia's Aerospace Forces mainly have to rely on bases in Russia, which means their effect arguably decreases with increasing distance from Russia. Larger navy vessels can operate away from main bases for longer periods than smaller vessels can.

Two main terrain features impede operations: mountain ranges and seas. Mountain terrain limits road and rail transports, as well as the off-road mobility of ground forces, which are slowed or even stopped in their advance. Mountains also affect radar coverage of the air space "on the other side". This limits air combat actions unless airborne radars are available. Large distances across seas have



MAP 3.1 Preconditions for Russian military operations in 2019

Table 3.3 Military conflicts and assessment of corresponding operations, formations, and units

Military conflict	Level of operations	Minimum required forces (examples)
Large-scale war	Strategic	All of Russia's Armed Forces plus reserves
Regional war	Operational-strategic	Military Districts/joint strategic commands Several combined-arms armies Navy fleets Several air and air defence armies
Local war	Operational	One combined-arms army or one army corps Navy flotilla, Air regiments/divisions
Armed conflict	Operational-tactical	Ground forces division or brigade Several navy vessels Air squadrons

Source: based on Norberg (2018: 17).

a similar effect due to the earth's curvature. Finally, to state the obvious, seas halt ground forces.

3.1.5 Military conflicts and potential Russian operations

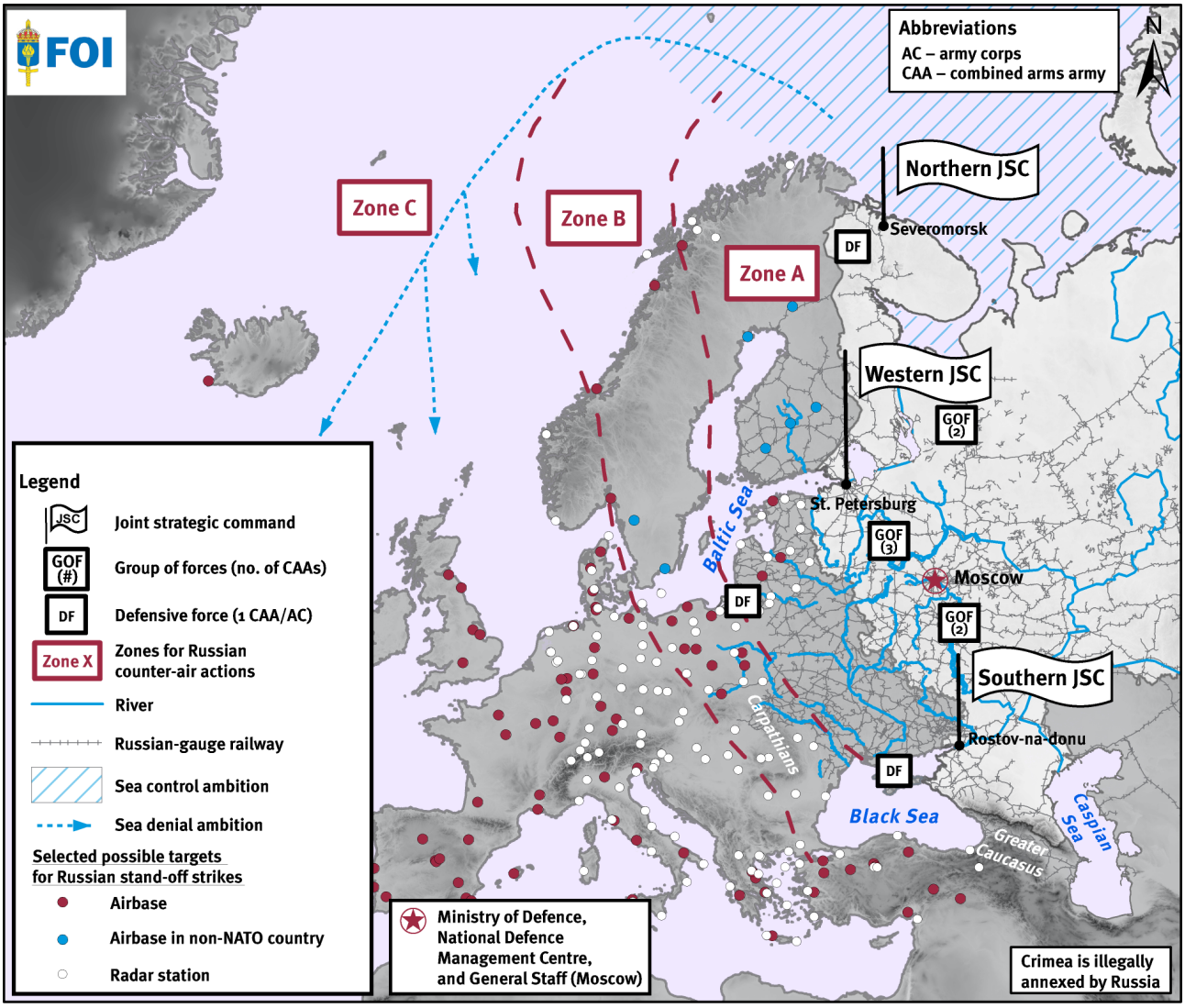
For the Armed Forces, different levels of military conflict imply operations of different scale and scope. Based on the categorisation in the 2014 Military Doctrine, of four types of military conflict (Military Doctrine 2014), Table 3.3 outlines different military conflicts and our interpretation of ensuing Russian operations and minimum required forces according to rough orders of magnitude. Our interpretations in table 3.3 do not aspire to say anything about security policy implications of different types of military conflict. Any deployment of Russian forces abroad can arguably have strategic implications.

In this table, an armed conflict, between or within states, and on a limited scale, such as the wars in Chechnya in the 1990s, implies an operation at the operational-tactical level. A local war, along borders between states with political aims concerning only those states, e.g. Russia's war against Georgia in 2008, suggests an operational-level operation. Third, a regional war, where several states fight in one region of the world, with national or coalition forces, about important military-political aims – hypothetically, a war between Russia and several states or coalitions in Europe or Asia – indicates an operation of at least operational-strategic level. Finally, a large-scale war, between coalitions of states or great powers, about radical military-political aims, where participating states mobilise all material and moral resources, would comprise at least one strategic-level operation (Military Doctrine 2014).

In the following four sections, we use the Russian notions of military conflicts of different scale and scope outlined above to illustrate fighting power. This means the Armed Forces' ability to launch operations in one potential war theatre at a time, based on its specific preconditions, available Russian forces, possible adversaries, i.e. those in or near each war theatre, and geography. No specific Russian sources known to the authors verify our interpretations of the possible war theatres, force sizes and locations, or potential enemies, proposed here.

3.2 The European war theatre

Russia's potential enemy in the European war theatre, namely, Russia west of the Ural Mountains and adjacent regions from the Caspian to the Barents Seas, is the North Atlantic Treaty Organisation (NATO), including the US. Europe and the Arctic are arguably one war theatre; Section 3.3 deals with the latter.



Map 3.2 Assessment of the fighting power of Russia's Armed Forces in the European war theatre in 2019

The European war theatre has very favourable preconditions for Russian operations. Map 3.2 shows the rivers and Russian-gauge railways in western Russia, Finland, the Baltic States, Belarus, and Ukraine. Their web-like structure provides plenty of capacity and options for force transports. These areas are also largely within range of air and naval units based in Russia. Further west, across Poland and Germany, the terrain is fairly benign for ground forces, but limited to the south by the Carpathian Mountains.

In Russia's south-west, infrastructure that favours large ground forces ends north of the Black and Caspian Seas and the Caucasus Mountains (Hedenskog *et al.* 2018: 52–55). Russia can project naval and air power around the Black Sea but would probably have difficulties deploying a GOF beyond its own territory and illegally-occupied Crimea. Russia's three military bases abroad are potential assets for crisis management in armed conflicts and local wars as well as warfighting in a potential regional war in the South Caucasus.

About three quarters of Russia's air and naval bases as well some 60 per cent of ground forces formations and JSCs are west of the Urals. As seen on Map 3.2, the ground force core for battles in the European war theatre consists of up to seven CAAs in three GOFs. Each GOF consists of 2–3 CAAs and is commanded by one of the JSCs west of the Urals. GOFs deploy mainly along Russian-gauge railways, with support from sea denial actions by the Baltic or Black Sea Fleets, mainly in coastal areas. Section 3.3 outlines Northern Fleet actions. Army corps in the Kola Peninsula, Kaliningrad,

and illegally-occupied Crimea remain as defensive forces, with limited air and naval support.

Table 3.2 outlines assessed missiles for possible Russian stand-off strikes. Table 3.4 categorises selected targets related to air power in Europe,[16] such as radar stations and airbases and the number of either conventional or nuclear warheads required to destroy them. Map 3.2 illustrates enemy airbases and radars in three 500-kilometre-wide zones.[17] The closer to Russia, the more sorties per day per aircraft against Russia are possible: presumably three in zone A, two in zone B, and one in zone C. Russia probably has 650 missiles for ground targets for initial strikes. With conventional warheads, Russia can probably stop air force actions in zone A, or hamper them in zone B, but only partly affect them in zone C. Russia would probably need nuclear warheads to reduce NATO air power significantly across all of Europe, not to mention to destroy other target types, such as command and control installations, railways and naval bases, with stand-off strikes.

Table 3.4 Assessment of required Russian stand-off strikes for air power-related land targets in the European war theatre in 2019

	Required missiles	
	Conventional warheads only	Conventional warheads for radars, nuclear for airbases
Zone A		
10 radars	20	20
10 airbases	350	50
Total missiles	**370**	**70**
Zone B		
30 radars	60	60
25 airbases	875	125
Total missiles	**935**	**185**
Zone C		
80 radars	160	160
55 airbases	1925	275
Total missiles	**2085**	**435**
All zones		
120 radars	240	240
90 airbases	3 150	450
Total missiles	**3 390**	**690**

Sources: Authors' calculations based on Lindstedt & Thorén (2015); NATO (2015); Goliath *et al.* (2017); Pallin (2018); and Appendix A3.2.

Note: Zones A–C with targets appear on Map 3.2. Figures have been rounded off to the nearest five.

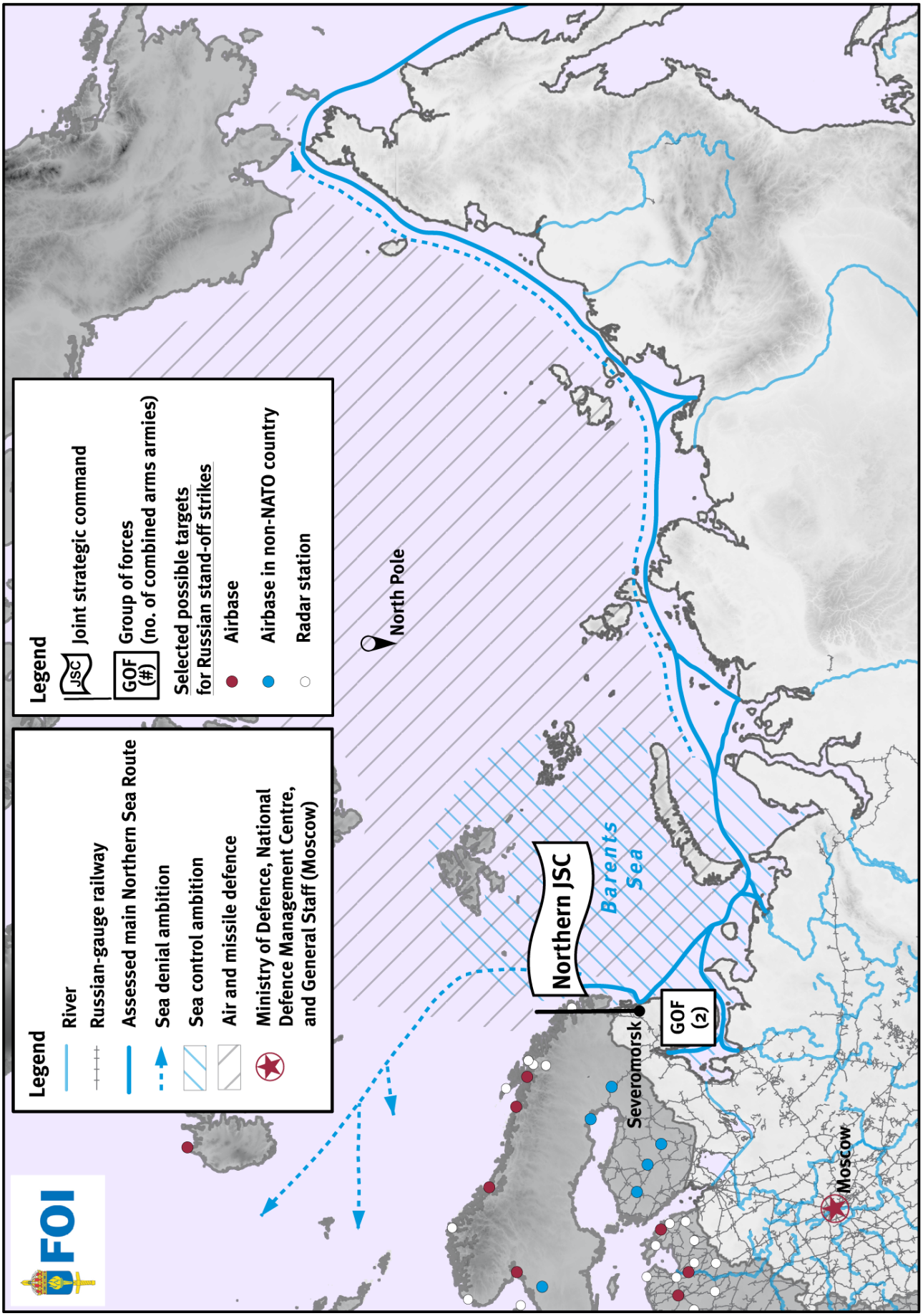
To conclude, we assess that the available forces for battles, and stand-off strike assets, bases, and transport infrastructure make the European war theatre well suited for launching Russian offensive operations in a regional war with NATO, with up to three GOFs in one month. Russian conventional warhead stand-off strikes would probably not be enough to affect a peer adversary decisively. That would require nuclear warheads.

3.3 The Arctic war theatre

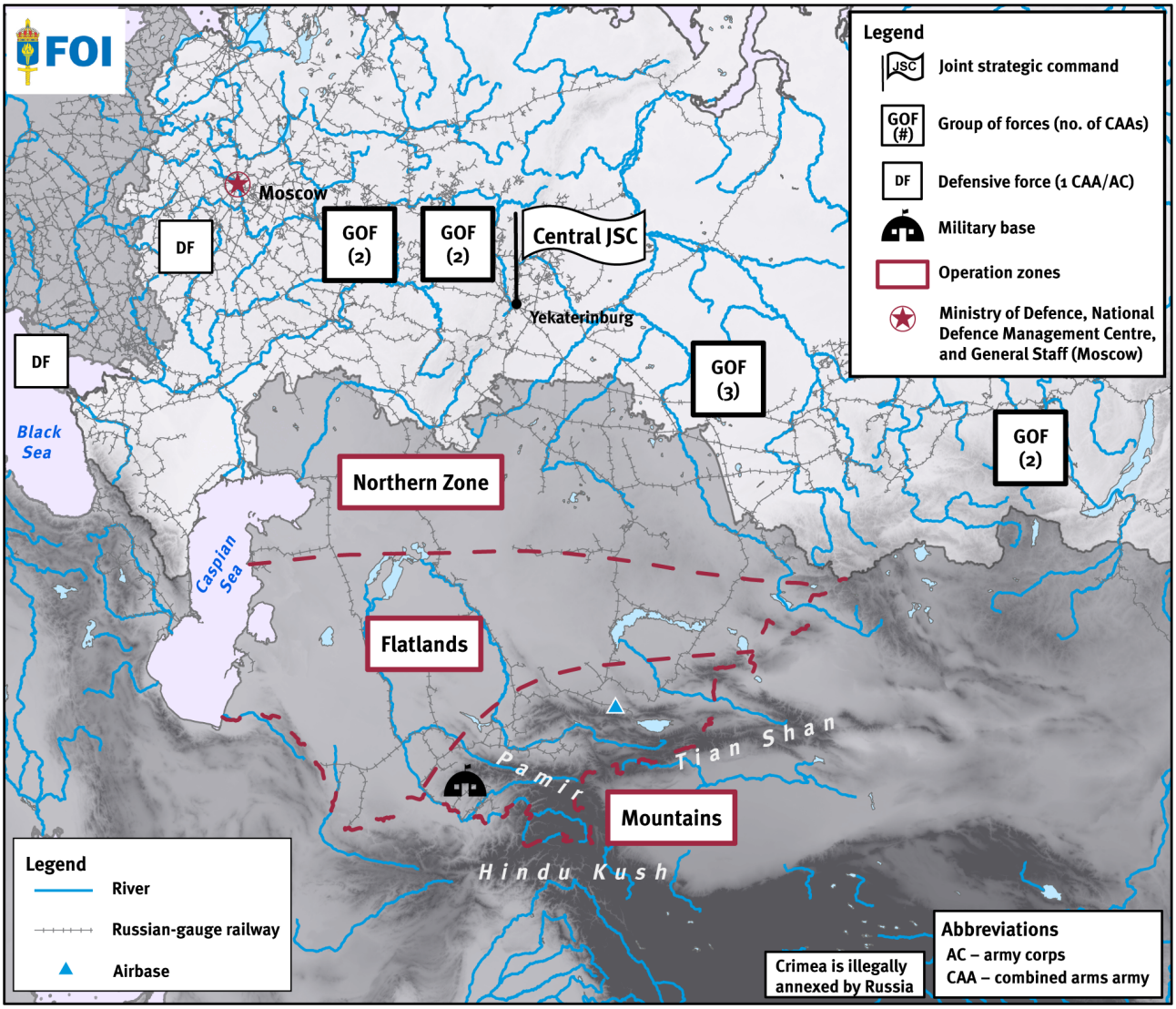
The Arctic's huge sea territories are mostly inaccessible during the harsh winters. Infrastructure is scarce, except in parts of the Kola Peninsula. It is difficult to launch operations. There are two probable Russian priorities. The first is sea control actions in the Barents Sea, to support strategic nuclear missile armed submarines (SSBN) and sea denial actions in the Atlantic, as outlined on Maps 3.2 and 3.3. Second, if a war escalates to exchanges of intercontinental ballistic missiles, a Russian priority in the Arctic will probably be situational awareness and missile defence, as indicated by the radar stations and airstrips shown on Map 2.3 in Chapter 2.

In a war against NATO, Russia would face the naval forces of a peer adversary, above, on, and under the surface. To support the six available SSBNs (Map 2.3), the ambition of the Northern Fleet will probably be sea control actions in the Barents Sea, with surface ships, naval aviation, and attack submarines, plus some 200 stand-off missiles for sea targets, 30 of them land-based, with 40 on surface ships and 50 air-launched (Table 3.2). The remaining assets, mainly submarines with some 90 sea-target stand-off missiles, will probably deploy on sea denial

[16] The Russian military presumably include non-NATO countries when planning for war in Europe.
[17] These zones are an adaptation from Dalsjö (2019: 24).



MAP 3.3 Assessment of the fighting power of Russia's Armed Forces in the Arctic war theatre in 2019



Map 3.4 Assessment of the fighting power of Russia's Armed Forces in the Central Asia war theatre in 2019

actions against trans-Atlantic sea transports to Europe or along the Northern Sea route.

Limited infrastructure, one double-tracked railway only, possibly reduces reinforcements for a land operation against north Scandinavia to two CAAs in one GOF in one month under command of the Northern JSC. The 300 land-target missiles in Table 3.2 probably suffice for destroying the airbases and radar stations in north Scandinavia (Map 3.3) with conventional warheads only.

To conclude, we assess that the available forces for battles and stand-off strike assets, bases, and transport infrastructure make the Arctic war theatre less suitable for a regional war. The emphasis is on naval actions. In a regional war with NATO, the Arctic is vital for the naval component of Russia's strategic nuclear forces. Russia can probably launch an operation with one GOF in one month. Operations with larger forces require reinforcements and thus more time, especially in winter.

3.4 The Central Asia war theatre

The Central Asia war theatre, comprised of the five Central Asian states and adjacent areas, about the size of continental Europe, hosts some Russian installations related to nuclear weapons and missile defence (Hedenskog *et al.* 2019: 66–67). Map 3.4 shows three zones with varying preconditions

for Russian operations. The Northern Zone has favourable infrastructures and is near, which facilitates using bases in Russia for air support. In the desolate Flatlands zone, the presence of only a few north-south railways and main roads limits transports. The terrain favours fighting by ground forces, but the increasing distances attenuate Russia's ability to provide home-based air support. The Mountains zone is the most populated and arguably has the highest potential for military conflict (*ibid*. p. 71). This zone's remoteness, sparse infrastructure, and mountains limit Russia's ability to deploy large forces.

The potential peer enemies in a regional war that have forces nearby are China, which has four infantry divisions based in its north-west, and Iran, which in total has ten ground forces divisions with around 35 manoeuvre brigades (IISS 2019). The Mountains zone would probably be problematic terrain for enemies deploying forces into the region on the scale of a regional war. Central Asia's terrain and size would allow Russia time to organise forces in the Central MD, up to 1 500 kilometres away (Hedenskog *et al.* 2019: 83).

As seen on Map 3.4, Russia could theoretically assemble nine CAAs in four GOFs for a regional war in Central Asia. The region abuts all other MDs, which facilitates receiving reinforcements. Half of them can probably arrive in one month, the rest in another month, given eastern Russia's limited railways. Other probable key tasks of the Central MD are to reinforce operations in Europe or the Asia-Pacific and safeguard east-west transports, so vital for Russia in a regional war in the Asia-Pacific.

As seen in Table 3.2, Russia can concentrate some 500 stand-off missiles against land targets in the Central Asia war theatre. Of the 250 of these missiles that can reach the entire war theatre, some 20 are land-based *Kalibr*, some 30 are sea-launched from the Caspian Flotilla, and the remaining are air-launched. The remaining 250 missiles can only reach specific parts of the war theatre: 200 *Iskandr* missiles can reach northern Kazakhstan from Russia and 50 sea-launched *Kalibr* missiles can reach the western third of Central Asia from the Black Sea. To be able to strike at the air power of potential enemies, only air-launched missiles reach airbases in China. Some 300 air- and sea-launched missiles reach most of Iran. These may hamper, but probably not stop, enemy air power.

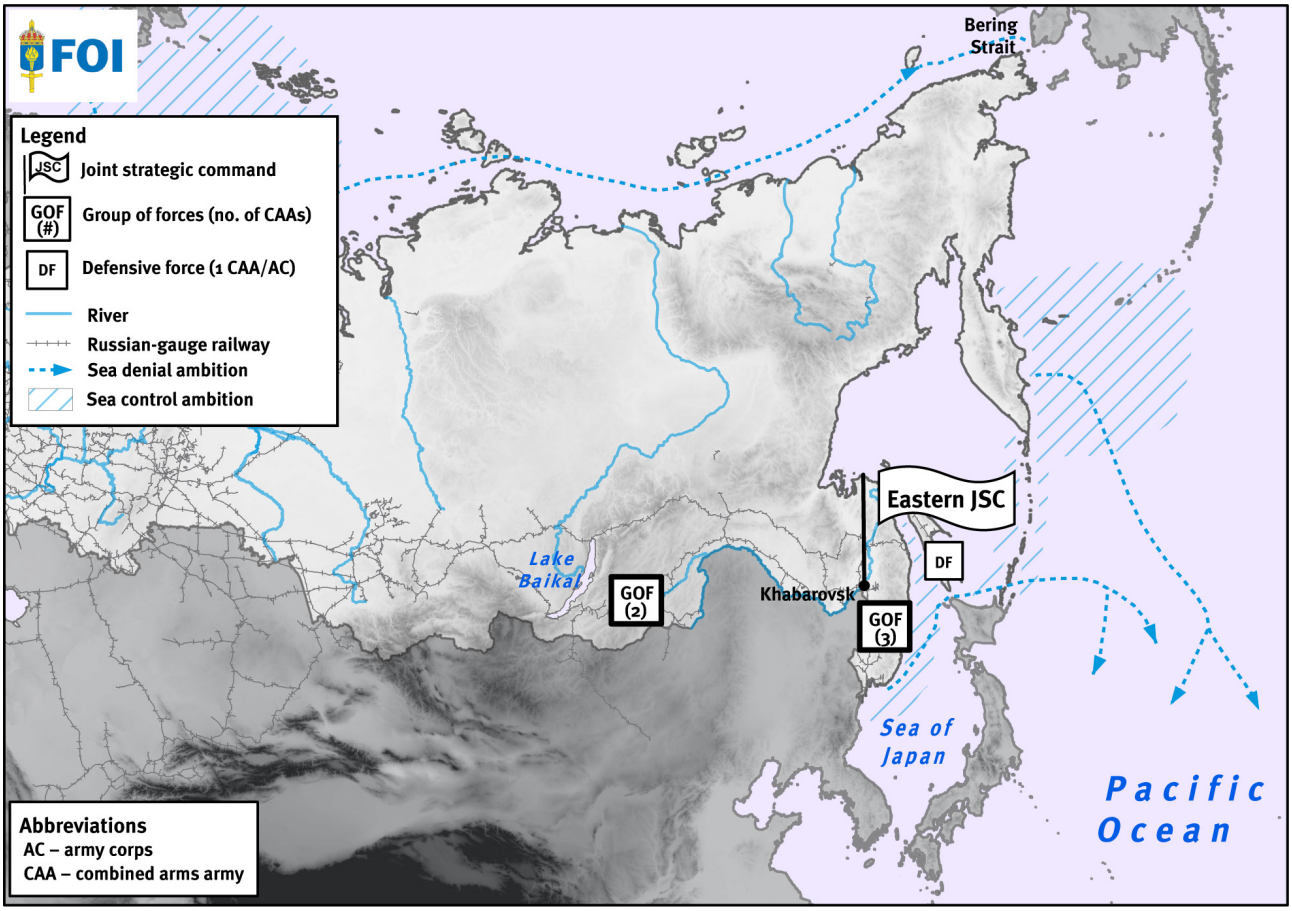
To conclude, we assess that the available forces for battles and stand-off strike assets, the bases, and the transport infrastructure enable Russia to launch an offensive regional war in northern Kazakhstan with two GOFs with some five CAAs within a month. It is difficult, however, to envision enemy deployments that would require such a Russian response within that timeframe. With its possible enemies in a regional war so far away, Russia's priority in Central Asia is probably crisis management in early stages of armed conflicts or local wars. Available assets for this are primarily the military base and small air unit Russia has in the region (*ibid*. p. 66–72).

