Russia's Strategic Mobility

Supporting 'Hard Power' to 2020?

Roger N. McDermott

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Summary

Since 2008, Russia's conventional Armed Forces have been subject to a controversial reform and modernization process designed to move these structures beyond the Soviet-legacy forces towards a modernized military. While this defence transformation received full political support from the country's leadership, the reform itself became hostage to a serial experiment as military leaders grappled with its implications. In general terms the overall reform aspiration to develop better-trained and better-equipped smaller and more mobile forces to meet the potential threats likely to face the Russian Federation in the future demanded an equally far-reaching reform of the combat service support system.

The following report examines these changes, focusing on Russia's military-strategic mobility and assessing how far progress has been made toward genuinely enhancing the speed with which military units can be deployed in a theatre of operations and the capability to sustain them. In turn this necessitates examination of Russia's threat environment, the preliminary outcome of the early reform efforts, and consideration of why the Russian political-military leadership is attaching importance to the issue of strategic mobility.

Among the key findings is that the newly created combat units in Russia's conventional Armed Forces supported by a reformed material-technical service offer very limited deployment capabilities. Although the combat service support system has been streamlined and reformed, the new system will take time to settle down and to work out how best to cooperate with combat units to facilitate improved strategic mobility. Enhanced strategic mobility is unlikely to emerge in Russia's Armed Forces before 2020.

Among the combined-arms brigades the organic structure is still being recalibrated, with an anticipated basic approach by 2015 to include 'light', medium/multi-role' and 'heavy' brigades, while their re-equipping will continue to 2020. Russia's military will remain heavily reliant upon supporting combat operations through ground lines of communication (GLOCs). Movement of the brigades with organic heavy equipment is likely to slow deployment, while numerous problems will need to be solved in order to sustain more than a small deployment for a short time.

Russia possesses only very limited 'power projection' capabilities. However, this report argues that strategic mobility in current Russian military thinking also relates to the capability of the Armed Forces to deploy rapidly and to be sustained in far-flung theatres of operations within the Russian Federation itself. Moreover, an important conclusion of this report, consistent with ongoing challenges and limitations to strategic mobility, is that in an escalating security crisis Moscow's political-military leadership will continue to be reliant upon tactical early first use of nuclear weapons to 'de-escalate' conflict.

Finally, developing the combat structures, equipping them with modern weapons and equipment and integrating these units within a suitably workable combat support system, like the transformation of Russia's conventional forces, remains a long-term work in progress. The final format for these structures, as well as for recruitment and training programmes for military personnel, is unlikely to emerge before 2020.

Sammanfattning

Sedan 2008 har Rysslands konventionella Väpnade Styrkor varit föremål för en kontroversiell reformerings- och moderniseringsprocess med syftet att successivt överge dess sovjetiska arv till förmån för principer som gäller för en modern krigsmakt. Även om denna omställning har haft fullt stöd från landets politiska ledning har genomförandet i sig inte sällan bromsats upp av en serie organisatoriska experiment alltmedan de militära ledarna brottats med dess genomförande. I allmänna termer handlar det om att den övergripande reformen att utveckla mindre, mer lättrörliga samt bättre utbildade och utrustade styrkor för att möta de potentiella hot som Ryssland förväntas möta också kräver en lika långtgående reformering av förbandens underhållsunderstöd (teknisk service och underhåll).

I föreliggande rapport diskuteras dessa förändringar med fokus på Rysslands militära strategiska rörlighet. I rapporten bedöms vilka framsteg som har gjorts i hur fort militära enheter kan sättas in i ett insatsområde samt deras möjligheter att vidmakthålla dem där över tid. Detta kräver i sin tur en granskning av Rysslands hotbild, det preliminära utfallet av tidiga reformer och beaktande av varför det ryska politiska och militära ledarskapet fäster så stor vikt vid frågan om strategisk rörlighet.

Bland de viktigaste slutsatserna är att nyskapade konventionella förband i Rysslands Väpnade Styrkor, understödda av ett reformerat underhållsunderstöd, har en mycket begränsad insatsförmåga. Även om förbandens system för reparationer och teknisk underhållstjänst har strömlinjeformats och reformerats, kommer det nya systemet att behöva tid för att komma på plats. Tid behövs även för att utveckla rutiner för hur samarbetet med stridande förband skall förbättras. Rysslands Väpnade Styrkor kommer sannolikt inte att förbättra sin strategiska rörlighet före år 2020.

Manöverbrigadernas (motorskytte- och stridsvagnsbrigader) struktur justeras fortfarande. Ansatsen är att det 2015 skall finnas "lätta", ”mellantunga" och "tunga” brigader. Deras materieltilldelning kommer att fortsätta till 2020. Rysslands väpnade styrkor kommer fortsatt att vara starkt beroende av markbundna kommunikationslinjer (järnvägar, vägar, floder) för att genomföra operationer. Förflyttning av brigader som har tung utrustning kommer att försinka omgruppering mellan operationer. Många problem måste lösas för att kunna vidmakthålla mer än en liten operation under kortare tid.

Ryssland har en mycket begränsad förmåga för styrkeprojicering. Emellertid hävdar rapporten att strategisk rörlighet i dagens ryska militära tänkande även avser förmågan hos de Väpnade Styrkorna att snabbt kunna sättas in och vidmakthållas i insatser i avlägsna operationsområden inom Ryssland. En annan viktig slutsats är att pågående utmaningar och begränsningar till strategisk rörlighet medför att Rysslands politiska och militära ledning i händelse av en konflikt

kommer att fortsätta att vara beroende av ett taktiskt ”first use” av kärnvapen i syfte att de-eskalera konflikten.

Slutligen konstateras att utvecklingen av strategisk rörlighet liksom omdaningen av Rysslands konventionella styrkor är ett långsiktigt arbete. Förbanden måste utrustas med moderna vapen och modern utrustning och integreras inom ett lämpligt fungerande system för underhållsunderstöd. Den slutliga utformningen av dessa strukturer, liksom systemen för rekrytering och utbildning av militär personal kommer sannolikt inte att var klar före år 2020.

Foreword

The Russia Studies Programme (RUFS) at FOI specializes in analysing Russian foreign, security and defence policy in a broad perspective with the Swedish Ministry of Defence (MoD) as its primary client. The programme produces an extensive bi-annual assessment of Russia's military capability in a ten-year perspective, the latest having been published in 2012 (Vendil Pallin, Carolina (ed.), Russian Military Capability in a Ten-Year Perspective – 2011, FOI-R-3474—SE, August 2012).

The present report on Russian strategic mobility is written by the renowned British scholar Roger N. McDermott. It is an in-depth study of one of the central issues that we identified in our latest ten-year assessment for the successful reform of the Russian Armed Forces. However, the views in this study are the author's own and do not necessarily correspond with the ones in RUFS ten-year assessment.

I would like to express my deep gratitude to Roger N. McDermott for accepting the offer to write this report for RUFS and for excellent cooperation during the whole period of producing the report. I am also very grateful to Dr Jacob Kipp, Adjunct Professor of the University of Kansas, who read and commented on the second draft of the report. His careful scrutiny took the final report to a new level. Finally, I owe my close colleagues Johan Norberg and Fredrik Westerlund, who both read and commented on an earlier version of the report, a big thank you.

Stockholm, April 2013

Jakob Hedenskog, Programme Manager

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Acronyms and Abbreviations

ABM	anti-ballistic missile
ALOC	air line of communication
BMD	ballistic missile defence
C2	command and control
C4ISR	command, control, communications, computers, intelligence, surveillance and reconnaissance
CAA	combined-arms army
CAST	Centre for the Analysis of Strategies and Technologies
CGS	Chief of the General Staff
CSTO	Collective Security Treaty Organization
FMSO	Foreign Military Studies Office, US Army, Fort Leavenworth
GLOC	ground line of communication
GPV	Gosudarstvennaia programma vooruzheniia (State Armament Programme)
HQ	headquarters
ICBM	intercontinental ballistic missile
km	kilometre
MD	Military District
MoD	Ministry of Defence
MRB	Motorized Rifle Brigade
MTO	Materialno-tekhnicheskogo obespechenie (Material-Technical Support)
NATO	North Atlantic Treaty Organization
NCO	non-commissioned officer
NSS	National Security Strategy
OSK	Obedinonnye Strategicheskoe Komandovanie (Joint Strategic Command)
POL	petroleum, oil and lubricants
PLA	People's Liberation Army (of China)
R&D	research and development
SAM	surface-to-air missile
SLOC	sea line of communication

TOE	table of organization and equipment
USD	US dollar
VDV	Vozdushno-Desantnye Voiska (Airborne Forces)
VKO	Vozdushno-Kosmicheskoe Oborony (Aerospace Defence Forces)
VOSO	(Military Transportation Service)
VTA	Voenno-transportnaia aviatsiia (Military Transport Aviation)
VVIT	(Volskii voennii institut tyla, Volsk Military Institute of Rear Services)
WMD	weapon(s) of mass destruction

1 Introduction

Western analyses of Soviet and Russian strategic mobility tended to focus on air power and on consideration of Moscow's military capability to deploy and sustain forces beyond its borders. Interest in these issues has resurfaced among both academics and policy planners since Russia launched the reform and modernization of its conventional Armed Forces following its Five Day War in Georgia in August 2008. The changes to Russia's Armed Forces since 2008 have prompted consideration of the country's capability to deploy military forces beyond its borders.

An understudied feature of strategic mobility in Russian security thinking and capabilities is the ability to protect or react to crises within the Russian Federation. The starting point for this study, therefore, is to examine whether the Russian Armed Forces have or plan to develop military capabilities to react to crises within the country, and also to project power in a limited manner on the Russian periphery.

The following study challenges accepted understandings from the Cold War that mobility is mainly linked to the capacity to deploy forces abroad and sustain these. In the post-Cold War security environment Moscow faces the challenge of protecting its far-flung frontiers. This study examines strategic mobility in relation to Russia's mobility of land and sea power. It defines the capability of the Russian Armed Forces to deploy and sustain military operations on the country's periphery or within its own frontiers.

It places the issue of strategic mobility in both its Russian and a historical context, linked to the country's threat environment, and in chapter 2 it offers the only comprehensive analysis of the transformed combat service support system in the English or Russian languages. The report concludes by examining the deeper long-term military modernization agenda, tied to the remnants of the 2008-12 Armed Forces reform, and considers whether Russia's combat units are as combat-ready as officially claimed by Moscow, and indeed whether their capacity to deploy and be sustained in military operations has developed.

The research questions which guided this analysis include: has the reform and modernization agenda enhanced Russia's strategic mobility? What are Moscow's priorities in developing these capabilities? How does the Russian state plan to strengthen such capabilities in the future? Will Russia be able to deal adequately with a crisis within its borders?

This research draws upon Russian military open source reporting, expert reports, specialist journals, and interviews in Moscow as well as Western and Central Asian capitals with military experts.

Inevitably the following analysis is the result of painstaking reading of a very wide and varied trawling of the Russian military press. In that process, given the disparate claims, inaccuracies and tendencies to favour hyperbole contained in such articles, these sources demand careful handling and discussion with military specialists. As one senior Russian officer explained to the author, Western analysts frequently ask questions to which the answers are unknown even by the top brass since the structures themselves are so complex or opaque. This study, therefore, seeks to assemble a realistic picture of the various issues based upon the kernels of insight both from Russian open sources and from detailed discussions with colleagues and individuals close to the coalface of Russia's ongoing military transformation.

2 Russia's Threat Environment and Strategic Mobility

Russia is the largest country in the world, spanning several time zones stretching from Europe to the Asia-Pacific. Therefore, Russia is a Eurasian power with quintessentially difficult and challenging issues confronting its defence and security planning in terms of moving and sustaining military forces within the country or beyond its borders.[1] The sheer size and scale of the country, and the number and range of potential sources of conflict close to its borders – ranging from the Arctic Circle to the Baltic Sea, the Black Sea, the South Caucasus, Central Asia, or the Asia-Pacific – raise the importance of ensuring the strategic mobility of its conventional Armed Forces to enable them to operate in several potential theatres. During times of military conflict or crisis these forces have to be moved over considerable distances, covering several thousand kilometres (km). Threats or dangers to the security of the Russian state divide into those linked to its specific geo-strategic context, as well as systemic ones stemming from other actors seeking to develop advanced military capabilities with global reach. Russian strategic mobility is even more important given the recent drastic reductions in the number of units and personnel in its Armed Forces, and the following study examines this neglected but crucial element in Moscow's defence planning.[2]

In order to avoid the concept and its policy relevance becoming lost in a sea of abstraction, this study follows the development of Russian thinking in this area linked to the country's threat environment. Probable threats to the Russian state, or even those that are less likely but still necessary to build into defence planning, need to be understood from the perspective of Russia as a Eurasian power, alongside systemic shifts in the nature of modern warfare and the consequent increased importance of rapidly deploying and sustaining military forces on a strategic axis. Moscow has also reformed the system of combat service support and as a result this has become more complex with its emphasis upon supplying units at the point of need in a mobile conflict rather than shifting bulk supplies to a front line. These changes are designed to fit a combat system still in flux after the abolition of the 'paper units' and the transition to 'permanent readiness' brigades. And, as a result, any effort to understand Russia's strategic mobility without reference to its military modernization and the reform of its Armed Forces since 2008 would offer only a partial glimpse into the state's military deployment and sustainment capabilities.[3]

Since the reign of Nicholas I (1796–1855) the railways have been the foundation of Russian strategic mobility and the orientation has been towards defence, with a rail gauge for Russia that is different from the European standard. In the 19th century the lack of a railway line to the Crimea meant that Russia lost the ability to deploy forces to the Black Sea and sustain them, while the maritime powers of

Britain and France could. These maritime powers, Britain and France, had engaged in the first modern arms race to build screw-propelled warships and both allied against Russia while the latter had no such fleet or railways to move forces to the theatre of operations. As a result, in the 19th century, Kipp notes, 'Railroads were key, even with their huge capital costs, because they became the physical backbone for the development of a modern national economy that sought integration into World trade. Strategic railroads might facilitate Russian entry into war, but if modern war became protracted, the same railroads must effectively link fighting front with supporting rear.'[4] Today, Russia's strategic mobility is still fundamentally tied to its railways. Moscow cannot use air transport to deploy and sustain large-scale armed forces; this is an axiomatic point guiding the parameters of Russian strategic mobility.

Dmitry Miliutin's conscription reform in the 19th century made a mass mobilization army possible and the railway system provided the means to move the troops. The Russian General Staff had to plan the movement of such troops and equipment to the theatre under threat. The railways remain Russia's key economic and military connection, augmented by a weak and undeveloped road system, river transport, and air transport system. In the Soviet era the state had all these means at its disposal in times of national mobilization. Modern Russia lacks the mechanisms for such total mobilization in times of crisis and is short of the manpower to sustain a multi-echelon force for a protracted war.[5]

An important aspect of Russia's conventional military forces' capabilities is the extent to which the Armed Forces possess or will improve strategic mobility. It is important to define the term, and to frame this question in the Russian context. Working definitions of the concept itself in essence convey the idea that it is about projecting military force from within the state outwards, or from one part of the state to another, and sustaining these forces in such theatres of military operations: 'Strategic mobility can be defined as the ability of a military force to project influence and power over a given geographical area. The greater the area over which a military force is able to conduct military operations and sustain them over time, the greater the degree of strategic mobility.'[6]

The Russian term that comes closest to 'strategic mobility' is *strategicheskii manevr* (strategic manoeuvre), which addresses relations to strategic and operational rear and material-technical support. Strategic manoeuvre is conducted by forces and material means to transfer strategic efforts from one theatre (direction or district) to another, creating more favourable conditions for operations to be conducted. This is achieved by moving troops and air and naval forces and moving supplies using strategic and operational logistics.[7]

While these are helpful in illuminating what this report concentrates on evaluating in the modern Russian Armed Forces, it is equally necessary to note the distinction in the context of the Russian Federation: Moscow is not principally concerned with developing strategic mobility on a global scale, but restricts this to

possible theatres of operations on its periphery. However, the scope of that periphery is enormous; Russia's land borders measure 20,241 km, while its coastline runs to 37,653 km. Russia shares borders with 14 sovereign states (Azerbaijan, Belarus, China, Estonia, Finland, Georgia, Kazakhstan, North Korea, Latvia, Lithuania, Mongolia, Norway, Poland and Ukraine) plus Abkhazia and South Ossetia. These borders are largely determined by the size of the Russian territory and its coastlines extending to the Arctic, Pacific and Atlantic oceans.[8]

Evaluations of Soviet strategic mobility in the late Cold War era began with the deployment of forces into the Third World, including Cuba, and hinged on strategic airlift (Ethiopia) and naval presence (the Okean exercises in 1970, 1975 and 1980). However, as this study demonstrates, the concept of strategic mobility in contemporary Russian military thinking and historically is much more locally focused as well as linked to moving and sustaining forces within the country itself. This latter point is not only underestimated among Western analysts but receives very little credible attention.[9]

The centrality of enhancing strategic mobility as part of wider defence reform efforts is therefore explained by reference to Russia's threat environment, and some of the statements of intention or aspiration by the country's political-military leadership, and is demonstrated in the level of attention devoted to mobility during Russian military exercises since 2008.[10] Such developments, however, are made more complex by a defence reform programme that faltered and finally crashed in the autumn of 2012; it remains unclear what will replace this first genuine reform effort in the Armed Forces.

Indeed, the question of how far Russia's political-military elite promotes genuine advances in the strategic mobility of the Armed Forces remains unresolved among the debris of a reform period for the Russian military. Moscow has relied and will continue to rely heavily upon its nuclear deterrence to protect the state from the risks of escalation and reduce the potential of large-scale conflict.[11] In the context of the Obama administration pursuing a 'reset' policy in US–Russia relations, rooted partly in the need confronting Washington in the early period of President Barack Obama's first term in office to seek Moscow's cooperation in the Northern Distribution Network to facilitate the troop surge in Afghanistan, its most prominent achievement was a new Strategic Arms Reduction Treaty (START). This prematurely raised hopes that tactical nuclear weapons may soon appear on the bilateral disarmament agenda, with a promise to pursue the long-term goal of Global Zero. These developments, which underestimate the role of such weapons systems in Russian security policy, coincided with Russia introducing a new Military Doctrine in 2010, in the midst of the ongoing reform and transition of its conventional Armed Forces.[12]

New strategic realities are being confronted by Russia's defence and security agencies, and Moscow's drive to reform and modernize the conventional Armed Forces with some reference to the 'lessons' from the Russia–Georgia War in

August 2008, as well as modernizing the nuclear deterrent, reflects a reorientation towards countering 21st-century threats to the state. As an integral element in these complex processes, the Ministry of Defence (MoD) and General Staff recognize that it is futile to raise combat readiness without a commensurate effort to increase strategic mobility. Most recently, they understood at first-hand how long it took to prepare, train, move and supply forces for the operation to 'compel Georgia to peace' in August 2008, as well as the limited nature of Russia's existing capacity to project power and sustain it over time. Fortunately for the Kremlin, the collapse of the Georgian Armed Forces came all too rapidly and therefore did not fully expose the real limitations of Moscow's deployment and sustainment capabilities.[13]

2.1 Threat Assessment in Russia's 2010 Military Doctrine

The Russian Military Doctrine has been through a number of incarnations since the collapse of the Soviet Union. These security documents display more continuity than change, yet the main transition during the period from 1993–2010 saw less prominence being assigned to large-scale conventional warfare. Threats to Russian security in the 2000 Military Doctrine were attempts to interfere in Russia's internal affairs, infringe or ignore Russia's interests in settling international conflicts, opposing Russia's influence on global affairs, the expansion of military blocs and alliances, the deployment of foreign troops with the legal mandate of the UN Security Council, and suppressing the rights of Russian citizens abroad.[14]

Russia's 2010 Military Doctrine, ordered by then President Vladimir Putin in the spring of 2005, was signed by President Dmitry Medvedev on 5 February 2010.[15] Western fears that it might be used to signal a lowering of the nuclear threshold was partially dispelled by the new doctrine. However, Moscow opted to restrict further detail on its nuclear posture to a classified addendum ('The Foundations of State Policy in the Area of Nuclear Deterrence to 2020').[16]

The most striking feature of the 2010 Military Doctrine, given the upheaval caused by the launching of the Armed Forces reform in 2008, was the inconsistency with that reform and perhaps even the caution expressed on the entire process. Indeed, the 2010 Military Doctrine almost reads as though its authors chose to ignore the reform. However, this is largely unsurprising given the prominent role played in the Russian Security Council by the former Chief of the General Staff, Army-General (retired) Yurii Baluevskii.[17] Equally the new doctrine proved to be self-contradictory and even in places appeared to ignore the 2009 National Security Strategy (NSS).

