

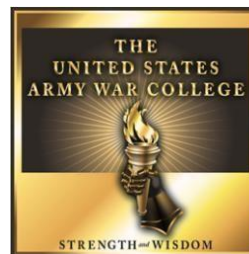
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The Russian Way of War: Implications for the U.S. Army

by

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Abstract

In Crimea, Donbass, Aleppo, and over the English Channel, Russia is using its still-modernizing military to (re)gain territory, secure geopolitical access and influence, convey geopolitical strength domestically and internationally, and test the political resolve of others. While the Russians pose a real military threat to the United States and many European countries, the U.S. Army should ensure it prepares against Russian – and not Soviet – forces. This paper builds on tactical and operational analyses of how Russians approach war against a competing power to outline strategic implications for the U.S. Army. The paper concludes that understanding how Russians approach war, while keeping Russian successes and problems in context, will allow U.S. leaders to pursue military and political policies that maintain respect for this resurgent Russian power without overestimating Russia's military capabilities.

The Russian Way of War: Implications for the U.S. Army

In Crimea, Donbass, Aleppo, and over the English Channel, Russia is using its still-modernizing military to (re)gain territory, secure geopolitical access and influence, convey geopolitical strength domestically and internationally, and test the political resolve of others. Many of these actions and objectives are counter to the interests of the United States or its allies. While national security experts rightly debate Russian motivations and ways to incentivize more responsible Russian behavior, the U.S. Army must scrutinize how competing powers like Russia operationally and tactically approach warfighting to be prepared for whatever strategic challenges await.

Russia's military has had battlefield successes in Ukraine using what many call the "New Generation Warfare"¹ or "Gerasimov's doctrine."² Using a variety of military and militarized (e.g., intelligence, cyber, local militias, etc.) national security tools, Russia seized a neighbor's terrain almost bloodlessly and then initiated a pro-Russian insurgency on foreign soil.³ Once "gray zone" tactics met resistance, conventional Armed Forces of the Russian Federation (hereafter, Armed Forces) engaged using advanced, lethal technology and a more agile force structure. Many question if Russia's current practices are new,⁴ if General of the Army and Chief of the General Staff, Valery Gerasimov, was describing Russia's military doctrine,⁵ or if the Russian military has been merely reviving its conventional military in line with its "historical significance of military strength."⁶ And yet, Russia has proven proficient at using massed artillery, layered sensors, electronic warfare, offensive cyber operations, and sniper units to achieve its objectives.⁷ However, as capable as Russia's conventional and spetsnaz forces⁸ have been in Ukraine, the U.S. Army cannot also presume the Russian military would fight in the same manner against a technologically-advanced state.⁹

To be able to deter, and defeat if needed, the Russian military, the U.S. Army must understand how Russians approach warfare – including how they man, train, equip, and organize their military – in addition to the Armed Forces’ ongoing combat operations. Recent publications provide excellent tactical and operational analyses of the Russian military, including the Foreign Military Studies Office’s (FMSO) 2017 report on *The Russian Way of War: Force Structure, Tactics, and Modernization of the Russian Ground Forces* (hereafter, RWW).¹⁰ In particular, RWW identifies important details on the Armed Forces’ composition, structure, way of fighting, and modernization plans, stemming in part from Russia’s real and perceived threats. The RWW also describes major reforms Russia began two months after it invaded Georgia in 2008.¹¹

By any standard, the “New Look” reforms have been extensive and impressive. Expecting \$700 billion in funding by 2020,¹² the Armed Forces have rapidly advanced their conventional and nuclear capabilities, significantly enhancing their equipment’s lethality, survivability, navigation, steering, communications, and comfort.¹³ Their more agile and streamlined force structure facilitates combat readiness, rapid deployments, and sustainment.¹⁴ An intensified “snap inspections” and training regimen has notably improved readiness.¹⁵ These reforms also enabled Russia to reduce its bloated officer corps, eliminate skeletal units, and consolidate organizations in ways harder for its military officers to oppose.¹⁶ In preparing for future warfare, the U.S. Army should also consider closely the challenges and opportunities resulting from these reforms.

This paper analyzes the strategic implications of Russia’s way of war and its recent military reforms within three sections. First, the paper builds on tactical and operational analyses of how the Armed Forces approach war against a competing

power to outline seven strategic insights and their implications for the U.S. Army. Second, the paper presents key alternative implications for the U.S. Army from the literature. It concludes with five thematic recommendations the U.S. Army should consider for future military challenges posed by a competing power such as Russia. This paper aims to advance U.S. Army thinking, deliberately leaving to others the political implications of these issues, predictions of where and for what the U.S./NATO might face the Russian military, or appropriate U.S. joint force or NATO responses.

Strategic Insights and their Implications

This section identifies seven strategic insights of the Russian way of war and their implications for the U.S. Army, building on the RWW's and others' tactical and operational analyses. After each insight, the paper explains the implications and identifies specific recommendations. The paper's final section will address what should be done more holistically about these issues.

Russia Can and Will Prosecute a Different Type of Warfare than the United States

Russia is willing and able to prosecute a different type of warfare than the United States. This difference stems largely from an overriding focus on destroying the enemy, with fewer political, societal, and legal constraints. Russian artillery – its “God of War,” akin to the U.S. “King of Battle” – illustrates Russia’s long-standing way of warfare that diverges from the West.¹⁷ Organizationally, Russian ground forces are “an artillery army with a lot of tanks.”¹⁸ Despite having precision technology, the Armed Forces generally prefer massed, non-precision-guided munitions, even in urban terrain, due to a reported 80-to-1 munitions cost differential, mathematical probability of destruction, projected terrain problems for artillery spotters, and expected munition survivability in an electronic warfare environment.¹⁹ They use artillery to clear city blocks from several

kilometers away,²⁰ and their thermobaric munitions can create shockwaves resembling nuclear explosions.²¹ An artillery targeting error in combat would also likely be accepted as “an accident due to the ‘fog of war.’”²²

This different way of warfare extends far beyond artillery. For instance, Russian doctrine expects victory or decisive defeat to be any battle’s probable outcome, while stability operations are noticeably absent.²³ Anti-personnel and anti-vehicle land mines remain critical to Russian offensive and defensive operations.²⁴ Russian mechanized flamethrowers are an increasingly important part of their tactical formations, used in busting bunkers, clearing light infantry, and in combined arms operations in urban or mountainous terrain.²⁵ The Armed Forces generally have looser rules of engagements than Western forces and lack a “zero defects” mentality. Russians tolerate structural corruption and tend “to interpret morally right as legally right, ... [since] In the Russian view, it is far better to have an army with the best and brightest, albeit ethically challenged, than an army of the ethical, but less capable.”²⁶ The Armed Forces also expect most service members to specialize tactically in their branch or functional area, rather than requiring joint or broadening experiences. This specialization promotes tactical excellence and leaves to others force development, doctrine, whole-of-government strategy, “winning hearts and minds,” and stability operations tasks.²⁷

The implications of a distinct Russian way of warfare are important for two key reasons. First, just as coalition members operate with national caveats, the United States should expect adversaries to employ capabilities consistent with their training, legal authorities, and societal norms. As Clausewitz noted, overcoming an enemy requires matching his capabilities and will.²⁸ It is important to be aware that Russian and

American military capabilities, ways of employing their militaries, and national wills differ substantially. Mirror-imaging one's way of warfare onto others can create inefficiencies, promote a false sense of security, and/or prompt avoidable, aggressive responses. To minimize the chance of mirror-imaging how others wage war, a charge of which some argue the United States is already guilty,²⁹ the U.S. Army should take deliberate steps to incorporate Russian (and other potential competitors') "ways of warfare" insights within its analyses, options, and plans, including through rigorous red teaming efforts.

Second, there are ways that potential competitors, to include Russia, could employ military power that would be incompatible with U.S. values, public opinion, and historic way of war. Russia's Armed Forces are allowed and able to prosecute wars in ways and places the U.S. public would (thankfully) not endorse. For instance, the Armed Forces will fight ruthlessly, even in urban warfare, where their tactics lead to high levels of civilian casualties. If in their interest, Russia may be capable of seizing, defending, or controlling dense urban areas using tactics abhorrent to the West. If the U.S. Army underestimates Russian callousness, U.S. military plans could inadvertently place local civilians at increased risk. Civilian leaders could also require the U.S. Army to alter mid-conflict its objectives or tempo in ways unrelated to U.S. military objectives in order to stop Russian attacks against civilians.³⁰ This strategic insight does not eliminate the Army's need to plan for and remain prepared to complete any mission tasked. However, to help political leaders make informed choices, the U.S. Army should incorporate U.S., allies', and adversaries' ways of warfare within planning, wargaming, and other analyses of potential missions in megacities, dense urban areas, or other

extreme security environments to be able to convey clearly the costs, benefits, and risks in quantifiable and “expected pain”³¹ levels of various options.

Russia Operates from a Position of Domestic and Regional Instability

The second strategic insight is that Russia operates from a position of domestic and regional instability. Domestically, Russian governance and security challenges are well documented, stemming in part from its geography, economics, demographics, and multiethnic population. For instance, Russians must secure territory in eleven time zones with harsh climates, diverse terrain,³² borders without natural barriers,³³ less-developed rural road systems, and twice the U.S. coastline.³⁴ Russia’s economic struggles emanate from sanctions and lower oil and gas prices – as well as financial overstretch, chronic mismanagement, decreased Russian consumer spending, and widespread corruption.³⁵ The ethnically Russian population is dispersed and aging.³⁶ Russia also remains ethnically and religiously diverse, as was the Soviet Union. However, some minorities are increasingly restless, especially in the Northern Caucasus,³⁷ sparking concerns from a growing Muslim population and fighters returning to Russia after fighting in Iraq and Syria.³⁸

Russia also operates from a position of intensifying regional instability. In addition to a long history of invasions,³⁹ current threats now require Russia “to defend in 360°.”⁴⁰ The North Atlantic Treaty Organization (NATO) has steadily extended eastward after the USSR collapsed.⁴¹ Moscow viewed Western energy deals in the Caspian Sea region in the 2000s “as an assault on a traditional sphere of influence.”⁴² Russia believes the United States engineered the Color Revolutions and other unrest along Russia’s periphery.⁴³ Russia also perceives threats along the Black Sea, Pacific Coast, and Arctic; across the Southern Caucasus and Central Asia⁴⁴; and with an increasingly

influential China.⁴⁵ Since the Cold War, the Armed Forces have also been in conflict within Russia (Chechnya, twice) and in five neighboring states: Abkhazia and South Ossetia, Georgia; Transdnistria, Moldova; Nagorno-Karabakh, Armenia and Azerbaijan; and Crimea and Donbass, Ukraine. In consequence, Russia arrays its forces across its vast landmass⁴⁶ and has military bases and testing facilities in Georgia, Armenia, Tajikistan, Moldova, Belarus, Kyrgyzstan, and Kazakhstan (see Figure 1).⁴⁷