3.5 The Asia-Pacific war theatre

Map 3.5 shows the Asia-Pacific war theatre, with Russia's territory east of Lake Baikal and along its Pacific rim, from Bering Strait down to the Sea of Japan. Russia is probably concerned by its huge territories with their very limited enabling infrastructure. East of lake Baikal, there are only two main east-west railways[18] and few main roads, all concentrated along its southern border and Pacific coast. Ground forces formations and air and naval bases are primarily located in these areas, which are thus vital for Russian operations in the Asia-Pacific.

In a regional war in the Asia-Pacific, Russia has two potential enemies, the first mainly on land, the second mainly at sea. The first is China, which has a group of forces with three army groups comprising 18 manoeuvre brigades and support units as well as air and naval forces under its Northern Theatre Command (IISS 2019), next to Russia's South Pacific Coast. The second is the US, possibly with its allies South Korea and Japan, with naval and air forces in the region, but without permanently-based ground forces along Russia's land borders (*ibid*. 276–80; 283–7).

[18] The northernmost, the Baikal-Amur Railway, apparently has fewer access points to main roads than the Trans-Siberian Railway, which limits Russia's flexibility to deploy reinforcements to create GOFs here.



Map 3.5 Assessment of the fighting power of Russia's Armed Forces in the Asia-Pacific war theatre in 2019

Map 3.5 outlines how Russia can probably set up two GOFs with three and two CAAs, respectively, in one month in the Asia-Pacific war theatre. Other available CAAs are west of the Ural Mountains and probably take an additional month to deploy. One air army can provide local and temporal air support across parts of the war theatre. The Pacific Fleet can support operations in coastal areas, but presumably focuses on sea control in support of SSBN actions in the Pacific Ocean and possibly on sea denial against enemy trans-Pacific reinforcements.

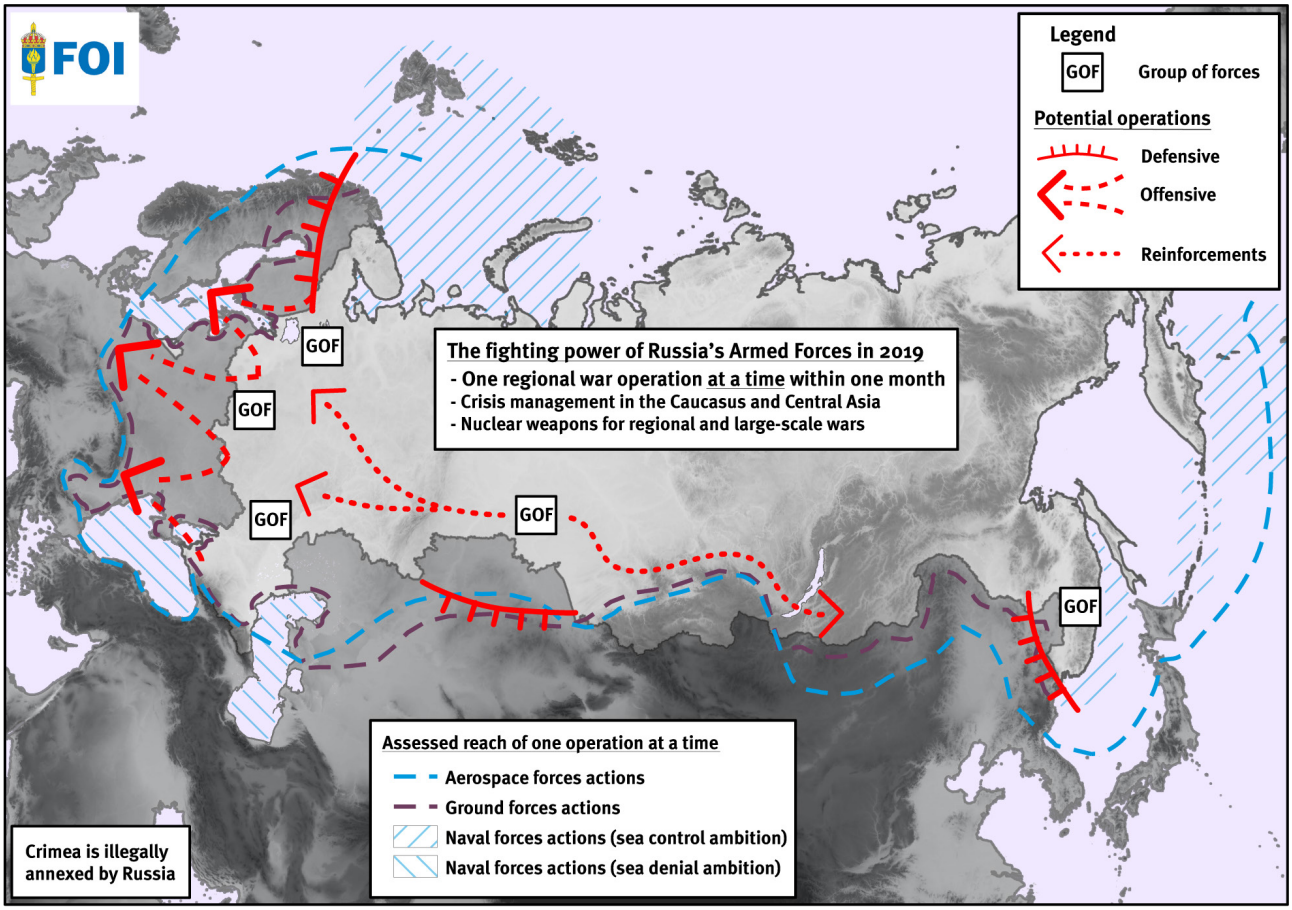
Of the 350 LAMs indicated in Table 3.2, Russia can probably launch some 150 against Japan and South Korea, which are allies of the United States and hosts to US bases. In addition, 200 *Iskander* missiles can reach north Mongolia and north China. As seen in Table 3.5, we estimate that Russia would need 450 missiles to stop Chinese air power based in north-west China. If armed with conventional warheads only, the available 350 missiles are thus insufficient to stop Chinese air power, let alone to destroy other types of Chinese targets, or to affect other enemies. Some 100 of the 200 stand-off strikes against sea targets potentially reach beyond Japan into the Pacific,

Table 3.5 Assessment of required Russian stand-off strikes for Chinese air power-related land targets in the Asia-Pacific war theatre in 2019

	Missiles	
	Conventional warheads only	Conventional warheads for radars, nuclear for airbases
50 radars	100	100
10 airbases	350	50
Total missiles	**450**	**150**

Sources: Authors' calculations, based on Lindstedt & Thorén (2015); Goliath *et al.* (2017); IISS (2019); and Appendix A3.2.

Note: The numbers of bases and radars are an estimated minimum of selected targets located in China's Northern Theatre Command of the People's Liberation Army only.



Map 3.6 Assessed fighting power of Russia's Armed Forces in 2019

while the rest are land-based anti-ship missiles, probably mostly near key areas such as south Sakhalin, the Kurile Islands,[19] or Russian naval bases.

To conclude, we assess that the available forces for battles and stand-off strike assets, bases, and transport infrastructure enable Russia to deploy two potential GOFs within a month. Our assessment is that in a regional war in the Asia-Pacific, involving an enemy that is a military great power, this probably suffices for a defensive operation along Russia's land border and Pacific coast. Offensive operations would require reinforcements from far-away western Russia and a more extensive use of nuclear weapons. Enemy strikes against east-west land communications may potentially isolate Russia's forces in the Asia-Pacific.

3.6 The fighting power of Russia's Armed Forces in 2019

As of September 2019, Russia's Armed Forces are involved in operations abroad: the Aerospace Forces are involved in Syria, the Navy in the Mediterranean, and the Ground Forces in Donbas. Although highly visible, these limited operations say little about the fighting power of Russia's Armed Forces in 2019. Map 3.6, in contrast, outlines the fighting power of Russia's Armed Forces in 2019 in terms of the ability to launch war-fighting operations at war-theatre level.

Preconditions for operations in one regional war at a time in terms of available forces (Map 3.6), and infrastructure (Map 3.1) are uniquely favourable in the European war theatre, facilitating a Russian launch of an offensive regional war within a month. Elsewhere in Russia, the preconditions probably

[19] Japan refers to these islands as The Northern Territories.

Table 3.6 Estimated selected Ground Forces formations 2011–2019

	2011	2013	2016	2019
Operational/operational-tactical formations[a]				
Combined arms armies[b c]	10	10	11	12
Army corps[b]	0	0	2	4
Total	**10**	**10**	**13**	**16**
Tactical-level manoeuvre formations				
Manoeuvre brigade equivalents[d]	36	42	43	49
Tactical-level combat support formations				
Artillery and Rocket Forces brigades	21	20	23	32
SAM brigades	9	7	11	17
Total	**66**	**69**	**77**	**98**

Sources: Vendil-Pallin (2011: 107); Hedenskog & Vendil-Pallin (2013: 26); Persson (2016: 29); Table 2.2 for 2019.

Notes: SAM – surface-to-air missile. The selection in this table illustrates trends based on organisational units. Independent regiments and units under fleets´ commands were not included in 2011–2016, which partly explains increases in 2019. a) Excludes military bases abroad; b) denotes formation headquarters, not intrinsic divisions or brigades; c) includes the 1st Tank Army; d) a regiment in a division is a brigade equivalent; a division generally has two manoeuvre regiments.

enable the launch of a defensive operation[20] in a regional war within a month. Offensive operations require more time.

For battles with groups of joint ground-, air-, and naval forces, Russia can assemble up to five GOFs, each based on a JSC with 2–3 CAAs, three west of the Ural Mountains, one in central Russia, and one in the Asia-Pacific.[21] The five squares on Map 3.6 illustrate the size of the areas where a GOF may deliver battles, some 300 x 300 kilometres. The map also mercilessly shows the huge distances between GOF areas, which illustrates Russia's need to be able to concentrate forces in time and space. All of Russia cannot be defended simultaneously.

GOFs mainly deploy along the Russian-gauge railway network and possibly a few hundred kilometres further, depending on terrain, infrastructure, and, crucially, the enemy at hand. The two dotted lines on Map 3.6 illustrate the reach of Russian actions in one operation at a time, purple for ground forces and blue for air forces. Such an operation potentially covers only small parts of a war theatre, arguably in increasingly smaller areas as the distance from Russia increases. To affect wider areas, a Russian operation needs stand-off strikes.

Russia's total strike assets, some 1 300 missiles for ground and sea targets, may possibly be decisive if concentrated in one regional war, but their launch platforms are spread out across Russia. Only some 200 air-launched missiles are swiftly deployable across Russia. Russian conventional-warhead LAMs may hamper a peer enemy's air power-related command, control, and situational awareness in one war theatre. Significantly reducing a peer enemy's combat potential across a war theatre is hardly possible without nuclear warheads.

3.7 Fighting power in a ten year-perspective

Between 2009 and 2019, Russia's Armed Forces arguably increased the level of their fighting power from being able to handle one local war to one regional war, as illustrated by two factors. First, the organisation grew in size. Table 3.6 shows that the number of selected types of Ground Force units grew from 66 to 96, some 45 per cent, between 2011 and 2019, a period of well-financed and resolute military reform. Second, the scale of exercises expanded significantly. Before 2012,

[20] Russia presumably wants to avoid warfighting on its own territory. What Russia sees as a defensive operation may therefore take place beyond Russia's borders.

[21] This figure is for all of Russia at one moment in time. The higher figures given earlier in this chapter are when Russia concentrates forces in one war theatre at a time.

the scope of the Armed Forces' annual strategic exercises pertained to regional wars, but the stated number of participants was under 20 000 (Norberg 2018: 36). Fighting power was thus arguably more for a local war. Since 2014, the scale of annual strategic exercises, with a stated number of up to 300 000 servicemen in 2018, have increasingly matched their scope of regional war (*ibid*.; Kofman 2018).

Could the fighting power of Russia's Armed Forces make a similar leap by 2029, i.e. from one regional war to two simultaneous regional wars? That would entail a significant increase of forces and command and control capacity. For example, assuming that a JSC handles an operation based on a GOF with three CAAs, there would be a need for 1–2 more JSCs and 3–6 additional CAAs, plus corresponding air and naval support: in all, some 200 000 servicemen. Apart from media speculation about the possibility of a new MD (*AiF Ural* 2019), and thus of a new JSC, during 2019 there have been few unequivocal signs of any of this. For stand-off strikes, the ability to decisively affect a peer adversary in one regional war would require at least a doubling of holdings in 2019. Even more is probably required for the ability to fight two regional wars simultaneously.

Russia east of the Ural Mountains would probably need sizeable investments in enabling infrastructure in order to ensure that any increase in forces can be used to its full potential. In all, we assess that until 2029 Russian fighting power will probably remain around the same level, that of being able to launch one regional war.

3.8 Conclusions

In 2019, Russia's Armed Forces can launch operations on war-theatre level in regional wars, but only one at a time. The available forces and enabling infrastructure, the railways and air and naval bases, facilitate launch of an offensive operation in a regional war west of the Urals, but with only defensive operations elsewhere at the same time. This is unlikely to change significantly. If Russia intends to expand its fighting power to be able to launch offensive regional wars east of the Urals, it would need to increase the size of its armed forces by, say, 20–40 per cent, and invest heavily in infrastructure: a huge task, even for a military great power as Russia (see Chapter 4 for a discussion of Russian security policy ambitions).

Appendices to Chapter 3

Table A3.1 Asset allocation for stand-off strikes in one war theatre at a time 2019

War theatre	Target types	Strike assets
Europe	Sea targets	• All assets in W MD, NF, and S MD; • Tu-22M from E MD (50% against sea targets)
	Land targets	• All assets in W MD, NF, and S MD; • Tu-95 from E MD (25% availability against non-strategic targets); • Tu-22M from E MD (50% against land targets); • 1 SSM Bde from C MD; • 1 LACM Bn from C MD
Arctic	Sea targets	• All assets in NF; • All Tu-22M (50% against sea targets)
	Land targets	• All assets in NF; • All Tu-160/95 (25% availability against non-strategic targets); • All Tu-22M (50% against land targets); • Ship-launched LACM from W MD (Baltic Fleet); • 1 SSM Bde from W MD; • 2 LACM bn, one of each from W MD and C MD
Central-Asia	Sea targets	-
	Land targets	• All assets in C MD; • All Tu-160/95 (25% availability against non-strategic targets); • All Tu-22M (100% against land targets); • Submarine- and ship-launched LACM from S MD (Black Sea Fleet and Caspian Flotilla; partial covering of theatre); • 8 SSM Bn from W MD and S MD
Asia-Pacific	Sea targets	• All assets in E MD; • Tu-22M from W MD (50% against sea targets)
	Land targets	• All assets in E MD; • Tu-160/95 from W MD (25% availability against non-strategic targets); • Tu-22M from W MD (50% against land targets)

Notes: This table specifies the asset allocations for stand-off strikes that underlie the data in Table 3.2. Bde – brigade; Bn – battalion; C MD – Central Military District; E MD – Eastern Military District; LACM -– Land-attack cruise missile; NF – Northern Fleet; S MD – Southern Military District; SSM – surface-to-surface missile; W MD – Western Military District.

Table A3.2 Estimated weapon assignments to defeat targets related to air power

Target		Conventional warheads	Nuclear warheads
Airbase	10 aircraft in unprotected locations	5	
	10 aircraft in hardened shelters	20	2[a]
	infrastructure (runways, command & control, etc)	10	3
	total	35	5
Radar		2	–

Notes: This table provides the assessed weapon assignments applied in Tables 3.4 and 3.5. We assessed that in the Asia-Pacific war theatre, the Northern Theatre Air Force of the People's Liberation Army deploy some 30 aircraft per airbase.(a) Two nuclear warheads assumed sufficient to destroy all aircraft at a base.

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4. Russian security policy

Jakob Hedenskog and Gudrun Persson

At a time when Russia is more actively using its military means to achieve political goals, it is relevant to examine Russia's threat perception and to analyse the current military thinking on contemporary military conflicts and future wars (Renz 2018: 161–2). The main objective of this chapter is to analyse the current Russian security policy, both declared and implemented, and to examine implications for its development in a ten-year perspective.

In doing so, this chapter addresses the following questions: How has the Russian threat assessment in official doctrines and key policy speeches evolved? How does the political leadership meet these challenges – domestically and externally? How has the military thinking evolved regarding contemporary conflicts and future war?

First, a definition of security policy in the Russian context is outlined. The Russian threat perception is then analysed in order to provide a background to current and future policies. This is followed by three sections on domestic, foreign, and military security, including military thought on contemporary and future war. Finally, a forward-looking section summarises the development ahead, and the conclusions are drawn.

For the purposes of this chapter, certain limitations are necessary. In view of the broad and holistic Russian definition of security policy, which includes areas such as healthcare, culture, and ecology (see Section 4.1), it has been necessary to limit the scope to analysis of domestic, foreign, and military security. Since the focus of this report is on estimating Russian military capability in a ten-year perspective, the aspects chosen are those that are vital to that long-term capability development. As is pointed out in Chapter 1, the Russian concept of military capability, or power (*voennaia moshch*), requires much more than purely military resources. It is the sum of the overall strength of the country as a whole, including the political, social, economic, scientific, and spiritual (*dukhovnye*) possibilities to mobilize for military needs.

The threat assessment is mainly derived from essential doctrines, such as the National Security Strategy, the Military Doctrine, the Foreign Policy Concept, and important speeches by the president and influential policy makers. The comprehensive national defence plan, *Plan oborony*, first signed in 2013 and updated in 2015, is secret, and will not be considered.

4.1 Security policy – a definition

In 1991, William E. Odom (1991), the well-known American specialist on the Soviet Union, noted that the full dimensions of the subject of Soviet military policy are almost never spelled out in Western analysis. The same could be said for the subject of Russian security policy. Sometimes, it is treated as the equivalent of either foreign policy or military policy. Occasionally, domestic policy or military thought enter the equation, but seldom at the same time. Therefore, it is useful to take a quick look at the evolution of the subject's definition in Russian sources.

The explicit use of the concepts of security policy and national security is fairly new in Russia. It was only at the very end of the existence of the Soviet Union that the term "national security" began to be used at the political level (Persson 2013). The homepage of Russia's Security Council lists over thirty different documents dealing with the national security of Russia. The Law on strategic planning, adopted in 2014, also encompasses national security (Federal Law 2014). The main document that formulates the security policy is the National Security Strategy (2015).

The legal basis for national security is comprised of the Constitution, the federal laws "On Security" and "On Defence", the Military Doctrine, and other doctrinal documents (*Voennaia entsiklopediia* 1997). The notion of national security is

defined broadly. The National Security Strategy encompasses nine different areas: (1) defence, (2) security of the state and society, (3) higher living standards, (4) economic growth, (5) science, technology, and education, (6) healthcare, (7) culture, (8) ecology, and (9) strategic stability and strategic partnership.

The law "On Security" defines security policy as being a part of both domestic and foreign policy. It involves a whole range of measures: political, organisational, social and economic, military, judicial, informational, special, and other measures (Federal Law 2010).

4.2 Threat perception – the view from Moscow

Russia developed its main security and foreign policy doctrines and strategies throughout the 1990s. It is clear that the Russian threat assessment in the Military Doctrines has been consistent – with only a few variations – since the first draft of the 1993 Military Doctrine (*Izvestiia* 1993). In 1997, a concept of national security was published (National Security Concept 1997). Although the Military Doctrine, in its initial year, took a more hard-line approach to Russian national security, focusing on external military threats to a greater extent than the National Security Concept in 1997, by the year 2000, the anti-Western view had become persistent in the political debate (Light 2003).

In the terminology of the Military Doctrine, a distinction is made between "military dangers" and "military threats", where the first can develop into the latter. In the National Security Strategy, the word "threat" is used.

One such, if not the main, persistent threat is "NATO eastward expansion", which the National Security Concept (1997) calls "unacceptable". Already in 1993, the Military Doctrine talks about the threat from "the expansion of military blocks and allies at the expense of Russia's military security". Although the North Atlantic Treaty Organisation (NATO) is not mentioned explicitly, it is obviously NATO that is intended. Since the Doctrine from 2010, NATO enlargement has become a more pronounced threat. The National Security Strategy (2009) described NATO's security plans as extending "military infrastructure at the borders of Russia" and thus "unacceptable".

Another persistent threat is the "unipolar world", based on domination by developed Western countries, under the leadership of the US. A military threat in the National Security Concept (2000) is described as "NATO's transition to the practice of using military force outside its zone of responsibility and without UN Security Council Sanction". Russia has since then emphasized the need to work for a multi-polar world. The multi-polar world, first promoted by Foreign Minister Evgenii Primakov in the 1990s, is a world dominated by the interaction between different poles, where no single power should be allowed to threaten the status quo and act unilaterally without risking reciprocal action. For instance, after NATO's intervention in Kosovo, Russia allowed itself to act according to the "Kosovo precedent", both in Georgia in 2008 and in Crimea in 2014 (President of Russia 2014). The military elites saw Kosovo as a template of NATO's future operations (Blank 2000). The "unipolar world of the United States" was criticized by Valerii Gerasimov (2018), Chief of the General Staff, at a meeting with the General Staff Academy in 2018.

A sense of being ignored in international affairs is also present in the documents. Already the National Security Concept (2000) said: "Efforts to ignore the interests of Russia in solving major international problems could break international security and stability". And the Military Doctrine 2000 noted that a military threat is "the effort to ignore (violate) Russian national interests in solving international security problems" (Military Doctrine 2000).

The threats in the 2000 documents were formulated against a background of fundamental disagreement between the US and Russia on several issues such as missile defence, the policy towards the Balkans, and the unipolar world. But, as we have seen, traces of these threats are consistent throughout the 1990s. It is worth noting that Andrei Kokoshin (1997), one of Russia's leading strategic thinkers and briefly, in 1998, secretary of its Security Council, while not famous for a hawkish standpoint, had already in 1997 pointed

to the view that NATO expansion was seen as a threat to Russian civilization.

Furthermore, a persistent threat since the Kosovo declaration of independence in 2008 is the use of military means to achieve regime change.

A close reading of the recent National Security Strategy (2015), the Military Doctrine (2014), the Foreign Policy Concept (2016), and a number of key speeches, not least the President's Annual Addresses to the Federal Assembly, reveals the following consistently perceived external threat assessment: NATO eastward expansion; missile defence; regional and local wars on Russia's borders; and international terrorism and radicalism.

The threat perception also includes an awareness of a technological gap, where Russia is lagging behind the West. In order to try to catch up, two major armaments programmes have been launched since 2011. However, the current threat perception not only reflects concern about potential threats posed by a technologically superior enemy, but also sees a direct threat to the protection of the mainland areas of Russia and the second-strike capability of the nuclear forces, in other words, an existential threat.

The current Military Doctrine describes the US's Prompt Global Strike concept as a military danger. This concept was launched in 2003, when the US Department of Defense specifically identified a new mission, i.e. Prompt Global Strike, which seeks to provide the US with the ability to strike targets anywhere on Earth with conventional weapons in as little as an hour, without relying on forward-based forces (Woolf 2019). The potential militarization of space is seen as a direct threat to the protection of the mainland areas of Russia (Military Doctrine 2014).

The internal threat assessment can be summarised as consisting of the following points: violations of the unity and the territorial integrity of the Russian Federation; attempts to change the constitutional structure of the Russian Federation by force; economic instability as a result of the financial crisis and the changing energy market; foreign intelligence services; foreign organisations; terrorism; extremism; and finally, colour revolutions, the latter orchestrated by the West and the US, also making them an external threat.

Consequently, it is important to remember that the view that the West is a threat to Russia was formulated long before the current talk about the threat of colour revolutions became prominent in the Russian threat assessment. In fact, the more assertive security policy, with its high ambitions, was declared in the mid-1990s (Clunan 2009; Truscott 1997).

4.3 Domestic security

The current political leadership is primarily focused on domestic stability and regime survival, which has resulted in an aggressive foreign policy and authoritarian tendencies at home (Persson & Vendil Pallin 2017). The authoritarian trend continues in an environment where the political leadership views colour revolutions as a direct threat to its existence. This trend is not new, but can be traced to the late 1990s and especially to the period since the early 2000s (Bacon *et al.* 2006). Furthermore, since 2012, a great number of laws have been introduced that clearly illustrate the authoritarian character of the political system (Moscow Helsinki Group 2019: 20–3; International Federation for Human Rights 2017a).

During a period of twenty years, due to the tightening of laws pertaining to civil society, such as laws on registration and demonstrations, and to restrictions on media freedom, information security, and "spiritual security", the political system has become characterised by weak political parties and a weak parliament, in contrast to the strong president. The outer aggression and the inner repression are reinforcing each other. The president is not just the symbol but also the personification of the political system as a whole. Although it projects an overall image of stability, this stability is inherently fragile, since it rests on one person and his ability to keep the system in check.

Transition of power

In order to meet the challenges ahead, the political leadership invests heavily in domestic security. One of the most pressing medium-term issues is the question of transition of power. It has been at the top of the political agenda in Russia for years

(*Novaia gazeta* 2018; *New Times* 2019). In the election held in March 2018, Vladimir Putin won with an all-time high, almost 77 per cent of the vote. The elections reflect the authoritarian system, since no viable candidates from the opposition were allowed to take part.

President Vladimir Putin's current period runs out in 2024, when he is due to step down, according to the Constitution. Given the fact that the current political system has been carefully crafted for almost 20 years, it is evident that there is uncertainty about its future. First, it no longer produces wealth for the population. For five years in a row, the real disposable income has been decreasing (IMEMO 2019: 9). Second, the legitimacy of the system could be questioned, since Putin's popularity figures are going down, and the surge from 2014–2015 has been eradicated.

The reasons for the diminishing popular support are several and multi-layered, but can primarily be found in economic dissatisfaction, such as with the pension reform, and the increase in the value added tax.

The pension reform, a highly sensitive subject, was introduced on the same day as the FIFA World Cup began in Russia (see further in Chapter 5). The reform is necessary, from an economic point of view, and is in line with the recommendations from international financial institutions, but the population largely perceived it as a betrayal. The proposed gradual increase in retirement age was initially from 55 to 63 years for women and from 60 to 65 for men. The announcement caused Putin's approval rating to plummet from 80 per cent to 63 per cent. After hundreds of protests around the country, Putin went on television to tell the nation he would modify the reform (Clément 2018). The pension age for women were finally set to 60 years. The PR campaign was only a partial success: although the protests fizzled out, President Putin's rating approval has not recaptured its previous levels.

In response to sinking popularity figures, the Kremlin is strengthening federal powers even more, at the expense of the regions. Since 2017, a record number of governors have been replaced, the largest number since the Russian Federation replaced the Soviet Union (Kynev 2019). These new appointments are called *variagi* (Vikings), indicating that they have no previous relation to the region they are set to govern. In other words, they are highly dependent on Moscow. There is great uncertainty as to how to secure the survival of the regime, and various options are being explored. For instance, changes in the Constitution are being discussed, as are plans for a parliamentary reform, and other measures (*RBK* 2019a). The first litmus test will be the State Duma elections in 2021.