In February 2007, President Vladimir Putin appointed Anatolii Serdiukov as Defence Minister. Serdiukov was a civilian minister, with no background in the

state security structures, and Putin mandated him to tackle the huge financial problems afflicting the MoD. Serdiukov's background in the Ministry of Finance seemed to equip him for this task, as well as for the sweeping reform of the Ministry of Deffence Armed Forces which ensued after the Russia–Georgia War in August 2008.[18]

'Serdiukov's reform' had abolished the mass mobilization principle only to mention 'mobilization' more than 50 times in the 2010 Military Doctrine; at face value this implied that, despite the official claims concerning the creation of 'permanent readiness brigades' at the heart of the reform, Moscow continues to rely partly on a partial mobilization to generate adequate forces to meet operational requirements.[19]

The 2010 Military Doctrine refers to its previous (2000) version and additional strategic planning documents (the Concept for the Long-Term Socioeconomic Development of the Russian Federation for the Period through 2020, the 2009 NSS, and relevant provisions in the 2008 Russian Foreign Policy Concept and the Russian Federation Maritime Doctrine for the Period through 2020). However, Russian observers believe the doctrine lacks clarity and fails to address the real security issues confronting the Russian state.[20] In fact, the doctrine contains little that may be construed as 'new' compared with its previous version.[21] Nonetheless, it distinguishes between *opasnosti* (dangers) and *ugrozy* (threats) facing Russia – a motif that allows Moscow to designate NATO enlargement, as opposed to the existence of the Alliance per se, as a danger, rather than a threat. Yet this anti-Western paradigm, which has proved an integral part of Russian military doctrinal thinking, has been preserved, even if in a slightly more diplomatic style.[22]

2.2 Dangers and Threats

Opasnosti cover 12 external and three internal dangers. NATO is ascribed the leading position in this list of dangers to the Russian state; the Military Doctrine singles out its 'global functions' and relentless enlargement. Then come (ii) attempts to destabilize individual states or regions, or undermine strategic stability; (iii) the deployment or build-up of foreign troops on the territories or waters of states contiguous with Russia and its allies; (iv) creating and planning to deploy strategic missile defence systems to undermine global stability and nuclear parity; (v) the militarization of outer space and the deployment of strategic non-nuclear precision weapon systems; (vi) territorial claims on Russia or its allies and interference in their internal affairs; (vii) the proliferation of weapons of mass destruction (WMD), missiles and related technology, and the increase in the number of nuclear weapon states; (viii) individual states violating international accords and non-compliance with existing treaties; (ix) the use of military force close to Russia in violation of the UN Charter or other norms of interna-

tional law; (x) the emergence of armed conflict and possible escalation of such conflicts on the territories of states close to Russia and its allies; (xi) the spread of international terrorism; and, finally, (xii) the emergence of interfaith tension, international armed radical groups in areas adjacent to Russian borders and those of its allies, and the growth of separatism and religious extremism in various parts of the world. Internal dangers stem from (i) efforts to compel change to the constitution; (ii) efforts to undermine the sovereignty, unity and territorial integrity of the state; and (iii) disrupting the functioning of the organs of state power, state and military facilities and the information infrastructure of Russia (Section II.8.a-k; 9.a-c).[23]

WMD proliferation, or international terrorism, according to the Military Doctrine, represents less of a danger to the Russian state than NATO. Nevertheless, the doctrine may reflect concern among the Russian security elite over the US–NATO missile defence plans and US 'Conventional Prompt Global Strike' developments, perceived as a potential factor in undermining the long-term future of Moscow's nuclear deterrent.

WMD proliferation and related technology and the violation of international treaties are novel elements in the doctrine and its authors may have had in mind North Korea and possibly Iran, as well as the abrogation of the 1972 Anti-Ballistic Missile (ABM) Treaty and the collapse of the 1990 Conventional Forces in Europe (CFE) Treaty. The inclusion of military force used near Russia in violation of the UN Charter as another danger follows the formula used in the old doctrine. References to interfaith tension and international armed radical groups may have been linked to security concern regarding Afghanistan and the possible spillover of the conflict there into Central Asia and the North Caucasus. Domestic dangers to the Russian state stem from separatism and terrorism, mainly in the North Caucasus, and possible breaches of information security.

Military *threats* to the state stem from (i) a drastic deterioration in the military-political situation (interstate) resulting in escalation to the use of military force; (ii) impeding the functioning of command and control (C2) systems in the country, or disrupting the functioning of the strategic rocket forces, missile early warning systems, spaced-based monitoring systems, nuclear weapons storage facilities and other potentially hazardous facilities; (iii) forming and training illegal armed formations on Russian territory, or on the territory of Russia's allies or contiguous states; (iv) demonstrations of military force during military exercises on the territories of states contiguous with Russia; and, finally, (v) increased activity on the part of armed forces of individual states or groups of states involving partial or complete mobilization and the transitioning of the states' organs of state and command and control to wartime conditions (Section II.10.a-e).[24] The fourth and fifth threats are new: while the doctrine does not explicitly mention China, it might refer to concern in Moscow over military ex-

ercises conducted by the People's Liberation Army (PLA), which may have rehearsed a future Chinese military intervention in Russia or Central Asia.[25]

Thus, while the 2010 Military Doctrine – criticized by leading Russian defence experts, including Army-General (retired) Makhmut Gareev, over the controversial decision to include a classified addendum on nuclear doctrine – raises questions about its consistency with Russian security documents such as the Foreign Policy Concept 2008 or the NSS 2009, while decrying NATO's 'global functions', it also advocates a much tougher version of Article 5 in relation to the Collective Security Treaty Organization (CSTO) (Section III.19.e).[26] But the doctrine offers no clear insight into the actual threat-related drivers of the current reform process.[27]

2.3 Threat Assessment and the General Staff

Threat assessments that are potential drivers of the reform of the Russian Armed Forces are not fully elaborated in the 2010 Military Doctrine, or in any of the speeches or official statements by the political-military leadership. Indeed, the search for accurate and near-complete insight into the threat assessment background to the reform is crucial in unlocking the sudden re-focusing of attention among the 'reformers' on the deep questions surrounding strategic mobility.

The overview that is closest to coherent comes from one of the key individuals close to the reform and modernization transition, as originally conceived in 2008 – the then Chief of the General Staff (CGS) Army-General Nikolai Makarov. In June 2009, confident that the process of dismantling the existing divisions and moving toward the new brigade-based structure of the Armed Forces had passed the stage where there was no turning back, Makarov presented a detailed insight into the reform during a press conference in Moscow lasting more than two hours and 30 minutes.[28]

Makarov showed a set of slides during his presentation, and used as his starting point a map of the Russian Federation displaying the potential threats to the state; he specifically stated that the first task facing the political-military elite prior to launching the reform was to examine changes in the strategic environment. His comments on the first slide, which displayed the global balance during the Cold War, were aimed at stressing the fundamental differences in the strategic environment now facing Russia – new threats and challenges had emerged and these in turn demanded fresh approaches to defence and security policy.[29]

Russia's geo-strategic setting in Eurasia and the potential theatres of military operations that Russia must take into consideration – including the movement and sustainment of troops over considerable distances, combined with the problem of mobilizing and deploying forces in time and space, given the means which are available for movement between theatres – clearly influence General

Staff thinking. Russia is a continental power with isolated maritime frontiers and limited means of ground mobility, principally railways with very specific throughput rates per day in case of 'mobilization'. Based upon what is known about the Russian Armed Forces' deployments into theatre in the First and Second Chechen Wars, military trains from the Russian Far East transported troops at 1,200 km per day. However, in real terms this was slowed further by the lengthy delays in debarkation because train station platforms were short, with an insufficient number of loading and offloading points; some military trains had as many as 100 carriages.[30]

Makarov also recognized, in this complex geo-strategic environment, that the Arctic Circle is emerging as a new potential theatre. This development is being driven by competing energy interests among great powers and the climatic changes in the region which are opening up potential sea lines of communication (SLOCs). Makarov made a number of observations with one uniting theme. These points all related to potential threats facing the state and the unpredictability of conflict erupting that may compel a response from Moscow. These comments were wide-ranging, beginning with the Arctic and its increasing interest to a number of actors, and going on to the Baltic and Central Asian regions. Makarov noted in passing that after the war with Georgia in August 2008 the Baltic States, Poland and the Czech Republic had called for Russia to be punished for its actions.[31]

He then added that where Ukraine is concerned Moscow also faces a series of issues, highlighting that it could not remain indifferent to the plight of ethnic Russians in the Crimea. Russian naval basing in the Crimea is a critical issue for Moscow, as its naval base and its long-term future are key to dominating the Black Sea region. Without that base Russia's position in the Black Sea would be defensive in covering the Caucasus coastline and limited by existing naval basing. After the Georgia war, the situation in the South Caucasus had also changed, causing concern about any potential military build-up by a revanchist Tbilisi. Turning to Central Asia, the CGS explained that the risk of military conflict in the region stemmed from numerous unresolved territorial and inter-ethnic conflicts, referring to the Fergana Valley as a possible flashpoint. Makarov's references to the Asia-Pacific touched only on Russia's membership of the Shanghai Cooperation Organization (SCO) and a 'well-thought out policy toward China', while ignoring Japanese claims on the Kurile Islands.[32] Significantly, his next slides and comments linked these issues to the changing nature of the means and methods of warfare, explaining how Moscow had seen the US and NATO develop high-technology approaches to combat operations which were precisely those that were lacking in the capabilities of the Russian Armed Forces.[33]

On 17 November 2011, CGS Makarov provided a fresh overview of the progress and aims of the reform of the Armed Forces to an audience in Moscow that included NATO defence attachés. Makarov presented as his first slide a diagram

set out on a map to show the potential and actual threats to the security of the Russian Federation. It represents an interesting insight into the security thinking of the General Staff, albeit at a public level, and it was used to justify the ongoing transformation of Russia's conventional Armed Forces.[34]

Makarov's diagram notes as background the potential security problems on the Korean Peninsula, flashpoints in the Balkans, and the Palestinian problem, as well as issues linked to Iraq, and Iran. The graphic was careful to avoid any mention of the People's Republic of China; this was alluded to by reference to 'uncontrolled migration', but the arrows on the map appear to suggest that this is more of an issue from the south of the country. The map also showed existing and potential areas of armed conflict close to Russia and countries with a capacity for the production of weapons of mass destruction, as well as force groupings in the United States and NATO.[35]

Makarov's diagram clearly delineated 12 potential sources of security threats to the Russian Federation, some of which correspond to the 2010 Military Doctrine, and these were used to promote the reform launched in 2008 while implying the need for greater strategic mobility. These were defined as follows:

1. Western efforts to provide energy security to the detriment of the economic and political interests of Russia (the signing of the European Union (EU) Energy Charter and the creation of a so-called 'energy NATO').

2. The violation of the strategic balance of forces (deployment of elements of a global missile defence system, and the development of intercontinental ballistic missiles (ICBMs) with conventional warheads).

3. Upholding of the global leadership of the US, and the expansion of the military presence and areas of responsibility of US and NATO forces (NATO's eastward expansion, NATO-based reconfiguration, and the creation of groups of US forces in the African zone).

4. The military-technical and technological superiority of the leading Western countries (developing long-term high-precision weapons, miniaturization of robotic combat and reconnaissance systems, and unmanned aerial vehicles).

5. The presence of territorial claims against Russia and its allies (indicated in the diagram) [the diagram showed the 'territorial claims' of Norway, Finland, Estonia, Germany, Latvia and Japan, and Polish claims against Belarus].

6. The conducting of military operations in circumvention of the principles and norms of international law (the military operations in the former Yugoslavia and Iraq).

7. The possibility of an outbreak and escalation of armed conflict in South-West and Central Asia (indicated in the diagram) [the diagram displayed potential conflicts in South Ossetia and Nagorno-Karabakh, and in Central Asia religious

extremism was highlighted, as well as security problems stemming from Afghanistan].

8. 'Competition' for the development of mineral resources and communications in the Arctic (and building ice-breakers, and stationing Armed Forces units).

9. The strengthening of the EU's military capabilities (the formation of the European Rapid Reaction Force).

10. The weaponization of space and the development of anti-satellite weapons (missiles for destroying Chinese and US satellites).

11. The growth in drug trafficking through Russia (part of the so-called 'northern route' for drugs going from Asia to Europe with an annual turnover of 15 billion USD).

12. The US drive to control the nuclear complex in Russia (increasing the vulnerability of nuclear facilities in the Russian Federation).[36]

Points 1–6 seem inherently anti-Western, linked together by an awareness of Russia's declining influence in the post-Cold War order, and couched in language that has become a hallmark of a revanchist political-military elite, even if it is frequently detached from the state's economic realities. With the exception of the reference in the first point to US and European energy aspirations, possibly to undermine Russia's natural energy resources dominance in the European energy market, points 1–6 link firmly to the threat assessment in the 2010 Military Doctrine, characterizing NATO as a danger to the Russian Federation.[37]

The first point relates to energy diplomacy, and is somewhat open to question in the longer term given the development of fracking and other issues that may limit Russia's dominance of the European energy market. While the second and third points are global, the latter also contains a set of geo-strategic vectors. The fourth point is systemic in its nature, connected to advances in warfare capabilities among some states. The fifth point is clearly geo-strategic, with reference to the Baltic region and Central and Eastern Europe as well as the Asia-Pacific as potential theatres of crisis. Although point 6 reiterates Moscow's long-standing objection to Western military operations in the former Yugoslavia and Iraq, by this time Russia had also expressed concern about the UN mandate being exceeded over Libya.

The careful reference to frozen conflict in the South Caucasus, or potential destabilization of Central Asia linked to Afghanistan, implies the need to deploy military forces to respond to escalating violence in these areas in support of Russia's allies. Point 8 is entirely new, referring to the Arctic Circle as a potential theatre of military operations, driven by resource competition and the emergence of potential news SLOCs.[38] Point 9, highlighting the EU rapid reaction capability, is not theatre-specific because NATO claims the right of global intervention to restore stability, while Russia's focus is on its 'near abroad'. The global tech-

nological threat in point 10 relates to specific actors creating new capabilities. Evidently point 11 is theatre-specific, though the final point may reflect a desire to make Russian nuclear infrastructure more opaque rather than representing a critique of the Nunn-Lugar Cooperative Threat Reduction programme.[39]

Where these issues intersect with reform and modernization of the conventional Armed Forces is in the area of high-technology systems, trying to pursue limited asymmetrical responses in recognition that Russia is unlikely to bridge the technology gap with the West. In fact, this is of importance in conventional terms as it is factored into Russia's capability to control, manage or 'de-escalate' an escalating future security crisis. The planners of the transformation process have invested much time and energy in the promotion of C4ISR (command, control, communications, computers, intelligence, surveillance and reconnaissance) as a basis for the adoption of asymmetrical network-centric warfare capabilities.[40] This has been the basis for a model of forces based on quality and not quantity. That is, there is recognition that Russia cannot play the old game of mass mobilization in a conflict with an advanced state that possesses such forces. In the absence of conventional advanced systems, Russia is left with nuclear responses to theatre crises and grave risks of conflict escalation.

2.4 Unofficial Perspectives on Threat Assessment

Nonetheless, in terms of Russia's contemporary threat environment, and reflecting continued insurgency in the North Caucasus, it appears that the most urgent potential security threat stems from an unexpected outbreak of conflict in the South Caucasus or in Central Asia, with the former emerging from South Ossetia or Baku seeking to resolve outstanding issues over Nagorno-Karabakh. The General Staff seems to attach higher priority to possible conflict in Central Asia as a result of clan disputes, leadership succession, inter-ethnic or religious conflict, or the remote prospect of any deterioration in the security environment following the withdrawal of NATO from Afghanistan in 2014. The latter point as one of the threat-related drivers of the military transformation is encapsulated in the view of the threat environment offered by the influential Moscow-based Centre for the Analysis of Strategies and Technologies (CAST).[41]

The CAST report highlights the potential for conflict within the post-Soviet space and notes: 'In this case, any conflict in the post-Soviet space is highly likely, if not certain, to lead to Russia's intervention, including military intervention. After all, Russia is committed to ensuring the safety of the CSTO, as well as South Ossetia and Abkhazia.' In terms of possible conflicts that might result in such Russian military action the most likely scenario relates to Central Asia; this assessment is based on the 'weakness of the states in the region', the report arguing that they are in fact artificial states, with their boundaries being arbitrarily

determined by Moscow after the Bolshevik Revolution. Internal sources of conflict within Central Asia range from 'clan and regional rivalries' to ethnic divisions. External factors mainly centre on Afghanistan and the possible return of the Taliban to power in the aftermath of the NATO withdrawal in 2014. Any pressure from the Taliban on Central Asia could lead to Russian military intervention in the region, and in the case of Kazakhstan it would become inevitable, not least due to the large Russian minority in the country, but also since it is strategically important to Moscow.[42]

Additional potential conflicts in the future could result from an escalation of the insurgency in the North Caucasus; a revanchist approach by Tbilisi to Abkhazia and South Ossetia; a 'Falklands scenario' with Japan over the Kurile Islands; containing the unstoppable political and economic rise of China; external conflicts such as in the Middle East or on the Korean Peninsula; and addressing the continued concern among the Russian security elite about NATO 'out-of-area operations'. The report stressed the twin factors of the unpredictability of the Alliance's out-of-area actions and its missile defence plans:

Finally, the NATO operation in Yugoslavia, the United States' and its allies' invasion in Iraq, the French-British-Italian intervention in the civil war in Libya, as well as continuing territorial claims of some NATO countries against Russia and its ally Belarus are keeping the task of containing NATO a priority. This containment requires, above all, maintaining the effectiveness of the nuclear deterrent, especially in the context of the US missile defence program.[43]

On the latter, the report's authors also concluded that conflict between Russia and NATO remains unlikely, not least since the Alliance demonstrated such caution over the Russian military operations in Georgia in August 2008. Nonetheless, unlike the vague official definitions of potential dangers or threats to the Russian Federation contained in the 2010 Military Doctrine, or the 2009 NSS, which almost sets out every conceivable threat to the state, the CAST study tries to make sense of the possible threat assessment drivers underlying the need to reform and modernize the conventional Armed Forces.

This is interesting for a number of reasons, not just the fact that, though independent, CAST works closely with the Russian MoD, but also for its handling of the nature of possible threats the reformed Armed Forces may be required to deal with. Some of these potential scenarios – such as conflict with Japan over the Kurile Islands or Chinese military intervention in the Russian Far East – appear remote risks to the Russian state; however, the picture the report conveys of the likelihood that the Russian military will become engaged in operations on the country's periphery, in Central Asia or the South Caucasus links together three vitally significant themes. These are the perception among the Russian political-military elite that war 'may arise suddenly' in the future; the fact that modern forces are needed in order to conduct C4ISR-based operations; and, finally, the

underlying necessity regardless of the success or failure of adopting network-centric warfare capabilities to enhance strategic mobility.

These interrelated factors have dominated contemporary Russian military thinking and many of the reform themes since 2008. These can be found in references to the transformation of the pre-reform Military District system, statements by the political-military elite, and comments on the efforts to test the new brigade-based military structure in operational-strategic exercises.