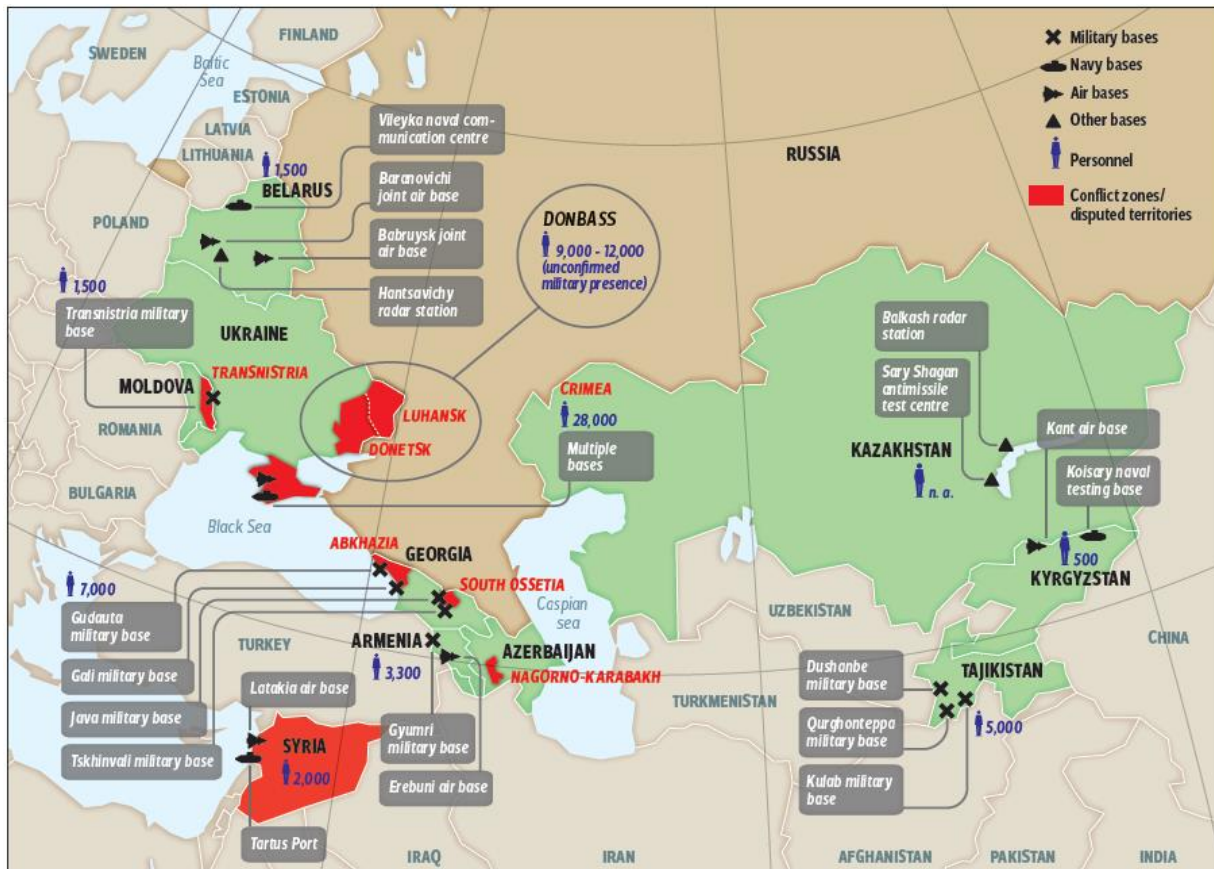


Figure 1. The Armed Forces of the Russian Federation Stationing in 2016⁴⁸

In addition to specific challenges, Russia and the United States have different policy ends: Russia wants a secure regional sphere of influence and global great power status, while the United States wants to maintain the existing international order and support all interested countries – including former Soviet republics and satellites – in becoming liberal capitalist democracies integrated within the global economy.⁴⁹ As a

result, and despite a dramatic military overmatch with most neighbors, Russia views its neighbors “less as potential friends than as potential beachheads for enemies.”⁵⁰

Russian leaders are also desensitizing their people to military conflict to increase the society’s willingness to wage future wars.⁵¹ As Russia’s economy began slowing in 2013,⁵² “the Kremlin has sought to make military glory the new centerpiece of Russian pride and identity.”⁵³ Russia’s information operations are extensive, effective, and well-honed,⁵⁴ even as Russia intensifies media control and declares dissenters to be foreign operatives.⁵⁵ A 2016 Swedish Defense Research Agency (FOI) study also found that a majority of Russian respondents “indicated that ‘small wars’ or military operations such as those in Ukraine and Syria are considered justified, defensive, victorious, and preventive, undertaken to avoid a ‘great war’ and ‘because the besieged fortress must be defended.’”⁵⁶

Together, these factors shape the Armed Forces’ capabilities, doctrine, treaties, and willingness to initiate conflict.⁵⁷ For instance, Russia (like the USSR) has an all-mechanized force,⁵⁸ which practices regularly to deploy long distances within Russia to counter threats.⁵⁹ Russia has continued stockpiling and training with anti-personnel and anti-tank mines, with no projected plans to sign the Ottawa Convention.⁶⁰ Russia’s recent military successes have also raised nationalistic pride that eroded dramatically post-USSR. While its recent interventions have proven costlier in time, money, and lives than expected, in the future Russia may threaten or undertake military aggression to pursue what some have dubbed “public relations-wars”: using its military to rally domestic support, strategically shock the West, and signal strength to Russia’s neighbors without accepting major risk.⁶¹

The U.S. Army serves a pivotal role in assuring allies and deterring further Russian aggression within a broader framework of U.S., multinational, and alliance responses. The European Reassurance Initiatives will help the U.S. Army prepare for and support NATO allies' militaries in defending against cyber and conventional attacks. However, the U.S. Army should use strategic patience and great care when engaging with non-NATO former Soviet republics.⁶² Outreach to these partners may be wise if done in a way that deliberately strengthens U.S./NATO's position. However, the U.S. Army – acting in line with U.S. policy – must expect Russians to assume U.S. ulterior motives, which may also evoke strong Russian responses.⁶³

Russia's Military Believes Nuclear War Could Be a Reality

Russia's "escalate to deescalate" nuclear doctrine is often-cited and its implications remain actively debated.⁶⁴ However, as the RWW makes clear, nuclear warfare is a foundation of Russian offense *and defense* doctrines. The Armed Forces' defense tactics include the ability to "withstand the effects of [tactical] nuclear weapons" and repel precision strikes from multiple domains.⁶⁵ Many combat vehicles are designed to survive in nuclear, biological, and chemical (NBC) environments,⁶⁶ and Russia retains detachments designed to destroy high-end threats, including tactical nuclear systems.⁶⁷ The Armed Forces simulate tactical nuclear explosions⁶⁸ in wargames and exercises,⁶⁹ and their past five annual military exercises included large-scale "interstate wars, with a possible use of nuclear weapons."⁷⁰ For the past three years, and reminiscent of the Cold War era, Russia also "conducted an unprecedented number of exercises and surprise inspections involving strategic and non-strategic nuclear forces."⁷¹

The implications of the Armed Forces' nuclear expectations are open to interpretation yet clearly significant. Before 9/11, the U.S. Army regularly trained on

NBC challenges; Russian training today may reflect a similar focus on this high impact threat. Russians must also prepare for non-NATO (i.e., state or non-state) threats. However, military preparation for nuclear warfare could reflect Russia's policy option seriousness. These preparations could also improve Russian political leaders' confidence in ordering nuclear strikes. Due to its catastrophic consequences and given Russian preparation for nuclear warfare, the U.S. Army should not by-design or by-default plan to conduct "on-the-job-training" once in a nuclear environment. Instead, the U.S. Army should reenergize a portion of its training within a contaminated environment, especially nuclear. Proliferation makes future nuclear battlefield employment increasingly possible, and the U.S. Army must remain confident operating against any actors willing and able to use these capabilities.

Russia's "Military" Does Not Equal the "U.S. Military"; However, Russia's Perspective of the "U.S. Military" Does Not Equal the U.S. Perspective of the "U.S. Military"

When comparing the Russian and U.S. military capabilities, one must understand that Russia (and the USSR previously) uses the term "military" in a much broader way than the West.⁷² The U.S. military includes only those personnel and capabilities in the Department of Defense (DoD; e.g., Army, Navy, Air Force, Marine Corps) and Coast Guard.⁷³ In contrast, Russians define "military power" as the *country's* overall strength, including intelligence and internal security, while the Armed Forces comprise "fighting power."⁷⁴ Russian military forces focused on external threats are generally in the Ministry of Defense (MoD), while internally-oriented military forces are in the Ministry of Interior (MVD) and Federal Security Services (FSB, formerly the Committee for State Security or KGB), and their subordinate Border Troops.⁷⁵ The new Russian National Guard consolidates some internally-focused, active duty military forces, rather than

following a U.S. model of citizen soldiers with state and federal responsibilities.⁷⁶

Specialized spetsnaz units are also within MoD and other security services,⁷⁷ although Russians use elite MoD conventional forces to conduct U.S. Special Operations-like missions, including serving as “little green men” (or “polite men,” in Russian terms).⁷⁸

While the Russian term “military” is more inclusive, their Armed Forces have a much narrower – and more traditional – mission than their Western counterparts. As discussed in the first insight, the Armed Forces concentrate on destroying their enemy with all available means, whether in the defense or offense.⁷⁹ Like their Soviet predecessors, most officers and all enlisted are highly specialized and tactically-focused for their careers.⁸⁰ Russian commanders study, train for, and apply combat power (“getting steel on target”), allowing the General Staff, MoD, and other ministry officials to apply or integrate other tools of national power.⁸¹

Importantly, though, Russians believe that U.S. warfare includes far more than the U.S. military. General Gerasimov described *Western* “hybrid warfare” as the “‘indirect and asymmetric methods,’ to include color revolutions, the Arab Spring, and non-governmental organizations allegedly used against Russia and its allies.”⁸² Fyodor Lukyanov also argued that Russia’s interpretation of war now follows the U.S. model, including unmanned aerial vehicles, cyberspace operations, and sanctions.⁸³

There are three important implications of this different “military” definition. First, the U.S. Army cannot expect adversaries to be constrained by blurry boundaries among national security tools (e.g., diplomatic, information, military, economic), including public or private entities’ actions. Second, as a 2016 RAND report argued, the U.S. military should scrutinize how best to provide for “the common defense” in cyberspace, as

rapidly-evolving cyber capabilities defy traditional military threats (e.g., they are not geographically bounded, easily attributable, and promulgated by military experts).⁸⁴ Third, as Robert Jervis argued forty years ago,⁸⁵ states frequently misperceive states' intentions. Forward-stationed units and multi-national training will likely help assure allies. However, without deliberate outreach, these actions could be received (or portrayed) by adversaries as encircling and threatening.⁸⁶

To address effectively this differing view of "military," U.S. Army leaders should assume Russians will interpret their actions and words within a broader national security (rather than solely military) context. The U.S. Army should expect Russia to use non-traditional military tools to advance its national security, while also expecting Russia to believe that the United States is directing actions of NATO and European governments.⁸⁷ Leaders must anticipate that Russia's vast state media enterprise and intelligence services will purposefully and skillfully distort the U.S. Army's intended messages and be fully integrated into its military plans. The U.S. Army should also consistently use red teaming and wargaming to plan how to use existing and potential capabilities, processes, and authorities to exploit Russian weaknesses and counter and mitigate its narratives.

Russia's Post-2008 Military Modernization is Real, but it was Undertaken and Appears More Dramatic for a Host of Reasons

The fifth strategic insight is that Russia's post-2008 military modernization has made a remarkable difference in Russia's military might, yet it was undertaken and appears even more dramatic than it actually is for a host of political, economic, and military reasons.⁸⁸ Politically, the Russian leadership is committed to the reforms' success, as evidenced by the assignment of Russia's Deputy Prime Minister to oversee

the Russian defense industry and Russia's version of the Defense Advanced Research Projects Agency.⁸⁹ Economically, Russia's gross domestic product rose almost ten-fold from 1999 to 2008, from \$195.9 billion to \$1.66 trillion,⁹⁰ largely aligned with oil prices. This growth enabled a 31% increase in Russia's defense spending from 2008-2013.⁹¹ Militarily, Russian leaders had internal and external motivations to demonstrate a military reinvigorated from "the once powerful Russian military [that] struggled to defeat 'a band of irregulars fighting with little more than the weapons on their backs'"⁹² in Chechnya. The Armed Forces' underwhelming (albeit successful) actions in Georgia also provided Russian political leaders with motivation and popular support to override reform concerns of influential military officers, who had helped block previously-proposed defense reform efforts.⁹³

While these modernization programs are significant and noteworthy, the changes appear even more dramatic for three reasons. First, despite several reform attempts, the Russians spent minimally on defense and completed no successful post-Cold War modernization program until 2008. Due to Russia's "long neglect" of its military's modernization, some argue "the revival of Russia's conventional military was just a matter of time."⁹⁴ Second, the U.S. and Soviet Cold War nuclear capabilities developed on different cycles, with the Russians now modernizing nuclear capabilities the United States will need (and expects) to replace in the mid-2020s.⁹⁵ Third, most considered the Russian threat to be a Cold War relic until Russia seized Crimea and began fighting in eastern Ukraine in 2014. As a result, Russia progressed significantly for six years before most realized these changes mattered.