Although the future of the political system is unclear, some trends can be observed. During the first year of Putin's new presidential period, repression has been increasing, both politically and economically. The researchers Petrov and Rogov argue that only a few cases can be justified by the law, but most are a part of the trend to repress the bureaucratic elites. The number of cases investigated by the Federal Security Service (FSB) has grown three times since 2012, and the sentences are becoming harder, i.e. long prison sentences, rather than probation (Petrov & Rogov 2019: 55–7).

At the same time, there is a growing dissatisfaction in society, and people are increasingly demonstrating, for political, economic, and other reasons. During the summer of 2019, there were several peaceful demonstrations in Moscow, ahead of the mayoral election, calling for free elections and the release of political prisoners. There have also been several widespread protests in the regions, particularly against the dumping of garbage (Center for Economic and Political Reform 2018).

To sum up, the domestic situation points towards years of uncertainty, as the society's distrust towards the political elites continues to grow.

4.4 Foreign security

Russian foreign policy has two overall long-standing objectives. The first is to be recognised as a Great Power in world affairs, comparable to the United States. According to the current National Security Strategy (2015), one of Russia's long-term strategic interests is to consolidate its "status as a leading world power, whose actions are aimed at maintaining strategic stability and mutually beneficial partnerships in a polycentric world". In

a similar way, the Foreign Policy Concept (2016) talks about the country's need to consolidate its status as "a centre of influence in today's world".

The second objective is to create a unique sphere of interest in the post-Soviet space (Hedenskog *et al.* 2019: 11). While Russia, at a global level, is seeking to position itself as an independent pole in a multipolar world order, where it claims a say on all important global issues, in the post-Soviet space it pursues hegemonic ambitions (Klein 2019: 7). Control of its own sphere of interest is considered an indispensable prerequisite for acting as a global power. Thus, these two objectives are interrelated and Russia has been determined to go very far in reaching them, including to violate the sovereignty and territorial integrity of neighbouring countries with military means.

The collapse of the Intermediate-Range Nuclear Forces (INF) Treaty in 2019 will have a significant impact on European security. Russia, for its part, has wanted to get out of the Treaty for years. In 2007, both President Putin and the Chief of the General Staff, Iurii Baluevskii, said that the Treaty was no longer in Russia's interests (*Financial Times* 2007). The main objection of Russia has been against the US missile defence installations in Poland and Romania (Giles & Monaghan 2014). The US announced the intention to withdraw from the Treaty on 1 February, since it had become clear that Russia had been developing a land-based cruise missile (9M729) in violation of the Treaty. Russia followed suit the day after (President of Russia 2019).

4.4.1 Russia's approach in its neighbourhood

Russia cannot tolerate the existence in its neighbourhood of a former Soviet Republic (possibly with the exception of the Baltic States) that is strong – with strength being defined as politically stable, militarily modernized, economically viable, and socially cohesive – and at the same time pro-Western. The best outcome for Russia would be to have a weak neighbour state that is ruled by a pro-Russian regime, which was the case in Ukraine prior to the 2014 Euromaidan Revolution. If Russia's neighbours choose a path leading towards deeper integration with the West, while being governed by a pro-Western elite, then the second-best choice for Russia is to have that country divided through aggression and the annexation of a part of its territory, while keeping it internally divided and weakened (Voyger 2019: 34). This has been the logic of Russian actions against Ukraine, Georgia, and Moldova for a long time.

The strategic goal for Russia is to have a ring of states along its periphery that relate to Moscow out of fear for their survival, while at the same time serving as buffer zones between Russia and NATO. As such, they can be used as convenient launching pads for potential Russian aggressive cross-border moves against the West, with non-military means whenever possible, and with military means if necessary (Voyger 2019: 34).

Since the illegal annexation of Crimea in 2014 and the ongoing military aggression in eastern Ukraine, Russia's neighbours, in general, have become more hesitant towards Russian hegemony. In fact, Moscow has achieved notable success only in separatist territories, such as Abkhazia and South Ossetia, in Georgia, and Transnistria, in Moldova, or in states that depend on Russia for their military protection and lack alternative partners, such as Armenia, Kyrgyzstan, and Tajikistan. This approach has been less effective against Kazakhstan and Belarus, and rather ineffective against Azerbaijan and Uzbekistan, which only cooperate with Russia selectively and to a limited degree (Klein 2019: 36; Persson 2019: 41–58). Isolationist Turkmenistan is a special case, which Russia has very little influence over (Hedenskog *et al.* 2019: 46). Ukraine, Georgia, and Moldova have chosen Western integration and have all signed association agreements with the EU. Although Moscow still controls "unresolved conflicts" on the territories of these states, thus making Euro-Atlantic integration difficult for them in practise, it has not managed to force them to give up their policies nor to return to Russia's orbit.

4.4.2 Russia's approach outside its neighbourhood

Russia's shortcomings in maintaining a coherent sphere of interest within its immediate neighbourhood, however, could increase the attraction of acting outside the post-Soviet area and trying to undermine the West, in order to compensate for the weaknesses at home.

According to Russia, Western powers are to be blamed for increasing tensions between great powers in the world, including in Russia's own neighbourhood. In the National Security Strategy (2015), the US and the EU are accused of "turning Ukraine into a chronic state of instability in Europe and in the immediate vicinity of Russia's borders".

At the same time, Moscow perceives Washington's tendencies towards isolation ("America first") as a weakness of the West. This seems to inspire Moscow in advancing its positions in conflicts outside its direct neighbourhood, most notably in Syria, but also in the Western Balkans and even in more distant parts of the world, such as in Africa and Latin America, where it is perceived that the US is stepping out. Sometimes, private military companies (PMCs) have been used in these operations, as in the Central African Republic and Venezuela, giving Russia plausible deniability. The use of PMCs allows Russia to extend its operations to more and more countries at minimal cost and risk, exploiting the local economy and expanding its political influence at the expense of the West (Dahlqvist 2019; Hedenskog 2018).

Russia's appetite for interfering does not limit itself to regions where the West is perceived to be departing, but also encourages it to challenge the West on its own home ground. This explains Russia's meddling in the UK Brexit referendum and in the 2016 US presidential election. During the presidential election in France in 2017, however, French institutions were comparatively better than their US counterparts had been in protecting the integrity of the elections and, correspondingly, in reducing the potential damage from Russian interference (Bulckaert 2018). Even if Russia continues to support EU-critical, radical extremist parties in several European countries, the growing awareness of EU institutions at least makes it difficult for Russia to copy its previous successes in interfering with elections and other democratic processes.

Therefore, it can sometimes be more effective for Russia to undermine the interests of the West by stepping up activity in other places, such as Africa, in particular. Even if the Russian meddling lacks directs results, some experts claim that there can be an indirect positive outcome for Russia. Raising global prices of raw materials can spark humanitarian catastrophes, which result in new refugee flows into the EU and in turn creating problems for its governments. As these experts argue, acting in this way is less expensive and dangerous for Moscow than directly seeking leverage in larger European countries that are more suspicious of Russian behaviour (Goble 2019; Shchetkina 2019).

In order to compensate for the loss of markets in Europe due to the sanctions over Ukraine and to find political support in its rivalry with the West, Russia is actively working to create alternative coalitions with other authoritarian regimes, most notably China. The military relationship between Moscow and Beijing is developing rapidly. It includes high-level exchanges and coordination in military training and manoeuvres, such as the participation of Chinese troops in large-scale Russian military exercises (Gady 2019). In 2019, Russia and China also launched a joint long-range air patrol in the Asia-Pacific region (Kashin 2019). In certain areas, however, the Kremlin's agenda differs from Beijing's. China's economic expansion and its increasing security interest in the post-Soviet area, particularly Central Asia, is difficult for the Kremlin to swallow, especially since it is unable to do much about it (Hedenskog *et al.* 2019: 44).

4.4.3 Public diplomacy and the involvement of the security services in foreign policy

The responsibility for Russia's public diplomacy lies primarily with the Ministry of Foreign Affairs (MFA) and the Presidential Administration. An important actor operating under the auspices of Russia's MFA is the Federal Agency for the Commonwealth of Independent States Affairs, Compatriots Living Abroad, and International

Humanitarian Cooperation, more commonly known *as Rossotrudnichestvo* (Persson 2014; Ministry of Defence of Finland 2019: 31).

Russia exerts diplomatic influence in close cooperation with the country's intelligence and security services. It is difficult to distinguish between public diplomacy and information influence activities in Russia, partly because of the Soviet legacy. Much of this is a reminder of times past, and much is not necessarily new, although it takes place in a different environment and with other technological means (Braw 2015; Persson 2018).

During the Soviet era, public diplomacy as a whole was led by the Communist Party, and consisted of propaganda, disinformation, cultural diplomacy, and other "political technologies" (Sherr 2013: 19–41). The main Soviet security agency, the Committee for State Security (KGB), had an important role in the so-called "active measures". In addition to collecting intelligence and writing assessments, the KGB sought to influence the course of world events and weaken Western societies (Andrew & Mitrokhin 1999: 224–25; Ministry of Defence of Finland 2019: 30–1). Active measures ranged from media manipulation, use of communist parties and front organizations, clandestine radio broadcasting, blackmail, political influence operations, and other "special actions" (Fedchenko 2016).

Currently, active measures are conducted by the security services, mainly the Foreign Intelligence Service (SVR), the FSB, and the Main Directorate of the General Staff of the Armed Forces of the Russian Federation (GU).[22] One primary example, which illuminates the actions of the Russian security services abroad, was the nerve agent attack that targeted the former Russian double agent Sergei Skripal and his daughter, in Salisbury, UK, in 2018 (*BBC News* 2018). Another example was the attempted murder of the Prime Minster Milo Dukanović, in Montenegro in 2016. Three years later, a Montenegrin court sentenced two Russian citizens, alleged secret agents, for involvement in the plot, claiming the two men had the Kremlin's support to assassinate Dukanović, in order to block the NATO accession of Montenegro (*BBC News* 2019).

Another area of alleged involvement of the security services involves the attempts to weaken and split the West through cyberespionage and cyberattacks, for example the operation against the Organisation for the Prohibition of Chemical Weapons (OPCW), in the Hague in 2018. Although there is evidence that Russian security agencies are increasingly developing their own in-house hacking capabilities, Moscow still depends to a considerable extent on recruiting cybercriminals, or simply calling on them from time to time, in return for their continued freedom (Galeotti 2017: 11).

There is growing evidence of connections between Russian criminal networks and the Kremlin's state security apparatus, notably the SVR, GU, and FSB. Except for launching cyberattacks, Russian-based organised-crime groups in Europe have been used for a variety of purposes, including as sources of "black cash", to wield political influence, to traffic people and goods, and even to carry out targeted assassinations on behalf of the Kremlin. According to the European Statistical Office (Eurostat) and the International Criminal Police Organization (INTERPOL), Russian-based organised crime is today responsible for around one-third of the heroin on Europe's streets and a significant amount of the trafficking in non-Europeans, as well as illegal weapons imports (Galeotti 2017).

4.4.4 Disinformation

The Russian occupation of Crimea and the war against Ukraine, in Donbas, demonstrated the climax in reliance on propaganda and media manipulations, fake news and forgeries. Russia co-opts such instruments for manipulating public opinion and makes them a visible part of the public discourse for domestic and foreign audiences. One of the most significant differences between Soviet and Russian disinformation operations is the use of Internet and social media, which was not available in Soviet times. Their availability allows the

[22] Still commonly known under its previous name the Main Intelligence Directorate (GRU). Putin in 2018 expressed that he recommended a change back to GRU (Interfax 2018).

creation and dissemination of anonymous sources for spreading fakes that will eventually be picked up by mainstream media (Fedchenko 2016).

Russia uses a network of officials, journalists, sympathetic commentators, and Internet trolls to create an alternative reality in which all truth is relative, and no information can be trusted. Some analysts call this the "weaponization" of information (Pomerantsev & Weiss 2014: 6–7), implying that the Russian narrative can be viewed as an offensive weapon. Its effect is to discredit the West and shift blame on to it for the situation in Ukraine. When it comes to defending Russia from accusations, different tactics are used. The UK-based analyst Ben Nimmo (2015) has summed them up in four words that he calls the 4D approach, i.e. dismiss, distort, distract, and dismay.

When information inimical to Russian interests appears, Russian leaders *dismiss* it; this was seen, for instance, in Russia's denials that its soldiers were involved in the annexation of Crimea. If the information persists, Russian spokesmen *distort* it, as when Putin belatedly admitted that Russians actually were in Crimea, but that they were soldiers who were already legally stationed there; or later, in Donbas, that they were there as "volunteers". If the derogatory information persists, the Russian solution is to *distract* attention away from it (White 2016). Sometimes the distraction serves to create doubt and confusion, as in the case of the Malaysian Airlines Flight 17 (MH-17), which was shot down by a Russian Buk missile over eastern Ukraine on 17 July 2014, killing all 298 passengers on board. Russian state-run media claimed, for instance, that the plane had been shot down by a Ukrainian aircraft or missile. Finally, if all else fails, Russia's communication arsenal spreads *dismay*, by warning that moves that Russia opposes will have disastrous consequences for those planning them, as in the example of references by Russian officials to Russia's stockpile of nuclear weapons (Nimmo 2015).

4.4.5 Counter-terrorism in foreign policy

Russia has demonstrated a pro-active domestic counter-terrorism effort, and has stated a desire to create an international anti-terrorism coalition with the West. However, some question whether Russia's fight against terrorism in Syria is genuine, given that many of Russia's domestic terrorists had travelled out of their territory, thus keeping the risk of a domestic attack low. Similarly, evidence points to Russia's current support of the Taliban, a listed terrorist entity, even by Russia, in Afghanistan, a situation that places a question mark on how serious Russia's international counter-terrorism efforts are (International Federation for Human Rights 2017b: 59–60).

Furthermore, Russia's war in Ukraine has led to accusations in the International Court of Justice that Russia has failed to prevent "terrorist acts" by the Moscow-backed separatists in Ukraine, and is intervening militarily, financing terrorism, and violating human rights there (RFE/RL 2019).

4.5 Military security – future wars

Analysis of current military theoretical writing and the broader context of key speeches by the military and political leadership, as well as of the development of Russian military capabilities, can provide valuable insights on Russian military thought and the current efforts to develop a military strategic doctrine. A new military doctrine is expected at either the end of 2019 or in 2020.

The next section examines the efforts to strengthen military-patriotic education and current military thought on contemporary and future wars, including nuclear and non-nuclear deterrence.

4.5.1 Military-patriotic education

During the past ten years, one of the significant trends regarding military security has been the efforts of the Ministry of Defence (MoD) in the field of military-patriotic education. However, despite increased state funding to various projects and the invention of the Youth Army, *Iunarmiia*, the efforts seem to have been too disparate. In July 2018, Andrei Kartapolov was appointed Deputy Minister of Defence, and Chief of the newly created Main Directorate for Political-Military Affairs of the Russian Armed Forces, a move that indicated a more comprehensive and resolute approach (MoD 2018).

The aim of the Directorate is to develop military-patriotic education in the Armed Forces. The name of the unit caused some debate in Russia, since it is almost identical to that of the Soviet predecessor, the Main Directorate for Political Affairs (*GlavPUR*). Due to the unpopularity of its political officers, the latter did not have the best reputation among the Armed Forces (Adamsky 2019: 24).

The Directorate is responsible for developing *Iunarmiia*, a voluntary organization with the aim of giving children military training. Another important task, according to Defence Minister Sergei Shoigu, is to organize the work against the falsification of history (*Krasnaia zvezda* 2019). Furthermore, at the MoD's extensive outdoor area outside Moscow, *Park Patriot*, a centre for military-patriotic education is being set up (RBK 2019b). According to the plans, school children from Moscow and surrounding areas will be able to spend a week there, learning basic military skills. The centre's name will be *Avangard,* which, in addition to its literal meaning, of being avant-garde, is also the name of Russia's hypersonic glider, one of the strategic weapon systems introduced by Putin on 1 March 2018 (President of Russia 2018). *Park Patriot* is also the location for the planned construction of one of the largest Russian-Orthodox churches in the world, the main cathedral of the Armed Forces (MoD n.d.).

So far, military-patriotic education for children is voluntary. However, raised voices demanding mandatory military education in schools, as it was during the time of the Soviet Union, are being increasingly heard. One senator, Viktor Bondarev, Chairman of the Defence Committee of the Federation Council (and former Commander of the Russian Aerospace Forces), in a meeting with the Minister of Education in March 2019, has called for the reintroduction of this Soviet practice (*Snob* 2019).

Whether these efforts to mobilize large parts of the younger generations through participation in military-patriotic organizations will be successful remains to be seen. It is clear, however, that the current political and military leadership believes that it is important to take measures and put resources into this area.

4.5.2 Military thought on contemporary conflicts and future war

Doctrines and strategies are being developed to meet the various threats. The debate now revolves around such questions as: (1) whether the character of war has changed fundamentally, (2) the relations between military and non-military means, (3) the importance of non-nuclear deterrence in relation to nuclear deterrence, and (4) the role of colour revolutions in contemporary warfare.

The West initially labelled Russia's method of using a combination of military and non-military means as "hybrid warfare" (Renz & Smith 2016). The idea that Russia is waging some new kind of warfare against the West not only puts Russian doctrines at another level than they actually are, it also says little about the goals or intentions behind such a presumed approach. The risk is that an inaccurate understanding of one part reinforces the distorted view of the other – a sort of twisted looking-glass war. More importantly, the portrayal of Western weakness in the face of superior Russian capabilities has played into Putin's hands (Renz 2016: 284). When Russian military theorists write about hybrid war, it is mentioned as a foreign, Western, capability. The label, *gibridnaia voina*, seems to have stuck in recent years and is becoming more widely used in Russia, with Gerasimov talking about the "hybrid character of war" (Gerasimov 2016), albeit still as a Western concept. In addition, Aleksandr Bartosh (2018), a corresponding member of the Academy of Military Science and a prolific writer on "colour revolutions" and "controlled chaos", now writes about the need to develop "a counterstrategy for hybrid war".

In March 2019, Chief of the General Staff Gerasimov (2019) held his yearly speech at the Academy of War Sciences. Before 2014, these speeches were hardly noticed at all, but since the illegal annexation of Crimea, they have been met with great interest both in Russia and the West. The speeches are primarily directed to a Russian audience, but in view of the West's attention a certain amount of signalling to an external audience must be taken into account. It should be noted that Gerasimov's first speech, in 2013, was printed

in the newspaper, *Voenno-promyshlennyi kurer* (Gerasimov 2013), a publication with links to the defence industry that few in the West, outside of specialists in Russian foreign, defence, and security policy, had heard of. In 2018 and 2019, the speech was printed in *Krasnaia zvezda*, the MoD's well-known newspaper.

Gerasimov's statements are in line with the main trends of Russian military thought over the past ten years. In fact, much of this thinking stems from that of the former Chief of the General Staff, Nikolai Makarov. Makarov's writings (2017) show that the ability to learn from the past, and to adapt to realities, has been a part of the development of the Russian Armed Forces for a long time, contrary to what some Western observers seem to conclude when they focus on the so-called Gerasimov doctrine.

Gerasimov (2019) expands on the development of a military strategy and the need for the operationalisation of it. "Theory without practice is dead", he states, quoting Field Marshal Aleksandr Suvorov (1730−1800). He notes that the Syrian operation had been inspired by the "strategy of limited actions". According to this strategy, each branch of service should create temporarily composed independent units with high mobility. These units are to be used to support Russian national interests abroad. The most important features in realising this strategy are to secure and maintain information supremacy, adequate readiness in command and control systems and support functions, and covert force deployment.

Gerasimov labels Russia's response to any threat as "the strategy of active defence", meaning the combination of military and non-military means. This includes military force, including irregular and armed groups, information operations, cyberattacks, and diversion; and diplomatic, economic, and political measures. The term itself, active defence, is historical and was used by the Red Army during the Great Patriotic War (*Voennyi entsiklopedicheskii slovar* 1983a, 1983b).

Today, this is in practice nothing new, and seems to be a rhetorical tool to characterise Russia's long-term campaign as being a response to what the Russian leadership claims to be a Western "hybrid war" against Russia (Johnson 2019). Gerasimov mentions the threats emanating from the American plans for "Prompt Global Strike", as well as the "Western techniques of colour revolutions and soft power". During his speech, he encouraged the auditorium to develop this strategy further, indicating that more work needs to be done.

According to the Russian General Staff, the notion of non-military means also encompasses science, sports, and culture (Gerasimov 2018). Both open and covert measures are used, not least to create doubts about the character of a conflict. Gerasimov encourages the Academy to develop plans and operations within this field, indicating that Russian military thinkers still have to do their homework within this area.

Both military and non-military means are to be used to prevent the enemy. It should be noted that in his speech in 2013, the ratio of non-military to military means was four to one. Six years on, he emphasizes the importance of military means and the coordinating role of the Armed Forces, indicating that military force is still very much a part of contemporary and future wars. This dovetails well with the intentions of the political leadership's ambitions. Already in 2006, Putin in his Annual Address drew up the guiding principles for this development (President of Russia 2006). "Modern Russia needs an army that has every possibility for making an adequate response to all the modern threats we face. We need armed forces able to simultaneously fight in global, regional and– if necessary– also in several local conflicts. We need armed forces that guarantee Russia's security and territorial integrity no matter what the scenario".

In his speech, Gerasimov emphasised the importance of domestic security, of preventing the opponent's attempts to destabilize, to create chaos, which would ultimately lead to the creation of ungovernable states. The role of the economy is central in case of war, he said. On the other hand, he doubted that the defence industry could deliver once the war had started. Therefore, he noted, it was important that the defence industry could already deliver in peacetime what the armed forces needed.

It is clear that the Russian General Staff is preoccupied with domestic security, fear of popular protest, separatism, terrorism, and other threats to

the political system. The Russian Armed Forces have a domestic role to combat "fifth columnists", as both Gerasimov and Putin have phrased it. This is consistent, in view of the threat perception that sees colour revolutions as both an external and internal threat.

4.5.3 Nuclear and non-nuclear deterrence

Current Russian security policy rests primarily on two pillars in the global arena: nuclear weapons and permanent membership of the United Nation Security Council. Strategic deterrence, with emphasis on nuclear deterrence, is the basis for Russian military strategy. Strategic deterrence has a broader meaning in Russia than in the West, and includes offensive and defensive measures, non-military means and coercion (Bruusgaard 2016).

In recent years, the discussion about a possible preventive use of nuclear weapons has sparked controversy both in Russia and in the West. Some of the military thinkers in Russia have argued for a change in the Military Doctrine that would explicitly regulate Russia's possible use of a preventive nuclear strike. It is therefore worth noting that the document, *Fundamentals of the state policy of the Russian Federation in the field of naval activities for the period until 2030*, signed by the President in July 2017, states that if a military conflict escalates, "a demonstration of preparedness and readiness to use non-strategic nuclear weapons, would be a strong deterrent factor" (Presidential Decree 2017). When the previous naval policy was approved in 2012, there was no mention of the use of nuclear weapons, only conventional ones, in de-escalating a conflict (Presidential Decree 2012; Zysk 2018). Just this fact, i.e. that non-strategic nuclear weapons are mentioned in this strategic document, could be interpreted to mean that the threshold for using nuclear weapons has been lowered. On the other hand, it could be seen as a part of strategic deterrence, with the political objective of coercing the adversary to cease aggression, through a demonstration of Russia's determination and readiness to bring hostilities to a halt.

At the same time, the current Military Doctrine has the same wording as was previously used to explain Russia's policy with respect to the use of nuclear weapons. Paragraph 27 states: "The Russian Federation reserves the right to utilize nuclear weapons in response to the utilization of nuclear and other types of weapons of mass destruction against it and (or) its allies, and also in the event of aggression against the Russian Federation involving the use of conventional weapons when the very existence of the state is under threat" (Military Doctrine 2014).

Furthermore, President Putin intervened in October 2018, saying that there was no pre-emptive option for the use of nuclear weapons (Putin 2018). "Our concept is based on a launch-on-warning strike", he said, and continued by describing the Russian missile attack early warning system. It is not clear, however, whether this means that the current Military Doctrine's first use of nuclear weapons has been altered.

In addition, Gerasimov mentioned the new weapon systems introduced by Putin in 2018: the *Avangard* hypersonic weapon system, the *Sarmat* intercontinental ballistic missile, the *Peresvet* laser system, the *Kinzhal* air-launched ballistic missile, the *Poseidon* intercontinental nuclear-powered nuclear torpedo, the *Burevestnik* intercontinental nuclear-powered nuclear cruise missile, and the *Tsirkon* submarine-launched cruise missile. It is evident that these weapons are an integral part of the strategy development, i.e. the technological development is a part of the strategy. These new weapons systems are clearly a part of Russia's strategic deterrence.

4.6 Russian security policy in a ten-year perspective

The current trends in Russian security policy indicate that the authoritarian policy at home and the anti-Western foreign policy will continue, if nothing else because the political leadership subscribes to the view that "those who are weak, get beaten" (Putin 2012).

Disinformation and other features of active measures used by Russia against its perceived enemies will continue. These are not new, and have been used by war-fighting countries for centuries. What has changed is the political will

to use these methods in full scale. Additionally, modern means of mass communication have enabled new effectiveness with even less effort. Russian actions in the West, such as meddling in elections, disinformation, cyberattacks, and so on are considered to be an adequate answer, and symmetric.

Moreover, the development of a military strategy is ongoing and the General Staff is adapting to future challenges. In doing so, military force still has a decisive role for success in contemporary and future wars. Non-military means are seen as an integrated part of contemporary military conflicts. Consequently, according to both current Russian military thinking and the political leadership's intentions, preparations for global, regional, and local wars need to be made. During the last decade, the military reform has delivered results, with achievements in Ukraine and Syria. The ability of the General Staff to learn from these and other conflicts, including the capacity to adapt and implement those lessons, will be vital for the development of a military strategy in the coming ten years.

To meet future challenges, military thought and doctrines need to find a balance between perceived threats and the resources available to meet them. Therefore, political support is essential – in any country and in any time. The political leadership describes the authoritarian Russian political system, with a strong figurehead at the top, as "the right one", feeding into the tradition of Russia as a great power. At the moment, the fights against presumed external and internal threats are reinforcing each other, as the political leadership wants to secure its survival.

4.7 Conclusions

There are some important drivers for this development that has occurred over the past ten years. One driver of Russia's aggression is the geopolitical worldview that permeates the political and military leadership. This holds that influence in the world is a zero-sum game. A consequence of this worldview is that the Russian leadership aims to restore Russia as a great world power, including in the use of military means, with a right to an exclusive sphere of interest.