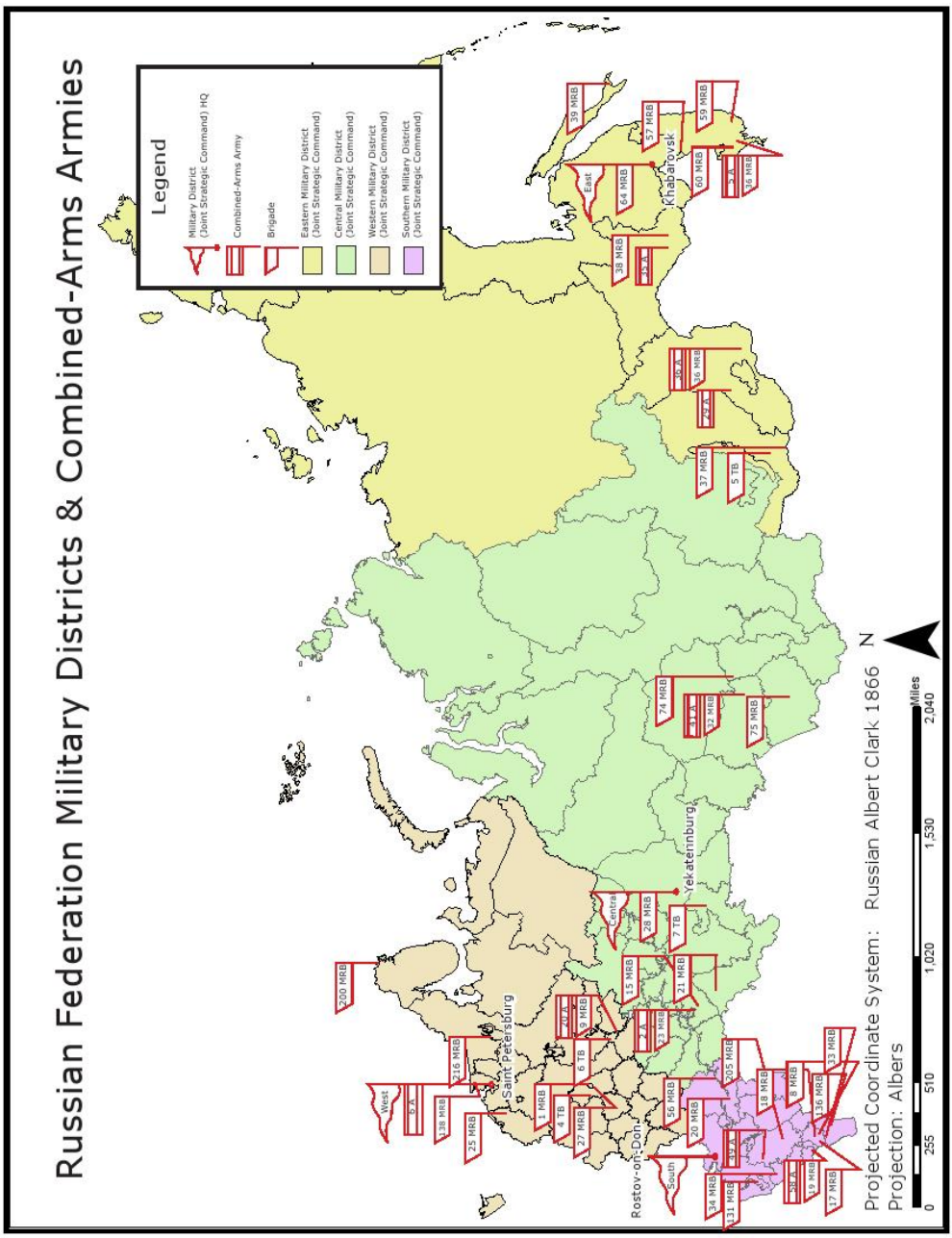
2.5 Russia's General Staff and the Search for Strategic Mobility

More than two years after commencing the reform in December 2010, the old Miliutin system of military districts (MDs), which had served as centres for the mobilization of reserves in times of crisis and threat of war, gave way to four expanded MDs. These are designed to function as joint strategic commands or Obedinennye Strategicheskie Komandovaniia (OSKs), to conduct combat operations in a specific theatre of war.

A presidential decree signed on 6 July 2010 set the target to reform the MD system by 1 December 2010. This decree merged the existing Moscow and Leningrad MD with the Baltic and Northern Fleets to form the Western OSK (HQ St Petersburg); the North Caucasus MD, the Black Sea Fleet and the Caspian Flotilla were likewise subsumed into the Southern OSK (HQ Rostov-on-Don); the Volga-Urals MD and part of the Siberian MDs formed the Centre OSK (HQ Yekaterinburg); and the Far East MD and what is left of the Siberian MD along with the Pacific Fleet constitute the East OSK (HQ Khabarovsk). When these commands were formed, their first commanders were essentially Makarov loyalists who shared his vision of a smaller but more powerful professional force to conduct operations in the initial period of a war.[44]

The new MDs/OSKs were intended to correspond to the potential areas of military operations, or the directions of possible threats to the Russian Federation (west, east, south), with the Centre MD acting a strategic reserve for the others. As can be seen in figure 1.1, each MD contains combined-arms armies and within these are the combined-arms brigades that were the focus of much of the structural reforms in 2009. During the early stages of implementing the modernization of the weapons and equipment in the Armed Forces, priority has been given to the Southern and East MDs.[45]

FIGURE 2.1


Russian Federation Military Districts & Combined-Arms Armies
Legend
Military District (Joint Strategic Command) HQ
Combined-Arms Army
Brigade
Eastern Military District (Joint Strategic Command)
Central Military District (Joint Strategic Command)
Western Military District (Joint Strategic Command)
Southern Military District (Joint Strategic Command)
Saint Petersburg
Yekaterinburg
Khabarovsk
Rostov-on-Don
West
Central
East
South
Projected Coordinate System: Russian Albert Clark 1866
Projection: Albers
N
Miles
0
255
510
1,020
1,530
2,040

As the UK analyst Keir Giles has noted, the idea of reforming the MD system was long in the making. Considering or even advocating the adoption of a system of regional commands had been mooted by the then CGS Army-General Yurii Baluevskii, who had served as Chief of the Operations Directorate of the General Staff prior to and during the Second Chechen War.[46] It may also have proved to be of considerable interest to the Russian MoD to observe a similar command reform in neighbouring Kazakhstan, which abandoned the MD system in 2003 in favour of regional commands.[47]

Although there may well have been an analysis of foreign military experience as a prelude to forming the new MDs/OSKs, the main purpose of the reorganization is more difficult to detect. CGS Makarov linked the MD reform to the overall drive to simplify C2, which figured prominently in many statements on the reform. But to some observers the theme at the heart of the OSK concept – to unite all military and paramilitary forces in the MD under one Joint Strategic Command – seemed to bear a striking similarity to the US command structure, and perhaps more importantly to the old Soviet wartime *front*. The late Colonel Vitaly Shlykov played a role in articulating reform ideas long before the Serdiukov reforms were launched, and questioned whether a mobilization force could form the basis for modern armed forces.[48] There were some departures from the OSK theme of bringing all military forces under joint command during operations, such as the Airborne Forces (Vozdushno-Desantnye Voiska, VDV) or later the Aerospace Defence Forces (Vozdushno-Kosmicheskoe Oborony, VKO) which were placed under the General Staff rather than subordinated to the MD/OSK command.[49]

Again, the recent study by CAST sheds light on the real intentions in the creation of the reformed MD/OSK system:

The idea of establishing JSCs [joint strategic commands] is based on the formation of unified, joint, integrated and different-service force groupings in the independent strategic sectors (theatres of operations). The composition of these force groupings under a unified command should include all the forces of the Army, the Airborne Forces, the Air Force, Air Defence and the Navy that are stationed on the territory of a JSC. Forming a system of coordination between different-service forces and material in modern warfare requires that permanent joint command-and-control agencies should be created at the operational and strategic levels, as well as the establishment of permanent different-service joint forces at the same levels. The new JSCs are designed to reflect precisely these requirements.[50]

The report's authors, therefore, stressed the need for permanent joint HQs at strategic and operational levels in order to facilitate force integration and the use of joint forces from the various arms and branches of service in addition to units

from other 'power ministries'. The same report also explains the importance and implications of this transformation: 'Under the new model, service commands and combat-arm commands are actually transformed into appropriate combat-arm headquarters, while retaining all the basic functions in organizational development, strength acquisition, and combat training, but losing direct operational control of them.'[51]

In short, contrasting the MACOM (major Army command) system used by the US military with the reformed MD/OSK system in place in Russia, the former is intended to unite joint forces for global operations, while the latter is a similar structure though created for the protection of the Russian Federation; this means that, although the OSKs would be used in Russian operations abroad, their primary focus is on territorial defence.[52] Despite the publicity surrounding the command reform in 2010, subsequent testing during military exercises and the appointment of commanders of the reformed MDs, little has happened since to explain how these OSKs would function during combat operations; further change and experimentation may be anticipated.

2.6 The Aims of the Reforms

In a salient and detailed study of the reform in the wider context of Russia's tried and failed reform efforts since 1992, the Dutch military specialist Marcel de Haas has offered an overview of the statements by the political-military elite since 2008. These statements actually contain inherent contradictions and rarely correspond either with earlier comments by the same individual or with others (this is further explored in chapter 3).[53]

In what came close to being a comprehensive, though succinct, statement of the reform aims on 26 September 2008, President Medvedev outlined its five priorities, asserting that these would determine the future combat capability of the Armed Forces:[54]

1. Improving the organization and structure of the forces by converting all divisions and brigades to permanent readiness brigades, abolishing the mass mobilization principle and abandoning the division-based system.

2. Enhancing the overall efficiency of C2 and improving its effectiveness in the Armed Forces (which was later interpreted as opting for a three-tiered structure: operational command-military district-brigade).

3. Improving the personnel training system, including military education and military science.

4. Equipping the Armed Forces, the Army and the Navy with the latest weapon systems and intelligence assets, primarily high-technology, in order to 'achieve

air superiority, deliver precision strikes on ground and maritime targets, and ensure operational force deployment'.

5. Improving the social status of military personnel, including pay and allowances, housing, and everyday living conditions as well as a broad range of support packages.[55]

In point 5, the emphasis was placed on serving personnel, and seemed to indicate that the General Staff were less concerned about a notional second echelon. The 'new look' stressed the importance of possessing smaller, more professional Armed Forces. By 17 November 2011, with many of the aims of the reforms being questioned in public, and numerous examples of reversals, for example, over officer downsizing targets, or vacillation on introducing Military Police, the beleaguered Defence Minister Serdiukov claimed that the main tasks of the reform were already accomplished. He then offered seven main priorities facing the future development of the Armed Forces:

1. Fulfilling the 2011 State Defence Order, overcoming problems in pricing and transferring the functions of the ordering body to the Federal Procurement Agency.

2. Improving combat training, particularly at tactical level.

3. Testing the new automated C2 during Kavkaz 2012.

4. Continuing the development and equipping of the newly formed VKO.

5. Introducing Military Police, and establishing training systems and organizational structure in military bases.

6. Extending the outsourcing of catering on military bases throughout the Armed Forces, and ensuring that commanders work with directors of these companies to promote high-quality service.

7. Switching to a new system of contract personnel and non-commissioned officers (NCOs).[56]

Although the improvement of C2 features frequently in official statements, it is noticeable that the early reform mandate from Medvedev and later public comments refer to ensuring 'operational force deployment' and 'organizing the structure of the Armed Forces, improving support systems'. The uniting factor in both cases is the task of enhancing strategic mobility. This consistency underscores the importance attached to inter-theatre operability, but it does not imply proper planning as part of the wider reform process.[57]

It is this unifying theme of strategic mobility that brings together many reform and modernization strands, ranging from the need to improve 'support systems', to refining the brigade structure, strengthening military manpower and combat training, or reforming the C2 system. The General Staff's preoccupation with

examining all aspects of the reform, testing and re-testing these in operational-strategic exercises since the reform began, is similarly given meaning under the broad banner of improving C2, structural reform and enhancing strategic mobility.[58]

Indeed, as the drive towards completing the brigade-based structure gathered momentum in 2009, the General Staff scrutinized the strategic mobility of the reformed system. In September 2009, the Ladoga exercise involved commanders assessing the impact of the brigade-based structure on combat readiness and strategic mobility; on the latter issue they were particularly interested in examining these features in the context of increased brigade tactical manoeuvre.[59]

Some clues as to the General Staff's thinking on why such changes were necessary, as well as the level of interest in strategic mobility, were provided by one of the leading senior officers with a reputation for innovative ideas, Lieutenant-General Sergei Skokov, the then Chief of the Ground Forces Main Staff and deputy commander of the exercise. Skokov told his staff during the exercise that Moscow needs Armed Forces that are 'mobile', with 'self-sufficient groupings' of forces to repel the 'invasion' of the hypothetical enemy in all strategic directions. This is profoundly important, since it meant these forces have no second strategic echelon; there is only one opportunity to secure victory.[60]

Ladoga was conducted simultaneously with the Zapad 2009 operational-strategic exercise staged in Belarus; these exercises covered a large geographical area including much of north-west European Russia and Belarus. Reportedly, the General Staff was dissatisfied with the speed of deployment of the 4th Tank Brigade in the Moscow MD, which took five days to move to its location in Belarus for the Zapad exercise; it is unclear how well equipped the brigade was, as it is unlikely that the measurement of movement involved transporting all the brigade's equipment. Motorized rifle brigades (MRBs) from the Volga-Urals MD (the 15th, 21st and 23rd MRBs) reportedly took much longer than five days to complete the exercise deployment, though admittedly travelling greater distances. No reporting in the Russian military press revealed the actual length of time involved in the relocation of these brigades. Commanders complained that the slow movement of the brigades was mainly due to the insufficient quality of transport assets, including a lack of transport aviation such as An-124 Ruslan aircraft or Mi-26 helicopters.[61] This emphasis upon air mobility is in contrast to the Soviet practice of rail-based strategic deployments into theatres.

The performance in moving the 4th Tank Brigade 400 km to the exercise in Belarus in five days contrasted with the speed of deployment by the PLA. Russian commentaries noted that the PLA had earlier moved regiments and divisions in an exercise in China distances of up 2,400 km in five days. Such comparisons highlighted the flaws in Russia's strategic mobility and served to confirm that such movement remains heavily reliant upon the use of rail infrastructure. At a much deeper level, these early tests for the reformed brigade structure revealed

that the brigades were too 'heavy', which consequently slowed the speed at which they might fully deploy to a theatre of combat operations; one of the first mistakes in the reform process was to design brigades of a standard size, which proved to be too heavy or unwieldy in moving over any great distances. It is likely that during 2009, in the hurried effort to abolish the divisions and form the new brigade-based structure of the Ground Forces, what emerged resembled enlarged regiments while the attempt was made to retain divisional fire support. This presaged the correction to the brigade concept, and a move to form 'light' (lightly armed) 'medium or multi-role' (wheeled) and 'heavy' (tracked) brigades; this process is due to be completed by 2015.[62]

By June 2010, the General Staff re-examined these issues during Vostok 2010 in Russia's Far East and Siberian MDs. This large-scale exercise covered large swathes of Russian territory in its Far East, with troop movements over several thousand kilometres, and the naval component of the exercise involving the Pacific Fleet in the Sea of Japan. The exercise was designed as the most serious test to date for the reformed Armed Forces. In particular, according to Russian military reporting, the exercise had an ambitious agenda which involved examining the proposed new MD/OSK system; automated C2; the three-tiered C2 system; the introduction of C4ISR and early experimentation with network-centric capabilities; the level of combat readiness; improvements or modifications to combat training; joint operations involving MoD units and those from other power ministries; unit mobility; the prototype combat support system; improving on the level of strategic mobility achieved during operational-strategic exercises in 2009; evaluating individual commanders; and determining where the table of organization and equipment (TOE) needs were most urgent.[63]

Arguably, Vostok 2010 was used by the military top brass to promote or justify additional and impending reform measures, including the overhaul of the MD system and restructuring of Rear Services and Technical Support in order to enhance combat support. The political-military leadership's preoccupation with mobilization, reflected in the 2010 Military Doctrine, no doubt also featured in the General Staff's calculations concerning the exercise: in a real crisis a form of mobilization would be used to assist in generating sufficient forces in the theatre of operations; though without a trained reserve it is entirely unclear how this would function.[64]

Although the Russian media promoted the exercise to show advances in the reform, they were surprisingly silent on the issue of brigade mobility. Yet this illustration of brigade mobility involved transferring the 28th MRB from Yekaterinburg to the exercise area in the Russian Far East without organic heavy equipment, and equipping them instead from a brigade store. It is implausible that significant advances were made on the 2009 performance in terms of the time and distances involved in the deployment of the brigades participating in the exercise. Indeed, the transition to a more varied brigade size is a long one, and

most probably the 'heavy' brigades would again take a similar timescale to deploy. What the General Staff advocated for the purposes of staging the exercise, and was rooted in the reform of combat services support, was the use of repair and equipment storage bases located in each MD, in order presumably to cut the time taken to deploy the brigades. There was also a notional airlift of troops involved in the exercise, transported by the Voenno-transportnaia aviatsiia (VTA, Military Transport Aviation) from the Volga-Urals MD to the Far East MD, though it was restricted only to one subunit.[65]

What is clear is that the brigade structure formed in 2009 – with all its manpower problems and insufficient speed of modernization of the weapons and equipment inventory, as well as the pre-reform Rear Services and Technical Support system – rendered the strategic mobility of the Russian Armed Forces relatively weak. It is this weakness, or rather a set of interrelated weaknesses, which Russian defence planners have since struggled to address. Nonetheless, despite Kavkaz 2012 failing to offer convincing evidence of any advances in improving strategic mobility, there have been real efforts to enhance the mobility of the brigades and overall strategic mobility.[66] These efforts largely relate to the reform of the combat service support system, but also translate into further adjustments to the brigade concept as well as such experimental measures as were taken during Vostok 2010 to arm and equip units from local storage facilities.[67]

Thus, Moscow has staked a great deal in political and financial terms on linking its threat assessment, Russian military thinking on future war, to the unpredictability of fresh outbreaks of conflict with its drive to raise combat readiness (*boegotovnost*), combat capability (*boesposobnost*) and improve strategic mobility in the Russian Armed Forces.[68]

Whether its efforts to modernize the TOE and meet its ambitious targets by 2020 will prove to be successful, and whether and to what extent their experiments with network-centric capabilities and introducing C4ISR into the TOE will take hold in the reformed structures, Russian defence planners do understand the need to improve strategic mobility to meet the challenges of future crises. To that end they have initiated commensurate changes to the combat service support system (see chapter 2). Regardless of the final shape of the reformed and modernized Russian Armed Forces, Moscow will still face the conundrum of matching combat readiness with strategic mobility. Though by no means an exclusive factor, the transformation of combat service support will prove critical in these efforts to develop, accelerate and strengthen Russian strategic mobility.

3 Reforming the Combat Service Support System

Russia's contemporary transformation of its military logistics and combat service support system must be framed by reference to the Soviet legacy and its persistent influence upon the thinking of the present civil-military leadership. In the Soviet logistical system the whole economy was subject to defence mobilization. That mass mobilization potential, which combined the mobilization of military personnel and the total mobilization of the national economy, no longer exists, consequently rendering the public dialogue or even use of the term by the present political-military leadership entirely confused. In the system of mobilization inherited from Dmitry Miliutin in the 19th century, manpower was all, with little or no thought given to issues of supply because warfare would be short and depend upon stockpiled supplies. The Tsarist system was unable to adjust to the forced change as a result of World War I which had proved the need to mobilize industrial production during a protracted war. That system had worked relatively well in the Balkans and the Caucasus in 1876–78 and had moved an army across Eurasia during the Russo-Japanese war in 1905, but it broke down under the challenge of mass industrial war. The Stalinist system, however, introduced state-wide standards for all products and dual-use production throughout the economy. The Soviet mass mobilization principle was designed for mass, industrial-era and protracted warfare. This system collapsed, as did the need to sustain it, long before February 2007, when President Vladimir Putin appointed the truly civilian Defence Minister Anatolii Serdiukov as a precursor to reforming Russia's Armed Forces.[69]

A fundamental driving force in the reform was the shift in approaches to conventional warfare from an industrial model to high-technology precision warfare, described by the late Major-General Vladimir Slipchenko as sixth-generation warfare. Inherent in this shift was the need for a different sort of soldier and officer for the information age.[70] General Makarov, and other leading senior officers, therefore advocated the automated C2 and the adoption of network-centric warfare capabilities as central to the reform and modernization of Russia's Armed Forces. The future capability to conduct sixth-generation or non-contact warfare utilizing C4ISR still seems a long way off, but it was a guiding principle among the leading advocates of reform. Thus, introducing an automated C2 would enhance the algorithm of battle management and allow a brigade commander to transmit his decisions in real time to his battalion commander displayed on his personal computer. This is not simply a matter of retraining personnel, as well as retaining them within units, but the General Staff would need to successfully develop a Russian network-centric doctrine that maximizes the interface between personnel and new technologies. Working out such new tactics, training and doctrine linked to the revised C2 structure, understanding the

implications of high-technology procurement for manpower and overcoming the widespread unpopularity of the military within Russian society are tasks that demand time and consistency in policy. General Makarov had noted that the single greatest barrier facing officer reform is to change the mentality of the officer corps, which means not only breaking the link between corruption and officers, but fostering leadership skills, initiative, responsibility and an ability to delegate authority.[71]

While the reform of Russia's conventional Armed Forces initiated in October 2008 witnessed the final abandonment of the already moribund mass mobilization principle it also saw multiple revisions and experimentation. There is no doubt that it largely served to eliminate many structural elements of the Soviet-legacy forces. The removal of Serdiukov as Defence Minister in November 2012 may go some way to disassociate the reform from a figure who proved too controversial among the officer corps.[72] Baluevskii's attack on Medvedev and Serdiukov for causing 1,000 unnecessary deaths in South Ossetia was a defence of a General Staff-run war without civilian interference.

Conceptually, the reform aimed to create permanent-readiness, well-equipped and better-trained forces with an enhanced level of mobility capable of responding at short notice to the likely threats or security crises that may confront the Russian state in the future. As these units were transformed, albeit less than fully, and were subsequently tested in military exercises, with additional adjustments made to early reform aims, the progress of rearming of troops with modern or upgraded weapons and equipment proved to be sporadic and at best gradual.[73] Whether the highly ambitious targets set by the Kremlin for the armaments modernization programme to 2020 will be achieved, or how far progress can actually be made, remains an open question.