There are distinct military implications of these insights. The U.S. Army once again has a land-based, competing power threat. These conventional capabilities provide Russia military tools – in addition to its nuclear weapons – to pursue its vital national security interests without catastrophic effects.⁹⁶ While the 21st century Russians are not the U.S. Army's Cold War enemy, the U.S. Army should reinvigorate planning, doctrine, equipping, training, education, and wargaming efforts to ensure the U.S. Army remains ready and able to defeat this capable Russian opponent in the European theater of operations. For instance, the Armed Forces' advanced artillery, air and missile defense, and electronic warfare capabilities will require developing similar or leap-ahead U.S. counter-measures, while in the near-term, the U.S. Army should train to operate with low (or no) electronic signatures.⁹⁷

However, the U.S. Army should ensure it prepares against Russian – and not Soviet – forces. Russian force structure, personnel policies,⁹⁸ and training are no longer designed for extended, high-intensity warfare or large-scale power projection deployments.⁹⁹ Its logistics systems and large conscription force remain key military liabilities.¹⁰⁰ Russia's military budget also remains one-tenth of the U.S. military budget.¹⁰¹ Just as U.S. and NATO leaders should not presume these reforms indicate the start of a new Cold War nor Russian interests in directly confronting a militarily-superior NATO,¹⁰² the U.S. Army can help its civilian leaders carefully develop proactive and reactive responses to Russia's long-overdue military modernization efforts.

Russia's Military Has Learned from the United States' and Its Own Combat Experiences

The sixth strategic insight of the Russian way of war is how many military lessons the Russians have observed *and experienced* post-USSR. Russians and Chinese have studied closely U.S. operations and technology used in the 1990-1991 Gulf War,

Kosovo, and post-9/11 counterterrorism and counterinsurgency (COIN) operations.¹⁰³ For instance, since “Russia believes that the U.S./NATO will maintain air superiority,” Russia’s missile, electronic warfare, and air defense capabilities were designed to mitigate and counter these U.S./NATO advantages.¹⁰⁴

In addition, the Russians have learned many lessons from their own combat. For instance, battles in Chechnya reinforced Russia’s need for more professional, “contract” soldiers.¹⁰⁵ Lessons from Grozny (1994) also prompted the Russians to develop an urban-capable direct fire vehicle, called “Terminator 2,” which “can reportedly clear the enemy from a city block at a distance of 3km.”¹⁰⁶ While strategically successful against Georgia in 2008, Russia’s military losses inspired development of the “next generation of electronic intelligence and jamming systems” that Russia believes will be needed against most future adversaries.¹⁰⁷ The Armed Forces also exhibit qualities from their deeply impactful “Great Patriotic War” (World War II) experiences, including embracing flamethrowers (as Nazis used against them) or preparing seriously for Arctic operations (as did Finnish forces, allowing the Finns to repulse for some time the Soviet attack).¹⁰⁸

There are three strategic implications of these Russian lessons learned. First, the Russians also have battle-hardened service members, who have continued to learn and adapt within combat. Second, however, Russia’s combat operations have also been against “lower-end” (albeit lethal) opponents, rather than competing powers. While the Armed Forces do regularly train against high-end threats, they similarly lack experience against a technologically-advanced adversary.¹⁰⁹ Third, and reinforcing previous insights, their Armed Forces must prepare for full-spectrum operations due to myriad domestic and regional threats.¹¹⁰

Based on these insights, the U.S. Army should study Russia's repeated post-Cold War (including ongoing) military interventions to better understand how the Armed Forces fight adversaries employing largely-asymmetric tactics. However, U.S. Army leaders must also remember that Russia is a thinking and adapting adversary that will fight differently against a competing power. Building on knowledge of the Russian way of war, the U.S. Army should continue preparing holistically to be able to conduct combined arms maneuver and wide area security against competing powers like Russia. Intensifying and focusing training on this threat will help. Critically, though, U.S. Army leaders must develop the leadership skills and critical thinking tools through rigorous education to anticipate how Russia may adapt for the next conflict. The U.S. Army should also assign top quality officers earlier and more often within the institutional Army to better leverage their experiences and develop more future senior leaders with this expertise.

Russia's State-Directed Military-Industrial Complex Has Nonreplicable Advantages

The final strategic insight of the Russian way of war is that Russia's state-directed military-industrial complex has distinct advantages that U.S. and European industries cannot replicate.¹¹¹ Russian public-private collusion is not unique, yet Russia's research and development abilities remain cutting-edge and focused on leap-ahead technologies.¹¹² This centralization also allows Russia to direct production and impose standards across Russian manufacturers, including developing one turret for multiple chassis. This design minimizes production, operations, and maintenance costs and simplifies future upgrades and equipment repurposing. These cost-conscious and "plug-and-play" capabilities will likely benefit Russia and its future export customers.¹¹³

The implications of Russian defense sector control could be significant for U.S. security cooperation efforts and U.S. defense industries. For the United States, in addition to U.S. companies earning significant profits, foreign military sales (FMS) is also a “fundamental tool of U.S. foreign policy” reinforcing national relationships, defense engagements, and equipment interoperability.¹¹⁴ However, as countries seek lower defense expenditures, U.S. partners may find Russian equipment and a less-arduous FMS process too-appealing to ignore. Other countries may also purchase advanced Russian technologies that place real constraints on U.S. military options. The 2017 National Defense Authorization Act took important steps to better align the U.S. security cooperation process.¹¹⁵ The U.S. Army should build on this initiative, working closely with the Office of the Secretary of Defense, Joint Staff, and combatant commanders to press for meaningful FMS process reforms based on the strategic and operational imperative. The U.S. Army should also continue working with these DoD officials and international partners to identify partners’ military interests and needs, and then propose additional ways to train and engage with partners to convey U.S. commitment, mitigate FMS procedural problems, and help partners improve their military abilities and interoperability with the United States and regional partners.

Alternative Arguments

Especially since Russia annexed Crimea in February 2014, scores have analyzed Russia’s military actions and implications for U.S. and NATO forces. This paper identified seven strategic insights and implications primarily for the U.S. Army. Cumulatively, these recommendations aim to deter an evolving yet rational competing power.¹¹⁶ However, not all agree Russia is evolving, deterrable, or a worth-deterring threat. This section will address each counterargument in turn.

First, many argue Russia is pursuing a “New Generation Warfare” (NGW) or new “hybrid warfare.” Most clearly argued by Dr. Phillip Karber, NGW is described as a “concerted effort to conduct warfare in a new way” by combining five elements of “low-end, hidden state involvement with high-end, direct, even braggadocio superpower involvement.”¹¹⁷ Most credit General Gerasimov for developing this “new” hybrid doctrine, in which “little green men,” information operations, and cyber operations combine with enough conventional power to achieve political effects without triggering a NATO response. However, as the RWW and others note, General Gerasimov was describing multifaceted warfare *targeting* Russia and its allies.¹¹⁸ Russians also primarily use “new generation warfare” in military publications to describe their new equipment.¹¹⁹ In consequence, it seems reasonable to study Soviet and long-standing Russian practices to help contextualize how Russia may fight a competing power in the future.

Second, others emphasize a resurgent and revanchist Russia, threatening imminently the Baltics and NATO’s and Europe’s resolve. For instance, a 2016 U.S. Army War College report outlines ways Russia could undermine NATO, and then uses insights from a senior Lithuanian general to press for urgent NATO action in the Baltics: “There is a race for the Baltics, the side which comes first with substantial forces will prevail. To prevent conflict, there must be strength and resolve.’ If NATO acts with determination, war can be averted and peace preserved. However, the window of opportunity for the Allies is closing.”¹²⁰ While few predict a direct Russia-NATO conflict, many do expect Russia will continue using military force to pursue more modest political objectives.¹²¹ As the EU Institute for Security Studies (EUISS) argued, Russia has developed an “infatuation with military power as a quick fix to its foreign or domestic

problems...that is tactically confrontational, although not strategically bent on destroying the West.”¹²² The EUISS also argued Russia used its Armed Forces to prevent former republics from entering the “European Neighborhood,” as more rule-oriented, transparent EU-compliant economic systems would make Russian elites incapable of maintaining their current business advantages.¹²³ Regardless of Russia’s intentions, this paper identifies ways to reduce military weakness that could also strengthen NATO’s political calculation.

Third, many argue Russia is declining and the United States must focus on its real threat, China. In the longer term, they may be correct. However, while Russia retains a massive nuclear arsenal, advanced conventional and unconventional military capabilities, and nationalistic identity, one should expect the Russian military to be used to counter real and perceived threats.¹²⁴ In fact, some believe Russia’s struggling economy makes military operations and a permanent war footing more likely.¹²⁵ To be able to provide U.S. political leaders diverse response options against the Russian military, the U.S. Army has significant work to complete.

Recommendations for the U.S. Army With Respect to Competing Powers

In addition to recommendations presented with each strategic insight, this section addresses briefly five additional recommendation themes for the U.S. Army to be better prepared to counter militarily competing powers. These can be grouped by headings: increase forward stationing; incorporate human geography; plan for politically-sensitive operations (e.g., urban combat, use of nuclear weapons); prepare to fight in technologically-degraded environments; and develop adaptability at all echelons.

To present adversaries with multiple dilemmas, as denoted in the Army’s Operating Concept,¹²⁶ the U.S. Army should continue pressing to (re)establish more

permanent forward presence, especially in allied countries. As discussed in TRADOC's draft multi-domain fires publication, the U.S. Army's ability to establish a hardened presence within an adversary's anti-access/area-denial (A2/AD) "bubble" provides unique advantages for the joint force. The U.S. Army should also increase military-to-military partnerships and targeted building partnership capacity efforts via the Strategic Partnership Programs, including with NATO allies and countries across Central Asia.¹²⁷ That said, forward presence and partner engagements should be recognized for the political tools they are, and the United States must use discriminately these powerful signaling tools with respect to non-allied partners.

The U.S. Army should update its concepts and doctrine to better account for human geography, which makes significant political and military differences for both (or all) sides when securing populations. The U.S. Army will need to operate – “win in a complex world” – differently against a competing power if fighting among hostile people, those with contested loyalties, or supportive societies (i.e., do the people want to be “liberated,” or is the U.S. Army reinforcing a U.S.-aligned, locally disliked government). This distinction is also not limited to warfare with a competing power, having important planning and operational implications for offense, defense, stability, and COIN operations. The U.S. Army must be prepared to operate globally in environments of strained governance and strong propaganda. If an adversary is welcomed by most local people, the U.S. Army may be wrongly assuming that “Future enemies will act to remain indistinguishable from protected populations and infrastructure,”¹²⁸ such as how Russians were received in Crimea (but not eastern Ukraine) and Hezbollah and Hamas have gained legitimacy in their environments.