Another driver of Russian aggression against Ukraine and the military operation in Syria is a political leadership that claims to be surrounded by a hostile West, and sees any form of popular discontent as a threatening colour revolution. Russian leaders do not consider colour revolutions as expressions of genuine popular discontent, but as a variant of Western soft interventionism, which aims towards regime change.

It is clear that threat perception at the doctrinal level has been more or less consistent over the years, whereas the security policy implementation of the stated objectives has been flexible. Already in the mid-1990s, the proclaimed goal was to make Russia a great power in the world, whereas it was only in the 2000s that resources were assigned for achieving that goal. Furthermore, after the war against Georgia, in 2008, a military modernisation reform was financed and launched. At the same time, foreign policy during the tenure of Dmitrii Medvedev did not contain much anti-Western rhetoric, but instead included such buzz-words as "reset" and "modernisation". Another example was how, in the beginning of his presidency, Putin talked about Russia as a potential member of NATO, but intervened militarily in Georgia and Ukraine when those countries clearly stated their own ambition to become NATO members. Consequently, this shows the importance of not just analysing what the political and military leadership says, but what policies are implemented.

The domestic situation indicates that years of uncertainty can be expected in the future. Society's distrust towards the political elites, in combination with the political leadership's various efforts to secure the survival of the political system they have created, continues to grow.

Regarding the debates about a possible use of nuclear weapons for a pre-emptive strike, opinions vary as to whether the Russian threshold has been lowered. It is clear, however, that Russia has mentioned the use of non-strategic nuclear weapons in a strategic document, which could indicate that also non-strategic nuclear weapons are a part of strategic deterrence, with the political objective of

forcing the adversary to refrain from aggression. In addition, the political and military leadership often mentions the new high-technology weapons systems introduced by Putin in 2018. This indicates that these are a part of Russia's strategic deterrence.

According to Russian doctrines, military force still has a decisive role in achieving success in contemporary and future wars. The non-military means are seen as an integrated part of contemporary conflicts that also include military means. According to both current Russian military thinking and the political leadership's intentions, preparations need to be made for global, regional, and local wars. Furthermore, the Russian military leadership thinks that the Armed Forces has a role in meeting domestic threats. This is a consequence of the view that so-called colour revolutions constitute both an external as well an internal threat.

It deserves to be noted that the sometimes confused debates in the West and in Russia over "hybrid war" and "colour revolutions", combined with the Russian political and military leadership's view of Russia as surrounded by a hostile West, entail the risk of deepening misunderstandings and miscalculations.

There are no signs of an immediate change in Russian security policy, but, in a ten-year perspective, change may come suddenly. The important point here, as the Crimean operation showed, is that there will not be any precise signs in advance. Therefore, Russia's ability to implement strategic diversion, disinformation, and provocation make it difficult to obtain clear indications of an imminent conflict ahead of time.

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5. The economy and military expenditure

Susanne Oxenstierna[23]

Ten years ago, in 2009, Russia experienced the worse economic downturn since the collapse of the Soviet Union. The country was hit by the global financial crisis and the gross domestic product (GDP) contracted by 7.8 per cent. The recession in 2009 marked the end of Russia's high growth era 2000–2008, which had been generated by the reforms of the 1990s, free capacity in the economy and a high oil price. After a short recovery, the economy has been on a downhill slope, which was accentuated after 2014 with the halving of the oil price and the Western economic sanctions due to Russia's aggression towards Ukraine.

GDP and military expenditure are indicators widely used to identify and measure countries' military power (Beckley 2010; Brooks & Stanley 2007: 3–4). Military expenditure provides an idea of the resources available to the military sector and its size relative to that of other countries, as well as its importance compared to other public spending. How will Russia's military expenditure develop during the next ten years? This question is relevant to investigate because military expenditure is a strategic factor in the development of future military capability, and its size and growth set critical limits for military expansion.

GDP is generally seen as a primary determinant of the growth and size of military expenditure. This was true for Russia during the period 2000–2011, when military expenditure rose, on average, at about the same rate as GDP. Nonetheless, economic growth is not the sole factor determining how military expenditure develops over time. Political priorities, or the political will to spend more or less on defence relative to other public commitments, play an important role (Oxenstierna 2019a, 2019b; Mathers 2019: 148). During the period 2012–2016, there was no correlation between the growth of military expenditure and economic growth in Russia; while GDP growth decreased or contracted, military expenditure continued to grow at high rates (Oxenstierna 2019b: 100–2, 106)[24]. This indicated a high political priority given to defence, which was manifested in defence gaining a rising share of GDP.

However, since 2016 the political leadership have put less emphasis on enhancing the defence budget. Signals that defence spending was to decrease had already emerged in the three-year federal budget 2017–2019. Since 2017, the share of total military expenditure in GDP has dropped, yet in 2018 it was still almost 4 per cent, which is high compared to the corresponding shares of the other great powers that Russia compares itself to – the United States (US) and China – as well as the average share of the European Union (EU) (see Figure 5.2 below).

The objective of this chapter is to assess Russia's military expenditure in a ten-year perspective. The analysis focuses on two variables that are assumed vital for determining military expenditure – economic growth and the political priority given to defence – and uses the results to create an indicative forecast of military spending up to 2029. The variable "economic growth" is expressed as the yearly real growth of GDP and the variable "the political priority given to defence" is assumed to be reflected in the share of total military expenditures in GDP.

This approach has been used in the economic chapters in earlier *Russian Military Capability in a Ten-Year Perspective* (RMC) reports (Oxenstierna & Bergstrand 2012; Oxenstierna 2013, 2016a). In RMC–2011, it was concluded, based on the period of high growth in the 2000s and a stable GDP share, that economic growth was the main

[23] I am indebted to Julian Cooper, Evelina Bonnier and Vasily Zatsepin for well-informed and constructive comments on previous drafts of this chapter. Any remaining errors or deficiencies of clarity are of my own making.

[24] The high defence spending is due to Russia's great power aspirations; see Chapter 1, for a more comprehensive literature overview of these issues, and Chapter 4, which discusses Russia's security policy in depth.

limitation to growth of military expenditure. In RMC−2013, it was found that the importance of the political priority had risen, a result based on an increased GDP share and analyses of revisions in the federal budget following the 2009 financial crisis,[25] but it was still argued that growth would be the main determinant of military expenditures in the ten years to come. Nonetheless, in RMC−2016, this result was rebuked since there was no correlation between the declining economic growth and the continuing rise in the GDP share of defence 2012−2016. The conclusion regarding the future was instead that the political priority would prevail as the main determinant, as long as long-term growth did not pick up. Higher growth was, and is still, regarded as highly implausible given Russia's politicised economic system (see further Gaddy & Ickes 2015; Yakovlev 2015; Oxenstierna 2015a; Aleksashenko 2019; Åslund 2019; Fortescue 2019).

The final sections of the present chapter discuss the trade-off between growth and political priority and argue, on the one hand, that because economic growth is weak and improving the population's living standard is presently highly prioritised, growth will set the limit for military expansion in the coming ten years. On the other hand, military expenditure and its GDP share may be raised for national security reasons, thereby making the political priority, or political will, decisive for growth of military expenditure.

The chapter starts with a brief review of past economic performance and the economic objectives as presented of President Vladimir Putin's fourth term, up to 2024. The military expenditures are analysed and the defence budgets up to 2021 are explored. The third section presents forecasts up to 2029 of military expenditures, under different assumptions regarding economic growth and the political priority given to defence as reflected in the share of military expenditure in GDP. The final section contains the conclusions.

5.1 Economic development

In 2008, the Russian economy stood at its peak, but in 2009 it was hit by the global financial crisis, and Vladimir Putin's third period in office, starting in 2012, has been characterized by weak economic performance. Investors lost confidence and capital flight more than doubled 2013−2014. Despite the oil price's staying at around $100 per barrel ($/bbl) between 2012 and 2014, growth fell from 3.7 to 0.7 per cent (Table 5.1). This was primarily due to weak productivity development and the structural problems in the economy that are largely caused by the failure to diversify from the hydrocarbon growth model, and Putin's political economy, with high dependence on commodity rents, "rent addiction", and a complex "rent management system" to balance the elites (Gaddy & Ickes 2015). Furthermore, the weak institutions, in particular the increasing lack of rule of law over the period, have resulted in resource allocation becoming increasingly political and competition being set aside in favour of state control and preferential treatment of sectors and actors deemed important by the political leadership. The democracy shortage and with it the lack of pressure from below, by an organised civil society, further inhibits change towards an allocation that would reflect the preferences of the population (Oxenstierna 2015a: 99−110).[26]

In 2015, Russia's economic performance contracted by 2.5 per cent. The halving of the oil price reduced the federal budget's incomes, which produced a budget deficit of over 3 per cent. This added to the credit crunch already caused by Western financial sanctions preventing Russian key state corporations and state banks from using the international financial markets. In response, the Russian government introduced a food embargo and other protectionist policies, such as "import substitution", that give advantages to domestic producers. The Russian rouble (RUB) was let to float and depreciated from around RUB 30 to RUB 60 to the US$ (Table 5.1). To finance the deficit, the government had to rely on internal

[25] These revisions of the federal budget are discussed in detail in Oxenstierna (2016b).

[26] There are popular protests, e.g. against the recent pension reform, and the president is sensitive to drops in his popularity rating (see further in Chapter 4). However, due to the restrictions, civil society cannot legally organise itself nor develop, which would be necessary if it were to have a more significant impact on social and economic development (Oxenstierna 2015b; Siegert 2015).

Table 5.1 Russian economic development 2012–2019

	2012	2013	2014	2015	2016	2017	2018	2019
GDP, bnRUB, current prices	67 930	72 883	78 928	83 101	86 010	92 089	102 190	108 316
GDP, bn$, current prices	2 203	2 28 9	2 057	1 364	1 283	1 578	1 631	1 610
GDP, y-o-y real change, %	3.7	1.8	0.7	-2.5	0.3	1.6	2.3	1.6
RUB/$ exchange rate	30.8	31.8	38.4	60.9	67.1	58.3	62.7	67.3
Inflation, %	5.1	6.8	7.8	15.5	7.1	3.7	2.9	5.0
Unemployment rate, %	5.5	5.5	5.2	5.6	5.5	5.2	4.8	4.8
Oil price, annual Brent, $/bbl	111.6	108.6	99.0	52.4	43.6	54.3	71.1	64.9
Government net lending/borrowing, % of GDP	0.4	-1.2	-1.1	-3.4	-3.7	-1.5	2.8	1.0

Sources: IMF (2019), April, estimates after 2017; Oil price, Statista (2019), estimate for 2019 (September).
Notes: bn – billion; RUB – roubles; y-o-y – year on year change; bbl – barrel.

reserves and selling debt domestically. In 2017, one of the oil funds, the Reserve Fund, was depleted.

In 2017, economic performance began to improve, while growth was reported at 1.6 per cent. In February 2019, the Federal State Statistics Service (Rosstat) reported an unexpectedly high GDP growth rate of 2.3 per cent (*Vedomosti* 2019a; Rosstat 2019[27]). Forecasts by Bloomberg, the International Monetary Fund (IMF), and Reuters in November/December 2018 had indicated a maximum growth of 1.7–1.8 per cent, the same level as forecasted by the Ministry of Economic Development (MED). However, at the very end of the year, MED raised its prognosis to 2.0 per cent (*Vedomosti* 2019c). In addition, adjustments of the reported GDP 2014–2017 were made and the new values are not comparable to earlier years. This is not the only case when Rosstat has adjusted indicators since President Putin presented the Decree (2018) on the economic goals of his present term up to 2024. This has raised questions regarding how reliable Rosstat's data are and experts would like to have more transparency around Rosstat's editing of vital statistics (*Vedomosti* 2019a, 2019b).[28]

5.1.1 Standard of living and poverty

Raising the standard of living has been an important objective for President Putin to maintain his popularity among the population and to gain acceptance for his authoritarian rule with restricted civil rights. During his first terms, when average growth was high, GDP per capita at purchasing power parity (PPP) rose by 7 per cent per year and the population experienced improvements, although the distribution of wealth was unequal. The latter was reflected in a rising Gini coefficient,[29] which describes the distribution of monetary income (Table 5.2). Since 2009, the average yearly GDP growth rate has been but 1 per cent per year, while GDP per capita PPP rose on average merely 2 per cent per year. Both the Gini coefficient and the relation between the deciles for the highest and lowest income-earners have fallen slightly, but remain high (Table 5.2).

[27] Rosstat data renewed 2 April 2019, GDP table 3a.

[28] Rosstat has been revising its GDP statistics since 2015 in an attempt to update its GDP definition from the System of National Accounts (SNA)-1993 to SNA-2008. On top of that, it is presently subject to a reorganisation, which may explain part of the confusion with data. After the transition from the Soviet state statistical agency, Goskomstat SSSR, Rosstat has most of the time been subordinated to the government, but in 2019, it was transferred to the jurisdiction of the Ministry of Economic Development (MED). Its director was removed and replaced by an MED employee. The high growth rate for 2018 has been explained by revaluating activities in oil extraction, infrastructure, and construction (Vedomosti 2019c; Rusmonitor 2019). In addition, some comments indicate that estimated production in the informal economy has been added to some sectors.

[29] The Gini coefficient is a measure of statistical dispersion intended to represent the income or wealth distribution of a nation›s residents. A Gini coefficient of zero expresses perfect equality; a coefficient of 1 expresses maximum inequality.

Table 5.2 Per capita income and Gini coefficient, Russia 2012–2019; $, *PPP, per cent*

	2012	2013	2014	2015	2016	2017	2018	2019
GDP per capita, $, current prices	15 358	15 942	14 306	9 478	8 910	10 962	11 327	11 191
GDP per capita, PPP, current prices, 2011 international dollars	25 523	26 406	27 063	26 645	27 002	27 964	29 267	30 284
GDP per capita, PPP, constant prices, 2011 international dollars	25 042	25 462	25 611	24 949	25 010	25 418	26 015	26 449
Change in GDP per capita, PPP, %	*3.6*	*1.7*	*0.6*	*-2.6*	*0.2*	*1.6*	*2.4*	*1.7*
Gini coefficient**	0.420	0.419	0.416	0.413	0.412	0.409*	0.411	NA
Highest decile to lowest, times**	16.4	16.3	16.0	15.7	15.5	15.2	15.5	NA
Poverty rate, % of population**	10.7	10.8	11.2	13.3	13.3	13.2	12.9	NA

Sources: IMF (2019); Gini coefficient and highest decile to lowest, Rosstat (2019).

Notes: PPP – purchasing power parity. NA – not available/applicable. The Gini coefficient reflects the equality/inequality in income distribution. A Gini coefficient of zero expresses perfect equality, a coefficient of 1 expresses maximum inequality. *Rosstat has lowered this figure after "sample observations of the population's living standard". **IMF figures are estimates after 2017; Rosstat's figures for 2018 are preliminary.

The share of the population below the official poverty line, RUB 10 700 per month ($164), was 13 per cent, the "poverty rate", or almost 20 million persons in 2018 (Table 5.2). Moreover, the World Bank (2019: 22) reports that there is a significant group of socially vulnerable households just above the poverty line. The poverty rate's lowest point occurred in 2012–2013, when about 11 per cent, or 15 million people, had incomes below the official subsistence minimum. However, Putin now wants this indicator halved, which means that the poverty ratio should be reduced to 6.5 per cent, which in turn implies that the number of people living under the subsistence minimum in 2024 would be about 9.5 million (Decree 2018).

5.1.2 Demography and labour market

The population of Russia is shrinking and this tendency will continue during the next 10 years. The decreasing tendencies are transpiring particularly in the working ages; by 2030 Russia's employment level will be 7 million less (65.5 million persons) than in 2015 (72.3 million). The major losses in employment are concentrated to the younger age groups, whose contribution to employment will have shrunk by 25 percent (Gimpelson & Kapeliushnikov 2019: 129). The labour force is aging, which may impact employment rates and productivity, due to the reduced employability and contemporary skills of older workers compared to younger.

Because increase in employment is one of the basic determinants of economic growth, this 10 per cent projected decrease represents a major problem for the economy. The proposals for improving the situation are to raise labour productivity and allocate labour more efficiently, increase immigration of the population in working ages, and raise the pension age. Affecting labour productivity and the efficiency of allocation will be hard in Putin's politicized economy. Migration and looking at "labour reserves" in the population outside employment may produce some results if incentive systems and state regulations are adjusted.

Migration

In the medium term, immigration is an important part of the solution to the labour shortage, since all people who will be part of the labour force in ten years' time are already born. In 2018, 566 000 people came to Russia from other countries, the majority from the Commonwealth of Independent States (CIS), and the largest numbers were from Ukraine, Kazakhstan, and Tadzhikistan. However, the same year, 441 000 persons left the country, which gives a net migration result of merely

125 000 persons, and all are not labour migrants (Rosstat 2019).

Periodically, net migration to Russia has been higher and it obviously varies with the rules and regulations of immigration policies, which have been volatile and changing. The new Concept (2018) of State Migration Policy 2019–2025 and subsequent migration laws are aimed at easing migration of labour resources, albeit with a preference for immigrants of Slavic origin, such as ethnic Russians living abroad, Ukrainians, and Belarusians (WPR 2019).

Pension reform

The Russian pension age has been comparatively low and pensioners have traditionally been seen as a reserve labour force; in fact, many pensioners work. In 2018, the government undertook a pension reform, which implies that the retirement age will be raised gradually from 60 to 65 years for men by the year 2028. For women, the retirement age will rise from 55 to 63 years, gradually, up to the year 2034 (TASS 2018b). The reform went into effect in 2019 and has met strong popular protests (see also Chapter 4). Estimations indicate that the increase in retirement age may add a maximum of around 1 million persons to the labour force up to 2030, which implies that in 2030 the economy will still need to manage with 6 million less employees compared to 2015 (Gimpelson & Kapelyushnikov 2019: 132).

Informal employment

Another reserve in the Russian labour market is the high proportion of informally employed, i.e. people who work with neither a contract nor social insurance. If more people were to become formally employed, the numbers of officially employed would rise and it would be easier to monitor and improve productivity and the allocation of labour. Interestingly, informal employment has been rising in the 2000s. The World Bank (2019: 27) reports that it rose from 12.5 per cent of total employment in 2001 to 21.2 per cent in 2016. A reason for this is the difficulties small companies and the self-employed have in managing the corrupt bureaucratic environment for entrepreneurs, typical for Putin's economic system. Different estimations indicate that informal employment lies around 20–30 per cent of total employment (Gimpelson & Kapelyushnikov 2015: 41).[30]

5.1.3 Potential growth and economic policies

A growth rate of around 1–2 per cent is what most economists forecast for Russia in the coming years. According to a World Bank study, by Okawa & Sanghi (2018), the potential growth of GDP – the maximum growth that an economy can perform under given institutional conditions, if economic resources are used efficiently – is estimated to fall from 1.5 percent to 1.3 per cent in 2023. After that, potential growth will be 1.5 percent under present conditions. The study identifies total factor productivity, investments, and labour as the main drivers of potential growth.

The slowdown in growth since 2008 is mainly attributed to the slowdown in productivity growth and the shrinking potential labour force. In order to boost potential growth, Okawa & Sanghi (2018) argue that Russia needs to: increase the pension age and raise labour force participation of older age groups; increase immigration from the present 125 000 persons per year to 290 000; raise the investment/GDP ratio from 23 per cent to 34 per cent; and increase productivity by improving the institutional environment and strengthen economic competition in all sectors. If all these measures were to be undertaken and proved successful, potential growth could increase to 3 per cent by 2028.

Putin's economic programme up to 2024

How does the political leadership plan to improve Russia's growth prospects? Putin's Presidential Addresses (2018, 2019) before and after the presidential elections and the Decree (2018) on the strategic goals and tasks for development up to 2024, show that no reforms addressing the structural problems of the economy are foreseen. Instead, Putin just stipulates that the government must achieve certain goals, which resemble

[30] The official number of employed is 72.2 million and the labour force participation rate is 67.9 per cent (CEIC 2019).

mandatory plan targets, by 2024. Most of these targets can hardly be reached using only the administrative levers available to the government.

For example, according to the Decree (2018), Russia should be among the five largest economies in 2024. Presently, Russia has about 3 per cent of the world economy PPP (IMF 2019) and ranks between 11th–13th, depending on which ranking system is used. To be among the top five, as Putin wishes, would demand changes of policies that expand international trade cooperation and the removal of all internal administrative and political impediments to growth. By 2030, the GDP per capita should have risen 1.5 times, along with another goal, the halving of the level of poverty. These require steady growth of 4–5 per cent per year and measures to seriously reduce inequality.

Putin addresses the demographic problems by saying that the number of births should increase to 1.7 per woman and the number of infant deaths should be reduced to 4.5 per 1000 children. It is quite obvious that, at best, this would only affect the labour force 20 years from now, and later. Further, he argues that the average life expectancy of the population should increase from 72 to over 80 years by 2024 (Decree 2018). To support this target, it is intended that funding of public healthcare will be increased to 4–5 per cent of GDP, which represents a doubling of health costs over six years.

To work on the new development goals announced in the Decree (2018), the government has created a number of national projects, which total RUB 25 700 billion (about $390 billion), and will correspond to 2.8–3.2 per cent of GDP annually during the period 2019–2024. The projects are divided into three main areas: human capital, quality of life, and economic growth. The national projects are mostly financed from the federal budget and the rest comes from regional budgets and extra budgetary funds. In addition, if the liquid part of the National Wealth Fund exceeds 7 per cent of GDP by the end of 2019, this could open up for the government's investing in infrastructural projects (World Bank 2019: iv). To monitor the achievements of the national projects, detailed performance indicators have been developed and were approved by the government in February 2019. They are published on the website of Rosstat (2019), both to monitor and report the achievements to the public.

5.2 Military expenditure

Studying a country's military expenditure provides a general measure of the resources provided to the military; it also conveys a sense of the size of the military establishment relative to other countries, and of the relative importance of defence in comparison with other public spending (RAND 2000: 136). The size and growth of military expenditure is a strategic factor for building military capability; it may be assumed that increases in military spending enhance the development of a stronger capability. Characteristic for Russia's military expenditures during the period 2011–2016 is that they grew faster than GDP (Oxenstierna 2015b, 2016a, 2016b, 2019a, 2019b). This trend was broken in 2017 and military spending has decreased 2017–2018 (Oxenstierna 2019a, 2019b).

5.2.1 Definitions and data

Discussions of Russian military expenditure involve different definitions of defence spending. The first regards the defence budget within the federal budget, the budget line "national defence". This definition is used in Russian discussions and publications about defence spending and when Russia's defence spending is compared to other public spending. Data on the defence budget can be found in the Ministry of Finance's (MoF) preliminary budget, and in the amendments and actual spending in the budget audits of the Accounts Chamber.[31] Classified spending is not included in the final budget law and, on a disaggregated level, large parts of the defence budget are classified. This means it is difficult to assess what the classified spending is used for. However, on a more aggregated level, the sums of classified items are included in MoF's preparatory documents, in the monthly reports on budget

[31] Accounts Chamber is the official translation of *Schetnaia palata,* the parliamentary body of financial control in the Russian Federation. Also referred to as the Audit Chamber and sometimes Accounting Chamber.

spending of the Federal Treasury, and in the Accounts Chamber's reports on budget planning and budget execution.[32]

The second widely-used definition of military expenditure is that of the Stockholm International Peace Research Institute (SIPRI). SIPRI uses the same definition of military spending for all countries, which explains why this definition is applied when Russia is compared to other countries. SIPRI's definition of military expenditure is broader than the one based on only the Russian defence budget, and includes the expenditures for: the armed forces and peacekeeping forces; the Ministry of Defence (MoD) and other government agencies engaged in defence projects; paramilitary forces; and military space activities. SIPRI's definition also includes the full costs of personnel, including pensions and social services; operations and maintenance; arms procurement; military research and development (R&D); and military aid (SIPRI 2018).

A third definition is that used by the Gaidar Institute, located in Moscow, the only Russian economic institute publishing on the military economy, which is "total military outlays connected with current and past military activities". Unlike SIPRI's, this definition includes the cost of mobilisation of the economy and the utilisation of old weapons and munitions. However, when comparing rouble data from SIPRI and the Gaidar Institute for Russia's total military expenditure, most of the difference, particularly in later years, is explained by the fact that the Gaidar Institute attributes more expenses under other budget posts (than national defence) to military expenditure.

Finally, another potential source of information on the composition of Russian military expenditures is Russia's reporting to the United Nations (UN). Unfortunately, this reporting is incomplete and inconsistent with the data from the federal budget. Over the years, the total sum spent on defence, according to the UN reporting, has been both above and below the official Russian defence budget (Oxenstierna & Bergstrand 2012: 46–7; Gaidar Institute 2017, 2018, 2019). The UN statistics are based on Russia's own reporting to the international community, and could be a source of more detailed information if they could be made comparable with those resulting from the extrapolation of items in the Russian federal budget.

Data reflecting the development of military expenditure

SIPRI's data are widely used for comparisons of military expenditures across countries. Concerning Russia, one should be aware of some elements that are uncertain. First, data is collected from national budgets in local currency, and access and interpretations of which items should be added to, or subtracted from, the national defence budget to reflect SIPRI's definition of total military expenditure may vary. For instance, SIPRI's rouble data on Russia's total military expenditure differ from the Russian Gaidar Institute's (2017, 2018, 2019) assessments of total military spending, which are also derived from the federal budget. Some years the differences are small, but sometimes they are quite significant.

Most cited in the media are SIPRI's data on total military expenditures in US$ (Figure 5.1, overleaf). These data are derived from the data in local currencies and are sensitive to variations in the exchange rate of the US$ to different local currencies, which affects both the total magnitudes and SIPRI's ranking of countries' military expenditures. When a currency is volatile and depreciates (or appreciates) to the dollar, as has been the case with the Russian rouble, it appears as if military spending has dropped (increased) significantly in dollar terms, although this is not the case when measured in the local currency in which most military spending is made. Thus, it is important to understand that changes in reported military expenditures do not fully reflect changes in the conditions of creating military capability.

Comparisons of military expenditures are sometimes made in PPP. SIPRI does not report this indicator, since the PPP factors, developed by the Organisation for Economic Cooperation and Development (OECD) for comparisons of GDP according to PPP across countries, are calculated

[32] On classified spending, see Gaidar Institute (2017, 2018, 2019); and Cooper (2013).