Russian political-military decision makers attempted to recast new and modern forces out of their Soviet-legacy Armed Forces in order to raise combat capability and combat readiness. They were driven to continue downsizing the officer corps, while streamlining the military education system by replacing quantity with quality and devising a suitable training system for an entirely new type of NCO more suited to the needs of the reformed units.[74]

Changes impacting on the command and control structures and combat arms were also accompanied by experimentation with the logistics system and the latter was gradually packaged in as a complementary reform. But this complex process was by no means planned as an integral part of the overall reform of the Armed Forces, and it exposed in turn much of the same problems apparently ingrained in an inadequately planned military transformation process, which featured temporary measures, experiments, downsizing, testing and re-testing with its success and future development rendered entirely unclear.[75]

In 2009–2012, a reformed logistics system began to emerge, subject to some limited testing in military exercises but as yet untested in its capability to support combat operations. This system, redesigned to integrate pre-existing structures to facilitate more rapid and efficient delivery of supplies, repair and maintenance, and transport, is still open to question, given the questions that hang over the modernization agenda to 2020.[76]

A key aspect in this reform was to attempt to strengthen the capacity of the Railway Troops. These troops are tasked to keep railway lines in working order during and in preparation for combat operations and to organize temporary armour battlefield debarkation points. The Railway Troops will remain vital in the future for ensuring any level of strategic mobility as both the movement of troops and equipment and the transport of supplies largely depend on the railway infrastructure rather than the VTA or a still radically underdeveloped road system. The Railway Troops are thus crucial in Russia's ground lines of communication (GLOCs) and in supporting the port infrastructure for its SLOCs.

Tracing the main features, evolution, aims and weaknesses of this part of the reform permits a provisional assessment of the capability of a reformed combat service support to facilitate and assist in sustaining future Russian combat operations. Having broken down the old military system and rapidly downsized the officer corps and brigadized the Ground Forces in 2009, Russian military planners turned their attention to the need to reform the combat service support system. Approaches to military logistics by the Soviet and Russian Armed Forces had proved to be unwieldy, geared towards larger-scale operations and later adapted ad hoc to supporting counter-insurgency operations in Afghanistan and Chechnya, with its shortfalls having been more recently exposed during the short war with Georgia in August 2008.[77]

During the Cold War, Soviet military logistics was geared to support combat operations in a European theatre. This system was doctrinally highly structured on the basis of prioritizing levels of unit, from Army to division and down the chain of command to battalion level; it was inflexible, priority driven, and based on forward delivery and forward siting. This also involved priority supply points and rapid repair centres close to the combat zone with heavy repair and maintenance being conducted far in the rear at fixed locations.[78]

Analysts of the 2008 Russia–Georgia war have ascribed overall satisfactory performance to Russian strategic mobility, in particular the insertion of troops in Abkhazia by the Black Sea Fleet, though numerous problems were identified at operational and tactical levels. It appears that, despite the short duration of the conflict, supporting combat operations severely tested the unreformed logistics system. That system left some Russian units with numerous issues linked to delivering potable water, food, fuel and ammunition. Russian accounts of the conflict also indicate that the logistics system simply struggled to cope with the demands it faced.[79]

An inherent weakness in the logistics system inherited from Soviet times related to the lack of a professional NCO technical cadre; consequently, this left the supervision of logistics requirements suffering from a lack of technical expertise.[80] The Soviet logistical system pushed supplies forward in large amounts to meet operational requirements in sectors of the front as directed by Stavka. Modern war demands that specialist logistics be directed to individual units as their needs arise. These are no longer bulk shipments sent to large depots, but specific pallets for the needs of particular units. Such challenges therefore formed part of the justification for making the reformed logistics system fit with the transformed brigade structure – in itself a challenging task without the additional complication that the brigade structure is also subject to further refinement (moving by 2015 from the initial brigade structure formed in 2009 to a completed system of light, medium or multi-role, and heavy brigades. This is also to be augmented, for example, by extra surface-to-air missile (SAM) and VTA brigades). There is no evidence that a 'lessons learned' approach based upon the 2008 Russia–Georgia war directly influenced these elements of reform planning.

3.1 Downsizing Railway Troops, Forming the MTO

Reform of the military logistics system, though overdue and clearly an important integral part of any plan intended to enhance troop mobility, was also subject to the vagaries and weaknesses in the overall reform. Critics and advocates of the reform used the term '*Serdiukovshchina*' to encapsulate the arbitrary, incompetent and corrupt manner in which former Defence Minister Serdiukov had carried out many aspects of the reform – without initial information or explanation for its core audience, and rapidly implementing initiatives with no basis in scientific research or adequate planning.[81] The officer downsizing was one clear example of this approach. *Serdiukovshchina* also became a hallmark of the effort to transform the logistics system, rooted in rapid officer downsizing, structural change, re-subordinating its main elements and leaving many unanswered questions, while Oboronservis became synonymous with corrupt insider dealing.

In 2009–10 the Railway Troops underwent significant organizational transformation. These efforts concentrated upon 'optimizing' the TOE, balancing force development and personnel strength, developing mobilization deployment facilities and infrastructure, and forming the required numbers of permanent readiness units.[82] By February 2010, following the formation of railway brigades distributed among four territorial commands (perhaps as a forerunner of the planned reform of the overall military district system which moved from six MDs to four enlarged replacements functioning as joint strategic commands during combat operations), senior officers reported that the 'reform' of the Railway Troops had gone through without any diminution to combat readiness or C2.[83]

Prior to the reform of the Armed Forces the officer corps included up to 355,000 posts; many of these officers 'commanded' only paper or skeleton units, and consequently lacked command and leadership skills. Plans to reform and downsize the officer corps in the conventional Armed Forces, mainly to streamline or optimize the C2 system, were implemented in a target-driven manner, inadvertently resulting in some competent officers being discharged from service or demoted to fill NCO posts. Such was also the case in downsizing the overall manning levels and the officer component in the Ministry of Defence Railway Troops. According to Russian media reports in early 2009, the Railway Troops were to be reduced by the end of the year from 42,000 personnel with 6,770 officers to 27,000 servicemen including only 2,370 officers.[84]

Early planning for the reform of the Railway Troops envisaged cutting 40 units and subunits, many of which were paper units, and increasing the overall share of 'permanent readiness' bodies by 'sevenfold'. C2 staff would be reduced 2.5-fold in order to eliminate duplication within the system. The Railway Troops were also to retain a mixed manpower structure, combining contract and conscript personnel within their brigades. Major-General Sergey Krylov, the Deputy Chief of Staff of the Railway Troops, stated in May 2009 that the numbers of contract servicemen constituted only 25 per cent of its total strength.[85]

Almost mirroring the wider downsizing of the officer corps, problems linked to housing, filling sergeant posts and other unforeseen issues complicated and apparently served to delay the process in the Railway Troops. By January 2010, the command of the Railway Troops stated that in order to retain sufficient officer personnel after the completion of the downsizing more than 300 officers and 1,000 warrant officers would be reassigned to NCO posts. Rather curiously, the justification for pursuing this option to help remedy the ongoing shortage of adequately trained or qualified NCOs was to provide a loophole through which at a later stage these demoted officers could be re-posted into officer posts; in other words there was less than unequivocal commitment to the final downsizing figure.[86]

While the precise figures in relation to how the downsizing would ultimately impact upon the Railway Troops seemed fluid, the MoD was also still engaged in formulating the exact nature of its command structure. In July 2010, the Armed Forces Logistics Chief, Colonel-General Vladimir Bulgakov, explained that, following the earlier decision to subordinate the Railway Troops brigades to four territorial commands, their command would experience further cuts and reorganize the Railway Troops into a department without command functions, while being directly subordinated to the four military districts from 1 December 2010.[87]

The modernization of the Railway Troops TOE to 2020 envisaged supplying 65 per cent 'state of the art' special equipment. The MoD leadership set these targets in order to:

• increase the reconstruction rates on damaged sections of track;

• enhance the mobility of the recovery railroad equipment, providing it with multifunctional movement capabilities;

• reduce the reconstruction timelines on engineering structures along the railways;

• use bridge conduits not only for rail traffic but also for motor and tracked vehicles;

• apply new technologies in the construction of bridge conduits; and

• automate survey works and the development of design and cost estimate paperwork and operations management plans for railway reconstruction.[88]

Documented reform aims also offered a potentially brighter future for the Railway Troops by adopting an apparently step-by-step route to re-equip them. The Blueprint for the Development of the Railway Troops' Armament, Military and Military Special equipment to 2015 planned enhanced research capacity, strengthening engineering capacities, improving and executing R&D aimed at introducing new and highly effective recovery equipment as well as using 'modern resource-saving technologies'.[89]

In 2010 the Central Transit Directorate of the Military Transportation Service (Voennye Soobshcheniya, VOSO) was reduced from around 100 personnel to just 20 and rebranded with highway and vehicles services and an auxiliary fleet as the Department of Transportation Support.[90] Until mid-2010 the main responsibilities of VOSO remained:

• development of a military shipping system for the Armed Forces using general-use transport;

• placement of orders for military shipments and performance of other transport services for the Armed Forces;

• development of plans for military shipments by common carrier, finalizing these by established procedures, and facilitation, execution, and control of these shipments;

• establishing oversight over the preparation of common carrier transport to carry out military shipments; and

• planning and disbursement of funds for military transport, and monitoring such expenditures.[91]

These functions were thus transferred to the Department of Transportation Support. VOSO functioned as the MoD's authorized representative for common carrier rail, air, sea, and inland water transport intended for military shipments. It was impossible to carry out such military transport without the participation of

civilian organizations.[92] This involves civilian state organizations as well as private companies.

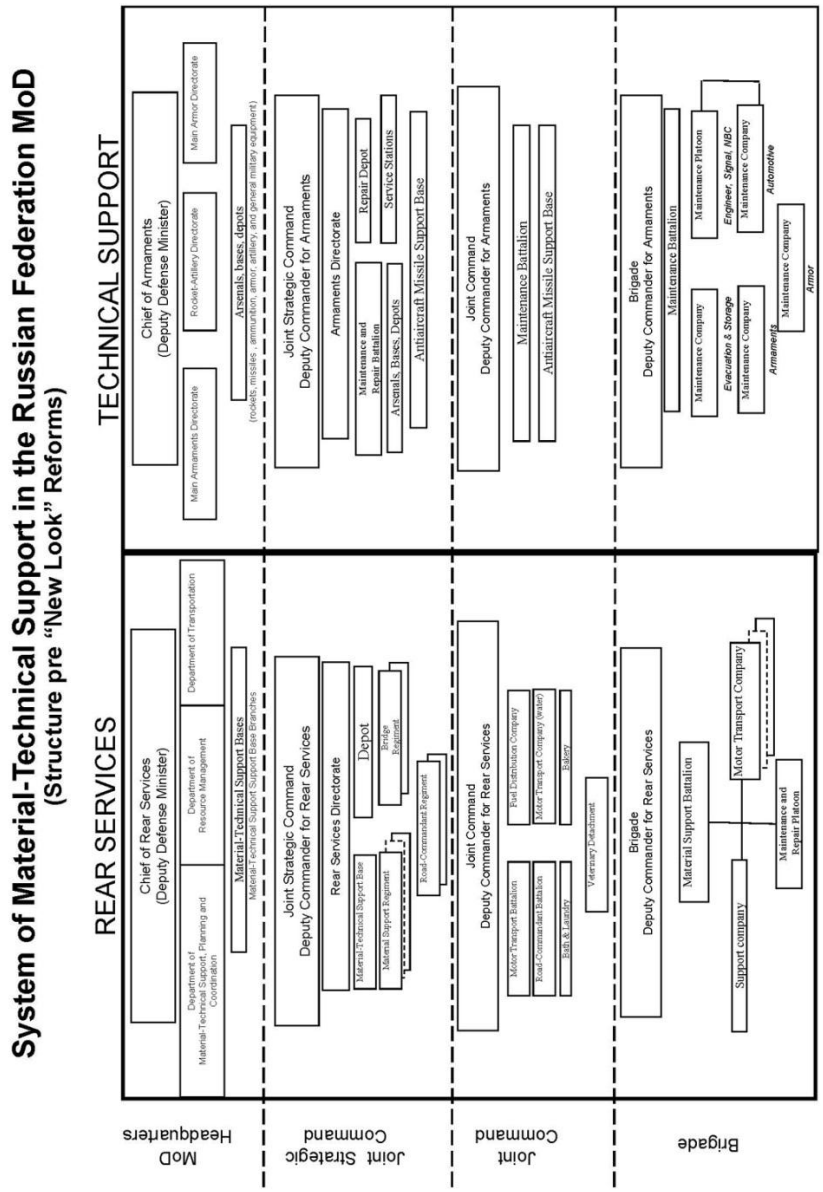
Deeper change ensued following tests of a prototype reformed logistics system during the operational-strategic exercise Vostok 2010; the MoD completed the overhaul of the complex logistics system through the creation of the Material-Technical Support (Materialno-tekhnicheskogo obespechenie, MTO).[93]

The new superstructure, aimed at simplifying the system, merged numerous pre-existing organizations. The MTO Department of Planning and Coordination includes departments of resource and transport support, the former Main Directorate of the Railway Troops, the Main Vehicle, Armoured Vehicle and Tank Directorate, the Main Missile and Artillery Directorate and the Metrological Service. Within the military districts MTO bases and brigades were formed, as well as arsenals for the storage of missiles, ammunition, and missile and artillery weapons. Moreover, within the combined-arms brigades, MTO battalions were created; these include separate logistics and maintenance battalions in each brigade.[94]

Underlying the reform of the structure of the rear services system, according to official statements and represented in figures 2.1 and 2.2, was an effort to combine rear services with various material support structures and the Deputy Defence Minister post into one 'MTO' organization. This has been implemented at the highest level but seems less clear or open to revision at brigade level. While references in the Russian military media can be found to Maintenance and Material Support battalions there is almost no mention of the MTO battalions. Equally, like the public discussion of the reformed OSK system, much of it evaporated in late 2010.[95] Moreover, the Main Directorate of Armament (Glavnoe upravlenie vooruzheniia, GUV) listed in the reformed MTO diagram is not to be found in the information on the MoD website on the structure of the ministry, implying that the structure remains partly on paper or is still undergoing transition to its final format.[96]

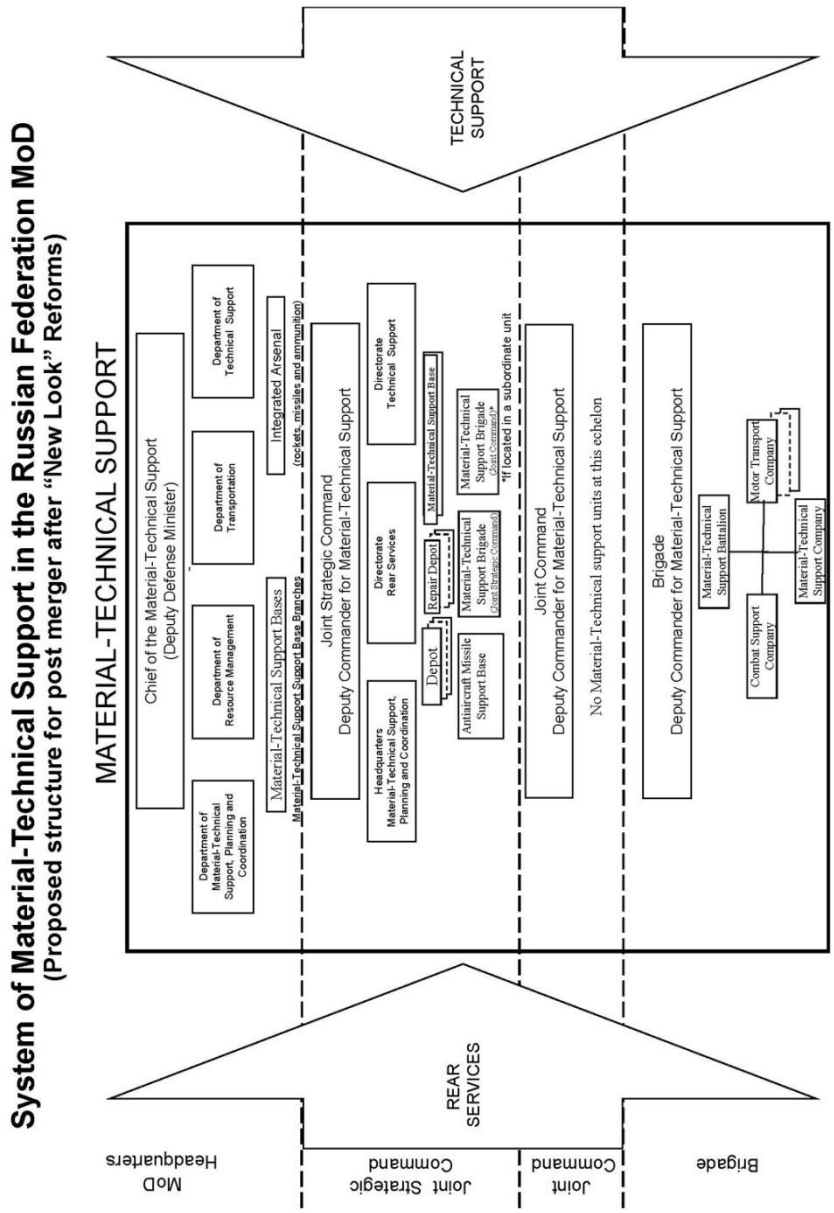
This MTO link into the combined-arms brigades was seen as essential due to the planned introduction of modern and sophisticated weapons systems and equipment as part of the military modernization agenda, and the increase in complex electronics involved in these assets demands higher levels of training and instruction for military personnel.[97] An added dimension of the MTO reform is the extent to which it serves as an additional mechanism to promote the civilian outsourcing of services. In terms of military logistics this now extends to outsourcing to civilian organizations for trucking shipments, using civilian refuelling stations in major cities and servicing aviation equipment at Air Force bases.[98] This differs from the former practice of VOSO: civilian organizations are working more closely with the MTO and in some cases have decision-making functions.

FIGURE 3.1



Source: Former Chief of the General Staff Army-General Nikolai Makarov, Presentation to NATO Defence Attachés, 17 November 2011.[99]

FIGURE 3.2



Source: Former Chief of the General Staff Army-General Nikolai Makarov, Presentation to NATO Defence Attachés, 17 November 2011.[100]

An important objective in the new MTO system was to simplify the command structure to intensify the speed and capacity of the MTO brigades and additional MTO battalions within the combined-arms brigades to facilitate troop movement and supply. Bulgakov described the material-technical support system in the following terms: 'The rear of the Armed Forces, working with the country's economy, government and commercial enterprises, daily carries logistics troops and forces, collects and contains findings of stocks. And also provides competitive (auction) purchases of material resources, not only for the army and navy, and other security agencies.' This does not appear to simplify the pre-reform system, but actually serves to make it more complex, with contract negotiations for items from private firms.[101]

Achieving this in practical terms meant not only overhauling equipment, approaches to logistics and addressing the weaknesses of the pre-reformed structures; it also demanded better-trained personnel, with a whole range of contracting officers and a system of contracting competition. In turn this also compels the MoD to fit the restructuring of the military educational system to further support the aims of the reformed logistics system.[102]

The training of all MTO specialists, therefore, depends on the eventual standards and success achieved in the creation of the Volsk Military Institute of Rear Services (Volskii voennii institut tyla, VVIT) functioning under the Military Academy of Rear Services and Transport.[103] VVIT consists of a headquarters, 22 departments, facilities for training cadets for MoD and Ministry of Interior personnel, a special faculty for training specialists with a professional education, a junior specialist training centre offering advanced training courses, and a training support battalion.[104]

A junior specialist training centre offers courses over three and a half months to train squad commanders of pipeline units and subunits, fuel transfer equipment operators, petroleum, oil and lubricants (POL) chemical analysis laboratory assistants, cooks, bakers, diesel electricians and steam-fitter firemen. The training centre also offers a similar course to train technical NCOs, although the top brass indicated in May 2010 that the NCO Training Centre at Ryazan – training professional NCOs in courses lasting three years and six months – would send some of its graduates to NCO posts in the MTO. Finally, the centre prepares officer specialists in five military specialities: liquid propellant and POL support and gasoline support to troops; troop food support; troop clothing management; integrated support for naval forces; and integrated support for Ground Forces aviation and Interior Ministry troops' aviation.[105]

Despite the MTO essentially serving to simplify the complex pre-reform structures, it remains innately complex and in a sense produces fresh problems of coordination. In the Central MD, for example, the former Rear Services are now replaced by the Central Military District Logistic Centre, which supplies all military assets, equipment, armaments and ammunition, albeit under a single com-

mand. The Logistics Centre uses over 70 sites spread across 30 territories and regions in order to provide uniforms, supplies, or even veterinary equipment; by any means this is a huge undertaking. The Logistics Centre itself is run by civilian managers, inventory management is computerized, bar codes and computers are used in loading containers directly onto trains or trucks, and efforts are being made to enhance fire safety and ensure that the whole facility functions safely and efficiently.[106]

3.2 Weaknesses in the 'Reformed' Logistics System

On the surface, transforming the disparate logistics system into the MTO and downsizing or optimizing the structure of the Railway Troops made sense as part of a wider reform policy. However, closer inspection reveals some rather unconvincing temporary measures conflated to appear as coherent policy planning.