The U.S. Army should also plan deliberately for politically-sensitive military operations. The U.S. Army should conduct the planning and analysis to be able to articulate precisely to U.S. defense and political leaders the military risks of urban warfare. Adversaries may be willing and able to prosecute warfare in urban populations or megacities in ways and for durations that the American people would not likely accept. Policy makers must be given options that fully articulate the risks and likelihood for success. The U.S. Army and DoD should also (re)energize its planning, wargaming, and analysis for nuclear operations, and wargames should continue post-nuclear explosion.¹²⁹ As the Armed Forces expect to conduct offensive and defensive operations after a nuclear strike, the U.S. Army should also reinvigorate training within a nuclear environment to ensure leaders and Soldiers are confident operating in contaminated areas.¹³⁰

The U.S. Army should also prepare to fight competitors who can attack and degrade U.S. technological advantages. Whether fighting against the Russians or those using their equipment or tactics,¹³¹ the U.S. Army should be prepared to operate without global positioning system capabilities and air support; to survive a high volume of artillery, including munitions with or replicating weapons of mass destruction; and to fight an adaptive and mobile enemy bent on destroying its adversary. The combat training centers' opposing forces should in part employ Russian tactics and military decision making process, both of which are well advanced and highly structured at the tactical level.¹³² To be ready for future A2/AD environments, U.S. ground forces should continue analyses, planning, and wargaming on employing and defending against multi-domain fires. The U.S. Army can make important warfighting contributions to the joint

force using multi-domain fires, including creating windows of air defense suppression, countering a rapidly-moving enemy employing massed artillery, and closing with and destroying large combined arms formations supporting or supported by unconventional forces.¹³³

Finally, the U.S. Army should develop adaptability at all echelons. Professional military education (PME) should incentivize leaders at all levels to challenge the status quo, think critically, and better understand competing powers and other adversaries. Whether learned in formal PME institutions or through online platforms, Sun Tzu's adage about knowing the enemy and oneself remains worthwhile.¹³⁴ Scholars and researchers with language and cultural experience – such as those at FMSO – likewise remain critical resources for the U.S. Army, and leaders should continue leveraging their expertise for critical challenges ahead.

Conclusion

In closing, the implications of the Russian military reforms are real, and DoD is rightfully taking this challenge seriously. For instance, the Third Offset Strategy smartly aims to develop leap-ahead capabilities, operational concepts, and “human-machine collaboration” to deter Russia (and China) from initiating great power wars.¹³⁵ The DoD remains publically committed to modernize its nuclear capabilities within the next decade, as originally scheduled. In addition to re-emphasizing decisive operations training, the U.S. Army and Marine Corps are also actively developing new concepts – from which other doctrine, organizational, training and education, materiel, leadership, personnel, and facilities changes will follow – to counter a Russian high-end threat.¹³⁶

While the Russian military has advanced dramatically since 2008, the U.S. Army should not overreact to this military threat. Russia's force structure, logistics, personnel,

industry, and mobilization systems are no longer designed to support extended, large-scale warfare. Since 2013, Russia's economic growth has slowed substantially due to oil prices, sanctions, and a host of internal problems (e.g., corruption, mismanagement, etc.).¹³⁷ While Russia has cut other programs instead of its military spending,¹³⁸ Russia cannot modernize its entire force given its strained current (and expected future) economics and other operational activities.¹³⁹ However, if willing to incur dramatic economic and reputational costs, Russian leaders could aggressively pursue actions against the United States and NATO. To help deter a worst case event, the U.S. Army must be prepared for whatever challenges await. And yet, understanding how Russians approach war, while keeping their successes and problems in context, will enable U.S. leaders to pursue political and military objectives that appropriately maintain respect for this resurgent Russian power without overestimating Russia's military capabilities.

Endnotes

¹ See for instance Phillip Karber and LTC Joshua Thibeault, "Russia's New-Generation Warfare," *Army Magazine*, May 13, 2016, <https://www.ausa.org/articles/russia%E2%80%99s-new-generation-warfare> (accessed February 4, 2017).

² Most who discuss "Gerasimov's doctrine" are referring to a translated article by General of the Army Valery Gerasimov, Chief of the General Staff of the Russian Federation Armed Forces. Valery Gerasimov, "The Value of Science Is in the Foresight: New Challenges Demand Rethinking the Forms and Methods of Carrying Out Combat Operations," *Military Review*, January/February 2016, 23-29, http://usacac.army.mil/CAC2/MilitaryReview/Archives/English/MilitaryReview_20160228_art008.pdf (accessed February 5, 2017).

³ U.S. Army Asymmetric Warfare Group, *Russian New Generation Warfare Handbook*, v. 1 (Washington, DC: U.S. Department of the Army, December 2016), iii.

⁴ Main arguments of Lester W. Grau and Charles K. Bartles, *The Russian Way of War [RWW]: Force Structure, Tactics, and Modernization of the Russian Ground Forces* (Fort Leavenworth, KS: Foreign Military Studies Office, Draft 2016); Nicu Popescu, *Hybrid Tactics: Neither New nor Only Russia*, Alerts, no. 4 (Paris, FR: European Union Institute for Security Studies, January 2015), http://www.iss.europa.eu/uploads/media/Alert_4_hybrid_warfare.pdf (accessed February 5, 2016). Olga Oliker also argues about the 2014 Russian Military Doctrine

that “Little here is new, but nothing here suggests an opening for compromise. Rather, the Kremlin wants the world to know that Russia is settling in for a long siege, preparing to rally its resources and determined not to back down.” Olga Oliker, “Russia’s New Military Doctrine: Same as the Old Doctrine, Mostly,” *The RAND Blog*, blog entry posted January 15, 2015, <http://www.rand.org/blog/2015/01/russias-new-military-doctrine-same-as-the-old-doctrine.html> (accessed February 26, 2016).

⁵ A central argument of Roger N. McDermott, “Does Russia Have a Gerasimov Doctrine?” *Parameters* 46, no. 1 (Spring 2016): 97-105. This argument is also made by Grau and Bartles, *Russian Way of War*, 9-11; and a conversation the author had with a Russian defense analyst in January 2017, in which the Russian stated Gerasimov was providing “counterpropaganda” to the elderly Russian veterans that Gerasimov was addressing at the evening lecture. Interview with confidential source, January 14, 2017.

⁶ Bettina Renz, “Why Russia is Reviving Its Conventional Military Power,” *Parameters* 46, no. 2 (Summer 2016): 32. The RWW also states that Russia’s actions are not “part of any nefarious Russian plot to wage war against NATO and the U.S. in a new way,” but rather a continuation of past Soviet and Russian policies to achieve national objectives leveraging their comparative advantages. Grau and Bartles, *Russian Way of War*, 10.

⁷ For a detailed discussion of these topics, see U.S. Army Asymmetric Warfare Group, *Russian Handbook*, 3-28. Sniper-specific information may be found at 19-20 and 45-46, including that “Russian Forces in Ukraine have employed snipers in elements up to platoon size.” There is also significant reporting on Russian snipers operating in Ukraine, yet most comes from pro-Ukrainian sites. The United States has publicly denied Ukraine’s request for training or sniper rifles to the Ukrainian Armed Forces, although publically-accessible videos exist on ad hoc sniper schools for Ukrainians. See Levko Stek, “Ukraine’s School for Snipers,” May 15, 2015, *Radio Free Europe Radio Liberty*, video file, <http://www.rferl.org/a/ukraine-snipers/27016732.html> (accessed February 5, 2017). In October 2011, Radio Free Europe also published an article about Russia deciding to train 1,000 snipers in an expedited three-month course, noting that three months’ training would not prepare snipers for “hot spots” in the North Caucasus but would “be useful in urban warfare.” Liz Fuller, “Why Does the Russian Army Need a Lot More Snipers?” *Radio Free Europe Radio Liberty*, October 20, 2011, http://www.rferl.org/a/why_soos_the_russian_army_need_a_lot_more_snipers/24366025.html (accessed February 5, 2017). Using snipers is also consistent with marksmanship being a nationally-recognized sport in Russia. With respect to preferring suppressive fire over precision, the RWW also notes that “The famous Kalashnikov selector switch goes from safe to automatic to semiautomatic. Automatic is the preferred mode of fire. The U.S. M16 selector switch goes from safe to semiautomatic to automatic, reflecting the U.S. belief in marksmanship... This Russian preference for suppressive fire extends to artillery, where massed artillery fires still hold a major place in maneuver warfare planning.” Grau and Bartles, *Russian Way of War*, 172.

⁸ For an excellent discussion on what is included within the Russian term Spetsnaz, see Tor Bukkvoll, “Russian Special Operating Forces in Crimea and Donbass,” *Parameters* 46, no. 2 (Summer 2016): 14-15. Bukkvoll’s argument in summary: The spetsnaz forces that have been most relevant in Crimea and Donbass include the Armed Forces’ Main Intelligence Directorate, Spetsnaz GRU; the special forces of the Federal Security Services (former KGB), Spetsnaz FSB; the special forces of the Foreign Intelligence Service (SVR), Spetsnaz SVR; the Special Operations Command; and the 45th Special Forces Regiment of the Airborne troops. Bukkvoll also notes there are also intense rivalries among these various Spetsnaz and other intelligence units, including between Spetsnaz and Agentura within the GRU.

⁹ A central argument of Grau and Bartles; see specifically Grau and Bartles, *Russian Way of War*, 12-13.

¹⁰ The RWW builds on translated excerpts of Russian tactics manuals (Общая тактика), field manuals (Боевой устав), websites, graphics, PowerPoint presentations, and other Russian training institutional and military academy documents. As is consistent with FMSO's overall mission, the RWW aims to allow English readers to know what Russians are writing about their own military approaches. *Ibid.*, 9, 13.

¹¹ Some scholars cite Russia's reforms as originating before the 2008 Georgian invasion; for instance, Grau and Bartles note these changes were decided in 2007. *Ibid.*, 41. The Russians also learned many lessons before the Georgian invasion, including Grozny in 1994 and the first Chechen War more broadly, so the Georgian invasion should not be viewed as the sole driver of Russia's modernization reforms. However, overwhelmingly the literature cites Russia's New Look reforms as beginning after the strategically-successful but tactically-problematic invasion of Georgia. See for instance U.S. Army War College, *Project 1704: Analysis of Russian Strategy in Eastern Europe, an Appropriate U.S. Response, and the Implications for U.S. Landpower*, Integrated Research Project (Carlisle Barracks, PA: U.S. Army War College, March 3, 2015), 26-27; Dmitri Trenin, "The Revival of the Russian Military," *Foreign Affairs* 95, no. 3 (May/June 2016): 24; Renz, "Why Russia is Reviving," 23; U.S. Army Asymmetric Warfare Group, *Russian Handbook*, 1. This date also aligns with the Key Strategic Issues List section "Army Priorities for Strategic Analysis," category 17 "War and Strategy," and topic 31, "Compare and Contrast Russian Military Operations in Georgia (2008) and in the Donbass Region of Ukraine (2014)." There are extensive writings on these two fundamentally different conflicts, including *Project 1704* concluding persuasively that these military campaigns were resoundingly different in large part due to the Russian Armed Forces' massive modernization efforts after their underwhelming operations in Georgia. See in particular Chapter 2, "Russian Landpower." As a result, this paper builds on these existing insights, and uses the 2008 Russian Armed Forces as the base from which the Russian military reforms occurred.

¹² The projected \$700 billion cost is projected through 2020. Trenin, "The Revival," 24.