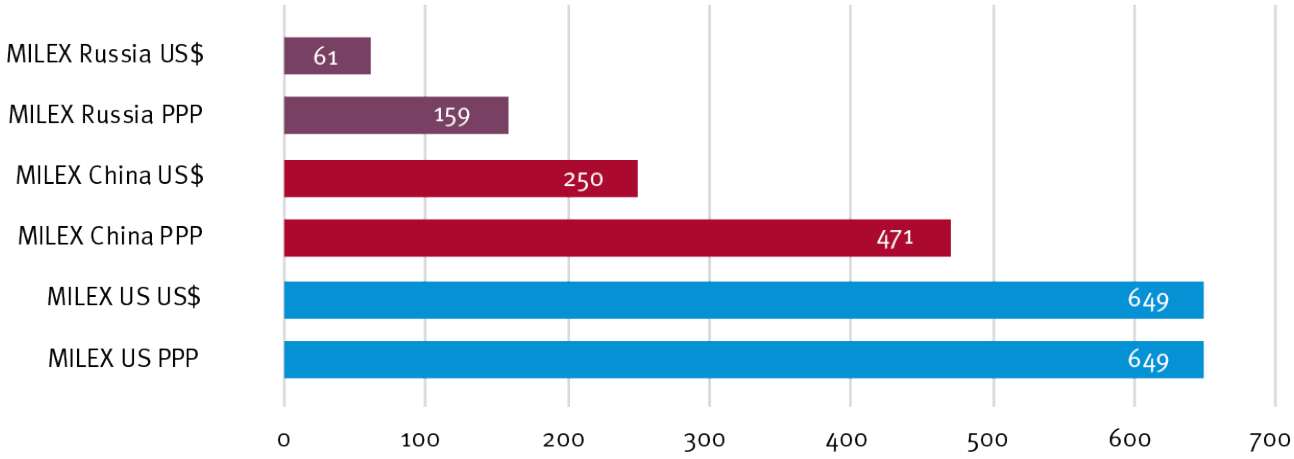

FIGURE 5.1 Military expenditures of the US, China and Russia in 2018; *current prices, billion US$, PPP*

Sources: SIPRI (2019); IMF (2019).
Notes: MILEX – total military expenditures. PPP – purchasing power parity.

on a standard basket of consumer goods and do not include military goods. Applying PPP on Russian military expenditure implies that Russia becomes the 5th country, instead of the 6th, in SIPRI's ranking. As shown in Figure 5.1, with PPP, Russia's total military expenditures [purple bars] are about a fourth, instead of a tenth, of those of the US [blue bars]. China [red bars] has about 2.6 times the military expenditure of Russia evaluated with PPP, and, in nominal terms, is 3.5 times higher.

Another popular indicator is the yearly growth of military spending calculated from SIPRI's US$ data in constant prices. The yearly growth indicator suffers from the same exchange rate problems as the totals in US$ and, in addition, a price index has been used to remove inflation. There are different price indices that produce different results and, generally, it may be questioned how well the commonly applied consumer price index (CPI), or GDP deflator, reflects inflation in military expenditures, which include acquisition of arms and equipment that are not sold on competitive markets. Yearly growth may also be calculated from RUB data in constant prices. These data are also sensitive to which price index is used and which year is the base year. As a rule, growth rates calculated from RUB data are not congruent with growth rates calculated from US$ data and may differ significantly for individual years.

The yearly growth rate as well as totals are also affected by how military procurement and its financing are accounted for between years in different countries' defence budgets. In the Russian case, repayments of the defence industry's state-guaranteed bank loans in connection with the State Armament Programme 2011–2020 (GPV-2020) have been included in and paid by the national defence budget during later years, which means the defence budgets for these years include military spending already made during earlier years (see Table 5.6 below). For these reasons, major shifts in growth of military expenditures between individual years may not reflect relevant changes in military expenditure that actually affect military capability.

An indicator that reflects development of military expenditure over time and in relation to other public spending in a country is military expenditure as share of GDP. This indicator is published by SIPRI every year. It has the advantage of being calculated in local currencies in current prices, and does not suffer from the problems created by exchange rates or price indices. The Gaidar Institute presents similar calculations for both the national defence budget and total military expenditure, which are similar to SIPRI's. Since the share of GDP reveals how much of a country's total output goes to the military, its development over time reflects the priority attributed to defence,

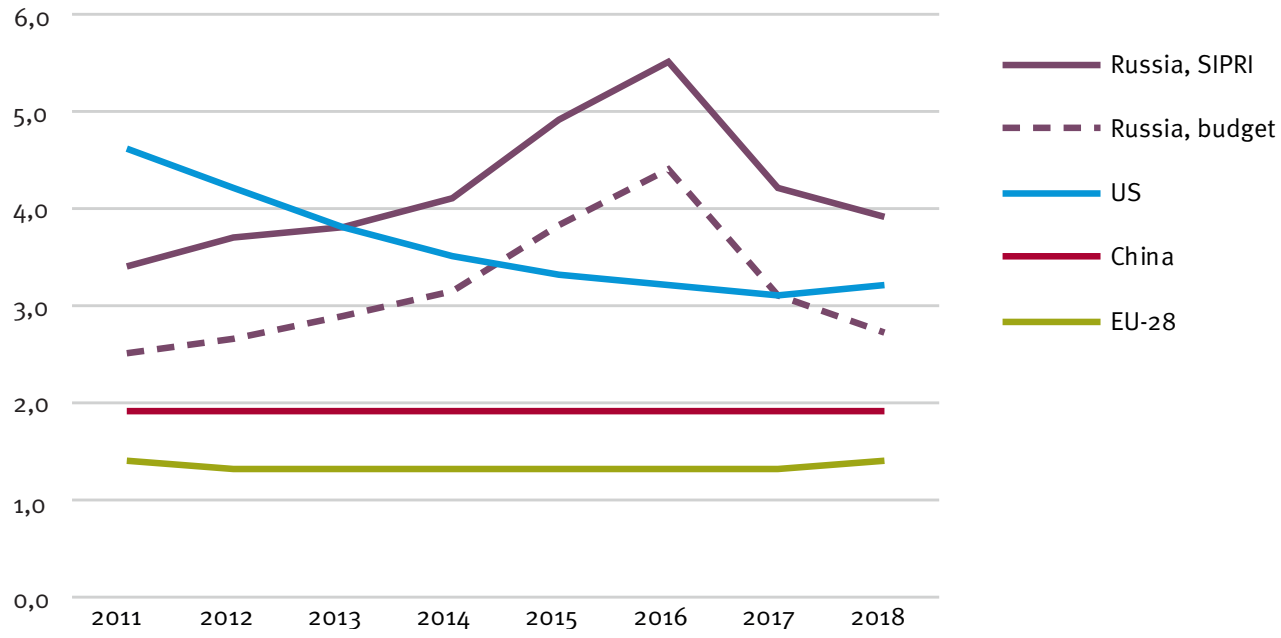

Figure 5.2 Military expenditure and national defence budget as share of GDP 2011–2018; *per cent*

Sources: SIPRI (2019); Share of the Russian national defence budget, Gaidar Institute (2019: 617).

or the political will to build military power (see Figure 5.2).

5.2.2 Military expenditure since 2016

Since 2016, defence spending in Russia has been on a decreasing trend. In 2017, total military spending evaluated in RUB in constant 2017 prices decreased by 11 per cent compared to 2016 and in 2018 by 9 per cent (Gaidar Institute 2019: 616–18). According to SIPRI (2019), total military spending fell by 19 per cent in 2017 and by 3.5 per cent in 2018.[33] Military expenditure for the years 2015–2018 includes the return of state-guaranteed credits to the banks that the defence industry could use for the GPV2020, which affects the size of the defence budget for those years. These payments were a large part of the defence budget, particularly in 2016 and 2018 (see further Table 5.6, below).

Priority given to defence

As can be seen in Figure 5.2, as a result of the smaller defence budget, the Russian share of total military spending in GDP [purple line] has dropped from 5.5 per cent in 2016, to 4.2 in 2017, and 3.9 in 2018. Yet, this is still a high share compared to the US [blue line], China [red line], and EU-28 [green line], as can also be seen in Figure 5.2. The share of military spending reflects the political will to prioritize defence relative other areas of public spending. The present trend is that the political leadership has started to adjust military spending to economic realities to restore the budget balance and provide some room for other areas of spending. Thus, defence appears to have had less political priority 2017–2018 than was the case 2012–2016.

The national defence budget

Judging from the federal budget 2019–2021, the plan is to keep the GDP share of the national defence budget under 3 per cent during the period (Table 5.3). This implies that the share of total military expenditure will lie around 4 per cent during the nearest three years.

Table 5.3 shows that the government tries to diminish the share of the federal budget in

[33] The RUB growth figures are derived from the Gaidar Institute's totals in current prices divided by the GDP deflator with 2017 as base year. SIPRI's figures are calculated from their totals in US$ in constant 2017 prices. SIPRI uses the CPI of the IMF. As remarked above, growth data are sensitive to how they are derived.

Table 5.3 Federal budget 2017–2021; *current prices, billion RUB, per cent of GDP*

	Expenditures in billion RUB					Share of GDP, %*				
	Actual	Actual	Budget	Budget	Budget	Actual	Actual	Budget	Budget	Budget
Budget items:	**2017**	**2018**	**2019**	**2020**	**2021**	**2017**	**2018**	**2019**	**2020**	**2021**
General state matters	1 162	1 253	1 407	1 429	1 540	1.3	1.2	1.3	1.3	1.3
National defence	2 852	2 826	2 914	3 019	3 160	**3.1**	**2.7**	**2.8**	**2.7**	**2.7**
National security[a]	1 918	1 971	2 247	2 217	2 296	**2.1**	**1.9**	**2.1**	**2.0**	**1.9**
National economy	2 460	2 402	2 656	2 602	2 814	**2.7**	**2.3**	**2.5**	**2.3**	**2.4**
Housing and municipal matters	120	148	192	197	188	0.1	0.1	0.2	0.2	0.2
Environment protection	92	116	197	231	268	0.1	0.1	0.2	0.2	0.2
Education	615	723	829	847	881	**0.7**	**0.7**	**0.8**	**0.8**	**0.7**
Culture, cinematography	90	94	125	116	122	0.1	0.1	0.1	0.1	0.1
Health care	440	537	653	918	856	**0.5**	**0.5**	**0.6**	**0.8**	**0.7**
Social policy	4 992	4 582	4 891	4 924	4 758	**5.4**	**4.4**	**4.6**	**4.4**	**4.0**
Physical culture and sport	96	64	55	55	50	0.1	0.1	0.1	0.0	0.0
Media	83	88	75	68	69	0.1	0.1	0.1	0.1	0.1
Debt management	709	806	852	968	1 095	0.8	0.8	0.8	0.9	0.9
Transfers in the budget system	791	1 095	944	928	930	0.9	1.1	0.9	0.8	0.8
Total expenditures*	**16 420**	**16 705**	**18 037**	**18 520**	**19 025**	**17.8**	**16.1**	**17.0**	**16.7**	**16.1**
GDP	*92 101*	*103876*	*105 820*	*110 732*	*118 409*	–	–	–	–	–

Sources: GDP 2018, Rosstat (2019); Actual budget execution 2018, Accounts Chamber (2019); Budget execution 2017 and budget 2019–2021, Accounts Chamber (2018: 33–4).

Note: *Calculated by the author. a) National security is the budget chapter devoted to public order and safety. It includes spending on the security services and the National Guard, as well as on law inforcement, and the judiciary (Cooper 2013: 15, 23).

GDP to around 16 per cent. Putin's declared policy intention is to improve human capital and health, but education is to receive but a moderate spending rise, from 0.7 to 0.8 per cent of GDP, through the federal budget. Health care spending on the federal level should rise from 0.5 per cent to 0.8 per cent of GDP. It should be noted that these items get substantial additional support from the regional budgets, and shares are not directly comparable to those of national defence, which is planned to correspond to 2.7 per cent of GDP in 2021; national security, 1.9 per cent; and the national economy, 2.4 per cent; and which mainly burden the federal budget.

Composition of the national defence budget

Information on the composition of the national defence budget is sparse, but some information is available in the federal budget. As shown in Table 5.4, seven sub-items are provided in the defence budget: the Armed Forces, mobilisation and ex-forces training, mobilisation of the economy, the nuclear weapon complex, international military-technological cooperation, applied R&D, and other matters in the field of national defence.

Most spending, in fact 77–78 per cent of the budget, is aggregated under the heading of the Armed Forces, which includes the procurement and salary costs. The nominal spending for this item dropped in 2017, when the defence budget was reduced. A further decrease may be noted in 2018. Among the other budget items, it can be seen that the nominal spending for the nuclear weapon complex dropped in 2017, but was restored in 2018. Spending on applied R&D was considerably reduced in 2017 and in 2018 was still at a significantly lower level than it was in 2016 (Table 5.4).

Table 5.4 Disaggregated national defence budget 2016–2018; *current prices, billion RUB, per cent.*

	Expenditures in billion RUB			Share of defence budget, %*		
	2016	**2017**	**2018**	**2016**	**2017**	**2018**
National defence budget, of which:	3 776.2	2 852.2	2 827.0	100	100	100
Armed forces	2 936.5	2 219.1	2 163.1	77.8	77.8	76.5
Mobilization and ex-forces training	6.9	6.6	7.1	0.2	0.2	0.3
Mobilization of the economy	3.6	3.4	3.2	0.1	0.1	0.1
Nuclear weapons complex	45.6	44.4	45.1	1.2	1.6	1.6
International military-technological cooperation	9.9	8.8	10.1	0.3	0.3	0.4
Applied R&D in the field of national defence	471.3	270.5	324.9	12.5	9.5	11.5
Other questions in the area of national defence	302.5	299.5	273.6	8.0	10.5	9.7

Sources: Gaidar Institute (2017: 510; 2018: 549; 2019: 610); author's calculations.
Note: *Calculated by the author. Numbers are rounded in Excel and may not add up to exactly 100%.

5.2.3 Personnel costs

The normative number of total personnel in the Armed Forces was 1 903 758, of which 1 013 628 were military personnel and 890 130, civilian personnel, in 2017 (Decree 2017). No change in these numbers has been reported for 2018. These numbers regard the size of the Armed Forces in peacetime. In connection with the updating of the federal laws, "On mobilisation" and "On military service", in 2017, the media reported that, in wartime, Russia would mobilise up to 1.7 million men for military service (*Vedomosti* 2017).

The normative number of personnel is not the same as the actual number of personnel. As a rule, the totals reported for different categories of personnel have been under planned limits and decreed numbers (Oxenstierna 2019a: 95). The MoD has not been able to fill the ranks and the number of military personnel has remained around 900 000 during later years (see further in Table 2.1, in Chapter 2). A main reason is that the demographic decrease in the young age groups affects not only the labour force but the number of conscripts available to the Armed Forces, and there will be no substantial improvement up to 2029 (Oxenstierna & Bergstrand 2012: 54).

Personnel costs have been lower than acquisition costs and their share of the defence budget and total military expenditure fell during several years (Table 5.5). After a new law on military salaries and benefits was adopted in 2011, salaries and

Table 5.5 Personnel costs in the Armed Forces 2012–2018; *billion RUB, per cent*

Type of personnel costs	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Military personnel	353	379	401	430	474	490	507
Civilian personnel	189	213	211	204	199	198	210
Total salaries, bnRUB	**542**	**593**	**612**	**634**	**673**	**688**	**716**
% of defence budget	*30*	*28*	*25*	*20*	*18*	*24*	*25*
% of MILEX	*19*	*18*	*16*	*15*	*15*	*17*	*18*
Military pensions, bnRUB	253	263	287	305	327	338	343
Total personnel costs, bnRUB	**795**	**855**	**899**	**939**	**1 000**	**1 027**	**1 060**
% of MILEX	*28*	*26*	*23*	*22*	*22*	*25*	*27*
% of GDP	*1.2*	*1.2*	*1.1*	*1.1*	*1.2*	*1.1*	*1.0*

Source: Gaidar Institute (2019: 615a6); author's calculations.
Notes: MILEX – total military expenditure. All percentages are calculated and rounded in Excel.

their share of the defence budget rose (Oxenstierna 2019a: 94). The average monthly salary for a military serviceman in 2018 was RUB 68 800 ($1 085) and the average monthly military pension, RUB 24 600 ($392).[34] Additional monetary and other benefits in the complex payment system indicate that pay can vary considerably and that soldiers and lower ranks may earn less than these averages. In 2018, the share of salaries in the defence budget rose to 25 per cent, and total personnel costs, including military pensions, were 27 per cent of total military expenditure, which is about the same level as in 2012, after new law had been adopted (Table 5.5).

5.2.4 Procurement costs

Arms procurement costs rose after the beginning of the GPV-2020 up to 2016, and the State Defence Order (GOZ) corresponded to over 2 per cent of GDP, and over 60 per cent of the defence budget (Table 5.6). Procurement of armaments has corresponded to around 65 per cent of the GOZ on average, which means that the shares of R&D and of maintenance and repairs in the GOZ have been around 15 and 20 per cent, respectively (Frolov 2018: 12).

The increases in procurement are the main cause of the rise of the defence budget up to 2016. However, as seen in Table 5.6, in 2017, the GOZ declined, and in 2018, it was further decreased and amounted to 46 percent of the defence budget and just 1.2 per cent of GDP. Table 5.6 also shows how repayments of credits in 2016 and 2018 corresponded to almost 40 per cent of the GOZ and around 20 per cent of the national defence budget. In addition, interest payments constituted almost a third of the repayments (Gaidar Institute 2019: 616). It follows that the rise in military expenditure during these years does not fully reflect a rise in procurement that affects military capability.

The new GPV-2027 for the period 2018–2027 was signed by the president in February 2018 (*TASS* 2018a). The yearly GOZ is expected to decline under the GPV-2027, compared to the situation under GPV-2020, and the defence industry is anticipated to increase its production of civilian and dual-use goods, as well as boost arms exports to compensate for the smaller state arms procurement (see further in Chapter 6 for a detailed discussion of GPVs, actual arms deliveries, and planned procurement).

5.3 Military expenditure in a ten-year perspective

Using the information presented and analysed in the introduction and Sections 5.2 and 5.3, I proceed to the issue of Russia's military expenditure in a ten-year perspective. The basic assumption is that military spending is dependent on economic

Table 5.6 State Defence Order (GOZ) 2012–2018; *billion RUB, per cent*

	2012	2013	2014	2015	2016	2017	2018
GOZ bnRUB*, of which:	888	1 283	1 676	1 767	2 101	1 469	1 297
Return of credits incl interest, bnRUB				182	792	187	477
% of GOZ				*10*	*38*	*13*	*37*
% of national defence budget				*6*	*21*	*7*	*17*
GOZ % of national defence budget	49	61	68	56	56	51	46
GOZ % of MILEX	31	38	43	42	46	36	33
GOZ % of GDP	1.3	1.8	2.1	2.1	2.4	1.6	1.2

Source: Gaidar Institute (2019: 606, 616); author's calculations.

Notes: MILEX – total military expenditure. *Including use of credits and return of credits with interest payments. All percentages are calculated and rounded in Excel.

[34] The average wage in the Russian economy in 2018 was RUB 44 000 ($702) (Rosstat 2019). The average pension was RUB 14 100 ($202) (TASS 2018b).

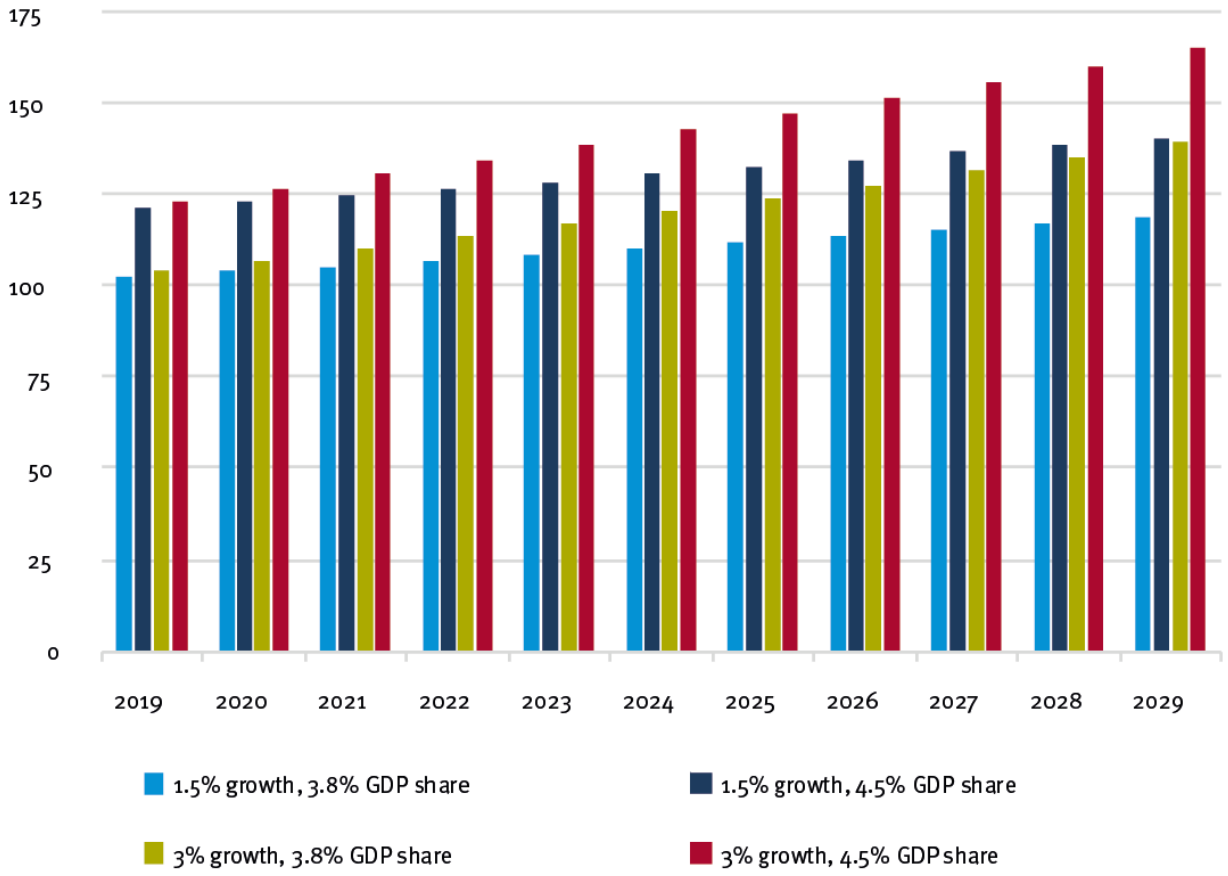

Figure 5.3 Estimated increase in total military expenditure under different assumptions of growth and share of GDP 2019–2029; *2018=100*.

Source: Author's calculations.

growth and the political priority given to defence. To forecast future military spending, concrete assumptions regarding these two variables need to be made. Above, in the economic development section, on potential growth and economic policies, it was explained that potential growth in Russia up to 2030 lies around 1.5 per cent, and that this number could increase to 3 per cent at the end of the period if efforts were made to increase the labour supply, the investment ratio, and total factor productivity. When it comes to the priority given to defence relative other public spending, as reflected in the share of defence in GDP, it was 3.8–3.9 per cent in 2018, and the average of this share has been 4.2–4.5 per cent during the last eight years (Figure 5.2; SIPRI 2019; Gaidar Institute 2017, 2018, 2019). The basic numbers in the scenarios below are based on these results. I have chosen to present four scenarios, using 1.5 per cent and 3 per cent as alternative growth rates, and 3.8 and 4.5 per cent as alternative shares of GDP (Figure 5.3).

Figure 5.3 illustrates the outcomes of total military spending under different assumptions of growth and how much of GDP the political leadership is ready to devote to defence. The diagram shows that if growth is low, redistributing resources to defence by increasing its share of GDP is an effective way of raising military spending in the short-run. Higher growth with a lower defence share needs more time to increase military spending to the same level.

The assumptions in this example imply that growth of 1.5 per cent and a defence share of 3.8 percent [blue columns] will raise total military spending by 19 per cent up to 2029. Growth of 1.5

per cent and a defence share of 4.5 per cent [dark blue columns] will create strong results mid-term, but, in the end, will imply that defence spending rises by 41 per cent. This is the same level as the 40 per cent, which is achieved with the higher growth of 3 per cent and a lower defence share of 3.8 per cent [green columns]. Finally, 3 per cent growth and a defence share of 4.5 per cent [red columns] would raise defence spending by 65 per cent over the ten-year period.

Other levels of growth and the share of defence in GDP may be applied to create other hypothetical scenarios. The growth rates applied here are what the expertise referred to above regards as feasible for the Russian economy in the medium-term. A total defence share in GDP of 3.8 per cent is consistent with the shares of 2.7–2.8 per cent foreseen for the national defence budget in the federal budget 2019–2021. However, if growth does not meet expectations and there is political will to keep military expenditures at a certain level, or to raise them, the share may be increased to a higher level, as has been observed in the near past. This is a question of political priorities.

5.4 Conclusions

After a period of high military spending, Russia's total military expenditure is now on a downward trend. It has fallen from over 5 per cent to 3.8–3.9 per cent of GDP, which represents a decrease, but this is still a high share compared to the other great powers, the US and China. This means that although Russia's spending in nominal terms is lower than that of its perceived potential adversaries, Russia continues to forsake a greater share of its GDP to at least maintain the higher level of military capability it has achieved thanks to the military reform, the GPV-2020, and prioritising defence spending over other public spending during a period of falling economic growth. A reason for ascribing lower priority to defence now is that the military reform and the GPV-2020 have produced visible results. During recent years, Russia has been able to demonstrate its status as a military great power at home and abroad.

The political leadership has instead turned its attention to the state of the economy and its weak growth. Low growth hampers improvements in the population's living standard, which challenges the president's popularity rating, also another important priority. However, it is not through market reform that the president wants to restore growth; it is rather with administrative methods and by stipulating plan targets. A wide range of national projects has been created to accomplish ambitious goals regarding the economy's ranking internationally and the population's health and living standard. However, under present institutional arrangements, without economic reforms, it will be hard to raise growth sufficiently to achieve these goals.

In a simple hypothetical forecast of military expenditure up to 2029, it was found that military expenditure could increase by 20–65 per cent over the next ten years, depending on different assumptions about economic growth and the share of defence in GDP. This exercise does not tell what the most plausible scenario is, but it gives an idea of the dimensions and the trade-off between economic growth and the priority given to defence as factors determining military spending. The weight of these two factors in decision-making will depend on how the political leadership wants to balance them in different political situations.

Phrasing this in the terminology of the chapter on security policy above (Chapter 4), improvement in economic growth and disposable incomes that directly affect the population's well-being are vital for regime survival and, more generally, for "domestic security", while a high GDP share of defence is primarily linked to great power ambitions and, accordingly, to "military security" and "foreign security". That Russian security policy is quite flexible is a critical finding of Chapter 4, which supports the notion that the political leadership is responding to new situations and that the factors underlying decisions are reassessed and rebalanced, i.e. priorities may change quite considerably over time.