The most startling feature of this relates to the role of Oboronprom, one of the subsidiaries of the holding company Oboronservis in critical aspects of military repair and maintenance. Army-General Vladimir Bulgakov, a career logistics specialist, now Deputy Defence Minister and Chief of the MTO, confirmed that during combat operations part of Oboronservis will provide repair and maintenance for weapons systems and technical equipment. Bulgakov justifies this as simply compensating for the presence of unqualified conscripts in the TOE serving for only 12 months, which is not long enough for them to master these systems or technically advanced equipment.[107]

While the role of Oboronservis in repair and maintenance serves as additional evidence that the mixed-manning system of military power is serving to restrict combat readiness levels and shows that the reform of logistics structures may be used to offset weaknesses within the wider reform programme, it also highlights how 'civilian' is loosely interpreted by the MoD.[108]

In real terms, many of the Oboronprom personnel with technical expertise in the repair and maintenance of weapons system are either discharged officers or warrant officers being used to support local units. Bulgakov described the company's role in this area as being divided along territorial lines, and this may well be the pattern throughout the military districts, with discharged officers and warrant officers finding new roles in the 'civilian' yet MoD-contracted holding company to carry out what is essentially still a military role.[109]

Such unforeseen fixes to the logistics reform are by no means isolated, in fact they serve to highlight deeper systemic issues which Russian defence planners continue to evade or at best offer fresh 'experiments' which might better be called expedients. These range from the 'tests' of the system itself, and come full circle to manpower and training cadre issues. Evidence that all is not well within

the MTO reform stems mainly from recent military exercises, especially the parts of the system emphasized by the MoD-linked media as well as those components receiving less or no attention. Duma reports have also highlighted corruption in contracting within Oboronservis and the misuse of classified information.[110]

As already noted, efforts to introduce a reformed logistics system were experimentally examined during the operational-strategic exercise Vostok 2010, held in the Siberian and Far Eastern MDs between 29 June and 8 July 2010.[111] This was also one of the last exercises using the old military district system and witnessed naval exercises involving the Pacific Fleet, no doubt to examine the transition to four enlarged MDs designed to function as OSKs during combat operations, with all military and paramilitary formations in the district subordinated to the OSK commander.

Some specific aspects of the logistics testing during Vostok 2010 set targets for refuelling combat vehicles at around 20 vehicles in eight minutes. This was achieved using Rear Services units from a pipeline battalion in the Siberian MD to lay a temporary oil pipeline to the location of military hardware. Mobile fuel stations were also set up in the field, allowing tanks and armoured personnel carriers to arrive there to refuel while helicopters provided protection during the refuelling.[112]

Officers involved in Vostok 2010 admitted that a POL company was 'planted' ahead of time in a predetermined location in order to ensure sufficient time for setting up and then waited for the arrival of the tank column. If reporting in *Krasnaia zvezda* is accurate, by the time of Tsentr 2011 in September 2011 an important change in the exercise process had occurred. More attention was paid to conducting such exercise elements closer to real operational circumstances with an emphasis on improving the 'covert' nature of the work and the flow of action among logistics units during operations.[113]

Kavkaz 2012, staged in the Southern MD in September 2012, witnessed limited testing of the MTO brigades and the MTO battalions within the Ground Forces brigades. The testing occurred prior to the exercise itself and seemed fairly limited in its goals. In fact, the preparations and deployment of forces used during the command-staff exercise indicated serious concern about conducting a real test of the speed at which these units might be deployed to a conflict zone.[114]

Units were already moving to the exercise areas up to two months in advance of Kavkaz 2012, while the last echelon to arrive spent approximately one month setting up its field camp. This included, according to commanders speaking to *Izvestiia*, military personnel raising 100,000 roubles from their own pockets to improve the camp's amenities; and purchasing electrical wiring, cables, washstands and plastic water pipes. The chief of one of the Material Support battalions within a Ground Forces brigade participating in the exercise stated that,

although Oboronprom was tasked with sending supplies to the field camp, they had to carry out these functions without any additional assistance.[115]

The importance of the timescale used in Kavkaz 2012 to deploy forces two months ahead of the exercise and the silence on the performance of the MTO in facilitating the movement and supply of these units during the exercise indicate that despite the reformed logistics system Moscow requires sufficient 'run-in' time in order to move and supply forces. This timescale is therefore most probably significantly longer than the official claims concerning combat readiness during the period of reforming the MTO.[116] Yet this has been an active combat theatre for most of the past decade and before; if the logistics system struggles to function for an exercise it is unclear how it would function in combat.

In other words, for the purposes of Kavkaz 2012 the forces were already in place and largely supplied from central sources or using on-the-spot remedies already alluded to – or, as one officer characterized this feature, troops were in effect 'teleported' to the conflict zone. Unrealistic as this clearly would be in relation to real combat operations, it may also indicate that the MTO struggles most acutely to move and supply forces in the field; the present system works reasonably well at permanent bases but not very well beyond that.[117]

3.3 The Complexity of the Command Structure

Although the MTO command structure is simplified in the reformed logistics system compared with its disjointed and overly complex time-consuming predecessor, the resulting C2 remains quite complex in terms of liaison between commanding officers, the coordination of various command elements and the involvement of civilian agencies in the process. Generally the C2 transformation mirrors a similar approach to the C2 of the reformed Armed Forces: reducing the command echelons from four to three. In terms of the MTO this functions from MD to MTO-Brigade/tactical levels.[118]

The simplified C2 should in theory speed up decision making and increase the effectiveness with which troops can be moved and the delivery of supply and resupply coordinated in order to support and sustain combat operations. Private companies driven by profit-related considerations may not respond well to demands for effectiveness if this risks squeezing their profit margins. Nonetheless, examination of the chain of command and the changes in combat support and the combined-arms brigades suggests potential uncertainty in the C2 and bottlenecks in which the processes may either be slowed down or simply result in duplication or waste.[119] The reformed logistics system is inherently complex since it is designed to respond to unit demands as opposed to pushing a system of stockpiles for consumption. The Soviet system had set supply requirements from the top

down to support operational objectives; unit famines were common if the forces were not given top priority by higher command.

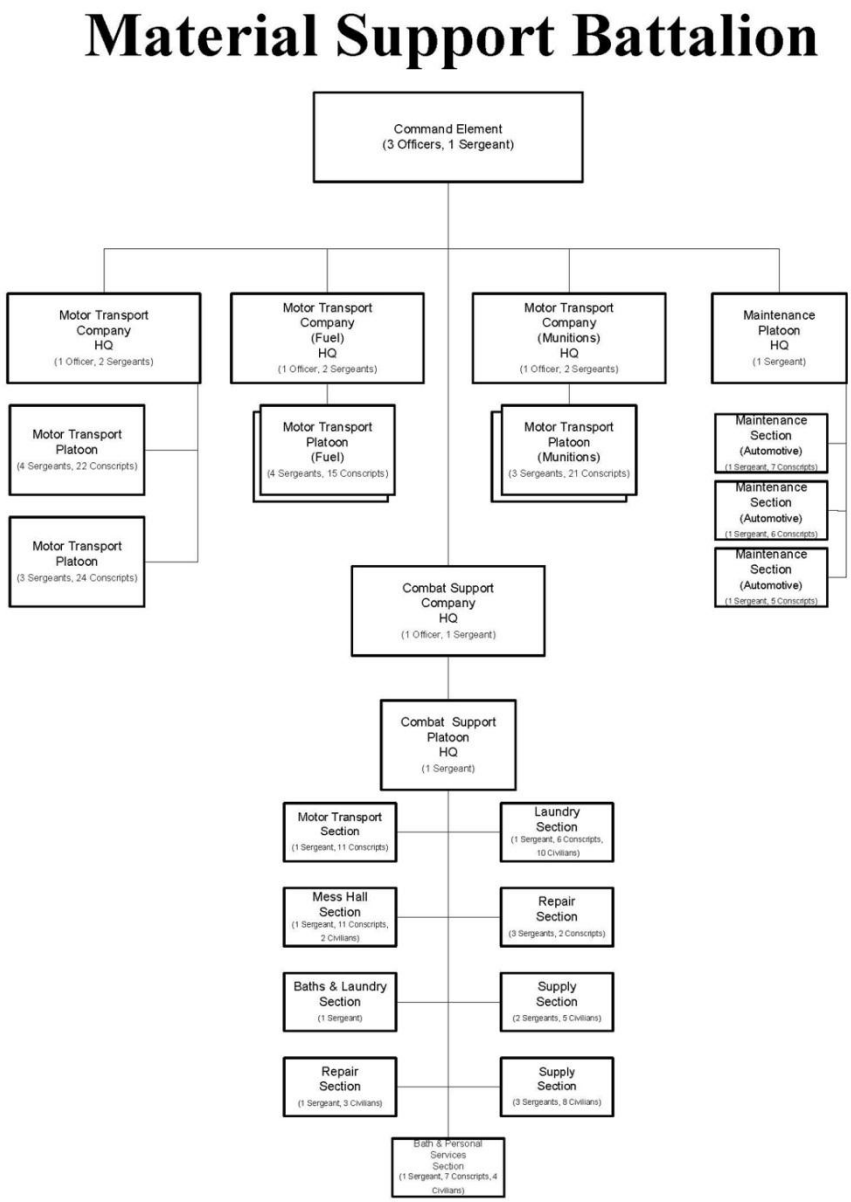
At the highest command level the MTO is represented in each MD and is, like all other military and paramilitary formations in the MD, subordinate to the commander of the MD, which in an operational capacity functions as an OSK. The MTO will therefore have to cope with the demands for supplies of all military and paramilitary units in an MD, which in itself will place an added burden on the system. In turn, the MTO also has its own MTO brigades: ten are planned with one assigned to each of the ten combined-arms armies (CAAs), functioning as a key link in the chain of logistical supply in support of the combined-arms brigades or naval or air force units.[120]

Within the combined-arms brigades at the level of brigade command staff there is an MTO Deputy Commander who is essentially responsible for the logistics of the entire brigade, though carrying out this function necessarily involves close liaison with the brigade Commander. During combat operations the brigade Commander and the brigade Chief of Staff may be diverted from the finer details of liaising with the MTO Deputy Commander, and thus a great deal will depend on the Deputy Commander to carry out and ensure the smooth functioning of the supply chain.[121]

The combined-arms brigades have also introduced separate logistics and maintenance battalions in order to enhance the potential of the brigade to carry out some of its own repairs and logistical duties. Consequently, the manoeuvre battalion commanders must quickly relay the actual demands of the combat battalions in the brigade to the MTO Deputy Commander at brigade staff level. It is precisely at this level of command that the manpower structure of the Armed Forces faces its most challenging issues; these range from a lack of technical specialists to insufficient numbers of *kontraktniki* as well as personnel shortages.[122]

In the reformed Russian system there appears to be a four-tier structure: operator, unit mechanic (this is the MTO element in every combined-arms battalion), direct support maintenance unit (the MTO battalion) and depot-level maintenance for high-technology weapons (part of which may be carried out in the MTO brigade or sent directly to depots). In the TOE of the combined-arms brigades the MTO element serves in effect as a first responder, using a mobile tool truck or mini machinist shop with two mechanics and machinists for essential repairs that cannot be carried out by the drivers. If something proves to be a more serious or involved repair job, they radio for the wrecker and move the asset to the battalion-level MTO to replace engines or handle the support of modern electronic and computer systems. The latter is more challenging for the Armed Forces unless they can access computer-literate personnel.[123]

FIGURE 3.3



Diagrams constructed from Russian military open sources by Captain Charles K. Bartles (Foreign Military Studies Office, US Army, Fort Leavenworth, Kansas) and the author.

FIGURE 3.4

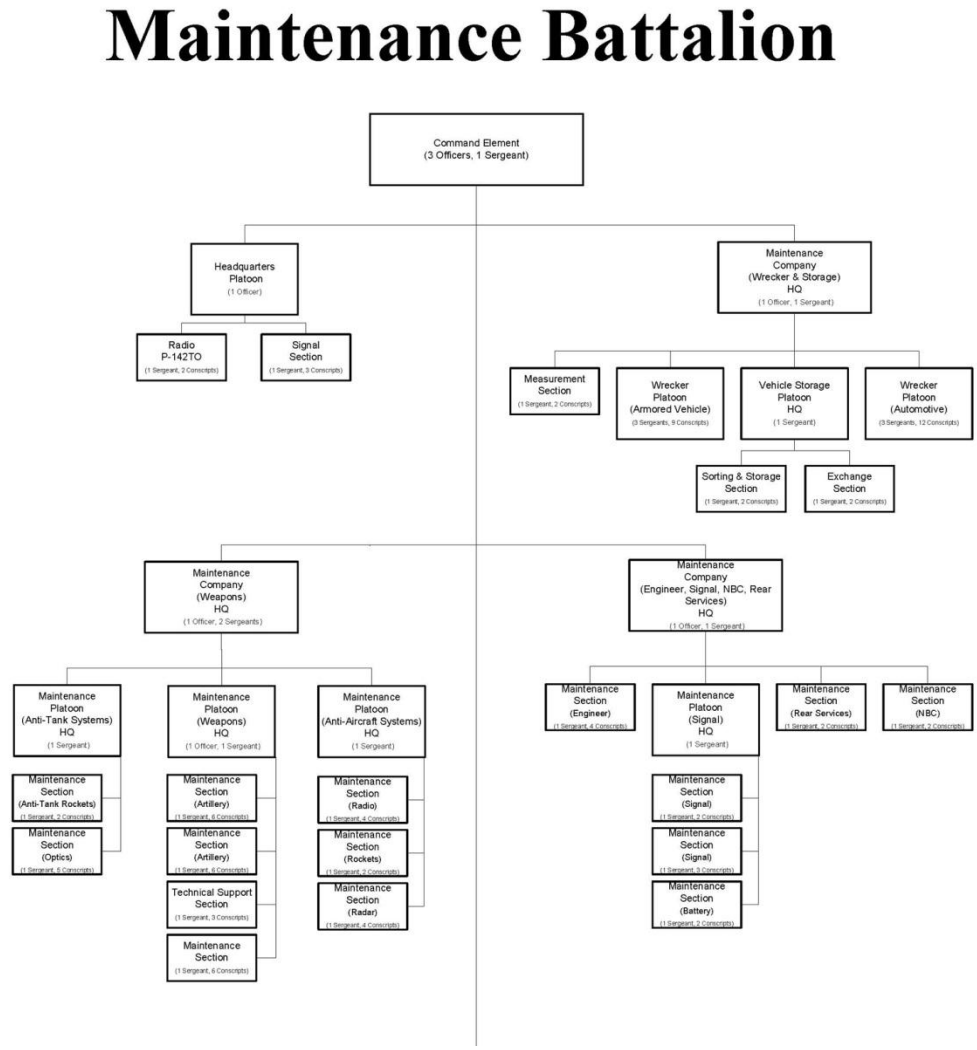


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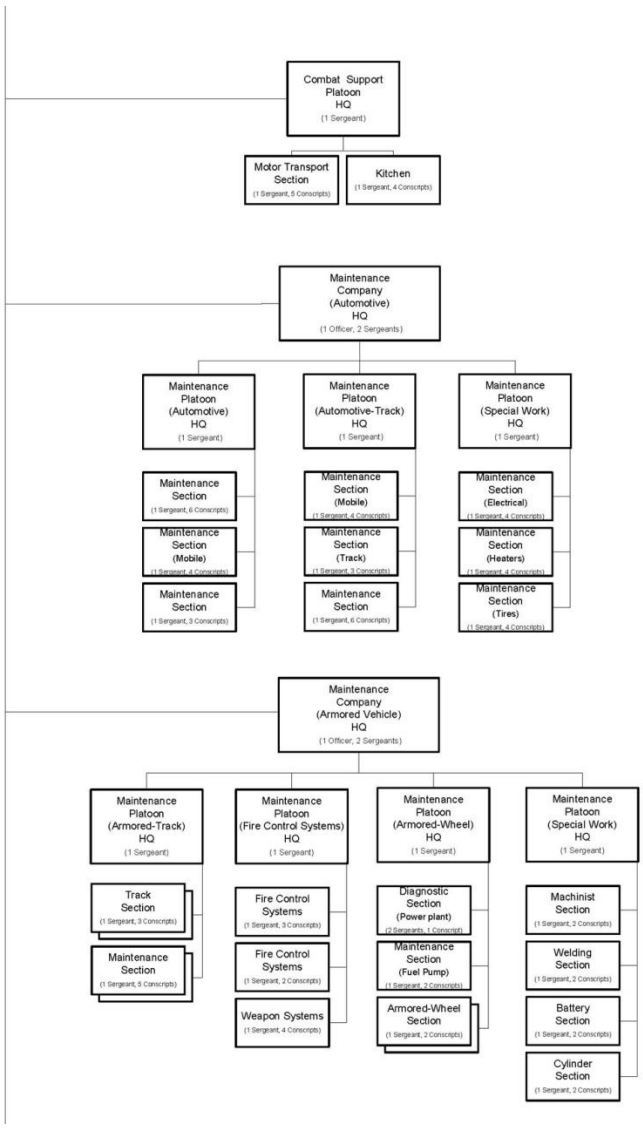
FIGURE 3.4 (continued from previous page)



In the case of the Material Support Battalion (figure 2.3) it is evident that the mix of sergeants and conscripts places greater emphasis upon better-trained and technically proficient NCOs. If the numbers of *kontraktniki* can be raised successfully in the Ground Forces' combined-arms brigades, bearing in mind that President Putin has highlighted the question whether such ambitious plans can be afforded economically, then at some stage the numbers of such personnel may begin to swell in the combat service support units. While the brigade is engaged in combat operations the Motor Transport elements would need to liaise closely with the supporting MTO brigade; this would be an important factor in maintaining the flow of operations and high demand from battalions in the combined-arms brigade will increase the pressure on these points in the system.[124]

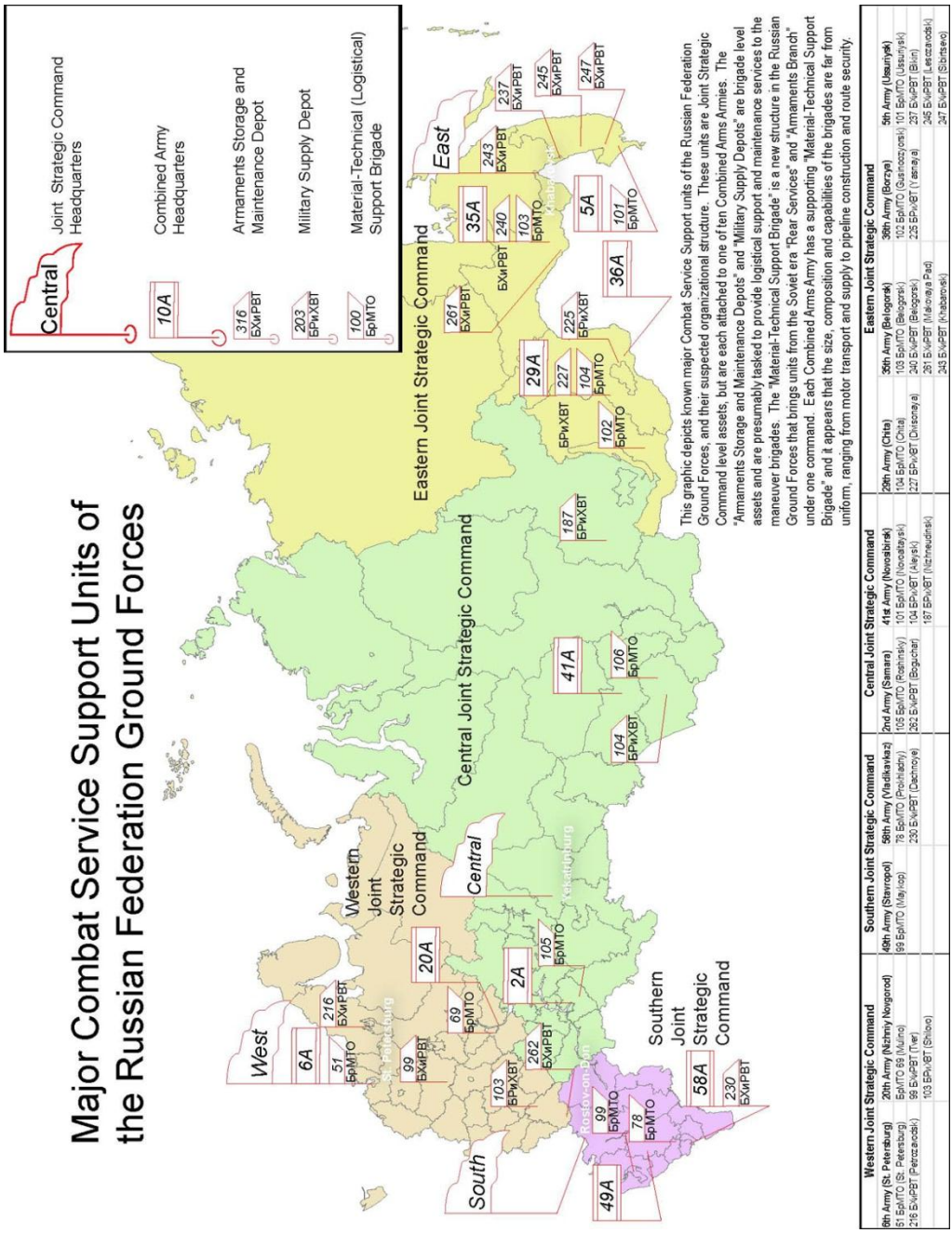
The structure of the Maintenance Battalion (figure 2.4) is necessarily much more complex, but it retains the manning mixture already noted in the Material Support Battalion. Some points of interest in terms of the structure of the Maintenance Battalion are worth highlighting. In particular the battalion is relatively light on maintenance for fire control systems. It is highly likely that they would need to pass a large share of their work to the relevant supporting elements within the MTO brigade. It is entirely unclear, however, how the maintenance platoons would integrate their duties or indeed 'delegate' to the civilian elements attached to the structure from Oboronprom. Again, the numbers of poorly trained conscripts within the battalion should be noted, as this will serve to limit both speed and capacity and will also contribute to the burden on the NCOs.