¹³ *Conventionally*, the Russians are investing heavily in new tanks (T-14s, T-90s), armored personnel carriers (BTR-82), infantry fighting vehicles (T-15 heavy BMPs), and other mechanized and motorized equipment. The new design of the bottom of the BTR-82 provides a 20% higher survival rate than the BTR-80. Some of the new BTRs (Kurganets-25) also have a "Sony PlayStation-like controller for steering to ease driver training," and the T-14 may "possibly receive a new 152mm cannon." On comfort, not all Russian equipment has historically included air conditioning (A/C), while earlier Soviet/Russian tanks were typically quite confining. The BTR-82 adds "A/C, digitally-encrypted R-168 radios, and the Trona-1 topographic navigation system." Grau and Bartles, *Russian Way of War*, 176-177, 178, 180, 182-183, 184. *Strategically*, the Armed Forces are also increasing their nuclear arsenal's quality and quantity. By 2020, Russians expect to launch eight fourth-generation Borei-class ballistic missile submarines, each carrying the highly-advanced (but still in testing) Bulava submarine-launched ballistic missiles. While fraught with technical problems encountered during testing, the Bulava is designed to permit the submarine to launch missiles while moving and is more resistant to physical, electromagnetic pulse, nuclear blasts (up to 500m), and other missile defense systems due to its low trajectory, high missile maneuverability, mid-course decoys and countermeasures, and "fully-shielded warhead." The Armed Forces have deployed the SS-27 Topol-M and RS-26 intercontinental ballistic missiles (ICBM), and they are developing the PAK-DA strategic bomber to replace or augment their Tu-95 Bear-H and Tu-160 Blackjack aircraft. The Armed Forces are

also developing a new ICBM that could reportedly carry up to fifteen warheads, although these missiles would be so large they would have to remain stored in stationary silos. Steven Pifer, "Overblown: Russia's Empty Nuclear Sabre-Rattling," *The Brookings Institution Online*, March 17, 2015, <https://www.brookings.edu/opinions/overblown-russias-empty-nuclear-sabre-rattling/> (accessed February 5, 2107); (British-owned) Kable Intelligence Limited, "From Drawing Board to Launch Pad: The Rise, Fall and Rise of the Bulava," *Naval-Technology Online*, October 24, 2011, <http://www.naval-technology.com/features/featurefrom-drawing-board-to-launch-pad-the-rise-fall-and-rise-of-the-bulava/> (accessed February 26, 2017).

¹⁴ For instance, the Armed Forces have consolidated six military districts into four, each now called an "Operational Strategic Command," and transferred most of the operational control from the Services to these military district commanders. This added operational control did not extend to "nuclear and certain strategic assets such as the Strategic Rocket Forces (RVSN), Airborne (VDV), and GRU spetsnaz units." Grau and Bartles, *Russian Way of War*, 42-43, 45-46.

¹⁵ In 2009, the Armed Forces began conducting large-scale training exercises, often without notice and regularly involving deployments to training areas within Russia over 1,000km away. While this distance is impressive for training events, the Soviets and Russians have remained very good at movement over long distances, in part due to their geography and expected internal and external threats. The Armed Forces' renewed training on nuclear operations also coincides with the Russian government's much more bellicose and aggressive actions and behavior (e.g., practicing a nuclear strike against Sweden in 2016, after Sweden openly considered joining NATO). Trenin, "The Revival," 24; Grau and Bartles, *Russian Way of War*, 60, 67, 105, 149, 181, 230; Johan Norberg and Fredrik Westerlund, "Russia's Armed Forces in 2016," in *Russian Military Capability in a Ten-Year Perspective – 2016*, FOI Report 4326-SE, ed. Gudrun Persson (Stockholm, SW: Swedish Defense Research Agency [Totalförsvarets forskningsinstitut, FOI], December 2016), 52, 53; Michael Buholzer, "Russia Practiced Nuclear Strike on Sweden: NATO Report," *Newsweek Online*, February 4, 2016, <http://www.newsweek.com/russia-practiced-nuclear-strike-sweden-nato-report-422914> (accessed January 29, 2017).

¹⁶ The Armed Forces also downsized 1,890 largely "skeletal units" to only 172 large units (primarily changing division and regimental headquarters into brigade headquarters), and consolidated 65 military academies to 10. The RWW also notes that in sharp contrast to the U.S. Army, Russian "officers are the primary trainers, disciplinarians, and repositories for institutional knowledge." Officers graduate from academies specializing in military leadership and expertise, versus general education, and they are expected to lead and execute military duties immediately upon graduation. Grau and Bartles even refer to officers as the "backbone of the Russian Army." Grau and Bartles, *Russian Way of War*, 23, 45.

¹⁷ *Ibid.*, 210.

¹⁸ *Ibid.*, 146.

¹⁹ *On cost*, the RWW (212) notes that "Reportedly, the Russian shell costs about \$1000, while the U.S./NATO shell costs about \$80,000 to manufacture." In addition to valuing military history, the Armed Forces take seriously operations research, using an extensive mathematical system to war-game courses of action and produce mathematical certainties of success. *On terrain*, the RWW (199) adds that "Much of the terrain in which Russia may fight is fairly flat; consequently, it is difficult to get forward observers into good positions to spot artillery targets.

Hence, Russian artillery planning involves the expenditure of significant amounts of artillery ammunition.” With respect to *survivability*, the RWW (198) says that “Although the Russians have precision-guided munitions for their artillery, they still believe in the effectiveness of massed artillery fire. Tactical EW systems may jam or prematurely detonate electronic VT fuses, but the mechanical fuses of conventional artillery rounds cannot be jammed by electronic signals.” Due to these factors, the RWW (198) argues “There are occasions that call for the use of surgical, precision fires, but massed artillery fires carry a mathematical probability of kill with which it is easier to predict tactical success.” *Ibid.*, 171, 198, 199, 212.

²⁰ *Ibid.*, 188-189.

²¹ The RWW notes that the Combat Fire Support Vehicle (BMOP), nicknamed the Terminator-2, “can reportedly clear the enemy from a city block at a distance of 3km.” The RWW also notes that the Heavy Flame Thrower System (TOS-1) includes a launcher with 30- each 220mm rocket tubes atop a T-72 chassis; was doctrinally “envisioned to decimate a large area...[and] the combined blasts of the thermobaric rockets produce mutually reinforcing shockwaves that have an impressive effect that has been described as appearing as a nuclear explosion.” *Ibid.*, 70, 114, 193, 198, 199, 212, 272.

²² *Ibid.*, 302.

²³ The RWW specifically notes that the Armed Forces expect victory or decisive defeat while also expecting the battlefield to remain fluid. *Ibid.*, 154.

²⁴ *Ibid.*, 256.

²⁵ The RWW emphasizes the central role of flamethrowers within the Russian formation and doctrine, arguing “At a time when other armies are reevaluating the role of NBC troops in the militaries, the Russian NBC Troop’s monopoly on flame, and its usefulness for urban and mountain warfare, bunker busting, and clearing light infantry has required the expansion of NBC troops in the Russian military with the creation of reconstitution of at least four NBC Defense Regiments in 2014.” The RWW does note that “In most militaries, flame weapons have traditionally belonged to the NBC Troops,” while further highlight their importance for Russians: “The popularity of such weapons has waned significantly throughout the world, but not so in the Russian Armed Forces. While the utility of NBC Troops in today’s asymmetric warfare is questioned in other armies, Russian NBC Troops firm grasp of flame weapons keeps them relevant, engaged, and makes them an important asset in the Russian maneuver commander’s toolbox. The term ‘flamethrower’ itself conjures ideas of the Second World War, with soldiers carrying backpack mounted aerosol tanks spewing flame from hand-held wands, or the M-67 flame throwing tank that was utilized by the U.S. Army and Marine Corps in Vietnam. In current Russian military parlance the term ‘flamethrower’ usually refers to projectile launched flame, smoke and thermobaric weapons.” The RWW also clarifies that “Backpack mounted flamethrowers expend most of their fuel by getting the flame to the target. Projected fuel aerosol canisters are a much more efficient, and lethal, use of energy.” *Ibid.*, 269. Flamethrowers’ “growing role” in Russian warfare is also cited in Norberg and Westerlund, “Russia’s Armed Forces,” 47.

²⁶ The RWW persuasively argues that tolerance of structural corruption enables their military and intelligence services to better exploit boundaries in “Gray Zone” operations. The RWW cites three examples of this blending of moral right with legally right: “state asset seizures of wealthy oligarchs’ property, the annexation of the Crimea, and the conduct of an undeclared

war in Eastern Ukraine (in order to destabilize the Ukrainian government, a government which Russia perceives to be illegitimate and installed by the U.S.)” The RWW also discusses Russians’ “nuanced view towards corruption... [in which] Crimes of theft against individuals are viewed the same as in the West, but crimes of theft against the state are seen as more tolerable, although they are seen as somewhat tolerable, they are still embarrassing...[such as] “dispatching an airborne unit to interfere in the prosecutorial investigation of a family member.” The RWW explains further that while Russian civilian and military leaders have publically prioritized ending corruption and hazing for some time, previously strict standards are now loosening after concerns that the Armed Forces were eliminating “too many good officers who had a few peccadilloes.” Ibid., 32, 33.

²⁷ The General Staff focuses on operational art, the Ministry of Defense (MoD) completes force development, and the National Security Council (on which the Chief of the General Staff also sits) writes whole-of-government strategy and doctrine. Ibid., 26, 28; clarification of General Staff, MoD, and NSC roles made by Charles Bartles. Charles Bartles, e-mail message to author, December 9, 2016.

²⁸ Carl von Clausewitz, *On War*, eds. and trans. Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 77.

²⁹ Roger McDermott makes this “mirror-imaging” argument most strongly, arguing “The policy differences between Moscow and NATO have long been known and explicitly contained in Russia’s public security documents. However, since the onset of the Ukraine crisis, analysts and Western governments have largely sought to understand Russia’s political-military leadership and its motives, as well as how Russia conducts war, through their own historical, cultural, psychological and institutional prism, and thus essentially mirror imaged an interpretation of Moscow’s actions. It may well mark a modern example of blue assessing red, and seeing a reflection of blue.” McDermott, “Gerasimov Doctrine,” 105.

³⁰ R. Craig Nation makes a separate but complementary argument, in that “the ‘frozen’ status quo [of Nagorno-Karabakh] serves [Russia’s] purposes most effectively by perpetuating dependence and ensuring some degree of leverage over all regional actors, including Azerbaijan itself.” R. Craig Nation, “Russia and the Caucasus,” *Connections* 14, no. 2 (Spring 2015): 9.

³¹ This is a phrase Robert Jaeger used to describe non-quantifiable risk (e.g., marriage risk, career risk, and air travel risk), which Jaeger argued was as important in financial investments as other more predictably non-quantifiable places. Robert A. Jaeger, “Risk: Defining It, Measuring It, and Managing It,” in *Managing Hedge Fund Risk*, ed. Virginia Reynolds Parker (London, UK: Risks Books, November 2000), 2, http://viking.som.yale.edu/will/hedge/Risk_BobJaeger.pdf (accessed February 5, 2017).

³² Russian ground forces must remain able to traverse mountains, deserts, rivers, bogs, and tundra year-round to address internal (or external) threats.

³³ Point made by Stephen Kotkin in explaining Russia feeling “perennially vulnerable.” Stephen Kotkin, “Russia’s Perpetual Geopolitics,” *Foreign Affairs* 95, no. 3 (May/June 2016): 4.

³⁴ Russia has 38K km [23,612.105 mi] of coastline, while the United States has 19,928.5 km [12,383 mi]. Grau and Bartles, *Russian Way of War*, 289.

³⁵ During this paper's writing, Russia had Western sanctions imposed for invading Crimea and eastern Ukraine, and the United States had recently imposed additional sanctions for interfering (largely via cyber) in the U.S. presidential election hacking. These sanctions not only make exports more difficult, but they have also placed restrictions on loans and raised international markets' concerns about new loans. Vladislav Inozemtsev and Yulia Zhuchkova, "The Future of the Economy and the Energy Sector," in *Russian Futures: Horizon 2025*, eds. Hiski Haukkala and Nicu Popescu, no. 26 (Brussels, BE: European Union Institute for Security Studies, March 2016), 25.