Thus, the main conclusion of this discussion on Russian military expenditure during the next ten years is that, because potential and actual GDP-growth are anticipated to be low, and improvement of the population's living standard has become

an important priority of the political leadership, economic growth will set the limit for military expansion in a ten-year perspective. But, as Russia is an authoritarian state, the leadership can at any time increase defence spending and its GDP share, at the expense of other policy areas, should it find it necessary for national security reasons, thereby rendering the political priority given to defence a decisive role for growth of military expenditure.

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6. Russian armament deliveries

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Russia is one of a handful of countries that still have the ambition of keeping a defence industry that covers the entire line of military systems, platforms, and equipment for all branches of its military and security forces. According to the 2014 Military Doctrine, the defence industry is also a constituent part of the military organisation of the state. Consequently, the industry plays a key role in the development of Russian military power.

A substantial increase in military procurement since 2011, combined with improvements to the Russian armament contracting system and state industrial support, have put the defence industry in better shape. Simultaneously, Russian procurement plans signal a transition to a more regular procurement schedule, which means that the industry will have to consolidate its recent investments in new means of production.

The government has adopted several measures to strengthen the defence industry's ability to provide military equipment to Russia's Armed Forces over the next decade. Import substitution programmes are set to mitigate the negative impact from Western and Ukrainian sanctions. The government expects the defence industry to compensate for reduced state procurement through increased arms export and diversification into civilian high-tech markets. Efforts are also being undertaken to strengthen military research and development (R&D) in order to facilitate the development of new and advanced technologies for military applications.

The purpose of this chapter is to outline the defence industry's contribution to Russian military capability in a ten-year perspective. Which kinds of arms and equipment will the defence industry be most likely to deliver to the Armed Forces towards 2029, and what will that mean for Russian military capability in terms of the fighting power of the Armed Forces, as discussed in Chapter 3?

The analysis herein is restricted to Russia's major arms platforms and systems. Although the characteristics and the implementation of the previous State Armament Programme 2011–2020 (*Gosudarstvennaia programma vooruzheniia* 2011–2020, GPV-2020) are discussed in retrospective, the aim is to focus on the new programme for 2018–2027 (GPV-2027) and Russia's likely procurement towards 2029.

This chapter is organised as follows. Section 6.1 outlines Russia's defence industrial base. Section 6.2 discusses Russia's procurement model in terms of the GPVs. Section 6.3 constitutes an overview of deliveries under the GPV-2020 up to 2018. Section 6.4 assesses and discusses the outer limits for Russian procurement towards 2029 and the probable composition of conventional arms of Russia's Armed Forces towards 2029 that follows from the assessment. Section 6.5 presents the conclusions.

6.1 The defence industrial base

Russia's defence industrial base includes the defence industry as such, combined with the appropriate infrastructure for applied military R&D.

6.1.1 The defence industry

The Russian defence industrial complex consists of approximately 1 350 organisations. It employs about 2 million people, although not all of them work on military production (*Pravitelstvo Rossii* 2018). As a rule and in comparison with Western defence companies, Russian defence companies and organisations are more focused on defence production. A striking thing about the Russian defence industry is that there are very few small- and medium-sized enterprises, or SMEs.

[35] The authors are grateful to Edward Hunter Christie for his review and to Julian Cooper for providing constructive comments on the second draft of the chapter. The authors are also grateful to Johan Norberg for his help in developing Section 6.4.

Structure

The most important defence corporations have been merged into 65 state-controlled holding entities, a process that began during the 2000s. Their origins are often in the vertical production chains of the Soviet era. By 2018, more than 80 per cent of total defence production was within these structures (*Pravitelstvo Rossii* 2018). The current sectoral organisation essentially reflects a managed economy with minor market elements. Strict state control is supposed to facilitate coordination and implementation of complex contracts and projects and to counter the emergence of bottlenecks.

Conversely, the administrative burden of the defence companies has grown in concert with an increasingly heavy-handed state management and stronger control over the procurement process. As amendments to the Federal Law (2012) on Military Procurement came into force in autumn 2015, leading representatives for the defence industry warned that the new rules would become too burdensome for smaller companies and civilian subcontractors (*Voenno-promyshlennyi kurer* 2015).

Moreover, Russian defence companies are deprived of the flexibility and innovation capability that is common in modern Western defence companies. Due to the peace dividend after the Cold War, the latter were forced to consolidate and become more competitive as their home markets shrank. In contrast, the development of the Russian defence sector continued to rely on governmental plans, directives, and subsidies. The most important regulating and supervising state organs in Russia are the Ministry of Industry and Trade (MIT), the Ministry of Defence (MoD), and the Military Industrial Commission (MIC).

Current state

Major increases in military procurement, combined with extensive industrial support throughout the 2010s, have notably improved the situation in the defence sector and increased productivity (Malmlöf & Roffey 2016: 154). On the eve of the 2020s, the defence industry had stabilised.

However, the defence industry still depends on state support, while implementation of measures to improve its economic efficiency have yet to take place. The key factors affecting the economic efficiency of the sector's operating activities are the significant overstatements of costs, the remaining low level of personnel competence in certain areas, the lack of a balanced innovation policy, the wide-ranging non-transparency of activities, and the low diversification of the product portfolio (Popkov *et al.* 2017).

The current procurement system also causes a chronic debt problem in the defence industry. In 2015–2018, the government intervened to settle debts that had piled up in 2011–2014 (Chapter 5, Table 5.6). The problem is that the MoD settles its payments, only after systems have been delivered or R&D projects have formally finished, and with smaller advance payments than a few years ago. This arrangement obliges the companies to borrow capital for their running costs, often at interest rates that exceed 20 per cent, which is the planned profit level allowed by the government for military production (Sidorkova *et al.* 2019; Stepanov 2019).

Lastly, corruption and fraud have not yet been weeded out from the industry's operations. To some extent, this is an outcome of a non-competitive market made up of monopoly sellers, a single buyer (monopsony), and a procurement process shrouded in secrecy and protected from wider public oversight (Golts 2019). Furthermore, the defence industry remains within the rent-dependent sector of the Russian economy, which is subsidised to ensure continuing support for the regime. It operates under different rules and boundaries than the market-oriented part of the economy, using political ties and connections to obtain resources and factors of production. To a large extent, corruption within the defence sector therefore remains systemic (Oxenstierna & Olsson 2015: 36–8). Nevertheless, deliveries continue in large volumes, suggesting that corruption and fraud are not major impediments.

Sanctions and import substitution

Western and Ukrainian sectoral sanctions have inhibited Russia's arms production and caused delays in its armament plans. Their impact culminated in 2015–2016 with critical shortages of hardware and components, since by then Russia

had used up its stocks, and its pre-sanctions contracts with Western providers had expired (Frolov 2016a). Yet the impact of the sanctions on defence production has been less than the Russian industry and political leadership initially feared. The intermediate results of Russia's import substitution policies might not be entirely satisfying, but they have likely mitigated the situation (Frolov 2016a; Connolly 2018).

From a Russian perspective, a positive effect of its import substitution policies is that they provide greater resilience against future sanctions. In addition, Russia has access to several alternative sources of technology and capital. It will be of particular interest to see how Russia's cooperation with Asian countries, such as China and India, will develop (Frolov 2016a; Connolly 2018).

State support programmes

In May 2016, the government approved a new state programme for the development of the defence industrial complex 2016–2020, a key instrument for further supporting the modernisation and capacity-building of Russia's defence industrial base (*Postanovlenie* 2016). The total volume of budget allocations for the entire programme probably amounted to 1 trillion roubles (*Pravitelstvo Rossii* 2016).

6.1.2 Defence-related R&D

Government spending

Russia has increasingly emphasised military technology over civilian science and technology (Avdeev 2018; Bukkvoll *et al.* 2017). In 2010–2016, spending on military R&D grew steadily and almost doubled in real prices (*Institut ekonomiki rosta* 2017). After peaking at 471 billion roubles, corresponding to 12.5 per cent of the defence budget in 2016, expenditures have decreased to some 10 per cent, or around 300 billion roubles annually (Chapter 5, Table 5.6). Up to 2021, that level of spending on military R&D is forecasted to be retained (Cooper 2019). The share of government R&D funding spent on military R&D has amounted to at least one-third of total funding.[36] In comparison, in 2016 the US spent more than 50 per cent of government R&D on defence. In Europe, the UK devoted nearly 16 per cent of government R&D to defence, France 6.4 per cent and Germany 2.8 per cent (Congressional Research Service 2018).

Military research infrastructure and forward-looking priorities

There are more than 250 research institutes that primarily conduct applied research for the defence industry. In addition, approximately 300 design bureaus and scientific production associations work on the design and development of prototypes (MIT 2015). All in all, more than one-third of the entities registered within the defence industry are involved in R&D. As of 2016, the defence-industrial complex accounted for 70 per cent of all scientific products in Russia, and engaged half of the country's scientists (Tsvetkov 2016).

For the future transformation of Russia's military capabilities, new scientific and technological breakthroughs are necessary (Connolly & Boulègue 2018: 32). The stock of knowledge carried over from Soviet times is coming to an end as a source of new developments. Thus, the government needs to strike a balance between, on the one hand, costly R&D efforts on the continued modernisation of Soviet-designed platforms and, on the other hand, strengthening basic high-risk research aimed at developing new products and technologies (*Vedomosti* 2017).

To facilitate the development of breakthrough high-risk R&D in the interest of national defence and state security, the government established the Advanced Research Foundation (ARF) in 2012. The foundation's projects are supposed to take a lead role in the development of a new generation of weapons, and provide the basis for the Russian armament system for the period 2025–2030 (*Izvestiia* 2016). There is however little open information available indicating whether research supported by ARF has thus far led to any useful result for military application (Nikolsky 2018: 7–8).

[36] This estimation is based on combining the level of spending on military R&D as stipulated in the defence budget with government spending on civilian R&D, statistically compiled in Indikatory nauki 2018.

That said, the ARF funds and supports several ongoing research projects, including artificial intelligence (AI) and robotics and autonomous systems (RAS). The ARF proposes a standardization of applied AI research around four major areas: image recognition, speech recognition, management of autonomous military systems, and information support for weapons life cycle (*RIA Novosti* 2018a). The government has instructed the Russian Academy of Sciences to play a more prominent role in future-oriented military R&D, including the creation of AI technologies.

In the field of RAS, the government set up a research and testing centre in 2013 as well as a commission to develop military robotics. In October 2014, the government approved a programme for the development of advanced military robots by 2025, alongside a plan for the deployment of military robots by 2030 (Lavrov 2017: 13–15). Some results are evident from this push, including advanced development work on a widening range of unmanned aerial vehicles, but also unmanned underwater vehicles and unmanned tracked vehicles. (Cooper 2018).

In the intersection between robotics and AI, Russia's defence industry is working on AI combat robots and cruise missiles with AI components (Kotkin 2018). President Putin envisions a lead role for the MoD's new military innovation technopolis, *Era*, in developing smart weapons equipped with AI-based systems (Galanina *et al.* 2018). *Era* is a complex with an infrastructure that encompasses all stages in the R&D process, from exploratory research to the development of prototypes and testing of new weapons (Sidorkova 2018a). It is expected to be fully operational by 2020 (*TASS* 2018a).

Challenges

The state-led push for defence innovation and a technological leap needs to compensate for some lingering problems in Russian R&D. It is questionable whether the funding allocated is sufficient to meet the objectives, especially since military expenditures are projected to decrease in coming years (Chapter 5). In addition, Russia still suffers from scientific brain drain, due to the emigration of scientists, an ageing cohort of scientists, and insufficient supply of research talent from below (Connolly & Boulègue 2018: 33). Nonetheless, it is less resource-intensive to build machine-learning capabilities than it is to develop precision manufacturing. Thus, in the emerging field of AI, Russia might still compete well, not least given its strong pool of computer specialists.

6.2 Arms procurement

6.2.1 Overall outcome of GPV-2020

The GPV-2020 is the fourth programme of its kind since the formation of Russia's current procurement model in 1996. The Russian leadership maintains that the main objectives of the GPV-2020 are within reach. In 2018, the MoD claimed that the level of modernisation of the Air Forces' equipment was 64 per cent and of the Aerospace Forces at large, 74 per cent. In the Strategic Nuclear Forces, the level had reached 82 per cent, and in the Ground Forces 48.3 per cent. Within the Naval Forces, the level of replenishment with modern armaments and equipment had reached 62.3 per cent, while in the Airborne Troops the share of modern armaments had attained the anticipated 63.7 per cent. The overall share of modern armaments within the Armed Forces had thus reached 61.5 per cent (Shoigu 2018).

Although the defence industry has scaled up its production capacity to meet increasing demand, its main accomplishment thus far has been deliveries of modernised versions of older and proven systemic solutions of late Soviet design (Malmlöf & Roffey 2016: 174–5; Connolly & Boulègue 2018: 8–9). It has yet to complete the transition to serial production of new Russian-made designs, some developed under the GPV-2020.

GOZ-contracting

The State Armament Programmes are implemented through the yearly State Defence Orders (*Gosudarstvennyi oboronnyi zakaz*, GOZ). The GOZ bring together all military procurement and R&D contracts between lead defence industrial contractors and the Ministry of Defence on a yearly basis (Cooper 2018). For too long, poor economic

performance had inhibited the effectiveness of the GOZ, but these problems were largely resolved by the mid-2010s (Malmlöf & Roffey 2016: 156). For example, according to the government, in 2012 the GOZ were being met to 80 per cent on a yearly basis, compared to 97 per cent over 2014–2018 (*Pravitelstvo Rossii* 2018).

6.2.2 GPV-2027

The GPV-2027, for the period 2018–2027, was adopted in January 2018 (Connolly & Boulègue 2018: 4). As in previous GPVs, further development and modernization of Russia's strategic nuclear deterrent capacity remains a central objective. According to President Putin, by 2021 up to 90 per cent of the weapons in Russia's land-based Strategic Nuclear Forces should be new (*Prezident Rossii* 2017).

Regarding conventional arms and military equipment, the earlier key target remains: by the end of 2020, 70 per cent of the equipment should be modern. President Putin has demanded that in the new programme, "special emphasis must be placed on equipping forces with high-precision air, land, and sea weapons; unmanned airstrike complexes; and individual equipment for servicemen; as well as advanced reconnaissance, communication, and electronic warfare systems" (*Prezident Rossii* 2017).

Financial and industrial prospects for the 2020s

According to the MoD, the GPV-2027 allocation to the Armed Forces is 20 trillion roubles, of which 19 trillion are for procurement, repair, and development of arms and military equipment. The remaining 1 trillion roubles have been set aside for investment in new and upgraded military storage facilities, and the associated management system (Chapter 5; *TASS* 2018b; Safronov & Dzhordzhevich 2017). This spending target is well within Russia's projected financing capabilities (Christie 2017; Connolly & Boulègue 2018: 10–14).

The GPV-2027 appears leaner and more focused, and consequently more attainable, than its predecessor. Hence, it signals a transition to a more ordinary procurement cycle over the next decade. Under these new circumstances, preservation of the relative financial stability and a restoration of the production capacity obtained under GPV-2020 have become the defence industry's primary tasks for the 2020s. The crucial challenge is whether the industry will be able to compensate for the expected loss in domestic demand for military systems, either through increased arms export or civilian output, in order to keep its production capacity operational.

Official data indicate that Russia's export portfolio has stabilized in the region of $45–55 billion, with an approximate turnover of $15 billion a year and no dramatic changes ahead. Russian decision-makers consider the global arms market too unreliable and complex to be able to compensate for falling domestic demand. Therefore, the main objective of Russia's defence industrial strategy for the 2020s is to increase the industry's share of civilian output. The average targets set by President Putin are 30 per cent civilian output within the defence industry by 2025, and 50 per cent by 2030 (Sidorkova 2018b; *Pravitelstvo Rossii* 2018).

State levers for diversification

In contrast to the unfocused conversion programmes of the late 1980s and early 1990s, the current strategy aims to identify civilian high-tech niches where the defence industry can create competitive added value. Russian decision-makers plan to create a civilian market for the defence industry through state regulations, directing major corporations under state control to buy equipment and products from the defence industry. Implementation of the so-called National Projects,[37] with a common budget of some 28 trillion roubles for 2018–2024, is also likely to steer demand towards the defence industry (Sidorkova 2018b, see also Chapter 5, Section 5.1.3).

Deputy Prime Minister Iurii Borisov does not rule out that by 2023 Russia will have set up a State Diversification Programme, or GPD (*Gosudarstvennaia programma po diversifikatsii*), that will run in parallel with the new incoming

[37] The National Projects are aimed at strategic development within twelve different sectors of national importance, from demography and the health care sector to infrastructure and the digital economy, for the period 2018–2024. See *Pravitelstvo Rossii* (2019) for further information.

GPV expected to be adopted in that year (Sidorkova 2018b). If so, the GPD would be a tool for systematically steering orders for civilan goods to the defence industry.

6.3 Delivery capacity of Russia's defence industry

Changes in the volume and composition of the arsenal in use by Russia's Armed Forces relate to the specific mixture of existing stocks and procurement, in terms of new, or modernised, repaired and overhauled (MRO), systems and platforms. In the long run, military R&D also plays an important role.

The sheer size of Russia's landmass implies that quantity of equipment remains a crucial factor for Russia's defensibility. A complete turnover in Russia's military platforms and systems would take several decades. Russian procurement therefore tilts towards a large share of modernised and refurbished equipment. There is also still a great deal of stored Soviet legacy equipment, which, properly taken care of, would be suitable for extended service life.

The persistently high proportion of older, albeit refurbished, equipment among Russia's military platforms and systems is not necessarily detrimental for Russian military capability. First, modernised systems function as gap-fillers against temporarily lost capability caused by delays in R&D, testing, and start of serial production of new systems. Second, costs for investments in MRO might be mitigated or neutralised by substantial savings in training, spares, and maintenance costs, yet still contribute much to the overall capability.

6.3.1 Arms deliveries 2011–2018

According to data released by the Russian government, more than 58 000 specimens of various systems and complexes were delivered during the 2012–2018 period, the main years of implementation of the GPV-2020, enabling the modernisation of 800 military units (*Pravitelstvo Rossii* 2018). The highly aggregated nature of the available data poses analytical challenges. However, it is possible to deduce some additional information, since the government regularly releases data on specific deliveries from the GOZ. For the years 2011–2018, there were at least 26 300 new, modernised, or renovated, pieces of equipment delivered as documented by Russian news outlets and think tanks (See Appendices A6.1–6).

This figure still comes with many caveats. Some data are at a highly aggregated level, such as regarding 11 brigade sets of the *Iskander-M* ground missile system, or 100 battalion sets of long-range and short- and medium-range surface-to-air systems. Other data embody little or dubious combat value, such as that relating to 50 small passenger and light cargo aircraft; 240 support, transport, and special-use vessels; and 12 900 mostly unspecified transport vehicles. Some data on modernised equipment might represent a double count, as a specific piece of equipment might have undergone several maintenance cycles in the examined time period.

Data on deliveries of selected arms platforms and systems 2011–2018 are presented in Appendices A6.1–6. Table 6.1 summarises reported deliveries in 2011–2018 for some selected groups of systems within each of the main services. This compilation does not aspire to be comprehensive nor detailed.

The table demonstrates that Russia's defence industry is maintaining its ability to produce and modernise over the entire line of military systems, platforms, and equipment, for all branches of its military forces. Deliveries during the examined period have included newly produced pieces of both Russian and Soviet design, as well as modernisation of Soviet-era equipment. The proportions between new and modernised equipment have varied considerably. 85–99 per cent of deliveries of helicopters, air defence systems, and ballistic missiles have consisted of new equipment. At the other end, modernised old Soviet-era equipment has dominated deliveries for submarines and armoured vehicles. To some extent, the distribution in the table between new equipment and MRO reflects Russian armament priorities, although the allocation of funding is a more reliable measure (Cooper 2016: 20).

Table 6.1 Assessed shares of selected modernised and new equipment systems in Russian defence industry deliveries 2011–2018

Equipment type	Total deliveries	New, no. of units	Share, %	Modernised, no. of units	Share, %
ICBM and SLBM	248	246	99	2	1
Fixed-wing aircraft	912	473	52	439	48
Helicopters	914	781	85	133	15
Air defence (battalions)	100	92	92	8	8
Submarines (nuclear-powered)	16	5	31	11	69
Submarines (diesel-electric)	13	6	46	7	54
Naval combat surface ships (excl. support ships)	50	32	64	18	36
Main battle tanks and armoured vehicles	7 319	3 027	41	4 292	59
Self-propelled artillery and rocket artillery	668	478	72	190	28
Summary for all systems	**10 240**	**5 140**	**50**	**5 100**	**50**

Source: Authors' assessment, based on open sources as per September 2019.

Notes: ICBM – intercontinental ballistic missile. No. – number. SLBM – submarine-launched ballistic missile.

6.3.2 Implications for Russia's equipment portfolio

In Table 6.1, the data on deliveries also prompts some general observations. First, the vaunted modernisation of the equipment of the Armed Forces is well underway. Delays and structural challenges, such as corruption, are indeed problems, but at the end of the process, deliveries are actually being made, and that is what counts over time for the evolving fighting power of Russia's Armed Forces. Second, future deliveries will probably remain a combination of newly produced and modernised equipment, with variations due to changing defence budgets or altered priorities. The equipment holdings of the Armed Forces are so large that they cannot be modernised in a decade. Third, on average, half of the deliveries have been new and the other half modernised equipment. With much equipment still in store, especially for the Ground Forces, modernisation provides a venue for a rapid increase in the equipment available, if such a priority is chosen. Finally, in 2011–2018, defence industry deliveries were probably a major contribution to increasing the Armed Forces' combat readiness, in terms of serviceable equipment.

6.4 Military equipment holdings in a ten-year perspective

Procurement data from the late 2010s and the data that has been released about the GPV-2027 demonstrate that Russia possesses both the ability and the ambition to modernise and upgrade military systems and platforms across the whole range of branches and arms of service of its Armed Forces. The Ministry of Defence's operational plan for 2012–2020 had already indicated that by 2020, 70–100 per cent of the main types of platforms within the different branches of service should be modern, i.e. either entirely new, upgraded, or modernised (MoD 2013). Although delays in production and deliveries of certain systems have been significant, development and testing of several new systems and platforms initiated under the GPV-2020 are entering their final stages. This means that they will enter serial production during GPV-2027, that is to say, if the Russian political and military leadership so decides. Disregarding limits set by future Russian defence budgets and focusing solely on industrial capacity, we ask: Which military equipment holdings are theoretically within Russia's technical reach towards 2029?

6.4.1 Estimates of Russia's equipment portfolio 2029

To provide a rough estimate of the available equipment holdings Russia will have in 2029, the assessment in Chapter 2 of available equipment holdings in 2019, in combination with complementary data from The Military Balance (IISS 2019: 195–209), are here used as a baseline. The assumption is that the bulk of the equipment available in 2019 will still be in use in 2029, due to upgrades and modernisation. As observed in Section 6.3, MRO is often an attractive alternative to new equipment, as it is often less expensive and the contribution it makes to the overall military capability is sufficient.

Time and use nevertheless means wear and tear of equipment, which acts as a contracting force on the available military stock. Some kinds of equipment, for example aircraft and helicopters, are more sensitive. Maintenance, repairs, and modernisation priorities vary over time, due to ambition and available resources. Decreases in available equipment thus vary between systems and over time. Here, it has been assumed that under peacetime conditions, there is a range in loss in equipment availability of 3 to 7 per cent for ground systems and aerospace systems on yearly basis. Although the ambition has been to present an interval that somehow reflects reality, these limits have been arbitrarily chosen by the authors and do not point to any particular reference study for this type of question. It has been further assumed that the decrease in the number of surface ships and submarines due to wear and tear is negligible, since large ships are modernised and Russia has proved itself capable of producing new small ships and support vessels.

As a counterforce to wear and tear, Russia's available stock of military equipment will continue to expand over the next decade, as military procurement and deliveries of new and modernised equipment from the defence industry are set to continue. To assess the limits of Russian arms production capacity, the equipment deliveries reported for 2011–2018 (see Appendices A6.1–5) are here used as a point of departure. When appropriate, and in order to avoid double-counting of single pieces, the number of available or stored pieces of a certain system in 2019 caps the number of pieces that might be modernised or upgraded to 2029.

As an exception, stipulated production volumes in known procurement contracts have been used as a proximate for production capability and probable deliveries to 2029. This method has only been used for a few new incoming systems and for which there are no known production data, but where there is a high probability that regular production will begin during the first half of the GPV-2027.

Table 6.2 shows our projections of equipment availability for aggregates of selected systems in 2029. Again, this is an assessment of possible achievements based on assessed production capacity. It is not a prediction of the actual content of GPV-2027, or any other armament plan, and no economic constraints have been applied.

The examples in Table 6.2 illustrate our estimation that the Russian defence industry, given sufficient defence spending, should be able to increase equipment holdings in the coming decade for the current Armed Forces organisation, albeit in varying degrees for the different services. If prioritised, the number of naval platforms could thus in theory double in the coming decade. Ground forces equipment would probably increase about 30–70 per cent on average, and the aerospace systems about 70–110 per cent, mostly due to the sharp increases in combat aircraft and helicopters. It is important to note, however, that the model presented here is sensitive to the assumed level of availability loss.

In short, the Russian defence industry can probably enable the current equipment holdings and ensuing capabilities of Russia's Armed Forces to remain at no fewer than their 2019 level until 2029, and probably even increase them by up to one third. Such major increases are possible for each service and arm separately, but not for all simultaneously, unless there are major increases in Russia's spending on military equipment.