In the MTO C2, therefore, the brigade and lower manoeuvre commanders typically directly control their logistics and maintenance support units.[125] Some of the elements of the ten MTO brigades, if they are fully formed and manned, may function as rear echelon maintenance depots or truck units, for example. However, it is likely that during combat operations these units may be broken up and pushed down to the manoeuvre commanders; but it is unclear from where their replacements might be drawn.

As can been seen in aspects of Kavkaz 2012, this system only functions if all the command elements conduct their duties properly and in timely fashion. Moreover, the C2 is closely involved, as noted, in dealing with 'delegating' some of the repair and maintenance of weapons systems and combat equipment to civilians in Oboronprom. Equally, there are other civilian agencies involved in the logistical process, outsourcing many of the functions formerly carried out within the unreformed and diverse military logistics system.

Indeed, the critical point for the MTO during its support for combat operations is precisely this: the extent to which the military structures and civilian agencies can be integrated in order to meet deadlines and avoid unnecessary delays. The civilian institutions are also now private, profit-making entities and not institutions driven by state planning considerations. As such, they expect to have a contractual relationship with the MoD and to make a profit, and the efficiency

FIGURE 3.5



Western Joint Strategic Command	Southern Joint Strategic Command	Central Joint Strategic Command		Eastern Joint Strategic Command			
6th Army (St. Petersburg)	49th Army (Stavropol)	58th Army (Vladikavkaz)	2nd Army (Samara)	41st Army (Novosibirsk)	29th Army (Chita)	35th Army (Belogorsk)	36th Army (Borzya)	5th Army (Ussuriysk)
51 БрМТО (St. Petersburg)	99 БрМТО (Maykop)	78 БрМТО (Prokhladny)	105 БрМТО (Roshinskiy)	101 БрМТО (Novoaltaysk)	104 БрМТО (Chita)	103 БрМТО (Belogorsk)	102 БрМТО (Gusinoozyorsk)	101 БрМТО (Ussuriysk)
216 БХиРВТ (Petrozavodsk)	99 БХиРВТ (Tver)	230 БХиРВТ (Dachnoye)	262 БХиРВТ (Bogucharl	104 БРиХВТ (Aleysk)	227 БРиХВТ (Divizionaya)	240 БХиРВТ (Belogorsk)	225 БРиХВТ (Yemelyanovo)	237 БХиРВТ (Bikin)
	103 БРиХВТ (Shilovo)			187 БРиХВТ (Nizhneudinsk)		261 БХиРВТ (Mikhaylovka Pad)		245 БХиРВТ (Leninskoye)
						243 БХиРВТ (Khabarovsk)		247 БХиРВТ (Sibirtsevo)

needed by business will collide with the demand for effectiveness required by the military. This civil-military mix has no serious track record in the Russian Armed Forces, and is naturally the main area that will be exposed to severe testing during combat operations. Under pressure of time, some brigade commanders may opt for temporary repairs or seek short cuts rather than involve the central apparatus of the MTO or risk the involvement of civilians in Oboronprom. In November 2012, following the appointment of Sergei Shoigu as Defence Minister, Moscow-based military experts widely anticipated a revision of the role of Oboronservis in the reformed logistics system.[126]

An additional feature of the potential issues that might arise in the support of combat operations may be seen in operational-strategic exercises conducted since the reform began in 2008. The movement of the combined-arms brigades from one strategic axis to another, for instance from west to east or vice versa, has exposed a reliance upon local arms storage and repair depots (see figure 2.5).[127] It seems that in combat operations the further from these facilities the operation is conducted the more likely it will be to overstretch the GLOCs; this may be partly remedied by using mobile refuelling stations for some supplies or even air-dropping fuel, but commanders will face pressing choices and this will expose the system to further strain.

A final aspect of the fresh complexities in the reformed MTO structure is the mobility of the MTO brigades. In the case of the Railway Troops, these are essentially slimmed-down versions of the old Railway Troops' regiments. In the Soviet era, operational requirements were met by creating Stavka reserves, which enabled senior commanders to support the preparation and conduct of operations. This latest initiative appears to concentrate critical resources with a limited ability to generate forces on key strategic axes to support operational build-ups and the necessary regrouping of forces and means. There is one MTO brigade located in each of the ten combined-arms armies distributed across the four reformed MDs. At least one would presumably deploy alongside one or more combined-arms brigade as well as other forces deployed in the theatre of operations. Such an MTO brigade may well also serve to set up mobile refuelling stations, or generally to facilitate speedy supplies in support of ongoing operations.[128] They may also be involved in repair and maintenance that outstrips the capabilities of the MTO battalions in the combined-arms brigades; the latter will have a fairly limited capability to either repair or maintain weapons and hardware and may have to work hand-in-hand with Oboronprom as well. The tactical issue involved is the capacity to recover damaged equipment and by triage decide what may be fixed immediately, which items require repairs beyond immediate capacity, and what transport assets are available to move such systems to repair locations in theatre or in the rear.

Commanders will face making decisions at operational and tactical levels as to whether to involve these brigades or to send weapons systems or hardware back

to central 'logistics centres' for further work. The numerous problems and potential bottlenecks in the reformed MTO are also not subject to 'game-testing' in order to determine the practical issues or smooth out the planning in introducing the new system. Additionally, the day-to-day logistical supply chain and movement of troops will have to navigate this complex and untested system. Consequently, some retired Russian officers with expert knowledge of previous approaches to logistics consider that when the new MTO is tested in support of actual combat operations the resulting confusion will give way to 'learning by doing'. Prudent staff officers will assume this to be the case, as it was during the Great Patriotic War and has been since.[129]

3.4 Soviet Legacy Issues

Challenges facing the future of the reformed logistics system are by no means restricted to C2 or to working out the finer details of an innovative civil-military mix. Due to the experimental manner in which the logistics reform was conceived and introduced, without a proper grounding in scientific research, the underlying systemic problems in the pre-reform system were not fully addressed. According to General Makarov many of the elements of the reform were not formulated and implemented on the basis of thorough research studies; in his view there was no time for this approach. Numerous Soviet-legacy issues consequently metastasized into the reformed MTO. To take just the question of scientific research, the last extensive study in Russian of military logistics was a four-volume set published in 2001–02 (on the Russian Railway Troops); this was an officially commissioned history, published by the then Railway Troops command. There is no similar detailed analysis of the reformed structure, doctrine or even any single critical analysis of how the processes are intended to function.[130]

The MTO consequently has inherited in its structures some of the Soviet-legacy issues already alluded to, such as depending on a doctrinal approach based on prioritizing supplies at various levels and a lack of sufficient tactical-level specialists.[131] This is a problem that is in evidence throughout the Armed Forces, but in the MTO brigades and the MTO battalions in the combined-arms brigades it will have a negative impact on the capability of the system to operate more smoothly or rapidly than its predecessor.

On the latter point, in order for greater flexibility to be ensured in the supply and maintenance of deployed forces and assets in theatre, technical NCOs are required. At battalion level these NCOs are evidently failing to appear in the necessary numbers, since the experiment in training professional NCOs in 42-month courses in Ryazan is equally proving to be challenging; the numbers attending the courses are insufficient for professional NCOs to be placed in combat support units.[132]

Priority for the introduction of *kontraktniki* NCOs is assigned to the combat units, with combat service support receiving only some graduates from the three-and-a-half-month NCO courses in the VVIT. Resolving these manpower issues may take second place to recruiting and training technical *kontraktniki* specialists for the combat units, in order to raise combat readiness levels in the Ground Forces. Equally, any longer-term effort to redress these Soviet-legacy issues will depend upon the success of the education and training of NCOs and officers in the VVIT, which will take time to introduce while the precise implications of the new logistics system are still being worked out. This will be further complicated by possible revisions to the MTO and military educational structures by Shoigu.[133]

Introducing better-trained personnel will consequently hinge upon the extent to which fresh and innovative logistics courses can be devised and conducted in the VVIT, or how the MoD can ensure enhanced numbers of *kontraktniki* to serve in the Railway Troops. It is unclear how these courses are being developed, what changes have occurred to logistical doctrine or how the officers and NCOs trained in the VVIT are being prepared for the confusion and potential chaos involved in an experimental organization, including the MTO battalions, which may possibly be subject to future radical changes.[134]

Reflecting on the depth of the complexities involved in the ongoing efforts to activate or make sense of the reformed MTO, the last word belongs to its first Chief, General Bulgakov: 'There are many other features that are a source of satisfaction for us. Although it should not be said that we have absolutely no problematic features. There are complications, areas where we are making no progress, but we are working on these and fixing them.'[135] It is these 'problematic features', or 'complications', and areas where 'no progress' is evident that will serve to slow progress towards enhancing Russia's strategic mobility to 2020 and beyond.

3.5 Russia's Limited Capability to Deploy and Sustain Military Operations

Despite the weaknesses inherent in the reformed logistics system, or perhaps due to awareness of their existence, the MoD is clearly making efforts to make improvements and reduce unnecessary waste within the structures. Some of these 'advances' are frequently of a surprisingly simple nature. For example, the MTO participated in the Tsentr 2011 operational-strategic exercise held in Russia and Kazakhstan in September 2011, and reported on progress in the speed of refuelling military vehicles. Armoured vehicles and tanks arrived at a mobile refuelling station to permit specialists from a POL company to refuel these assets in a shorter than usual time frame. This was accomplished by abandoning the traditional approach, with one refuelling worker servicing each vehicle successively,

instead using a whole company to conduct refuelling simultaneously (though using Refuel on the Move (ROM) kits is normal in operations and exercises).[136]

Other advances arose from civilian agencies offering solutions to the MoD, such as the management of the Federal Agency for State Reserves (Rosreserv) approaching General Bulgakov to suggest increased interaction between its agencies and the MoD to provide petroleum services. During Tsentr 2011, one Rosreserv facility in Sverdlovsk Oblast jointly organized direct fuel supplies to units participating in the exercise; this bypassed the middleman role in the formerly monopolistic supply chain.[137]

Figure 3.6: MTO Brigades

Joint Command (OK) MTO Brigade	Joint Strategic Command/OSK MTO Brigade
Motor Transport Battalion	Material-Technical Support Base
Road-Commandant Battalion	Material Support Regiment (x3)
Bath & Laundry	Depot
Veterinary Detachment	Bridge Regiment (x2)
Bakery	Road-Commandant Regiment (x2)
Motor Transport Company (water)	
Fuel Distribution Company (possibly pipeline construction based upon unit)	

** Possible structure of MTO brigades, based on the author's discussions with Captain Charles K. Bartles, Foreign Military Studies Office, Foreign Military Studies Office, US Army, Fort Leavenworth, Kansas, and retired Russian officers; and http://www.warfare.ru.*

In Tsentr 2011 the MTO rehearsed the repair of military facilities and the security of the main railway and road routes. A comprehensive study was conducted of the MTO command elements, planning and control of manpower and equipment, as well as analysis of the overall structure of the reformed entity. Storage and repair facilities of Rosreserv, the Ministry of Transport, the Russian Railways Corporation and Oboronservis were involved in the special MTO exercise; a total of 5,000 military and civilian personnel and 1,630 pieces of equipment took part

in the exercise. Central MD MTO brigades rehearsed combat support for a tank brigade.[138]

The reference to 'brigades' supporting a combined-arms brigade may in fact denote smaller elements used to push forward individual units. Moreover, with one MTO brigade assigned to each CAA it is probable that one functions at OSK level and a smaller MTO brigade operates at joint command level (see figure 2.5).[139] Retired Russian officers consider these brigades to be strikingly similar to the late-Soviet FBrMO and ABrMO (Frontovaia brigada materialnogo obespecheniia, Frontline Brigade for Material Support and Armeiskaia brigada materialnogo obespecheniia, Army Brigade for Material Support).

The 5th Railway Troops brigade also participated in Tsentr 2011, rehearsing bridge and railway repairs. According to General Bulgakov this featured an experimental use of a domestically-produced Lenta advanced pontoon bridge, with increased load-bearing capacity and speed of laying over a water obstacle. In the second stage of the exercise the MoD worked alongside Rosreserv on the mass shipment of materials for the support of deployed forces.[140]

Moreover, Aleksandr Dobrynin, the Director of Novator FGKU, related: 'In particular, in the former area for stationary dispensing (*avtonaliv*), instead of four obsolescent automatic dispensing systems (ASN), there are now eight computerized ASN's installed. These will enable us to make the process of giving out fuel three times as fast as before. For the benefit of the soldiers, we poured fresh concrete and asphalt on the approach routes, the better to receive army tanker trucks at any time of the year. Besides this, we built up from nothing a zone for massive dispensing of fuel, calculated to give out as much fuel as 20 tanker trucks can hold. At ordinary times, this space will not be used, as it is a special territory, with prepared foundations on which to mount specialized fuel-dispensing structures which can be assembled quickly.'[141]

3.6 Kavkaz 2012

Ahead of Kavkaz 2012, a special four-day MTO exercise was staged in the Southern MD (10–13 September 2012) under the supervision of General Bulgakov.[142] This exercise reportedly tested and experimented with the MTO system in more than 60 practical episodes; over 200 commanders, MD and fleet commanders, the chiefs of the logistic support agencies in the MoD, and officers from the branches and arms of military service gathered to observe and discuss the exercise. Prior to the exercise commencing a great deal of attention was devoted to new models of technology and equipment for the temporary storage, transport and delivery of POL. Sergei Fisher, the Executive Director of the Chelyabinsk Silakh Plant, demonstrated an airfield fuel tank truck mounted on an all-wheel-drive KamAZ chassis. Its designers and developers had unfortunately failed to calibrate a number of important factors in the new technology, in particular opt-

ing for an 'inappropriate tank capacity'. Consequently, it could be used to fuel a single aircraft but did not have the capacity to fuel two aircraft.[143]

In addition to the emphasis on apparent advances in technology and equipment, the Southern MD MTO Planning and Coordination Directorate Chief Colonel Aleksei Lemyakin also highlighted that the MTO special exercise sought to integrate military and civilian agencies such as Rosreserv. Lemyakin stressed that innovative features of this exercise concerned the methods and use of evacuation and technical support subunits. The previous structure of a motorized rifle battalion's support platoon allowed for only one repairs-evacuation unit (BREM-L), which limited the evacuation of out-of-order or damaged hardware from the theatre of operations. The new system has yielded a 'threefold increase' in the evacuation capacity.[144]

Lemyakin explained that after this 'evacuation to the technical service area for routine repairs or for a subsequent transfer to the means of the senior commander (to the locations where field repair brigades are deployed, to the industrial enterprises, and to the OAO Oboronservis). There is yet another novelty: the standard technical reconnaissance units on special vehicles 'Tigr' as part of the military units. The group consists of a commander, weaponry and military equipment repairs technician, a sapper, a chemist-dosimeter operator, and a medical orderly. Such a structure allows fulfilling technical reconnaissance tasks to the fullest. The formation's technical reconnaissance groups are formed from among the MTO battalion's technical reconnaissance platoon personnel. The technical reconnaissance platoon is a part of the MTO battalion also for the first time as a standard subdivision and not just a temporary formation as the earlier documentation provided for. The assigned technical reconnaissance groups follow and act behind the first echelon companies (battalions) and fulfil their tasks in assigned zones and areas.'[145]

Major-General Andrei Kozlov, the Chief of the Southern MD Railway Troops Directorate, reflected on the involvement of the Railway Troops in this exercise, particularly as they now function as a part of the MTO. Kozlov was realistic concerning the ongoing challenges facing the Railway Troops, despite an intensification of training and the promise of modern hardware. He noted that subunits have to operate at a distance from their permanent stationing points. Railway Troops specialists are located throughout the Southern MD, in Astrakhan Oblast and Stavropol Krai, Dagestan, Ingushetia, and North Ossetia-Alania, and work is also carried out in Tambov and Tver oblasts. In the latter case the Railway Troops there had to restore approximately 15 km of railway tracks (more than 1,000 km away from their permanent stationing point). Kozlov explained that 'special hardware (up to 40–50 items) has been mobilized there in addition to personnel. Sometimes we have to accommodate subunits in field camps – which renders more complicated the already difficult working conditions of our specialists.'[146]

In the course of publicizing the precursor specialist MTO exercise as a prelude to Kavkaz 2012, Zvezda TV showed footage of MTO personnel moving hardware onto flatbed trucks for rail transport, meaning that they can be rolled onto railway cars and rolled off, displaying 'advances' in efficiency. Nevertheless, despite the show of covered artillery pieces ready for transport, the footage of the repairs, presumably in a fixed repair centre, revealed that the 'specialists' carrying out repairs were close to retirement age.[147]

Russia's limited capability to deploy and sustain military operations is not only rooted in the challenges facing its reform and modernization agendas, but is clearly revealed even in terms of its 'reach' within the Russian Federation. Operational-strategic exercises since 2008 have time and again shown that the new brigade-based structure remains difficult to move at speed and difficult to sustain in a hypothetical theatre of operations. Moreover, while the Russian Armed Forces rely principally on GLOCs and to a lesser extent SLOCs, there are strategic axes which may compel a rethinking of the current approaches to moving troops, logistics and supplying deployed forces. For instance, in the Russian Far East there are coastal units requiring fuel deliveries, including the Kura missile test site on the Kamchatka Peninsula, located in an unpopulated swamp area. Other training ranges are in inaccessible locations: Magadan, Sakhalin, the Kuriles, Kamchatka, Chukotka can only be supplied by sea during certain times of the year. Annually, these units 'import' hundreds of thousands of tons of fuel using SLOCs. The MoD has concluded contracts with the RIMSKO shipping company with a fleet of modern tankers of the reinforced ice class.[148]

Naturally, such immense challenges raise issues concerning the VTA as well as issues of cost-effective troop transport. The limitations of using rail transport in a crisis to move troops were first exposed in July 1992, when trains from Orenburg Oblast moved troops 2,500 km to Tiraspol in 48 hours using 'green light' signals in a fast passenger train mode. This was used to transport two peacekeeping battalions, but Russian logistics specialists believe it would take 'dozens of trains' to transport an entire tactical formation with its equipment. There is also an issue of cost. One retired commander of the former Volga-Urals MD estimated that it costs 155 million to 263 million roubles to transport by rail one motorized rifle brigade without organic heavy equipment 3,000 km to 5,000 km, whereas an airlifting option would cost 50 million to 80 million roubles if a civil air carrier is used, or less using the VTA, though without organic heavy equipment. Yet these were no more than standard railroad movements by echelon which the Russian Army has been doing since 1849.[149]

In terms of the time required to insert forces at a full combat readiness level, it would demand airlifting personnel, receiving and preparing equipment and reaching an assembly point in one to two days, compared with transporting troops using dozens of trains stretched across thousands of kilometres along the state border and reaching combat readiness in eight to ten days at best. During

Mobilnost 2004 a battalion task force was airlifted from near Yekaterinburg to Primorye airfield near Ussuriysk using two Il-86 civil aircraft in around 12 hours, with equipment moved in 50 flights by the VTA (over eight days).[150] material

Consequently, in some cases, the MoD may choose more cost-effective ways of moving troops during a crisis, utilizing a mix of civil and VTA aircraft and troops using the local arms and repair storage centres. However, Russian military planners would still face issues primarily linked to the use of GLOCs and SLOCs to sustain and supply forces deployed in a conflict zone.[151]

4 Military Modernization and 'Reform': Combat Arms and Deployment

Russian defence and strategic planning is shaped by the country's strategic environment, where the vast size of its territory and potential theatres of operations mean that scale and distance matter. Transforming the system of rear services and military-technical support to facilitate rapid deployment and improved sustainment for forces in theatre has produced a more complex combat service support structure. Its critical test lies in its ability to abandon the Soviet practice of moving bulk supplies to the front and to respond instead to specific demands in theatre as they arise. Although this element in the transformed combat service support system is new, Russian strategic mobility remains heavily tied to the country's railway infrastructure. Moreover, this reformed system is untested in combat, but more importantly it faces an entire interconnected series of issues and challenges linked to the exact nature of the 'reformed' combat units and ongoing efforts to modernize the weapons and equipment inventory by 2020. In other words, the reformed combat service support structures must underpin and fit the new Armed Forces brigades heralded by the reform that began in 2008; the focal point of that transformation is the shift away from industrial-era approaches to conventional warfare in order to refashion modern Russian combat power around network-centric information age capabilities. This places enormous strain on the domestic defence industry by itself, but the entire process has been thrown into doubt by the downfall of former Defence Minister Anatolii Serdiukov – the 'new look' has collapsed, and as yet it remains unclear what may replace it.[152]

Russia's strategic mobility is limited by the ongoing change and experimentation within its combat units and by multiple manning complications linked to recruitment and training or to the questions of how to enhance discipline or develop an adequate NCO cadre.[153] While the reform of the Armed Forces became too closely tied to former Defence Minister Serdiukov, his sudden departure appears to signal a step back from adopting a more modern force structure and yet another failed attempt to reform the Armed Forces, which leaves the MoD overseeing a modernization programme with no clarity as to the final form of the conventional Armed Forces.[154]

These failures, their causes, the poor planning of the reform programme and the broad outline of the modernization of the weapons and equipment inventory must be placed in the broader context of the factors limiting Russia's strategic mobility. It is equally increasingly questionable whether the domestic defence industry is capable of meeting the highly ambitious targets set for the modernization, not

least as its main drivers are about control over cash flows and access to opportunities for corruption.[155]

The Russian state is currently unprepared to conduct large-scale, sustained combat operations, and in the event of a sudden crisis confronting the Kremlin with a possible local or regional conflict, long-term is not an option for a continental power increasingly subject to the pressures of the globalized economy.[156]

Equally, fearing strategic isolation in an escalating security crisis, Moscow is very reluctant to act alone in many theatres; and when its leadership argued there was a compelling set of reasons to do so in Georgia in 2008 it expended diplomatic energy in a relatively unsuccessful effort to gain support from its allies, even if post factum. Russia continues to hold nuclear deterrence very close to the central tenets of its security policy, despite some understanding that the conflicts it is likely to face up to 2020–30 would be of lower intensity, ranging from counter-terrorism and counter-insurgency to peacekeeping operations close to its borders.[157] However, Moscow must also face the prospect of the escalation of such conflicts in the form of intervention by foreign powers.