³⁶ Dmitri Trenin notes that Russia's life expectancy is notably lower than other industrialized countries and Russia's "aging population is less than half as large as the U.S. population." However, the Foreign Military Studies Organization notes that Russia's overall conscription-aged population has remained almost constant between 2002 and 2010, decreasing only slightly from 11,783,706 to 11,735,540 conscription age males 18-27. Maria Lipman and Nikolay Petrov also note that most of Putin's inner circle is already over sixty. Trenin, "The Revival," 24; Foreign Military Studies Office, "Russian Conscription Demographics, Military District Summary," April 24, 2014; Maria Lipman and Nikolay Petrov, "The Future of Domestic Politics," in *Russian Futures: Horizon 2025*, 17.

³⁷ R. Craig Nation notes that "Russia's relative success in counter-insurgency operations in Chechnya, ironically but not surprisingly, has had the effect of pushing armed resistance into the larger North Caucasus region...Russian concern with the implications of Islamic extremism on its southern flank should not be underestimated. It is a challenge for which Moscow still seeks an effective solution. Administrative repression in response to the phenomenon may in fact only be expanding the problem." Nation, "Russia and the Caucasus," 5.

³⁸ In specific, Alexei Malashenko and Alexei Starostin argued that "Jihadists, now well-trained and with combat experience, are returning to Central Asia, from where they go to Russia, including its Far East...Even a cursory glance at the map is enough to see that hotbeds of radical Islam are all over Eurasia." Alexei Malashenko and Alexei Starostin, "How Far Can the Islamic Threat Reach?" *Russia in Global Affairs*, no. 4 (2016): 137-152. Terrorist organizations are also identified within Russia's Military Doctrine as a key source of internal military danger. Vladimir Putin, *Military Doctrine of the Russian Federation* (Moscow: The Kremlin, 2014).

³⁹ Russia has been invaded by the Mongols (Tatars), Poles, Swedes, French, British, Ottomans, Germans, Japan, and the United States. Of note, Japan and the United States both came in during WWI to prevent German capture of stores, and then they stayed for part of the Russian Civil War. Point on Japan and the United States made from Les Grau, e-mail message to author, February 15, 2017.

⁴⁰ Grau and Bartles, *Russian Way of War*, 280. Similarly the Swedish Defense Research Agency argued that Russia sees itself as "being under attack from a hostile West, and the Russian Armed Forces are to defend Russia's historical and spiritual traditions." Jakob Hedenskog, Gudrun Persson, and Carolina Vendil Pallin, "Russian Security Policy," in *Russian Military Capability in a Ten-Year Perspective – 2016*, FOI Report 4326-SE, ed. Gudrun Persson (Stockholm, SW: Swedish Defense Research Agency, December 2016), 109.

⁴¹ For an excellent discussion of the varying perspectives on whether NATO would expand east after the USSR collapsed, see Uwe Klußmann, Matthias Schepp, and Klaus Wiegrefe, "NATO's Eastward Expansion: Did the West Break Its Promise to Moscow?" *Spiegel Online*, November 26, 2009, <http://www.spiegel.de/international/world/nato-s-eastward-expansion-did->

[the-west-break-its-promise-to-moscow-a-663315.html](http://www.nato.int/cps/en/natohq/topics_49212.htm?selectedLocale=en) (accessed March 3, 2017). See also Dimitri K. Simes, "Trouble with Russia," *The National Interest*, no. 144 (July/August 2016): 8-9. Russia's Military Doctrine also cites NATO expansion as the first of its twelve "main external military dangers": "capacity power potential Organizations (sic) North Atlantic Treaty Organization (NATO) and giving it global functions carried out in violation of international law, the approach of military infrastructure countries – members of NATO to the borders of the Russian Federation, *including through further expansion of the block.*" (*emphasis added*) Vladimir Putin, *Military Doctrine*. On NATO expansion, NATO incorporated the Czech Republic, Hungary, and Poland in 1999; Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia, and Slovenia joined in 2004; and in December 2008, NATO foreign ministers agreed to enhance assistance for Georgia and Ukraine to be able to meet NATO membership requirements. North Atlantic Treaty Organization Online, "Enlargement: Evolution of NATO's 'Open Door Policy'," December 3, 2015, http://www.nato.int/cps/en/natohq/topics_49212.htm?selectedLocale=en (accessed February 5, 2017).

⁴² Nation, "Russia and the Caucasus," 3.

⁴³ Many articles discuss this Russian belief; see for instance Gerasimov, "The Value of Science," 24. Clifford Gaddy and Michael O'Hanlon also discuss the different threat beliefs between Russians and Americans, saying "As Americans, we find the idea of a serious NATO threat to Russia unimaginable. But that is our perspective as Americans, and may not accord with future Russian views." Clifford Gaddy and Michael O'Hanlon, "Toward a 'Reaganov' Russia: Russian Security Policy After Putin," *The Washington Quarterly* 38, no. 2 (Summer 2015): 216.

⁴⁴ R. Craig Nation notes that "The southern flank of the Russian Federation [between the North and South Caucasus] also covers a Huntingtonian 'fault line' between Christian and Islamic civilizations. The Caucasus region is plagued by local conflicts with a sectarian dimension and has become an arena for embedded terrorism." Nation, "Russia and the Caucasus," 5.

⁴⁵ Grau and Bartles, *Russian Way of War*, 280. For the rising influence of China within Eurasia, see for instance Fyodor Lukyanov, "Putin's Foreign Policy: The Quest to Restore Russia's Rightful Place," *Foreign Affairs* 95, no. 3 (May/June 2016): 35.

⁴⁶ Russia consolidated six military districts into four as part of its "New Look" reforms, and then added a fifth command, Arctic, in 2014. Russia delimits these as Joint Strategic Commands: (1) Western, covering most of western Russia, and its neighbors between the Barents and Black Seas; (2) Southern, covering Russia's North Caucasus; South Caucasus, Middle East, and Black Sea region; (3) Central, covering Siberia, the Urals, the five Central Asian republics, Mongolia, and northwestern China, facing Afghanistan and Iran; (4) Eastern, covering Russia's Far East, Mongolia, China, and the Pacific Ocean; and (5) Arctic, covering northern parts of Russia and Scandinavia, as well as the Arctic Ocean. See Fredrik Westerlund and Johan Norberg, "The Fighting Power of Russia's Armed Forces in 2016," in *Russian Military Capability in a Ten-Year Perspective – 2016*, FOI Report 4326-SE, ed. Gudrun Persson (Stockholm, SW: Swedish Defense Research Agency, December 2016), 68. Russia's establishment of the Arctic Command after the United States published its national (May 2013) and Department of Defense (DoD; November 2013) strategies for the Arctic Region may be completely coincidental, and this author has read of no linkage between them. However, it is important to note that the U.S. strategies were both published prior to Russia establishing its Arctic command, even though the DoD strategy explicitly stated that President Barack Obama

had said “‘The Arctic region is peaceful, stable, and free of conflict,’ and it is the role of the Department of Defense to ensure this observation remains true for future generations.” Chuck Hagel, *Arctic Strategy* (Washington, DC: U.S. Department of Defense, November 2013), 1.

⁴⁷ Russian military bases abroad include Georgia (two in Abkhazia and two in South Ossetia), Armenia, Tajikistan (three), and Moldova (Transnistria), as well as two joint air bases in Belarus, an air base and naval testing base in Kyrgyzstan, and a radar station and antimissile test center in Kazakhstan. Gustav C. Gressel, “The Future of the Military,” in *Russian Futures: Horizon 2025*, 33. However, these bases “are assumed to be available only for operations in their respective war theaters.” Norberg and Westerlund, “Russia’s Armed Forces,” 69.

⁴⁸ Gressel, “The Future of the Military,” 33. His data sources include the International Institute for Strategic Studies, Al Jazeera, and Kommersant.

⁴⁹ Stephen Kotkin argues that “The real challenge today boils down to Moscow’s desire for Western recognition of a Russian sphere of influence in the former Soviet space (with the exception of the Baltic states). This is the price for reaching accommodation with Putin—something advocates of such accommodation do not always acknowledge. It was the sticking point that prevented enduring cooperation after 9/11, and it remains a concession the West should never grant. Neither, however, is the West really able to protect the territorial integrity of the states inside Moscow’s desired sphere of influence.” Kotkin, “Russia’s Perpetual Geopolitics,” 8-9.

⁵⁰ *Ibid.*, 4.

⁵¹ Carl von Clausewitz would recognize the importance of engaging one’s population to maintain support for war, as he notes the central role of the people’s passion in war within his remarkable trinity. Clausewitz, *On War*, 89.

⁵² The World Bank lists Russia’s Gross Domestic Product (GDP) dropping from a high of \$2.123T (in USD) in 2013, to \$2.053T in 2014, and \$1.331T in 2015. However, it is also critical to put this in a broader context, since its GDP in 1999 was \$195.9B. The 2008 military reforms were also launched after nine years of dramatic GDP growth, to \$1.661T in 2008. The World Bank Online, “Russian Federation,” <http://data.worldbank.org/country/russian-federation> (accessed January 25, 2017). However, Russia’s economy also defied most economists’ predictions in November-December 2016, finally increasing after two years of negative growth and expecting growth (albeit weak) in 2017: “Russia’s Finance Minister Anton Siluanov said in the local press today [December 26, 2016] that the economy could surprise next year by accelerating growth to 1.5%. It’s not blockbuster by any measures, but after negative three percent growth over the last two years, it is at least a move in the right direction for once.” Kenneth Rapoza, “Russia’s Economy Goes Out With a ‘Bang’,” *Forbes Online*, December 26, 2016, <http://www.forbes.com/sites/kenrapoza/2016/12/26/russia-2016-economy-rosneft-putin/#7f89d5876280> (accessed February 17, 2017). Persson also notes that Russia has continued prioritizing defense spending during this time, even at the expense of other public programs, although he argues Russia’s economic decline began in 2011. Gudrun Persson, “Russian Military Capability in a Ten-Year Perspective,” in *Russian Military Capability in a Ten-Year Perspective – 2016*, FOI Report 4326-SE (Stockholm, SW: Swedish Defense Research Agency, December 2016), 188-189. The U.S. Army War College “Project 1704” also noted that Russia’s 2014 “defense spending [was] projected to account for over 20% of all government spending.” U.S. Army War College, *Project 1704*, 26.

⁵³ Gressel, "The Future of the Military," 31.

⁵⁴ See for instance U.S. Army Asymmetric Warfare Group, *Russian Handbook*, 29-30; Maria Snegovaya, *Putin's Information Warfare in Ukraine: Soviet Origins of Russia's Hybrid Warfare* (Washington, DC: Institute for the Study of War, September 2015), <http://understandingwar.org/report/putins-information-warfare-ukraine-soviet-origins-russias-hybrid-warfare> (accessed February 5, 2017).

⁵⁵ As reported in the *New York Times*, and based on Russia's new law relating to organizations receiving foreign funding, "Russian officials declared the Levada Center, the country's only major independent pollster, a 'foreign agent' on Monday, [September 5,] two weeks before nationwide parliamentary elections and days after a poll showed sliding support for the governing party, United Russia." Ivan Nechepurenkosept, "Russian Polling Center Is Declared a 'Foreign Agent' Before Elections," *New York Times Online*, September 5, 2016, http://www.nytimes.com/2016/09/06/world/europe/russia-vladimir-v-putin-levada-center-polling-duma-united-russia.html?_r=0 (accessed February 26, 2017).

⁵⁶ Hedenskog, Persson, and Pallin, "Russian Security Policy," 102.

⁵⁷ Grau and Bartles, *Russian Way of War*, 256, 279, 280, 289.

⁵⁸ As the RWW notes, "Although during World War II Russian infantry rode on trucks and tanks when it could, most of Russian infantry was foot mobile and slow to mass and disperse. The Soviet Army began mounting its infantry on armored personnel carriers in the 1950s and succeeded in creating a 100% motorized ground force. This continues to this day. Even airborne, air assault, and special purpose (spetznaz) infantry are all mechanized forces." *Ibid.*, 170.