The three following subsections discuss in more detail the development trends within the land, sea, and air segments that in Table 6.2 form the basis for the summarised assumptions about available equipment systems within the Armed Forces

Table 6.2 Assessed maximum availability of selected equipment systems for Russia's Armed Forces in 2029

	Available pieces 2019, quantity	Estimated annual change		Forecasted availability 2029	
		Deliveries, quantity	Availability loss, quantity	Pieces, quantity	Factor change, 2029/2019
Ground systems (assumed yearly loss -7 to -3 per cent) of which	**16 311**	**1 629**	**-1 146 to -490**	**21 241 – 27 801**	**1.30 – 1.70**
Main battle tanks	2 750	245	-194 to -84	3 260 – 4 360	1.19 – 1.59
Armoured infantry fighting vehicles	7 040	336	-493 to -211	5 570 – 8 390	0.79 – 1.19
Armoured personal carriers (wheeled)	1 300	260	-91 to -39	2 990 – 3 510	2.30 – 2.70
VDV vehicles	2 164	237	-151 to -65	3 024 – 3 884	1.40 – 1.79
Self-propelled artillery systems	2 130	182	-151 to -64	2 440 – 3 310	1.15 – 1.55
Rocket artillery	916	55	-65 to -27	816 – 1 196	0.89 – 1.31
Ground missile systems (brigade sets)	11	2	-1 to 0	21 – 31	1.91 – 2.82
Naval systems (no yearly loss assumed) of which	**409**	**65**	**–**	**781**	**1.91**
Strategic submarines (SSBN)	9	3	–	20	2.22
Nuclear-powered submarines (SSN/SSGN)	10	5	–	21	2.10
Diesel-electric submarines	18	3	–	38	2.11
Aircraft carriers	1	1	–	1	1.00
Missile cruisers	5	1	–	5	1.00
Destroyers	7	2	–	14	2.00
Frigates	9	4	–	14	1.56
Corvettes	45	8	–	78	1.73
Amphibious vessels	35	9	–	38	1.09
Mine warfare vessels	32	2	–	44	1.38
Auxiliary ships	197	25	–	447	2.27
Transport & special use vessels	41	2	–	61	1.48
Aerospace systems (assumed yearly loss -7 to -3 per cent) of which	**1 599**	**234**	**-111 to -48**	**2 673 – 3 303**	**1.67 – 2.07**
Strategic bombers	41	4	0	81 – 81	1.98 – 1.98
Long-range bombers	30	3	-2 to -1	40 – 50	1.33 – 1.67
Multi-role aircraft (Su-57)			0	76 – 76	–
Fighter aircraft	330	53	-23 to -9	530 – 670	1.66 – 2.03
Attack aircraft	156	23	-11 to -4	230 – 300	1.47 – 1.92
Close air support aircraft	72	4	-5 to -2	62 – 92	0.86 – 1.28
Transport aircraft	105	6	-7 to -3	95 – 135	0.90 – 1.29
Heavy transport aircraft	7	2	-2 to -2	10 – 10	1.36 – 1.36
Aerial refuelling aircraft	11	1	-1 to 0	11 – 21	1.00 – 1.91
Airborne warning and control aircraft	14	1	-1 to 0	14 – 24	1.00 – 1.71
Attack helicopters	213	28	-15 to -11	343 – 383	1.61 – 1.80
Transport/attack helicopters	530	91	-38 to -17	971 – 1 081	1.83 – 2.04
Heavy transport helicopters	33	5	-2 to -2	63 – 63	1.91 – 1.91
Naval helicopters	57	13	-4 to -3	147 – 157	2.58 – 2.75

Source: Chapter 2; IISS 2019 (195–209); authors' compilation.

Notes: VDV – Airborne Troops. Numbers for 2019 denote assessed available pieces of equipment in active units. All figures are approximate.

2029. This chapter's appendices, A6.1–6, report approximate data on deliveries of selected systems 2011–2018.

6.4.2 Land

Procurement of Ground Forces equipment during the last decade has been aimed at development of new armoured fighting vehicles (AFVs), which was combined with modernisation of older equipment, as gap-fillers. Data on deliveries of AFVs, artillery and rocket artillery, and the *Iskander-M* ground missile system, are presented in Appendix A6.5. Records of deliveries of air defence systems are listed in Appendix A6.3.

Given Russia's procurement under the GPV-2027, by 2029 the Ground Forces will have moved towards greater mobility, increased fire-power and shooting accuracy, and further refinement of its reconnaissance-strike complex.

Armoured fighting vehicles

High costs and the sheer volumes to turn over, combined with limited production capacity for Russia's newly developed AFVs, mean that Russia will continue to emphasise recapitalisation of its existing vehicle fleets during the 2020s. The holdings of Russia's main battle tanks (MBTs) will therefore probably consist of a combination of T-72B3M obr. 2016, T-90M, and T-80BVM well into the 2030s (Connolly & Boulègue 2018: 22). In parallel, it is likely that subcomponents and devices primarily developed for the next generation of vechicles for the ground forces will be crucial for the upgrading of older AFVs.

However, some procurement of new AFVs will take place. This will allow for greater modularity, with combat modules fit for several different platforms, which, in turn, might increase the flexibility and expand the range of operations of the Ground Forces.

Artillery

Given the total amount of artillery pieces in its arsenal, Russia procured few artillery and multiple rocket launch systems under the previous armament programme. This was probably a consequence of the on-going transformation of the artillery units and the development of the network-centric warfare concept (Lavrov 2018: 8–10; Petraitis 2019). As all pieces of the transformation gradually fall into place and field trials of new hardware are brought to an end, it is likely that procurement of new or upgraded artillery systems will increase significantly during the 2020s.

Air defence

Transition to a modern air defence began in earnest under GPV-2020, with significant purchases of long-range S-400 and short- and medium-range *Pantsir*-S1/S2 missile systems. The remaining systems under development will probably be ready for serial production and procurement within the next few years, possibly including the long-range S-500 system (Korobeinikov 2019). In any case, the capability of Russia's air defence will improve further during the next decade.

Judging by the long service life of Russia's current air defence systems, it is unlikely that Russia will develop any new air defence system from scratch during the next decade. It is more probable that any improvements will be based on upgrades with regard to, for instance, improved precision and system integration, as well as simultaneous surveillance and destruction of an ever-increasing number of targets.

Equipment for the Airborne Troops

Equipment for the Airborne Troops is another prioritised area. The trend is towards greater mobility, heavier AFVs with greater fire power, and network-centric warfare. Entire units are currently undergoing rearmament to BMD-4M *Sadovnits* infantry fighting vehicles (IFVs) and BTR-MDM *Rakushka* armoured personnel carriers (APCs). A new heavy-duty parachute system, BAKhChA-U-PDS, which was designed for these platforms, was approved for service in spring 2018 (Gundarev 2018; Gavrilov 2019a). In parallel, some 600 legacy BMD-2 have been upgraded to BMD-2M and BMD-2K-AU levels (MoD 2018). Thus, it is likely that in 2029 older equipment will still constitute a substantial part of the order of battle of the Airborne Troops. The lack of heavy transport aircraft will continue

to remain the weakest point for the next decade (see Section 6.4.4).

6.4.3 Sea

The GPV-2020 did not ease the Russian Navy's current unsatisfactory position, characterised by the combination of paucity in platform quantity and gradually increasing obsolescence and wear as well as prolonged turnover rates and technical life extensions, as naval procurement has proceeded more slowly than planned. On the other hand, Russia has succeeded in building several lead ships for different ship-building programmes. If Russia fulfils these programmes, the remaining ships will probably be built much faster. Data on deliveries of selected naval systems 2011–2018 are presented in Appendix A6.4.

Surface fleet

The most likely development for Russia's larger Soviet-legacy ships is that the majority will remain in commission well into the 2030s, thanks to current service life extension programmes. Since the ship-building programmes for corvettes and frigates have slipped behind schedule, their construction will in all likelihood continue to occupy a larger part of Russia's shipyard capacity at least until 2025. On the other hand, as these ships are equipped with modern stand-off missile systems, such as the *Kalibr-NK* land-attack cruise missile and the P-800 anti-ship cruise missile as well as the *Poliment-Redut* surface-to-air missiles, for the next decade Russia will combine potent new green-water capabilities with the ability to create surface-ship operational groups for at least short-term, blue-water missions (Connolly & Boulègue 2018: 16; Kabanenko 2017; Kramnik 2018).

Submarine fleet

All Russian blue-water ambitions are supported by its nuclear-powered fleet of ballistic missile submarines, attack submarines, and cruise missile submarines. By the mid-2020s, the backbone of this fleet will in all likelihood consist of Project 955 *Borei*/955 *Borei-A* ballistic missile submarines (SSBNs), Project 885 *Iasen*/*Iasen-M* attack submarines (SSNs), and upgraded Project 949AM *Antei* cruise missile submarines (SSGNs). These submarines will to some extent compensate for the decline of the naval surface fleet.

In contrast, the current rejuvenation plans for Russia's coastal fleet of diesel-electric submarines will probably be accomplished closer to 2030, at the earliest. Still, it is doubtful that Russia will have any submarines equipped with air-independent propulsion systems by then (*Voennoe obozrenie* 2019).

Naval bases

Another central task under the GPV-2027 is reconstruction of existing naval bases and construction of new ones, to create modern logistical conditions and engineering infrastructure for the Navy. In particular, the Caspian Flotilla will be transferred from Astrakhan to Kaspiisk (Gavrilov 2019b).

6.4.4 Air

A significant part of Russia's aviation fleet was updated under the previous state armament programmes 2006–2017, especially as regards helicopters and, somewhat later, fighter aircraft. In later years, sanctions have hampered production rates. There are still many Soviet-made aircraft in service within some functions of the air force. Most are scheduled for replacement during the next decade (Kramnik 2017). Data on deliveries of selected fixed-wing aircraft and helicopters under the GPV-2020 are presented in Appendices A6.1–2.

Under GPV-2027, procurement is probably aimed at filling remaining capability gaps, especially as regards transport aircraft, but also, to some extent, in the phasing in of newer systems that were developed under GPV-2020.

Fixed-wing aircraft

The composition of Russia's fleet of fighter aircraft will probably be dominated by 4+ and 4++ generation heavier Sukhoi designs. There also seems to be political will to equip three air regiments with Su-57s. If fulfilled, it is likely that the aircraft will appear late under the programme period, and that

Russia will then have to economise on other fighter aircraft (*RIA Novosti* 2019a, 2019b).

Russia's lack of heavy military transport aircraft is a persistent bottleneck, and it will likely make a valiant attempt to solve this issue under GPV-2027. Since cooperation with Ukrainian aircraft manufacturer Antonov has ceased, Russia will have to rely on its incoming modifications and upgrades of the Il-76 family. In 2019, five serial-produced new Il-76MD-90A were planned to be delivered. As of 2021, the Iliushin company plans to gear up serial production of the Il-76MD-90A to 12 aircraft per year, which means that the contract from 2012, for 39 aircraft, will be fulfilled before 2025 (*RIA Novosti* 2019c). A replacement for An-124 *Ruslan* – i.e. Il-106 *Ermak* – is under development, but it is unlikely that it will have any effect on Russian military transport capacity during the next decade.

Helicopters

Production of helicopters stalled in the later years of the GPV-2020, due to lack of substitutes for the Ukrainian engines. Although Russia has now begun its own production of helicopter engines, production capacity has not yet met demand. This means that production of attack helicopters will have to continue well into the GPV-2027.

Procurement during the next decade also includes modernisation of the Mi-26 heavy transport helicopter to Mi-26T2V-level (*RIA Novosti* 2019d). Re-motorisation to the Russian-made PD-12V, which is still under development, is scheduled to come about after 2022, according to the manufacturer, Russian Helicopters (Falichev 2018).

Unmanned aerial vehicles – UAVs

Since the Georgian war in 2008, Russia has caught up on the development of smaller tactical UAV reconnaissance systems. At the end of 2018, the Armed Forces had access to 2 100 UAVs for intelligence, surveillance and reconnaissance (ISR) and this figure was growing by 300 vehicles each year (Petrov 2018).

It is likely that during the next decade they will be supplemented with medium-range reconnaissance systems and combat UAV systems. Several development projects are close to completion, for instance the long endurance *Altair*; the heavy UAV jet, S-70 *Okhotnik*; and the medium-altitude long endurance (MALE) *Orion* (Petrov 2018).

6.4.5 Strategic nuclear systems

Russia is in the middle of a decades-long modernisation of its strategic and non-strategic nuclear forces to replace Soviet-era weapons with newer systems (Kristensen & Korda 2019: 73). The nuclear triad remains a prioritized area under the GPV-2027, as the last resort of Russian defence. Records of deliveries of strategic nuclear systems are listed in Appendix A6.6.

The land component, ICBM

The ICBM force has been declining for three decades and Russia is about two-thirds of the way through a modernisation program to replace all Soviet-era missiles with newer types by the early 2020s on a less-than-one-for-one basis (Kristensen & Korda 2019: 76). This component of the nuclear triad will remain a mix of stationary and mobile during the 2020s. Under GPV-2027, the RS-24 *Yars*, which has successively replaced older systems since 2009, will be accompanied by the *Avangard* system now in development – a hypersonic boost-glide manoeuvrable nuclear-capable warhead mounted on a strategic intercontinental ballistic missile (*TASS* 2018c). Analogously, from 2020, the heavy R-36M *Voevoda* is due to be phased out and replaced by the RS-28 *Sarmat*, which can be equipped with all types of warheads, including the *Avangard*, as well as other, prospective, systems (*RIA Novosti* 2018b). Rearmament of Russia's Strategic Missile Forces is set for accomplishment at the turn of 2027–2028 (*RIA Novosti* 2018c).

The naval component, SLBM

The remaining six Delta IV-class submarines (Project 667BDRM) in the Northern Fleet have been upgraded with R-29RMU2 *Sineva* missiles. Since 2014, the improved R-29RMU2.1 *Lainer* missile has been added to the Delta IV arsenal, allowing this submarine class to serve until at least 2030 (*Lenta.ru* 2014). The solid-fuel SLBM

R-30 *Bulava* was finally accepted for service in May 2018. It was designed for the *Borei* and *Borei-A* class (Projects 955 and 955A) submarines (Nersisian 2018).

The air component

The upgraded versions of Russia's nuclear-capable heavy bombers are being refitted to carry the new Kh-102 (AS-23B Kodiak) nuclear cruise missile, in place of the Kh-55 (AS-15 Kent). The Kh-102 and its conventional variant, Kh-101 (AS-23A Kodiak), add extra range to Russia's heavy bombers, allowing a likely life extension of the Tu-95 until 2030–2035 (Malmlöf & Roffey 2016: 158).

6.4.6 Stand-off capability

Applying the assessed maximum availability of equipment in 2029 on stand-off-capable platforms (outlined in Appendices A2.7-8), and assuming sufficient missile production capacity, the Russian Armed Forces will have between 2 500–3 300 stand-off missiles in 2029. That would mean some 900–1 100 missiles against sea targets and 1 700–2 200 against land targets, i.e. an increase by 90–140 per cent (Appendix A6.7).

6.5 Conclusions

The development within the Russian defence industry during the last decade is perhaps best summarised as recovery, consolidation, and increased productivity. By and large, the industry has also strengthened its capability to design, develop, and manufacture advanced new and modernised equipment for all arms and services in the Armed Forces, with very few exceptions. Notwithstanding some systemic weaknesses, Russia's defence industry keeps on delivering arms to all services and branches of the Russian Armed Forces over time. It has also showed that it can create completely new capabilities, such as UAVs, within a decade. The GPV-2020 also illustrates an administrative ability to launch and carry out long-term programmes. These achievements have been conditioned on strong commitment from the political leadership and vigorous expansion of military procurement.

Russia's military procurement during the next decade will be marked by a return to a slower stock turnover and more modest volumes of purchased new and modernised military equipment. In order to compensate for this scheduled domestic downturn and keep its production capacity operational, the industry will need to further diversify into arms export and civilian output.

The element of new systems and platforms in the industry's production mix for Russia's Armed Forces will increase as they are accepted for service and cleared for serial production. Even so, delays, cost overruns, budget constraints, and – most importantly – the sheer volume of Soviet-made equipment to turn over imply that during the next decade the bulk of Russia's military equipment will still consist of modernised and refurbished gap-filling legacy platforms and systems.

Russia's quest for technological self-sufficiency has taken off in earnest in the wake of the sanctions imposed on it from 2014 onwards. Its ambitions are not limited to eliminating the effect of current sanctions, but also include immunizing the industry against their possible extension. The long-term geostrategic implication of this policy of technological solitude is that it allows for continued confrontation with Western countries. On the flip side, Russia's efforts to bridge the technological gap with respect to its designated geopolitical competitors will probably be hampered.

What do these future trends imply for the production of military equipment and the industry's contribution to the military capability of Russia's Armed Forces towards 2029? Besides a continued increase in overall system capability, Russia will continue to pursue its objective of filling the capability gaps that have been identified in high-precision arms, improved logistics capability, higher mobility, and refinement of its network-centric warfare concept.

Looking towards 2029, it can be concluded that arms deliveries will allow an incremental improvement of Russia's military capability, in particular in high-intensity warfare against advanced opponents. That, and modern nuclear weapons, will also allow Russia to continue to project power into other countries, especially those that it considers to be within its spheres of interest, as discussed in Chapter 4.

Appendices to Chapter 6

The authors have based the tables in this appendix on an unpublished compilation of GOZ deliveries as per September 2019. It has been put together from various open sources. The main sources for information about GOZ deliveries are the lists assembled and published annually by Andrei Frolov (2013, 2014, 2015, 2016b, 2017, 2018, 2019), at the Centre for Analysis of Strategies and Technologies (CAST, a Russian think tank), in the Centre's publication, *Eksport Vooruzhenii*. The authors have complemented those lists with further findings from Russian news reporting and official statements.

Table A6.1 Fixed-wing aircraft

	Deliveries								2011–2018	
	2011	2012	2013	2014	2015	2016	2017	2018	N	MRO
Strategic bombers	4	4	2	7	5	12	6	2		42
Tu-160 (MRO)	2	2		1	2	1	1			9
Tu-95MS (MRO)	2	2	2	6	3	11	5	2		33
Long-range bombers	1			10	5	2	1	1		20
Tu-22M3 (MRO)	1			10	5	2	1	1		20
Attack aircraft	6	10	14	36	18	16	19	13	110	22
Su-34 (N)	6	10	14	18	18	16	16	12	110	
Su-24M2 (MRO)				18			3	1		22
Close air support aircraft	8	14	12	16	10	14	9	22		105
Su-25SM/UBM (MRO)	8	14	12	16	10	14	9	22		105
Fighter aircraft	25	25	29	77	57	65	41	41	224	136
MiG-29SMT/UBT (N)					4	12			16	
MiG-31BM/BSM (MRO)	15	15	10	18	17	22	14	11		122
Su-27SM/SM3 (N)	8								8	
Su-27SM/SM3 (MRO)			2	6				6		14
Su-30M2/SM (N)		2	17	29	22	19	17	14	120	
Su-35S (N)	2	8		24	14	12	10	10	80	
Transport aircraft	11	12	14		4	7		1		49
Il-76 (MRO)	11	12	14							37
Il-476/Il-76MD-90A/Il-76MD-M (MRO)					3	7		1		11
Heavy transport aircraft	2	1	3	2	3	1	2	1		15
An-124 (MRO)	2	1	3	2	3	1	2	1		15

Note: N – new; MRO – modernisation, renovation, and overhaul.

Table A6.2 Helicopters

	Deliveries								2011–2018	
	2011	2012	2013	2014	2015	2016	2017	2018	N	MRO
Attack helicopters	**22**	**35**	**31**	**27**	**28**	**34**	**26**	**10**	**213**	
Ka-52 (N)	12	21	17	10	16	20	14	10	120	
Mi-28N/NM/UB (N)	10	14	14	17	12	14	12		93	
Transport/attack helicopters	**54**	**86**	**76**	**77**	**44**	**45**	**112**	**36**	**456**	**74**
Mi-24 (MRO)								9		9
Mi-35M (N)	4	16	11	16	6	4	1		58	
Mi-8/MTV/AMTSh (N)	50	70	65	61	38	41	50	23	398	
Mi-8/MTV/AMTSh (MRO)							61	4		65
Heavy transport helicopters	**4**	**7**				**1**	**2**	**2**	**14**	**2**
Mi-26/T (heavy transport) (N)	4	7				1	2		14	
Mi-26/T (heavy transport) (MRO)								2		2

Note: N – new; MRO – modernisation, renovation, and overhaul.

Table A6.3 Air defence

	Deliveries								2011–2018	
	2011	2012	2013	2014	2015	2016	2017	2018	N	MRO
Long-range surface-to-air systems	**2**	**7**	**5**	**4**	**17**	**11**	**9**	**10**	**59**	**6**
S-300V4 (battalions) (N)		3	1		1				5	
S-400 (battalions) (N)	2	4	4	4	13	10	9	8	54	
Short- and medium-range surface-to-air systems	**21**	**35**	**25**	**33**	**22**	**34**	**13**	**2**	**166**	**18**
Buk-M2 (battalions) (N)	1				3	3	3		10	
Buk-M3 (battalions) (N)						2	6		8	
Tor-M1 (battalions) (MRO)				2						2
Tor-M1-2U/M2U (battalions) (N)		1	1	2	2	2	1		9	
Tor-M2 (battalions) (N)						2	2	2	6	
Pantsir-S1/S2 (N)	20	28	24	29	7	25			133	
9K35 Strela-10 (MRO)		6			10					16

Note: N – new; MRO – modernisation, renovation, and overhaul.

Table A6.4 Naval systems

	Deliveries								2011–2018	
	2011	2012	2013	2014	2015	2016	2017	2018	N	MRO
Strategic submarines (SSBN)		**1**	**2**	**2**		**1**		**1**	**3**	**4**
Borei class (Proj. 955) (N)			2	1					3	
Delta IV (Proj. 667BDRM) (MRO)		1		1		1		1		4
Nuclear-powered submarines (SSN/SSGN)	**2**		**1**	**2**	**2**	**1**	**1**		**2**	**7**
Delta IV Stretch (Proj. 09787) (MRO)						1				1
Yasen class (Proj. 885/885M) (N)				1					1	
Barracuda class (Proj. 945A) (MRO)					1					1
Antey class (Proj. 949A/B) (MRO)	1		1	1			1			4
Shtuka-B (Proj. 671RTM(K)/971) (MRO)					1					1
Diesel-electric submarines			**1**	**3**	**4**	**2**	**2**	**1**	**6**	**7**
Kilo class (Proj. 877) (MRO)			1	1	2		2	1		7
Varshavyanka class (Proj. 636.3) (N)				2	2	2			6	
Aircraft carriers	**1**				**1**					**2**
Adm. Kuznetsov (Proj. 11435) (MRO)	1				1					2
Missile cruisers	**1**				**1**	**1**				**3**
Atlant class (Proj. 11641) (MRO)	1				1	1				3
Destroyers	1					1				2
Udaloy class (Proj. 1155) (MRO)						1				1
Sarych class (Proj. 956) (MRO)	1									1
Frigates					**1**	**2**	**2**	**1**	**4**	**2**
Yastreb class (Proj. 11540) (MRO)							1			1
Adm. Gorshkov class (Proj. 22350) (N)								1	1	
Krivak class (Proj. 1135) (MRO)					1					1
Adm. Grigorovich (Proj. 11356R/M) (N)						2	1		3	
Corvettes	**3**	**1**	**2**	**4**	**2**	**1**	**1**	**5**	**18**	**2**
Steregushchii (Proj. 20380/20385) (N)	1		1	1			1	1	5	
Buyan class (Proj.s 21630/21631) (N)	1		1	3	2			2	9	
Gepard class (Proj. 11661K) (N)		1							1	
Gepard class (Proj. 11661K) (MRO)						1				1
Tarantul class (Proj. 12411) (MRO)	1									1
Karakurt (Proj. 22800) (N)								1	1	
Bykov class (Proj. 22160) (N)								1	2	
Amphibious vessels	**2**		**2**	**3**	**4**	**1**	**1**	**2**	**8**	**7**
Ivan Gren-class (Proj. 11711) (N)								1	1	
Serna class (Proj. 11770) (N)			2	1					3	
Zubr class (Proj. 12322) (MRO)	1			1		1				3
Ropucha class (Proj. 775/775M) (MRO)	1			1			1	1		4
Proj. 21820 Dyugon (N)					4				4	

Note: N – new; MRO – modernisation, renovation, and overhaul.

Table A6.5 Ground forces equipment

	Deliveries								2011–2018	
	2011	2012	2013	2014	2015	2016	2017	2018	N	MRO
Main battle tanks	**70**	**242**	**260**	**293**	**191**	**100**	**160**	**180**	**1**	**1 466**
T-90A (N)					1				1	
T-80BV (MRO)		115					10	31		156
T-72BA, T-72B/B1/B3 (MRO)	70	127	260	293	170	100	150	140		1 310
Armoured infantry fighting vehicles	**130**	**195**	**212**	**112**	**172**	**218**	**240**	**376**	**361**	**1 264**
BMP-2 (MRO)	130	112	100	112	112	78		120		764
BMP-3 (N)		83	112		40	40	40	46	361	
MT-LB (MRO)						100	200	200		500
Armoured personal carriers	**300**	**150**	**424**	**235**	**144**	**231**	**253**	**250**	**1 171**	**816**
BTR-82/82A (N)	150		290	115	10	153	153	150	1 021	
BTR-80/A (N)		150							150	
BTR-80/82AM (MRO)			134	120	134	78	100	100		666
BTR-70 (MRO)	150									150
Airborne forces' vehicles	**6**	**135**	**149**	**326**	**72**	**229**	**184**	**94**	**499**	**696**
BMD-2 (MRO)		135	145	277						557
BMD-4M (N)	3		2	8	10	144	93	62	322	
BTR-MD/MDM Rakushka (N)	3		2	8	12	60	60	32	177	
BTR-D (MRO)				33	50	25				108
Armoured cars	**40**	**67**	**217**	**206**	**110**	**107**	**66**	**170**	**983**	
Typhoon-U/K (N)				60	20	25	26	30	161	
Tigr/Tigr-M (N)	30	10	10	56	60	82	40		288	
UAZ-3163 Patriot (N)					30			140	170	
NBCR vehicles		**6**				**50**	**1**	**5**	**12**	**50**
RKhM-5 (N)		6							6	
RKhM-5M (N)							1		1	
RKhM-6 (N)								5	5	
RKhM-6 (MRO)						50				50
Self-propelled artillery systems		**40**	**22**	**106**	**20**	**39**	**82**	**112**	**219**	**190**
2S9 Nona-1M 120 mm (MRO)					20			12		32
2S23 Nona-SVK 120 mm (N)								6	6	
2S3M Akatsiya 152 mm (MRO)								20		20
2S5 Giatsint 152 mm (MRO)			20							20
2S19 Msta-S 152 mm (N)		40		36		6	33		115	
2S19 Msta-S 152 mm (MRO)				60				30		90
2S33 Msta-SM 152 mm (N)						33	33	32	98	
2S7SM Malka 203 mm (MRO)								12		12
2S4 Tyulpan 240 mm (MRO)							16			16
Rocket artillery	**30**	**20**		**20**	**36**	**56**	**52**	**45**	**259**	
9 A53 Tornado-G 122 mm (N)	30	20		20	36	36	36	15	193	
9 A53 Tornado-U 220 mm (N)										
9 A53 Tornado-S 300 mm (N)						12			12	
9K512 Uragan-1M (N)						8	6		14	
Ground missile systems (no. of brigade sets)	**5**		**2**	**2**	**2**	**2**	**2**	**1**	**11**	
9K720 Iskander-M (Brigades) (N)			2	2	2	2	2	1	11	

Note: N – new; MRO – modernisation, renovation, and overhaul.