Nonetheless, the collapse of the Soviet Union and end of the Cold War have also served to recast Russian strategic mobility principally to 'homeland' or territorial defence; the General Staff is less interested in drawing up plans for operations in far-off theatres than in examining the more realistic prospect of protecting Russia's far-flung frontiers. The security risks demanding enhanced levels of strategic mobility are therefore mainly domestic.[158]

4.1 Limitations on Strategic Mobility

Despite its initiating a reform of its Armed Forces in 2008 and subsequently developing a highly ambitious rearmament programme to 2020 which sets the target for new or modern equipment in the TOE at 70 per cent of the total, Russia's capability to project military power remains very limited. Some of these limiting factors stem from the innate slowness of deploying and sustaining its forces over a great distance by means of a combat support system that also requires long-term reform efforts.[159] As Jacob W. Kipp observes, since the Manchuria campaign the Soviet and Russian Armed Forces have predominantly depended upon rail infrastructure for movement and supply. Even if the State Armament Programme (Gosudarstvennaia programma vooruzheniia, GPV) to 2020 is implemented successfully, this would still leave the balance in favour of GLOCs and SLOCs rather than air lines of communication (ALOCs).[160]

However, there are other complex factors at play, including the inherent weaknesses within the Russian system of military manpower, structural issues involving the new brigade-based Ground Forces, and a range of political and economic limitations on the country's potential and actual capability to project power. Ex-

ploring these factors involves addressing the question as to what conventional military capability Russia possesses and is likely to possess by 2020.[161]

As already noted, commencing and then sustaining Russian combat operations in the future will depend upon the combat service support system, which still appears to be in its very early stages of a longer-term transformation. Prior to examining the combat arms and branches of service and the likely use of the conventional Armed Forces in conflicts on Russian territory or on its periphery, it is vital to appreciate that since 2008 these force structures have been in transition to a final shape that remains entirely uncertain. Understanding the factors limiting or driving Moscow's efforts to enhance strategic mobility demands awareness of the numerous problems that persist within the Armed Forces.[162]

In this context, three points plague Moscow's attempts to renovate Russia's hard power capabilities: (i) inadequate and contradictory defence reform planning, (ii) the likelihood that the central tenets of the reform have already been jettisoned since the appointment of Army-General Sergei Shoigu as Defence Minister on 6 November 2012, and (iii) the background of internecine conflict between the MoD and an unreformed and ailing domestic defence industry.[163]

Although the reform and modernization of the Russian Armed Forces made some attempt to link the strategic environment and the likely types of conflict that may face the Russian military in the future, these changes are so deep and systemic that it is precisely the absence of an imminent threat in the aftermath of the Five Day War in August 2008 which opened a window allowing such real reform to begin. War entailed the risk that Russia would be caught in the middle of the reform process and its forces would be unable to engage in operations while the new system was only partially formed. The General Staff judged that risk not to be high, and thus the dismantling process began. Russian defence planners understood that for the reform to stand any chance of succeeding, and not be derailed like previous reform efforts since 1992, it must be implemented ruthlessly and hurriedly, and requires at least a decade to complete.[164]

Paradoxically, the reality of the reform – in the absence of any experience of genuine reform in other sectors of the economy or within the military – created conditions in which the entire process became denoted by constant experiment, change, reversal, indecision, and avoidance of the deeper and more pressing issues such as how to resolve problems linked to military manpower or minimize corruption within the officer corps.[165] Putting it simply, the reform was exposed as poorly planned given the near-absence of a scientific support basis, game testing critical concepts and plans, or a planning process rooted in reliable military statistics.[166]

This meant that the core audience for the reform – the Russian officer corps – were left to second-guess what the reform was about. Moreover, the preceding decades had left the officer corps suspicious of reform as being only a means to

cut personnel and reduce costs at their expense. Over time, the transformation under way in the Armed Forces became confused and inherently self-contradictory.[167] No Russian officer could answer the simple question as to what the reform was about or what its main aims were. This resulted in an atmosphere among the officer corps in which the most important issue was to restore a sense of stability, and reassure them that their views may be listened to and respected.[168]

Vladimir Putin's Armed Forces reform was delegated to its manager, Anatolii Serdiukov, finally removed from office in November 2012 amidst a corruption scandal. Serdiukov's background in financial affairs had marked him out to oversee establishing greater control and accountability concerning the huge cash flows within the MoD; after all, Putin had appointed him in the context of vast sums of money vanishing from the defence budget. Yet, instead of improving transparency and accountability, by February 2013 the Oboronservis scandal surrounding Serdiukov's tenure in the MoD had extended into reported corruption schemes affecting the Strategic Rocket Forces. That the wider reform process became confused and began to make little sense can be proved by reference to the constant policy swings on key issues within the reform and to the resetting of many of its priorities. These included fixing the final target for officer numbers at 150,000 and later adjusting this to 220,000 in a total manpower system alleged to contain 'one million', constant reversals on NCO cadre training policy, the creation of the Military Police, constant adjustments to the required number of brigades and their composition, and the key contradiction at the root of the reform: claiming to form 'permanent readiness' brigades while placing doctrinal emphasis on a partial mobilization of reserves 'tested' during military exercises. Nevertheless, despite the lip service paid by the military leadership to 'mobilization', there was no commensurate investment in the reserves, leaving any sense of even 'partial mobilization' purely notional.[169]

From the perspective of the Russian officer corps, therefore, it is unclear what the reform envisaged as its main goals. This is best illustrated by noting the inconsistency in the statements of the political-military elite on each occasion they offered five or seven key points on the reform aims. No Russian officer could read a single document that explained the reform, and to make matters worse they often only discovered that the MoD had initiated further changes by reading the military press. Serdiukov gained notoriety for his disrespect for the officer corps, frequently revealed in his angry outbursts in their presence, or in his reference to officers as 'little green men', but mainly in his lack of interest in explaining reform policy.[170]

In his study of the reform by the Dutch Russian security expert, Marcel de Haas, an appendix offered a collection of statements by the military top brass and the political leadership since 2008 on the main aims of the reform; the most striking feature when these statements are compared is the singular lack of agreement on

what the principal goals were. Another aspect of these statements is that they often only contain aspirations rather than clarifying the aims or the route to success in the transition period for the Armed Forces. For example, in November 2011, the then Chief of the General Staff, Army-General Nikolai Makarov, stated that one of the reform goals is 'organizing the structure of the Armed Forces, improving support systems and *increasing* the number of units'.[171] Moreover, increasing or decreasing the number of units has no inherent reform content.

Not only did Makarov imply – after three years of reform – that further organizational changes were necessary, but the overall number of units must increase; this was a far cry from the flamboyant claims in 2009–10 to have created '85 permanent readiness brigades'. Makarov's delineation of the aims of the reform also introduced novelties such as the training and equipping of the Aerospace Defence Forces, which was assigned high priority.[172]

Putin's military priorities, as outlined in his 20 February 2012 pre-election article, contain little that is fundamentally new or unexpected in the context of Russia's defence reform and modernization efforts to 2020. Some of its features, such as 'professionalizing' the Armed Forces, essentially repackaged earlier failed plans. Although Putin implied that the recruitment strategy for such professional personnel will be different, the mainstay of the recruitment pool for contract servicemen remains the serving conscripts, and in the autumn of 2011 the draft was radically reduced, reflecting demographic and other pressures, thus cutting the pool from which *kontraktniki* may be recruited. The declining size of the demographic pool from which conscripts can be drawn is a fact and will remain so over the next few decades. Russia cannot man a mass mobilization Army.[173]

It is unlikely that these plans will achieve the targets declared in Putin's article unless the recruitment methods are overhauled and accompanied by media PR campaigns to reverse the low image of military service. Here, if such campaigns were successful, the result would be better-quality recruits rather than simply a surge in numbers. The sharp decline in births in 1991 lasted for over a decade and has not recovered to pre-collapse levels, and consequently the reduced recruitment pool will persist over the next two decades. Since the MoD has refused to recruit women this demographic crisis is felt much more severely. The references to retaining a lower number of conscripts by 2020 and to the 'reserve' suggest the persistence of 'mobilization', albeit in an amended or even obscure form, in Russian security thinking.[174]

4.2 Putin's Military Transformation Goals

Much of the military priorities referred to in the article remain largely aspirational, for example, pinning high hopes on reintroducing an official military chaplaincy as a way of improving the 'moral' condition of personnel. There is also

disagreement among the top brass and defence officials on the overall number of the brigades. The target figure for the number of brigades required in the Armed Forces has varied during the reform process and has also revealed confusion over their roles, or confusion between traditionalists favouring a 'tank-centric' approach or progressive modernizers advocating network-centric capabilities. In December 2009, the MoD reported that 85 brigades were formed during the rapid transition from the division-based to the new brigade-based structure. Senior commanders' estimates of the number of combined-arms and tank brigades are much lower. The general trend to introduce more high-tech systems and adopt network-centric approaches to operations was somewhat contradicted by the inclusion of procurement goals for 'more than 2,300 modern tanks'; this may have represented an effort to reassure reform sceptics and defence industry workers that tank-centric doctrine has not been entirely abandoned.[175]

Despite claiming that the Armed Forces are being reformed in order to meet new and emerging threats, Putin placed high value on measures to counteract US and NATO missile defence plans. These measures seem restricted to modernizing the strategic nuclear forces, deploying non-strategic missile forces to threaten NATO anti-ballistic missile (ABM) bases and expanding the VKO, including Russia's own ABM system. The familiar usage of the hypothetical threat from the West is also calculated to appeal to nationalists, patriots and the more conservative members of the Armed Forces.[176]

Putin's wide-ranging article published in *Rossiiskaia Gazeta* in February 2012 was calculated to appeal as widely as possible to a public that contained strata that were less than satisfied with his imminent return to the Kremlin. Putin's article advocated protecting national sovereignty, introducing social reforms in the Armed Forces, increasing land, sea, air and space military capabilities, restructuring the organization of the military, improving the respect for, motivation and prestige of the Armed Forces, upgrading the defence industry, gaining a technological edge over any adversaries, and improving the Russian economy through defence enterprises.[177]

Apart from his reference to procuring modern transport aviation, surprisingly little in Putin's article relates to enhancing Russia's military-strategic mobility. Even more surprising is the scant reference to strategic mobility in Putin's outline of the procurement priorities to 2020. Or, indeed, the issue of how any of these 2,300 tanks weighing more than 55 tons each would be moved.[178]

Indeed, Putin's vision for the development of the Armed Forces was top-heavy on nuclear modernization, was fixated on countering the US–NATO ballistic missile defence (BMD) plans, raised the importance of the VKO, and placed C4ISR at the heart of the conventional forces transformation. In short, these targets seem quite distant from the general aspirational themes in the early reform statements. Moreover, Putin's boast concerning the potential achievement of the GPV to 2020 almost seems to contradict the vision of a smaller, mobile and bet-

ter-trained force structure mastering C4ISR assets. Like similar statements from the country's leadership, this offered no substantial breakthrough for the Ground Forces, whose slice of the GPV was being further reduced by the high value assigned to the VKO.[179]

In order to justify these procurement objectives, Putin also offered detail on the defence industry's priorities to 2020. However, though he set out an ambitious vision to modernize the defence industry and in turn facilitate the revival of Russia's military power, Putin offered no concrete details on procurement to boost strategic mobility.[180]

4.3 Shoigu and Correcting the 'Reform'

What is clear from Putin's targets for the defence industrial complex (*oboronno-promyshlennyi kompleks*, OPK) is that the Kremlin is beginning to recognize the staggering task ahead in trying to realize the goals for the GPV to 2020.[181] However, careful analysis of all political-military statements on the reform since 2008 reveals an absence of the following five elements:

1) systemic planning for reform of the OPK;

2) consensus on or vision for the future system of military manpower;

3) appreciation of the need to change the system of recruitment and promotion in order to stimulate higher standards among the officer corps;

4) changes to the recruitment process for contract personnel; and

5) efforts to extend the reform agenda beyond MoD forces.[182]

The newly appointed Defence Minister and former Minister of Emergency Situations, Sergei Shoigu, acted quickly to distance himself from his predecessor's style of managing the MoD, making efforts to consult with military commanders and initiating a study of the reforms to date. However, he also rapidly suspended or reversed some elements of the reform, and many of these moves sent signals to the officer corps that 'Soviet' has once again become fashionable in the MoD; symbolically, Shoigu restored the Suvorov (military schools) cadets to the Victory Day parade on 9 May. He suspended further work on the creation of the VKO, requesting detailed analysis of the supporting military education components; suspended the attempt to relocate the St. Petersburg Military Medical Academy; blocked further moves to close military hospitals and took similar measures in connection with the reform of military science and military education; and placed under review the relationship between the MoD and the General Staff.[183] These measures represented small steps, largely superficial in nature, but offered no clear direction for the future of the Armed Forces.[184]

While Shoigu was preoccupied with removing the deputy defence ministers Serdiukov had brought to the MoD (though Bulgakov was left to run Rear Services and Technical Support), the new Chief of the General Staff, Colonel-General Valeriy Gerasimov, reversed the decision in 2010 to abolish the Combat Training Directorate, played to the senior officers with interests in BMD, and took steps to reassure the officer corps that the Serdiukov–Makarov days were gone. Putin told CGS Gerasimov that the main task ahead was to smooth relations between the MoD and the OPK, which meant that domestically produced weapons and equipment should be procured even if they were sub-standard, while avoiding making political problems for the President. If Putin has finally preferred the interests of the OPK over those of a reforming MoD and securing effective modern weapons at reasonable prices, then the adoption of C4ISR will simply fail to happen; the underlying challenges facing the OPK will not be swept away by any domestic power play.[185]

Conflict between the MoD and the OPK was the critical background to the ministerial change; however, this has resulted in a shift away from an already troubled reform process – which is likely to witness further efforts to placate the OPK. Whatever emerges as the final shape of the Russian Armed Forces by 2020, it is less likely to equate to a modern or modernized military: the new MoD leadership seems to be trying to salvage the vestiges of a modernization programme that depends on an OPK that offers little value for money, price transparency or quality control.[186] Shoigu has made statements concerning the Borei class nuclear-powered ballistic missile submarine (SSBN) and the Bulava submarine-launched ballistic missile (SLBM) to suggest all is well with these development programmes. However, the last two scheduled launches of Bulava from the SSBM *Yurii Dolgorukii* never occurred; the first operational launches from the submarine were rescheduled to the summer of 2013. Failure could mean that Russia will have an entire class of SSBNs without their strategic weapons.[187]

4.4 C4ISR: A Troubled Future

The single most critical factor inhibiting Russia's strategic mobility, therefore, and inherently tied to the success or failure of the military transformation, is the fact that it possesses an armour-heavy conventional force structure better suited to a 20th-century continental army than to a modern expeditionary force. In the future, C4ISR transformation will succeed or fail on the extent to which information-based approaches become the model for officers and enlisted personnel. According to an article in *Krasnaia zvezda* in September 2012, this concept will conflict with traditionalist approaches to warfare within the Russian Armed Forces: 'The concept of network-centric warfare – a new military-ideological philosophy based on the primacy of cognitive information-warfare on the physical environment of War. It is a philosophy designed to become part of the vision of a modern military leader.'[188]

While that transition period lasts, the Armed Forces will be faced with all the uncertainty about what the Russian MoD is trying to achieve.[189] If they do not succeed in implementing such major changes to force structure, doctrine, training, tactics, mindset, and military manpower, the hard power at the disposal of the Kremlin will be tied to 20th-century combined-arms capabilities. Additionally, there are other factors serving to inhibit strategic mobility as outlined in figure 3.1.[190]

Figure 4.1: Factors Limiting Russia's Military Strategic Mobility

Planning Capacities	ALOCs, GLOCs & SLOCs	Political and Economic Factors
• **Scenarios should show the demand for strategic movements (how many? how often?)** • **Plan B for worst case scenarios – leaving a country at short notice in a short period of time** • **What is current rate of accident?** • **Where could aircraft land outside Russia in case of emergencies and where they could get repair assistance?** • **What is their**	• Long-distance aircraft with air refuelling capability - that means: strategic air re-fuelling tanker • What type of vehicle and material can be transported? • Long-distance escort needs • Landing in a hostile environment • Long-distance aircraft will not be able to land in a zone of conflict (they are very vulnerable) • The quality of	• Maintenance: pre-positioned infrastructure in foreign countries host nation support • Status of Forces Agreements (SOFA) and related legal issues • Transport from 'strategic' airports to the zone of conflict costs (leasing is cheaper than buying; pooling with partners?) • World market potential for long-distance aircraft as they are not economic without export

capability in terms of noticing and tracking drones and aircraft watching or following them beyond Russia's territory? • **Are pilots briefed properly before departure on what could happen to them (good intelligence on foreign reactions)?** • **Costs for R&D and training**	pilot training • Ability of pilots to fly long-distance (any replacement pilots on board on long-haul) • Logistic sustainability: personnel and material	

Source: Author's interviews with NATO, Russian and Central Asian defence specialists, November 2012.

In terms of strategic mobility, the drift, muddle and poor planning of the reform and its *de facto* suspension in November 2012 are crucial, since without answers to the many questions resulting from the Armed Forces' transformation it would present an enormous challenge to redesign the Material Technical Support system. How can the combat support system function adequately if it remains unclear what types, roles, and structures of the combat elements it is intended to move and help to sustain?

Equally, if the Russian OPK is unable to deliver the required breakthroughs in designing and manufacturing C4ISR assets then the original reform aims outlined in the autumn of 2008 will fail. This is particularly acute in the efforts to design and procure the new automated C2 system, which has suffered serial delays with no end in sight. A generation of officers must also be found with the mindset that makes the information-cognitive side of warfare as important to commanders as the kinetic. Finally, since the appointment of Army-General Shoigu, several ele-

ments in this complex transition process for the Armed Forces have mutated into a return of Soviet vogue.