⁵⁹ The vast distances heighten Russians' concern with rapid mobility, quick transitions to and from march and battle formations, and retaining anti-airborne/air-assault capabilities (since the mid-to-late 1980s) to defend against expected enemy deep insertions. Adding an anti-airborne/air-assault reserve was in response to the U.S. "Second Offset." As the RWW states, this reserve is designed to defend against "a prodigious 'air echelon' that would be able to jump over Soviet defensive positions, wreak havoc in the Soviet rear and threaten the operational stability of the defense." The RWW also highlights that "When the Russian Army hit rock bottom just before the 1994 incursion into Chechnya, it still did an impressive job of quickly pulling together pieces of its shattered army from all over the country." *Ibid.*, 54, 55, 58, 149, 170.

⁶⁰ The United States has also not signed the Ottawa Convention, although in September 2014 the Obama Administration announced that it would align its anti-personnel landmine policy with the convention's key requirements "outside the Korean Peninsula." *Ibid.*, 256; The White House, "Fact Sheet: Changes to U.S. Anti-Personnel Landmine Policy," September 23, 2014, <https://www.whitehouse.gov/the-press-office/2014/09/23/fact-sheet-changes-us-anti-personnel-landmine-policy> (accessed February 5, 2017).

⁶¹ Hiski Haukkala and Nicu Popescu, "Introduction," in *Russian Futures: Horizon 2025*, 9; Gressel, "The Future of the Military," 32.

⁶² The USSR's fifteen republics included the three Baltic states, which are now NATO allies (Estonia, Latvia, Lithuania), and twelve republics that are now countries: Armenia, Azerbaijan,

Belorussia (now Belarus), Georgia, Kazakhstan, Kirghizia (now Kyrgyzstan), Moldavia (now Moldova), Russia, Tadjikistan (now Tajikistan), Turkmenistan, Ukraine, and Uzbekistan.

⁶³ Hiski Haukkala and Nicu Popescu argue that the West is not the only – and sometimes even the primary – intended audience for Russian actions. Russia is also messaging other powerful neighbors, former republics, internal dissidents, ethnic Russians within and outside their borders, Russian political and business elites, the EU as its “foremost economic partner,” people on the “Arab street” after supporting Assad or within Israel after developing links with Hezbollah, etc. Haukkala and Popescu, “Introduction,” 10, 11. Samuel Greene also argues in the same volume that “while much of Moscow’s choicest rhetoric is aimed at Washington, the relationship with Europe is, if anything, worse.” Samuel A. Greene, “Future Approaches to the US,” in *Russian Futures: Horizon 2025*, 42.

⁶⁴ Matthew Kroenig is one of the most thoughtful scholars supportive of a stronger U.S. nuclear posture, arguing that NATO should “equip its DCA [dual-capability aircraft] with a nuclear-armed, air-to-surface cruise missile...[serving as] a short-range standoff weapon, or SRSO...that provides NATO, as an alliance, with a discriminate nuclear option capable of penetrating Russian air defenses that also limits the risks of escalation to strategic nuclear exchange.” Matthew Kroenig, *Toward a More Flexible NATO Nuclear Posture: Developing a Response to a Russian Nuclear De-Escalation Strike* (Washington, DC: Atlantic Council, November 2016), 9, 11, http://www.atlanticcouncil.org/images/publications/Toward_a_More_Flexible_NATO_Nuclear_Posture_web_1115.pdf (accessed February 5, 2017). Many disagree with Kroenig’s arguments; see for instance Daniel Nexon, “Debating the Benefits of Nuclear Superiority, Part III,” *Duck of Minerva Online*, March 28, 2013, <http://duckofminerva.com/2013/03/debating-the-benefits-of-nuclear-superiority-part-iii.html> (accessed February 5, 2017). An excellent overview of the extended debates can also be found at Matthew Kroenig, “The History of Proliferation Optimism: Does It Have a Future?” *Journal of Strategic Studies* 38, no. 1-2 (2015): 98-125, http://www.matthewkroenig.com/The%20History%20of%20Proliferation%20Optimism_Feb2014.pdf (accessed February 5, 2017).

⁶⁵ Grau and Bartles, *Russian Way of War*, 60, 67, 105, 181.

⁶⁶ The RWW specifically identifies armor units and the amphibious combat reconnaissance vehicle (BRDM) as being capable of operating in an NBC environment. The RWW also notes that Armed Forces’ NBC units are currently increasing in force structure. *Ibid.*, 181, 230.

⁶⁷ *Ibid.*, 141.

⁶⁸ The Swedish Defense Research Agency denotes Russia’s tactical nuclear weapons as “non-strategic nuclear weapons,” and adds that their usage uncertainty “is considerable,” including due to Russia’s increasing quantity of these weapons. Norberg and Westerlund, “Russia’s Armed Forces,” 40, 42.

⁶⁹ Grau and Bartles, *Russian Way of War*, 273.

⁷⁰ Norberg and Westerlund, “Russia’s Armed Forces,” 52.

⁷¹ *Ibid.*, 53.

⁷² Grau and Bartles, *Russian Way of War*, 233.

⁷³ Joint Publication (JP) 1-02 does not define “military,” using the term only as an adjective. As a result, this paper applies the JP’s definition of “U.S. forces”: “All Armed Forces (including the Coast Guard) of the United States, any person in the Armed Forces of the United States, and all equipment of any description that either belongs to the U.S. Armed Forces or is being used (including Type I and II Military Sealift Command vessels), escorted, or conveyed by the U.S. Armed Forces.” Similarly, the “Armed Forces of the United States” is “a term used to denote collectively all components of the Army, Marine Corps, Navy, Air Force, and Coast Guard (when mobilized under Title 10, United States Code, to augment the Navy).” U.S. Joint Chiefs of Staff, *Department of Defense Dictionary of Military and Associated Terms*, Joint Publication 1-02 (Washington, DC: U.S. Joint Chiefs of Staff, November 8, 2010, as amended through February 15, 2016), 15, 253.

⁷⁴ The Swedish Defense Research Agency further clarifies that this military power (*voennaia moshch*) definition includes “the state’s material and spiritual (*dukhovnye*) possibilities as well as its military policy.” Gudrun Persson, “Introduction,” in *Russian Military Capability in a Ten-Year Perspective – 2016*, FOI Report 4326-SE (Stockholm, SW: Swedish Defense Research Agency, December 2016), 17.

⁷⁵ Grau and Bartles, *Russian Way of War*, 39, 233.

⁷⁶ The RWW notes that “Russia has recently enacted a major new reform of its military forces by establishing a National Guard. This National Guard is in no way similar to the U.S. National Guard, but consists of active duty troops who were already part of Russia’s other internally-focused security services, reportedly including the Ministry of Internal Affairs-Internal Troops (MVD-VV), Special Rapid-Response Detachment (SOBR), the Special-Purpose Mobile Detachment (OMON), the MVD Prompt-Response and AV Forces’ Special-Purpose Center, and AN subunits.” The RWW also estimates that Russia has 200K-300K National Guard troops. *Ibid.*, 39, 40. The Swedish Defense Research Agency also estimates that Russia may have 400K troops in addition to its Armed Forces that it can use for domestic military missions, which does not include police or building or personnel security guards. Norberg and Westerlund, “Russia’s Armed Forces,” 56.

⁷⁷ The RWW also notes that “Russia has an estimated 50K personnel in ‘Spetsnaz’ designated units.” Grau and Bartles, *Russian Way of War*, 233.

⁷⁸ *Ibid.*, 39. For an excellent discussion of spetsnaz use in Crimea and Donbas, see also Bukkvoll, “Russian Special Operating Forces,” 16-20.

⁷⁹ As Grau and Bartles articulated of the Russian mindset: “Do not just stop the enemy, destroy him.” Grau and Bartles, *Russian Way of War*, 61.

⁸⁰ The primary exception to tactical immersion are officers serving on the Russian General Staff, an elite group of planners responsible for doctrine, capability development, and military planning above the brigade level. Russian officers do not have branch transfers, branch details, or out-of-branch assignments, except those prestigious permanent transfers to the “joint” General Staff. The most prestigious military position is considered to be the senior operational planner – the Chief of the General Staff – and not a senior military district commander. Staffs are small, with staff officers usually dual-hatted as functional commanders (e.g., the officer providing intelligence also leads his own unit). Promotions are also more rapid (e.g., 32-year-old battalion commanders are common). *Ibid.*, 23, 26, 28.

⁸¹ Ibid., 52-53.

⁸² Gerasimov, "The Value of Science," 23-29. Multiple authors reinforce this point, including Grau and Bartles, *Russian Way of War*, 9; Hedenskog, Persson, and Pallin, "Russian Security Policy," 107; McDermott, "Gerasimov Doctrine," 97-105.

⁸³ Comment by Fyodor Lukyanov, then Chairman of the Russian Council on Foreign and Defense Policy, as cited in Hedenskog, Persson, and Pallin, "Russian Security Policy," 107. The Russians are also making notable (albeit evolutionary) advances in robotics, artificial intelligence, unmanned systems, and semi-autonomous capabilities. However, the RWW notes that "Despite references to the Terminator franchise, Russia does not appear to see a future, in the near term, where combat is conducted solely by autonomous robots. Instead remote controlled and semi-autonomous robotics will be integrated into conventional units, serving in the most dangerous roles as fire fighters, mine clearers, EOD technicians, armed sentries, and...cannon fodder for the initial assaults on fortified positions. In keeping with these functions, and unlike many of the robots in Terminator, Russian robots have a distinctively 'mechanized' appearance, with most systems being found on tracked chassis." Grau and Bartles, *Russian Way of War*, 304.

⁸⁴ The U.S. Government has established roles and responsibilities across the Department of Homeland Security, DoD, and the Federal Bureau of Investigations. However, Thornhill argues that cyber threats are creating fundamental challenges for DoD's organizational, recruiting, and operating cultures. Rather than cyber threats being appropriately addressed via the current "overseas" paradigm, in which military forces deploy abroad to counter threats, Thornhill argues this emerging "guardian paradigm...(1) identifies the location of the common defense in boundless terms; (2) sees organized violence as something that can be inflicted remotely, anonymously, even robotically by individuals operating in safe, nondemanding physical environments, as well as through serving in proximity to violence; (3) depends organizationally on military, civilian, and contractor personnel and capabilities; and (4) requires a diversity of organizational cultures, rather than one built on traditional military values." Paula G. Thornhill, *The Crisis Within: America's Military and the Struggle Between the Overseas and Guardian Paradigms* (Santa Monica, CA: RAND Corporation, 2016), 39-46, 48, 49, http://www.rand.org/pubs/research_reports/RR1420.html (accessed February 6, 2017).

⁸⁵ Robert Jervis, *Perception and Misperception in International Politics* (Princeton, NJ: Princeton University Press), 1976.

⁸⁶ Nation, "Russia and the Caucasus," 6; Gaddy and O'Hanlon, "Toward a 'Reaganov' Russia," 216.

⁸⁷ Several sources discuss Russia's belief in great powers' control of weaker neighbors' and organizations' actions. For instance, R. Craig Nation discusses this competition with respect to the greater Caucasus, citing examples from the Crimean War (1853-1856), WWI, WWII, and today in which conflicts occur "as part of a larger struggle waged on the global chessboard to control a 'great Eurasian Central-Eurasia megazone' including the Black and Caspian Seas." Gaddy and O'Hanlon make a complementary argument, saying that "The notion that nation-states are becoming consistently and steadily less relevant in international relations is a construct that is popular only in certain strata of Western thinking." They cite Russia's concerns about China, the United States, and its allies to reinforce this point. Russians also begin from a more Realist starting point, believing that only a few powerful states (e.g., U.S., Russia, China) act independently and are responsible for instigating events within smaller states (e.g., color

revolutions, Arab Spring) in order to encircle Russia and ultimately unset Russia's regime rather than these being "genuine acts of popular discontent against authoritarian regimes." Nation, "Russia and the Caucasus," 1-2; Gaddy and O'Hanlon, "Toward a 'Reaganov' Russia," 210; Hedenskog, Persson, and Pallin, "Russian Security Policy," 115.