Table A6.6 Strategic nuclear systems & early-warning radar systems

	Deliveries								2011–2018	
	2011	2012	2013	2014	2015	2016	2017	2018	N	MRO
Intercontinental ballistic missiles	**13**	**7**	**15**	**18**	**21**	**23**	**21**	**20**	**136**	**2**
Topol-M (N)	4	4							8	
Topol-E (RM)				2						2
Yars (RS-24) (N)	9	3	15	16	21	23	21	20	128	
Submarine-launched ballistic missiles	**22**	**16**	**16**	**22**	**19**	**15**			**110**	
Sineva & Layner (N)	16	10	10	6	9	5			56	
Bulava (N)	6	6	6	16	10	10			54	
Early-warning radar systems			**1**	**2**	**2**				**5**	
Voronesh M/DM/VP (N)			1	2	2				5	

Note: N – new; MRO – modernisation, renovation, and overhaul; RD – research and development.

Table A6.7 Stand-off missile weapons in 2029

Platform	Equipment category in Table 6.2	Available 2019		Factor change	Available 2029	
		platforms	missiles		platforms	missiles
Stand-off against sea targets						
			469	**1.91 – 2.31**		**894 – 1 083**
Tu-22M3 (Backfire)[a]	Long-range bombers	30	45	1.33 – 1.67	39.9 – 50.1	60 – 75
949A Antey (Oscar II)	Nuclear-powered submarines (SSN/SSGN)	6	144	2.10	12.6	302
885 Yasen	Nuclear-powered submarines (SSN/SSGN)	1	16	2.10	2.1	34
Kuznetsov[b]	Aircraft carriers	0	0	1.00	1	12
Kirov (mod.)[c]	Missile cruisers	1	20	1.00	2	40
Slava[d]	Missile cruisers	2	32	1.00	3	48
Admiral Gorshkov	Frigates	1	8	1.56	1.56	12
Admiral Grigorovich	Frigates	3	12	1.56	4.68	19
Shore-based AShM[e] (Bns)	(see footnote f)	12	192	1.91 – 2.82[f]	22.92 – 33.84	367 – 541
Stand-off against land targets						
			890	**1,88 – 2,48**		**1 672 – 2 211**
Tu-160 (Blackjack)[g]	Strategic bombers	11	33	1.98	21.78	65
Tu-95 (Bear)[g]	Strategic bombers	30	60	1.98	59.4	119
Tu-22M3 (Backfire)[a]	Long-range bombers	30	45	1.33 – 1.67	39.9 – 50.1	60 – 75
671 Shchuka (Victor III)	Nuclear-powered submarines (SSN/SSGN)	1	4	2.10	2.1	8
645 Kondor (Sierra II)	Nuclear-powered submarines (SSN/SSGN)	2	16	2.10	4.2	34
671 Shchuka-B (Akula)	Nuclear-powered submarines (SSN/SSGN)	2	16	2.10	4.2	34
885 Yasen	Nuclear-powered submarines (SSN/SSGN)	1	20	2.10	2.1	42
636.3 Varshavyanka (Kilo improved)	Diesel-electric submarines	5	20	2.11	10.55	42
Admiral Gorshkov	Frigates	1	8	1.56	1.56	12
Admiral Grigorovich	Frigates	3	12	1.56	4.68	19
Gepard[h]	Frigates	1	8	1.56	1.56	12
Buyan-M	Corvettes	7	56	1.73	12.11	97
Karakurt	Corvettes	2	16	1.73	3.46	28
Iskander system (Bns)	Ground missile systems	33	528	1.91 – 2.82	63.03 – 93.06	1 008 – 1489
Land-based Kalibr (Bns)	Ground missile systems	3	48	1.91 – 2.82	5.73 – 8.46	92 – 135
Grand total						
			1 359	**1.89 – 2.42**		**2 566 – 3 294**

Sources: Tables 6.2, A2.7, and A2.8.

Notes: Bns – battalions; a) 50% of Tu-22M3 available for sea targets, and 50% for land targets (factored into assumed number of missiles); b) Assume Kuznetsov operational in 2029; c) Assume Admiral Nakhimov operational in 2029; d) Assume Moskva operational in 2029; e) 2 Bn/coastal missile brigade assumed to be armed with Bastion; f) Coastal defence systems are not covered in Table 6.2. Assume factor change for ground missile systems; g) 25% of strategic bombers available for non-strategic missions (factored into assumed number of missiles); h) 1 of 2 Gepard frigates assumed armed with land-attack cruise missiles.

Table compiled by Martin Goliath.

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7. Russian military capability in a ten-year perspective

Fredrik Westerlund[38]

In the past decade, the Russian Federation has radically increased its military power. In 2008, Russia struggled to handle a brief local war with neighbouring Georgia. Less than ten years later, Russia had achieved the ability to launch a regional war, while simultaneously maintaining an air campaign in Syria, naval power projection in the Mediterranean Sea, and a low-intensity war-by-proxy in Eastern Ukraine. Alongside its strengthened military might, Russia's foreign policy has grown more assertive, ranging from threats and intimidation via cyber and nerve agent attacks to covert and overt military intervention. In order to gauge Russia's impact on international security in the coming decade, it was necessary to address the study's main research question: What military capability will Russia possess towards 2029?

This chapter provides a forecast of the development of Russian military capability in a ten-year perspective. It synthesises the analyses in the preceding chapters to assess the future trajectory of Russian military power. Using the Armed Forces and their fighting power in 2019 as a baseline, it discusses four different potential trajectories towards 2029 in view of the development trends regarding security policy, defence spending, armament deliveries, the Armed Forces, and their fighting power.

First, I discuss continuity and change in the ten-year perspective, outlining a main potential trajectory of status quo and three contending trajectories (in Section 7.1). Thereafter, I explore the three potential developments leading towards a radically different military capability: the ability to launch a large-scale war with conventional forces (7.2), substantial improvement in launching out-of-area campaigns (7.3), and a significant reduction in military capability (7.4). Finally, I formulate a conclusion on the basis of the findings regarding Russian capability development in the ten-year perspective (7.5), before reflecting on some implications of these (7.6).

7.1 Continuity and change: military capability in a ten-year perspective

A state's martial resources, in particular its armed forces, – and its theory and practise for employing them, define the ability to wage war at any given time. Whether there is change or continuity over time is affected, however, by developments in society, primarily in security policy, defence spending, and defence industry deliveries. In the ten-year perspective, the inertial force of Russia's military organisation, as in any large bureaucracy, often acts as a drift anchor. Still, determined policy implementation as well as internal and external pressure may lead to change. Will Russia's military capability and, consequently, its scope for coercion and interference in other countries, continue to expand radically, or will it either more or less stay at the present level or drop significantly during the coming decade?

In 2019, Russia's Armed Forces had improved the preparedness of the nominal one-million-man force to a level where most of the units were available, as concluded in Chapter 2. They had also extended their reach and consolidated their presence in the Mediterranean region, though lack of large surface vessels and bases abroad hindered truly global aspirations. Chapter 3 concludes that the fighting power of the Armed Forces allowed for launching one theatre-level operation at a time against a peer enemy. The European war theatre provides the most favourable conditions, both for amassing groups of forces and launching stand-off strikes. Both chapters expect the coming decade to be a period of consolidation of the achievements reached.

Russian security policy continued to focus on domestic stability and regime survival, resulting

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in external aggression and internal repression, as noted in Chapter 4. The stability of the political system remains inherently fragile, however, resting on the ability of one person to keep it in check. Military strategy continues to develop, and the Russian political and military leadership prepare for facing both local, regional, and global wars. In 2019, the trends indicate continued authoritarian and anti-Western policies towards 2029.

Due to weak economic growth and a reduced emphasis on defence spending, Chapter 5 assesses that military expenditure may increase by 20 to 65 per cent in the coming decade, compared to 2019. The larger increase requires consistently higher growth in gross domestic product (GDP), and a greater share of GDP devoted to defence. The trends in 2019 tended towards continued low economic growth, mainly due to a lack of market reforms. The chapter concludes that this will hamper future military expenditure and improvements in living standard for ordinary Russians, challenging the president's popularity ratings.

In the decade up to 2019, the Russian defence industry had managed to recover, consolidate, and increase its productivity. Though it suffered teething problems, it had strengthened the ability to design, develop, and produce advanced weapons, as Chapter 6 concludes. Due to planned reductions in procurement and the size of the Armed Forces' equipment holdings, the bulk of the weapon systems in use during the coming decade will be modernised and refurbished with gap-filling legacy equipment. The trends in 2019 implied that arms deliveries would allow an incremental improvement of Russia's military capability, in particular in high-intensity warfare against advanced opponents.

Overall, the development trends in 2019 indicate status quo in the ten-year perspective, with a tendency towards incremental strengthening of current military capability. However, continuity with the present is not the only possible future. Alternatively, one might imagine continuity with the past ten years of radically increasing military capability, or a backlash in the coming decade, with a return to a significantly lower military capability. In the following three sections, I challenge the trajectory of continuity towards 2029 by discussing different avenues to change away from a military capability primarily suited to handling regional war and sustaining regional Great Power ambitions.

7.2 Ability to launch a large-scale war with conventional forces

A continuation of the drastic increase in Russian military capability over the past ten years could allow Russia to reach towards launching a large-scale war or multiple regional wars with conventional forces, sustaining its global Great Power ambitions.[39] This would entail deploying several hundred thousand to a million servicemen in several war theatres simultaneously, and a multi-million force to draw them from. To what extent will current development trends allow Russia to launch a large-scale war or multiple regional wars with conventional forces towards 2029?

There are three main ways to acquire multi-million forces. First, Russia could multiply its standing forces, but just doubling them would already demand huge resources. The weak GDP growth and shrinking labour force, in particular of service-age men, as described in Chapter 5, make this a very challenging undertaking. Boosting numbers by prolonging conscript service is less costly, but with merely a couple of hundred thousand conscripts (Chapter 2, Table 2.1), even tripling the service time would not produce sufficient volumes. In addition, prolonging conscription service would probably be unpopular with the Russian public. Even generating the forces for launching simultaneous regional wars would be a challenge.

A second way would be to deploy an allied million-man force together with other states. However, Russia's current military allies within the Collective Security Treaty Organisation will most likely continue to lack such forces towards 2029, while the entrenched policy of strategic solitude (Hedenskog *et al.* 2019: 121) hampers military alliances with other great powers. Even if a shifting geopolitical landscape would lead to Russia's

[39] In this chapter, I relate military capability to the scale of military conflicts in the Russian Military Doctrine (see Chapter 3). This ordinal scale for military power provides a rough measure both of the military resources and skills needed and of the potential impact on international security.

joining a military alliance during the coming decade, it takes a long time to integrate military organisations and achieve effective interoperability with forces corresponding to a large-scale war effort or multiple regional wars.

A third way to acquire multi-million forces would be to reintroduce a mass-mobilisation system. This would be less costly than standing forces, and in line with Russian traditions. Mass mobilisation has been a decisive feature of Russian military power over the last 300 years (Golts 2019: 411). Golts (2019: 431) holds that the idea of introducing a mass-mobilisation system is logical, as long as Russia regards the West as a military danger. The same would apply if Russia were to view China as a military threat. I therefore discuss the possibility of introducing a mass-mobilisation system.

The legacy of the Soviet mass-mobilisation system withered during the first two decades of the Russian Federation, and the military reforms initiated in 2008 erased what was left. In 2019, both the Armed Forces and the defence industry lacked mass-mobilisation capacity, as shown in Chapters 2 and 6. Furthermore, the Armed Forces' exercise activities centred on standing-force operations, with only marginal reserve-force concepts (Chapter 3).

The economic outlook for sustaining a mass-mobilisation system appears bleak in the ten-year perspective. Although less costly than a corresponding standing force, the weak GDP growth forecasted in Chapter 5 means that even with a larger share of GDP spent on defence, mass-mobilisation forces may have to come at the expense of the standing forces. The increased defence industry output described in Chapter 6 would probably allow for equipping some reserve forces with modernised legacy weapons. Nevertheless, even with the estimated maximum, available ground forces equipment would only increase some 20 per cent towards 2029 (Table 6.2).

Military threat perceptions of pending large-scale wars would motivate introducing a mass-mobilisation system, but it is not clear that the political leadership prioritises such a development or that the Russian public would endorse it. In 2019, the focus on the development of strategic deterrence with conventional weapons and of new strategic weapon systems, as discussed in Chapter 4, indicated that Russia planned to deter large-scale wars with standing forces, rather than to fight them with reserve forces. However, a deterioration in Russia's geopolitical or military-strategic situation during the coming decade may result in a change of priorities and plans.

As concluded in Chapter 2, the current organisation of the Armed Forces will likely remain towards 2029. Retained conscript levels towards 2029 would allow for a pool of over two million potential reservists with service in the past ten years. Also, there are still presumably large numbers of retired ground forces weapons systems in the Armed Forces armament stores, possibly enough for equipping dozens of combined-arms armies. However, without a commensurate modernisation capacity in the defence industry, this surplus equipment only represents a potential. The conscript reservist force similarly remains merely a potential, given the lack both of units and serviceable weapons, and of the command and control functions needed to lead additional forces in battle, as well as of established procedures for the mass-mobilisation of reserves.

The National Defence Management Centre could form the apex of a mass-mobilisation system, but currently there are no indications in openly available sources that tangible plans, or measures, for mass mobilisation of the defence industry, or the economy, are underway for a large-scale war effort. Nor do the other parts of the military organisations of the state seem geared towards this. However, a mobilisation system to allow for supplementing the standing forces to a level corresponding to two simultaneous regional wars may well lie within reach for Russia in the coming decade. The estimated military expenditures and the delivery capacity of the defence industry could possibly allow for substantial reserve forces in the hundreds of thousands. In 2019, the Armed Forces had an embryo for a mobilisation organisation, and a proven ability to create several new units and formations.

In sum, current development trends in defence spending, armament deliveries, and the Armed

Forces and their fighting power are not conducive for Russia in regard to launching a large-scale war with conventional forces in the coming decade. The emergence of multi-million-man forces through multiplied standing forces, military alliances, or a mass-mobilisation system, all seem out of reach looking towards 2029. Still, external or internal pressure could force the political leadership to act. Golts (2019: 431) concludes that the elite was struggling over whether or not to adopt a comprehensive mass-mobilisation system, and he found it hard to foretell the outcome. However, current trends suggest that Russia may become able to launch multiple regional wars towards the end of the coming decade by introducing a scaled-down mass-mobilisation system.

7.3 Launching sizeable out-of-area campaigns

In the past five years, Russia has significantly increased its ability to project military power outside Europe and the Asia-Pacific. In the coming decade, a potential trajectory for Russian military capability is to maintain continuity in a radical increase of its ability to launch out-of-area campaigns. This would provide Russia with greater possibilities to project power in other regions of the world, sustaining Russian global Great Power ambitions and affecting international security.

A radically strengthened ability to launch out-of-area campaigns would correspond to expeditionary ground forces of 5 000–10 000 men far beyond the Russian-gauge railroad network, or to air and naval force groups able to fight their way in other regions. Apart from expeditionary forces, sustainable logistics and military facilities abroad would be necessary. The Russian Federation so far lacks experience in this regard, but the Soviet Union deployed tens of thousands of troops in other regions of the world during its last decades (Porter 1990: 285–93).

In 2019, Russia was able to conduct thousands of air combat sorties and a protracted ground force equip-and-train mission in support of allied ground operations in Syria, as well as maintain a naval task group in the Mediterranean Sea (Chapter 2). The Armed Forces were also able to deploy single strategic bombers as well as reconnaissance and security teams to other continents, in the latter case as exemplified in the Central African Republic (Chapter 4). All these instances have occurred under uncontested circumstances. Though improving, Russia's ability to project force over longer distances remains substantially limited (Lavrov 2018: 25). To what extent do the development trends in 2019 allow for radically increasing the ability to launch out-of-area campaigns towards 2029?

Russian security policy would motivate a strengthened ability to launch out-of-area campaigns, to ensure Russia's recognition as a Great Power in world affairs. As noted in Chapter 4, the Chief of the General Staff, Valerii Gerasimov, has emphasized the "strategy of limited actions" to protect and promote Russian interests through expeditionary forces. However, this is a recent addition to military thinking, and the word "limited" seems to exclude a significant capacity for joint sea, air, or ground, battles. Nor do forces that can fight their way forward seem to be part of what is anticipated, either, as Gerasimov (2019) stressed, among other aspects, covert force deployment as a precondition for success.

Military expenditures in the coming decade would most likely allow for funding substantial out-of-area campaigns and the development of the necessary units, equipment, and basing facilities, if the Russian government were to make them a top priority. However, deliveries of the necessary platforms in significant volumes seems unlikely towards 2029. Expeditionary forces would need significant numbers of strategic transport and air-to-air refuelling aircraft as well as major surface combatant vessels, in particular oceangoing aircraft carriers or helicopter carriers, and large landing craft or oceangoing troop transport vessels. As discussed in Chapter 6, in 2019 there were few known such items in the procurement plans for the coming decade and the defence industry's track record regarding the production of these systems is meagre. The industry's capacity to deliver heavy transport aircraft and major surface vessels was under development in 2019. Though difficult to assess, the industry may deliver some platforms late in the coming decade.

The Armed Forces will most likely only strengthen its ability to launch and sustain military campaigns in other regions of the world incrementally. It does not seem to be the focus of operational art or organisational development trends. The main restriction will not be the availability of forces – apart from major naval surface combatants, probably – but logistics. Though Russia will probably establish more bases and support facilities far abroad, the Armed Forces will most likely continue to lack sufficient strategic transport and logistics support for sizeable deployments (Chapter 2).

Overall, Russia will probably not acquire a radically increased ability to launch out-of-area campaigns towards 2029. In 2019, neither the development trends regarding security policy, armament deliveries, nor the Armed Forces and their fighting power seemed to support that. DIA (2017: 42–4) and Lavrov (2018) reach similar conclusions.

On condition that the political leadership makes improved mobility and sustainability of expeditionary forces a top priority, Russia will probably be able to project sizeable military forces in other regions, although most likely late in the coming decade. Both internal and external forces could prompt Russia to embark on a significant strengthening of its military power projection around the world, but such ruptures are difficult to foretell. Russian efforts to procure the necessary platforms, acquire military bases far abroad, and exercise deployments of expeditionary forces would indicate that Russia seeks to improve its standing as a global Great Power.

7.4 A major reduction of military capability

For the sake of argument, I will discuss the possibility that Russia, either wilfully or unintentionally, may reduce its military capability significantly during the next decade. A radical shift in policy could result in the active down-sizing of the Armed Forces' units and infrastructure to such an extent that the force structure no longer corresponds to launching a regional war. Alternatively, if Russia decided to cease war theatre-level exercises and combat activities in the coming decade, it would most likely forfeit its ability to launch a regional war. An unintended but essential reduction in military capability could result from state collapse, similar to the end of the Soviet Union. What are the prospects, considering current development trends, that a significant reduction of military capability will occur towards 2029?

As concluded in Chapters 2 and 3, the Armed Forces and its fighting power will most likely remain focused on launching a regional war towards 2029. Chapter 5 forecasts weak GDP growth, but still allowing for increasing defence budgets in the coming decade. The defence industry will most likely be able to deliver arms in sufficient quantities and quality for maintaining the ability to launch a regional war (Chapter 6).

Russian threat perceptions and military thinking recognise the need to handle military conflicts across the entire spectrum, from armed conflicts to large-scale wars, as discussed in Chapter 4. Russia's regional and global Great Power ambitions also motivate maintaining current military capability towards 2029. Overall, the development trends in 2019 indicated continuity of the present.

However, external and internal pressure could induce a sudden, negative change of the trajectory of Russian military capability in the coming decade. As pointed out in Chapter 4, though threat perceptions have been rather consistent, Russian policy implementation has been flexible and pragmatically adapted to changing circumstances. Also, Russia's ability to obscure its intentions means that we may not receive credible advance indications of a change in policy. Global economic turmoil and a fall in gas and oil prices, as well as environmental or technological ruptures, could force Russia to reduce its military spending substantially.

In addition, the political system will remain inherently fragile, since it rests on a single person and his ability to keep the system in check, as concluded in Chapter 4. Public distrust for the political elites will probably continue to grow, as will government repression of dissent. The economic outlook towards 2029 will not allow the regime to placate a restive population with steadily

growing real incomes (Chapter 5). We can therefore anticipate uncertainty in the coming decade.

Nevertheless, even a regime change would not necessarily result in a radical reduction of military capability in the ten-year perspective. It is probable that a new regime would have a similar view on defence and foreign policy. Without active political involvement, the inertial force of the Armed Forces could maintain current military capability for years. The current development trends do not point towards a voluntary reduction of Russian military capability towards 2029.

A forced transition of power in Russia could result in state collapse, with an ensuing fall in military capability. The emergence of external or internal pressure as the cause of such an eventuality is, in the ten-year perspective, inherently difficult to assess, as are other ruptures. Though not negligible, the prospect of a Russian state collapse in the coming decade seems small in 2019.

7.5 Russian military capability towards 2029

In this chapter, I explore four potential trajectories for the development of Russian military capability in the ten-year perspective. I find it less than likely that there will be a radical increase in Russia's military capability in the coming decade. Armed forces of multi-million strength seem unlikely, and the ability to launch out-of-area campaigns will probably not increase radically towards 2029. Likewise, it is unlikely that the political leadership will intentionally reduce Russian military capability significantly in the ten-year perspective. Nevertheless, the impact towards 2029 of internal and external pressure on Russian security policy remains hard to foretell.

Instead, the development trends in 2019 indicate that Russia's military capability will most likely incrementally improve in the ten-year perspective. This entails consolidation of the ability to launch a regional war in Europe or Asia, and the performance of uncontested out-of-area air campaigns and naval missions, as well as the handling of lower-level conflicts.

The Armed Forces organisation, armaments, and operational art will then largely remain in its current form. Some additional formations and units will probably be created. The Navy will most likely strengthen its ability both near Russia's coast and, probably, for operations on the world's seas, as the defence industry delivers new and modernised vessels. The ability to perform stand-off strikes will probably continue to increase significantly, doubling the number of available missiles by 2029 (Chapter 6). However, the stand-off capability will probably still not be adequate to guarantee a decisive impact on a peer adversary in a regional war, and thus clearly remain insufficient to support two simultaneous regional wars. The extensive readiness controls and exercise activity will also continue, consolidating the fighting power of the Armed Forces.

Russia may increase its military capability significantly towards 2029 only through determined and sustained policy implementation. By creating a couple of additional groups of forces and joint strategic commands, either standing forces or by introducing a scaled-down mass-mobilisation system, Russia would be able to launch two regional wars simultaneously. Alternatively, Russia could probably achieve the capability to deploy sizeable expeditionary forces, by improving inter-regional mobility and sustainability. However, it would be a case of either or, not both, and it would require a sustained effort and most of the coming decade to achieve.

As noted in Chapter 4, the military and political leadership prepares for both global and regional as well as local wars. However, if it lacks sufficient conventional forces, towards 2029 Russia will only be able to plan for fighting a large-scale war with nuclear weapons. Instead, the aim will continue to be to deter large-scale wars with nuclear and, increasingly, conventional weapons. This is reflected in the top priority given to the modernisation of the strategic nuclear forces and development of new strategic weapon systems, as well as in the continued strengthening of non-strategic nuclear arms and the effort to achieve conventional strategic deterrence with long-range high-precision weapons.

Towards 2029, Russian military capability will most likely continue to centre on Europe. Even though Russia will probably reinforce its Far East to

meet growing Chinese military power, the Russian heartland, as well as the best preconditions for waging wars, will remain west of the Urals. Russia's financial, industrial, demographic, and military strength in the European part of the country will continue to be indispensable for sustaining its power in the Arctic, Central Asia, and Asia-Pacific, as well as in the world at large.

Other researchers have also found status quo and incremental increase to be the most likely outcome when forecasting security policy (Giles 2019: 161–3), arms procurement (Connolly & Boulègue 2018), and military capability (Lavrov 2018; Radin *et al.* 2019). Still, external or internal pressure, in particular in the form of ruptures, which are inherently difficult to forecast, may affect the trajectory of Russian military capability towards 2029.

7.6 Implications of the findings

The prospect of consolidation of Russia's current military capability towards 2029, and the possibilities for significant increases have implications for international security and the study of Russian military capability.

A main implication is that the risk of Russia's overstretching its military power does not seem to be apparent. In the past ten years, Russia has bridged the gap between its policy ambitions and its military capability through determined security policy implementation, including the provision of the economic means. Other countries, not least neighbouring states, should note that Russia's military instrument will probably remain well-adapted to foreign policy ambitions during the coming decade.

A main implication that follows from this is that, as its military power incrementally strengthens, Russia will continue to affect international security significantly. We can expect continuity in an aggressive Russian foreign policy and a disregard for international law. We can also expect a recurrent use of armed force to sustain Great Power ambitions and protect Russian interests abroad, in particular in Europe.

The prospect of Russia's strengthening its ability to launch regional wars through determined policy implementation implies that Russia's scope for coercion and hostile non-military measures towards its neighbours may increase in the coming decade. Alternatively, a successful effort to strengthen expeditionary forces will provide Russia with a stronger instrument for coercion and interference around the world towards 2029. Barring a rupture in the coming decade, Russia's scope for overt threats and covert actions towards other states will most likely diminish only to the extent that its neighbours increase their military capability.

A third main implication is that following security policy developments closely in moving towards 2029 will be of key importance for assessing Russian military capability. GDP growth, defence industry production capacity, and the Armed Forces remain important factors. However, persistent political support for security policy implementation is necessary if Russia is to increase its military capability significantly in the ten-year perspective. This will be visible in its defence spending, arms deliveries, the Armed Forces' structure, and the development and practise of operational art. Furthermore, geopolitical change and Russian domestic development may result in either an increase or decrease in Russia's military capability, and thus also warrant following closely.

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Compared to a decade ago, Russia has clearly made substantial progress in transforming its military into an efficient fighting force. This report addresses the question: What military capability will Russia possess in another ten years?

Through analyses of Russia's Armed Forces and their fighting power, and of the political and economic factors that affect the development of military capability, this report arrives at a forecast of Russian military capability towards 2029. The study's primary focus is on regular warfare capabilities. This is the ninth in a series of FOI reports, dating back to 1999, on Russian military capability.

At present, there is no sign of a change in Russia's current authoritarian and anti-Western security policy. Recognition as a great power and establishing a sphere of interest in its neighbourhood will remain its main objectives. Change can come quickly in a ten-year perspective. However, we cannot expect any precise signs in advance.

The impressive pace of improvement of Russia's Armed Forces in the past decade is probably not sustainable. Instead, the next ten years will consolidate these achievements, notably the ability to launch a regional war. Strategic deterrence, primarily with nuclear forces, will remain the foremost priority.

Over the past ten years, Russia has bridged the gap between its policy ambitions and its military capability. A significant increase in Russia's military capability towards 2029 would require that an increase in defence spending, arms procurement, the Armed Forces' organisation, and exercise activity were given priority and received sustained political support.

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