4.5 Security Crisis Contingency Planning to 2020 and Beyond

These underlying issues facing Russia's political-military leadership are subject to constant change, revision and a timescale that fluctuates due to the lack of any agreement on a common threat assessment driver for defence reform and modernization. In the absence of a threat driver, forcing change for the better, there is no particular hurry to fix the planning inconsistencies that have so beset the entire episode. The Kremlin wants the Russian state to possess adequate and modernized Armed Forces capable of meeting future threats, but lacks a clear vision for precisely what this modern force will become or how to re-equip it.[191]

That leaves the Kremlin facing the prospect of Russian forces engaging in combat operations without being suitably structured, trained, equipped, supplied or sustainable for the long term. Given the nature of the problems within these units and the lack of progress in or cohesion of the reform effort, the claimed ability to rapidly deploy the Ground Forces' brigades is way beyond the present capabilities of the Russian Armed Forces.[192] The suspension of reform, setbacks in achieving the aims of the GPV to 2020, further tinkering with the overall brigade numbers, patterns in military exercises and fitting the MTO structures to ensure the faster and smoother deployment and supply of forces will all remain variables in the strategic mobility equation.[193]

In the Western MD the two MTO brigades (51 and 69) are based in St. Petersburg and Mulino. In the Southern MD, 78 MTO brigade (Prokhladny) and 99 MTO brigade (Maykop) would support combined-arms formations. The Central MD hosts two MTO brigades, the 101 and 102, located in Ussuriysk and Gusinoozyorsk. In the Eastern MD there are four MTO brigades – (103) Belogorsk, (104) Chita, (105) Roshinsky and (106) Novoaltaysk.[194]

It is revealing that the reformed MTO brigade-based system places four MTO brigades in the Eastern MD, and only two in each of the others. Military infrastructure is least developed in the Eastern MD. In the Western MD, for example, the 51st and 69th MTO brigades would support brigades from the 6th and 20th CAA. Formations at a greater distance from border areas with higher levels of combat readiness, supported by the MTO units, could be deployed by rail and then SLOCs depending on the mission type. However, the further these units advance from the district's arms storage and repair depots the more they may be exposed to overstretched GLOCs.[195]

In September 2012 the MoD claimed to have overseen limited 'mobility' testing in the Western MD during a brigade-level military exercise. Units from the 200th

Motorized Rifle Brigade had to move out to an area where Northern Fleet naval infantry units were rehearsing coastal defence; the Ground Forces units joined the naval infantry. This involved the command of the brigade overseeing a 136-km march to the north-west part of the Rybachiy Peninsula; the scenario spoke of sabotage by 'terrorist groups'. It is remarkable that Russian MoD officials should equate what should be a routine march carried out by units from a brigade with a test of mobility. This clearly involved an 'unexpected' test of the ability to move the units, suggesting that commanders are paying closer attention to smaller force movements, and are trying to fit this into the demands stemming from larger exercises to demonstrate capability to protect Russian interests in the Arctic. Although the MoD publicized this event as part of the exercise in the Western MD, there was no information on the time taken to carry out the set task.[196]

However, flaws in the generic brigade model adopted in the early transition to the brigade-based Armed Forces structure compel remodelling to a basic 'heavy', 'medium' and 'light' format by 2015; until then much of the existing conventional force structure will remain slow to deploy. There is simply too much organic heavy equipment in these brigades to achieve rapid deployment. The lack of progress towards introducing high-technology assets (including overhauling the existing C2 infrastructure and adopting an automated C2) leaves the conventional power rooted in a traditional combined-arms approach; any network-centric capability in whatever form that may finally take is unlikely to appear before 2020, with 2025 to 2030 as a more realistic timescale. Russian forces deploying operationally in this period may actually conduct combat operations not too dissimilar from the pre-2008 approaches and models. They will need to contend with the reduced command echelons' ability to ensure combat stability and recover combat power lost as a result of engagement.[197]

Although the total number of brigades needed in Russia's Ground Forces continues to fluctuate in the views of commanders and defence officials, some initiatives are likely to impact on strategic mobility, but not resolve many of the problems already outlined. If plans to enhance army aviation by 2020 are implemented successfully this will result in the creation of 14 aviation brigades aimed at strengthening mobility and firepower. However, similar plans to form 'Arctic brigades' were postponed until 2015 by the MoD, which leaves the possible formation of additional army aviation brigades open to further revision.[198] Such advances, if they are achieved, will only impact on the movement of more lightly armed units, and therefore units drawn from the heavy brigades will remain tied to deployment using GLOCs.[199]

During the organizational changes affecting the Air Force and Military Transport Aviation (VTA), the number of aviation regiments was enlarged during the optimization process; an aviation base was formed in Tver with aviation groups and basing locations in Pskov, Orenburg and Taganrog, and military transport squadrons were formed as part of the VTA's organizational structure. The basing of

the VTA suggests close ties to VDV units, which would serve as an air mobile force for rapid deployment but limit the capacity of the VTA to support the sustainment of deployed units, which must raise questions about the entire concept. By 2020, if the GPV is implemented, the VTA will acquire An-70 and modernized Il-76MD90A aircraft, and the An-124 Ruslan aircraft will be modified to the An-124-100. Currently the VTA fleet consists of An-124 and An-22 long-range aircraft, Il-76 medium transport aircraft and the light An-12 and An-26.[200]

Russian military exercises since 2008 suggest that the brigade structures are slow to move, while the actual speed of movement in a real crisis could in fact be even worse. The extensive pre-exercise preparations to move such units would not be possible during a crisis, and it is likely that the brigades selected for participation in operations may be chosen in terms of convenient location from the conflict zone. The heavy organic armour in the 'heavy' brigades will slow down the overall deployment time. Tactical movement to deploy could be done by heavy equipment transporters (HETs), if they exist in theatre; the Soviet Army provided such vehicle lift to tank divisions. Moreover, once operations commence all the supply and troop rotation issues to sustain the operation will come into play, with potentially unforeseen problems and setbacks.[201]

Going forward, the existing units and further planned structural changes to brigades are unlikely to facilitate a genuinely rapid reaction capability that matches the rhetoric of the early days of the reform programme. The existing Ground Forces brigades, as well as the higher-readiness elements in the VDV, should not be misconstrued as representing anything remotely resembling expeditionary forces. However, the planning of most operations involving the Russian Armed Forces will probably take significant time, as in the case of contingency planning for the operations in Georgia in 2008, requiring two years of preparation and having been tested in the Kavkaz military exercises 2006-08.[202]

Russian military operations will be planned and executed on three strategic directions: west, east and south, with the Central MD playing a supporting role. Rearmament priorities apply to the Southern and Eastern MDs, and seem to pay less attention to the Western MD. On the other hand, if such operations were to be conducted in Central Asia, the Central MD will probably play a similar role, with units being moved from the Southern MD to assume a lead role, not least since these are receiving more new weapons and equipment than other MDs.[203] Russia possesses a significant advantage in GLOC deployment into this theatre due to the existence of Russian-gauge railway lines; but this would depend upon support from allied governments in the region.

In any case, Moscow would have at its disposal VDV units as the 'first in', and since they are more lightly armed than the Ground Forces units these could be moved relatively quickly. This was done during the 1979 Soviet invasion of Afghanistan, with support elements from the host government. However, the Soviet Kabul assault force was supported by a ground invasion that moved to seize and

hold GLOCs to Kabul. If operations are initiated in Central Asia in the future use would be made of the 201st Military Base, HQ in Dushanbe, and the CSTO air-base at Kant, Kyrgyzstan. These would witness a build-up mostly of lightly armed formations, with the VDV assigned the leading role; in each case Moscow would depend upon the goodwill of the host nation and cooperation over transit issues from its Central Asian neighbours, but on an economic level Russia would bear the brunt of the financial costs of any such operations.[204]

In the background the General Staff would plan the details of how to assemble a battle group using battalion tactical groups staffed by mostly *kontraktniki* spear-heading military operations along with VDV and Spetsnaz units. Although these battalions would have additional fire support they would be assembled from what the peacetime Ground Forces' brigades could spare, and therefore would not constitute a brigade. Recent Russian military exercises also tested how quickly reservists can be mustered to form additional units; this implies that some type of reservist activation may fill out numbers.[205] It also signifies the much deeper manning crisis that persists in the Ground Forces brigades, rendering many of them problematic to deploy. However, given the level of training among these reservists, their use in combat would be rather limited.

'Mobilizing' reservists may be an indicator of involvement in an escalating crisis where numbers are needed to fill vacant posts or simply as a 'holding exercise', or it could be used as a stop-gap measure in troop rotation in the absence of enough *kontraktniki*. There is also the deeper problem of coordinating automated C2 systems, since the Ground Forces and VDV are experimenting with different versions of automated C2. If these systems cannot talk to each other then it is impossible to form a shared picture of the battlefield at tactical and operational levels, rendering any network-centric capabilities dead before operations commence.[206] Movement of such formations within Russia's borders and towards a conflict zone on the periphery would be tied to rail transport, and movement of heavy equipment is likely to occur within a time frame of 30–60 days.

At almost all levels from OSK to tactical echelons, commanders and supporting structures in the early stages of such operations will be compelled to make sense of the multiple changes within the system since 2008 and decide how to make the force grouping function properly.[207] Until 2015, when further changes to the brigades are scheduled to be completed, Russian military operations would be limited to short periods of armed conflict, avoiding operations that would risk an open-ended commitment.

Undermanning, high levels of conscript numbers, and insufficient progress in training and introducing a stronger and more effective NCO cadre, would all reduce the number of brigades and units within any given MD that may be selected as part of the overall force grouping. With undermanning of the Ground Forces brigades estimated at between 30 per cent and 50 per cent in some cases, it is highly probable that the pre-operational period will necessitate the move-

ment of personnel between units to increase the proportion of *kontraktniki* and raise combat readiness levels; the downside to this is that unit cohesion and unit élan are certain to be minimal.[208]

The political and economic factors at play during a crisis resulting in Russian military operations would further impact upon strategic mobility. Political cooperation on transit and movement and supply issues based on bilateral agreements with friendly states almost certainly require the creation of GLOCs. While this is possible on the southern or central strategic directions with basing support and cooperation from friendly host nations such as Kyrgyzstan or Tajikistan, it is entirely unclear how this might be secured on other axes. Moreover, if a crisis in Central Asia occurred it is almost impossible to envisage Russia acting militarily in the region without the consent of Uzbekistan. Securing the necessary political support within the region may be a costly exercise for the Kremlin; even Russia's closest allies would want assurances regarding the planned timescale and objectives of such operations.[209]

In the latter part of Serdiukov's ministerial career, Moscow signed basing extensions with both Tajikistan and Kyrgyzstan, and in the case of the latter announced plans to develop the runway at the Kant airbase in order to host heavy strategic bombers. Russian officials have failed to clarify the nature of a crisis in Central Asia that might precipitate the deployment of strategic bombers, though the improvements to the base infrastructure could certainly enhance the throughput capacity of Kant to help sustain Russian-led operations in the region.[210]

Russian military operations in the south using units from its Southern MD or Central MD would be heavily tied to using GLOCs, with only a limited role for SLOCs in the case of operations in the South Caucasus. The naval balance in the Caspian Sea favours Russia using SLOCs to support both Central Asia and the South Caucasus; the Black Sea Fleet and the Caspian Flotilla can support such operations in the South Caucasus, but the naval balance in the Black Sea could be shifted by the redeployment of the Turkish Navy and Ankara's invitation to other navies to enter the Black Sea. In its western strategic direction, although SLOCs would be more important in troop movement and in sustaining operations, against a high-technology adversary the Russian Navy lacks credible means to maintain these SLOCs. Here the issue would be the ability of Estonia and Finland with NATO support to close the Gulf of Finland by minefields. A blockade of Kaliningrad Oblast by NATO navies and Sweden is also within their capabilities, while the GLOC to Kaliningrad is vulnerable to disruption by Lithuanian forces. Equally with access to sea ports and some of its bases in the Russian Far East possible only at certain times of year, the leading role would fall on GLOCs.[211] Overexposed due to the lack of sufficient developed infrastructure in the Russian Far East, or facing a high-technology-armed adversary in a hypothetical conflict involving the Western MD, leaves the route to escalation very rapid, with Moscow placing high value on nuclear options to 'de-escalate' such a crisis.

It is also unclear whether the future of the VKO will influence or become an additional factor in strategic mobility. This will depend on the emerging Russian military view of space, and if there is any need to deploy into space to achieve operational objectives. The suspension of some aspects of VKO development since the appointment of Shoigu and reconsideration of some of the components in the VKO such as air defence units leave the possible role of the VKO less than clear.[212]

Russia requires the technology, the strategic purpose and diplomacy to make such strategic mobility possible; achieving the appropriate mix in response to a crisis situation will remain a high priority but it is unrealistic for the Kremlin to assume that this may be easy to achieve in unforeseen circumstances and secured quickly.[213]

Despite frequently boisterous political rhetoric, in many of the potential crises that might erupt on the country's periphery, Russia's leadership is likely to eschew unilateral action and to try to avoid strategic isolation at all costs. If any crisis leading to the use of military force is domestic in origin, strategic mobility remains limited. Equally, Moscow may be forced into making unpleasant choices if it were to face two or more crises simultaneously. Nuclear weapons, especially non-strategic, will remain the instrument to provide crisis stability in a situation where Russian conventional forces are weak and offer limited capabilities to fight modern network-centric warfare. There is no mobilization capacity for follow-on echelons, and only a limited combat capability for deployed forces in each theatre. Until Moscow can determine, plan, and implement policy to address the issues related to its conventional Armed Forces transformation and the reform of combat support elements, this will persist as a potential crisis for the Russian state. Russia's strategic mobility, in the interim, will remain more rooted in rhetoric than in reality.

5 Conclusion

A number of important conclusions may be drawn from this study of the intersections between Russia's Military Doctrine, threat environment, Armed Forces reform, military modernization and recent attempts to enhance strategic mobility. To date, both Russian and Western analyses of these complex processes underestimate the vital role played by combat service support in the deployment and sustainment of combat units in theatres of military operations. Yet, despite numerous issues that have plagued the troubled reform of the Armed Forces in 2008-12, Russian defence planners have increased their focus on reforming and improving combat service support.

A key finding of this report is that Russian military strategic mobility is so limited in its nature and scope that in a future escalating security crisis demanding military intervention the state will rely heavily upon nuclear first use, including tactical nuclear weapons, as its means to 'de-escalate' conflict. Any remedy for this reliance on nuclear first use to de-escalate conflict will be linked to the extent to which Russia's experiment with developing C4ISR capabilities succeeds or fails; and the lion's share of the burden in this project will be borne by an unreformed domestic defence industry.

Nevertheless, mirroring the turbulent and frequently poorly planned reform of the combat units in the conventional Armed Forces throughout this period, the same problems are manifest in the effort to streamline and ameliorate combat service support: the surge in corruption surrounding Oboronservis raised fresh doubts over the future role of civilian agencies cooperating with the MoD.

Operational-strategic military exercises since the formation of the Ground Forces' brigade-based structure in 2009 reveal that these brigades are slow to deploy, partly due to the presence of heavy organic equipment. The new concept of light, multi-role and heavy brigades in the Ground Forces will not be fully implemented until 2015 at the earliest. Staffing, equipping, training and maintaining these brigades will also prove to be significant factors in Moscow's attempts to strengthen its conventional force capabilities. Until these issues are resolved, and strategic mobility is truly improved, Russia will be reluctant to commit military forces to potentially protracted or complex operations.

Russian military strategic mobility is limited in scope to the use of military force within its borders and on its periphery rather than on a global scale. Equally, strategic mobility remains heavily tied to the railway infrastructure, and this is unlikely to change in the foreseeable future, rendering GLOCs and SLOCs the main arteries of supply during combat operations.

The broad similarity in style and substance between the reform of combat service support and the wider reform of the Armed Forces raises questions concerning the experimental basis of these processes; it is unlikely that both the existing

combat units and combat service support structures have reached their final form and thus further experiments can be expected.

Enhancing strategic mobility is further complicated by the changes to the MoD leadership in late 2012, and arguably the emergence of an appetite to correct measures implemented previously. Meanwhile, as in the case with Russia's conventional combat units, combat service support and efforts to improve strategic mobility face a protracted transition period. Strategic mobility will consequently depend upon resolving the issues around the final form of the combat brigades, the progress of military modernization and – until the numerous weaknesses highlighted in this report are redressed – this capacity to deploy and sustain forces in theatres of military operations will remain low.

Endnotes

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[34] Presentation by CGS Army-General Nikolai Makarov, Moscow, 17 November 2011; slides in the possession of the author.

[35] Ibid.

[36] Ibid.

[37] Moscow questions NATO's expansion and commitment to out-of-area operations on its own authority. NATO has for 20 years repeated that Russia has no veto on any

NATO action. Indeed, it has never recognized that any organization can veto Alliance action. That is exactly Russia's most contentious dispute with the Alliance.

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[54] Baranets, Viktor (2008) 'The Army Will Be Getting the Latest Weapons and Lodgings and Will Be Rid of Hazing: Dmitry Medvedev Has Formulated Five Principles of Development of the Armed Forces', *Komsomolskaia Pravda*, 1 October.

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Appendix 1

The Military Priorities to 2020 Outlined in Vladimir Putin's February 2012 Article on Defence

- Equip the Armed Forces with next-generation armaments, with better visibility, higher precision, and faster response than similar systems possessed by any potential adversary
- Comprehensive re-equipment of the military
- Nuclear forces
- Aerospace Defence Forces
- C4ISR
- Modern transport aviation
- Battlefield protection systems for soldiers
- Precision weapons, and the means to counteract them
- To guarantee against violations of the global balance of power and protect Russia's retaliatory potential by developing a capability to overcome any missile defence: the task of the Strategic Nuclear Forces and VKO units
- The next decade will see an increasing role for the Navy, Air Force and VKO to counter US and NATO efforts in the deployment of missile defence.
- Asymmetrical military response to the global US missile shield
- Revival of capabilities in the Arctic and the Pacific Oceans
- Russia will deploy:

  over 400 advanced ground- and sea-based ICBMs;

  eight nuclear-powered ballistic missile submarines;

  some 20 multi-purpose submarines;

  50-plus combat ships;

  around 100 military spacecraft;

  more than 600 advanced aircraft including fifth-generation fighters;

  more than 1,000 helicopters;

  28 regimental kits of the S-400 anti-aircraft missile system;

38 battalion kits of the Vityaz air defence system;

10 brigade kits of the Iskander-M ballistic missile system;

more than 2,300 modern tanks;

2,000 self-propelled artillery vehicles and guns; and

over 17,000 military motor vehicles.

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Appendix 2

The Defence Industry Priorities to 2020 Outlined in Vladimir Putin's February 2012 Article on Defence

- Develop military R&D
- Correct the lack of defence industry modernization for 30 years
- By 2020 regain the lead in producing modern military technologies
- Tasked to Russia's defence industry and scientific infrastructure
- Build up military-technological and scientific independence
- Buy from abroad
- Russia needs to purchase the best military and technical equipment in the world as a source of technology and knowledge
- Defence industry enterprises:

  mass production of advanced, high-quality weapons;

  strengthen and expand role in the global arms market
- *Key Priority*: gain technological and organizational edge over any potential adversary
- Establishing a single body responsible for the placing and oversight of defence contracts
- Increase integration and cooperation between companies
- Develop a common database of pricing for defence industry projects
- Promote competition
- Reinstate the entire industrial cycle from modeling and design to commercial production
- Breakthrough R&D projects, using teams of researchers
- Modern companies with young, enthusiastic employees
- Involve universities
- Resources invested in modernizing the defence industry must facilitate the modernization of the entire economy
- Civilian/military designs for mutual benefit (e.g. telecommunications)
- Partnership between state and private businesses
- Examine expenditures, costs and contracts for inefficiencies
- Combat corruption in the Armed Forces and defence industry
- Equate corruption in this sphere with high treason
- A need for open-source information for private investors
- Soviet-legacy enterprises need to be upgraded

- Manufacturing processes to be streamlined
- Quality management to be enhanced
- Enhance the prestige of the defence industry occupation
- Provide social guarantees or privileges to defence sector employees
- Education and on-the-job personnel training
- Offer work experience during college
- Utilize vocational schools.

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About the Author

Roger N. McDermott is an Affiliated Senior Analyst at the Danish Institute for International Studies, Copenhagen; Senior International Fellow at the Foreign Military Studies Office (FMSO), US Army, Fort Leavenworth; Advisory Scholar in Military Affairs at the Centre for Research on Canadian-Russian Relations (CRCR) at Georgian College, Ontario, Canada; and Senior Fellow in Eurasian Military Studies at the Jamestown Foundation, Washington, DC; and has served as a visiting Professor in the Department of International Relations, Kazakhstan National University, Almaty. He is co-editor with Bertil Nygren and Carolina Vendil Pallin of The Russian Armed Forces in Transition: Economic, Geopolitical and Institutional Uncertainties (London, Routledge, 2011).

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Russia's Strategic Mobility

Supporting 'Hard Power' to 2020?

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In turn this necessitates examination of Russia's threat environment, the preliminary outcome of the early reform efforts, and consideration of why the Russian political-military leadership is attaching importance to the issue of strategic mobility.

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