⁸⁸ See also unpublished paper by author on this subject, "Russian Military Reform: Achievements and Failings" (January 31, 2017).

⁸⁹ Russia's Deputy Prime Minister is Dmitry Rogozin, and the "Russian DARPA [Defense Advanced Research Projects Agency]" is the Foundation of Prospective Research (*Fond Perspektivnykh Issledovaniy* [FPI]). Dmitry Adamsky, *Defense Innovation in Russia: The Current State and Prospects for Revival* (San Diego: University of California San Diego, Institute on Global Conflict and Cooperation, January 2014), 2, 4, <http://escholarship.org/uc/item/0s99052x> (accessed February 26, 2017); Grau and Bartles, *Russian Way of War*, 180.

⁹⁰ Values listed in U.S. Dollars (USD). The World Bank Online, "Russian Federation."

⁹¹ U.S. Army War College, *Project 1704*, 26.

⁹² Quote by Jeffrey Taylor, "Russia is Finished," *The Atlantic*, May 2001, cited in Renz, "Why Russia is Reviving," 28.

⁹³ Renz notes that Russian leaders since Yeltsin in the mid-1990s had attempted defense reforms, including "the need to professionalize, create rapid reaction forces, and procure advanced technology... Unlike the 2008 reforms, which were backed up by realistic financial means and unprecedented political will, Yeltsin-era plans for military transformation faltered owing to the country's dire economic situation and the *lack of political clout required for pushing through changes unpopular with some elements in the military leadership (emphasis added)*." *Ibid.*, 26-27.

⁹⁴ Thesis of *Ibid.*, 23-36; quotes from 24, 32.

⁹⁵ Pifer notes Russia is now replacing missiles with passed warranty dates, including "the SS-18 and SS-19 ICBM—which today still carry about one-half of Russia's strategic warheads." In addition, Pifer argues "The Soviet Union deployed significant numbers of (then) new strategic systems in the late 1970s and early 1980s... U.S. strategic modernization peaked some years later. The U.S. military deployed the new Ohio-class ballistic missile submarine, Trident D-5 SLBM, MX ICBM and B-1 and B-2 bombers in the 1980s and early 1990s. Russia's strategic modernization program today appears to far outpace U.S. efforts. Flash forward ten years, and the picture will look very different. By the early 2020s, barring delays brought about by a slowing economy, the Russian military will have completed most of its strategic update programs, with the possible exception of a new bomber. In the mid-2020s, the U.S. military will be building new ballistic missile submarines to replace the Ohio-class boats, a new long-range strike bomber and perhaps a new nuclear-armed cruise missile. It will also be preparing either to build a new ICBM or to modernize and further extend the life of the Minuteman III ICBM, a less expensive option. The United States will then dominate on strategic modernization." Pifer, "Overblown."

⁹⁶ Bettina Renz raises arguments, reinforced by points made by Charles Glaser and others, that Russia's perceived insecurity could cause it "to adopt competitive and threatening policies. This is particularly dangerous if the only tools available for pursuing such policies are nuclear weapons." While these capabilities could also provide offensive opportunities, Renz later argues

that “It is unlikely improved conventional capabilities will blind the Russian leadership to the fact that military force is not a panacea for the achievement of all policy objectives and that in certain cases, especially if it could lead to direct confrontation with a militarily superior actor such as NATO, this could have devastating consequences that would not serve its interests.” Renz, “Why Russia is Reviving,” 28, 33.

⁹⁷ For an excellent discussion of this electronic warfare challenge and potential ways to mitigate the Russian capabilities and techniques, see U.S. Army Asymmetric Warfare Group, *Russian Handbook*, 3-28. See also Robert H. Scales, “Russia’s Superior New Weapons,” *Washington Post Online*, August 5, 2016, https://www.washingtonpost.com/opinions/global-opinions/russias-superior-new-weapons/2016/08/05/e86334ec-08c5-11e6-bdcb-0133da18418d_story.html?utm_term=.eebb613c5a6e (accessed March 3, 2017).

⁹⁸ There are real constraints on what the Armed Forces can and will do with units primarily comprised of conscripts. Russia’s educational system provides vocational “tracks” at an earlier age (similar to Germany), enabling the Armed Forces to benefit more from the one-year conscription. Grau and Bartles also add that “In 2016, it was reported that 20K of the 155K conscripts inducted in the spring draft already had valid military occupational specialties.” However, until Russia invaded Crimea in 2013, the Armed Forces had major issues recruiting and retaining junior officers and enlisted soldiers. The very brutal Soviet system of hazing, known as *dedovschina*, also continues today despite significant policy changes to address it. For additional Armed Forces personnel details, see Grau and Bartles, *Russian Way of War*, 19, 21, 22, 32, 33, 292-293; Norberg and Westerlund, *Russian Military Capability*, 48.

⁹⁹ Grau and Bartles, *Russian Way of War*, 41, 276, 281.

¹⁰⁰ On logistics, the 2008 reforms attempted to simplify and consolidate the Armed Forces’ logistics structure, pay state-owned companies to provide depot-level maintenance, and outsource unit maintenance, even on the battlefield. These changes have largely not been successful, with Russian maneuver commanders frequently complaining about maintenance. Russian combat resupply remains plagued by shortfalls and inefficiencies, including ammunition arriving at frontline deployed units unready for use. For instance, reports note that machine gun ammunition arrives in large tin cans of 440 rounds, which “must be loaded individually by hand or with a portable machine crank, drastically increasing loading times.” The infantry fighting vehicle “carries two basic loads [of ammunition] into combat, but has to stop and reload its belts once they have been expended. The reload time for a BMP-2 basic load of 500 rounds is approximately 38 minutes.” On logistics personnel, since 2008 the Armed Forces have hired more experienced “contract” soldiers (in addition to officers and conscripts). Since contract soldiers and NCOs are usually assigned as “trigger pullers,” and within more elite units, most logistics units are filled with one-year conscripts. Assigning less-skilled recruits is also occurring as the Armed Forces’ equipment is becoming more technologically advanced and requiring higher-level maintenance capabilities. *Ibid.*, 19, 233, 276, 278; U.S. Army Asymmetric Warfare Group, *Russian Handbook*, 31; Norberg and Westerlund, *Russian Military Capability*, 49; Unpublished paper by author on this subject, “Russian Military Reform.”

¹⁰¹ Renz, “Why Russia is Reviving,” 30.

¹⁰² *Ibid.*, 33.

¹⁰³ For instance, the U.S. Air Force (USAF) 2016 Posture Statement argued “While the world’s expectations of American airpower were shaped by Operation DESERT STORM, our

near-peer adversaries responded to that victory by modernizing their forces with systems specifically designed to neutralize our strengths.” Deborah Lee James and Mark A. Welsh III, *USAF Posture Statement 2016, Fiscal Year 2017*, Posture Statement presented to the U.S. Senate Committee on Appropriations, Subcommittee on Defense (Washington, DC: U.S. Department of the Air Force, February 10, 2016), 1, http://www.af.mil/Portals/1/documents/airpower/FY16_AF_PostureStatement_FINALversion2-2.pdf (accessed February 5, 2017).

¹⁰⁴ Grau and Bartles, *Russian Way of War*, 212; U.S. Army Asymmetric Warfare Group, *Russian Handbook*, 7.

¹⁰⁵ Grau and Bartles, *Russian Way of War*, 19.

¹⁰⁶ The RWW notes that “The battle of Grozny on New Year’s Eve 1994 provided the impetus to develop a heavily armored close combat system. The Russians discovered that the thinly armored ZSU 23-4 self-propelled anti-aircraft gun was the optimum system for tank support in city fighting, but its vulnerability offset the efficiency of its four 23mm automatic cannons.” *Ibid.*, 146, 187, 188-189.

¹⁰⁷ On the lessons in Georgia, the RWW notes that “Although EW was considered vital even in Soviet times, the impetus for recent developments likely stems from the aftermath of the 2008 Russo-Georgian conflict, when Russia lost five aircraft in the first two days of fighting. Only after the arrival of Russian EW troops were Georgian air defense systems suppressed.” With respect to future threats requiring EW technology, the RWW argues “Russia believes that EW capabilities are essential for victory with technologically unsophisticated, as well as technologically sophisticated opponents. These capabilities will create a contested environment for any adversary utilizing terrestrial or satellite radios, GPS-based positioning, navigation, and timing information, and especially precision guided munitions.” *Ibid.*, 241, 243.

¹⁰⁸ The RWW notes “The term ‘flamethrower’ itself conjures ideas of the Second World War, with soldiers carrying backpack mounted aerosol tanks spewing flame from hand-held wands, or the M-67 flame throwing tank that was utilized by the U.S. Army and Marine Corps in Vietnam.” Dr. Vanya Bellinger, originally from Bulgaria, also noted the Russian preoccupation with flamethrowers to the author, about which Russian movies still highlight the horror of the Nazi use during WWII. On Finland, the RWW explains that “During WWII, the USSR invaded Finland and in 4 winter months, lost “65,384 KIA or died of wounds, 14,142 WIA, 5468 POWs, and 9614 cold-weather casualties... The Finnish forces were able to withstand the Soviet onslaught for as long as they did due to their specialized training, acclimation and familiarity with winter movement.” *Ibid.*, 269, 306; Vanya Bellinger, interview by author, Carlisle Barracks, PA, December 14, 2016.

¹⁰⁹ The RWW makes a similar point when explaining why the authors relied more on Russian doctrine and training to explain the Russian way of war against a technologically-advanced adversary than recent Russian operations (e.g., eastern Ukraine). Grau and Bartles, *Russian Way of War*, 12-13. This argument is in contrast to Dave Johnson, who argues that the Russians fighting Chechnya (1990s) and in Georgia (2008) are examples of “high-end adversaries.” In addition to the Armed Forces not yet modernizing before either war, the Russians were capable of making their reforms beginning in 2008 in part because their wars with the technologically-weaker Chechens and Georgians were so difficult for them. Dave Johnson, “The Challenges of the ‘Now’ and Their Implications for the U.S. Army,” *RAND Corporation Perspective*, 2016, 2-3; Renz, “Why Russia is Reviving,” 28.

¹¹⁰ Russians' expected future operational environment resembles guidance in the U.S. Army Operating Concept. For instance, Grau and Bartles argue that the Russians expect the future environment to involve "...less large-scale warfare; the increased use of networked command-and-control systems, robotics, and precision weaponry; greater importance placed on interagency cooperation; more operations in urban terrain; a melding of offense and defense; and a general decrease in the differences between military activities at the strategic, operational, and tactical levels." Similarly, the U.S. Army's Operating Concept outlines the "Anticipated threats and the future operational environment" in which Army forces must be prepared to operate. Like the United States, Russia also expects future military threats to their own homeland, with Russian Ground Forces having an explicitly-defensive mission "to repel enemy aggression on land and protect Russia's territorial integrity." Grau and Bartles, *Russian Way of War*, 11; U.S. Department of the Army, *The U.S. Army Operating Concept: Win in a Complex World (2020-2040)*, TRADOC Pamphlet 525-3-1 (Fort Eustis, VA: U.S. Army Training and Doctrine Command, October 31, 2014), 10-12; Norberg and Westerlund, "Russia's Armed Forces," 28.

¹¹¹ For instance, Russia's Deputy Prime Minister, Dmitry Rogozin, formally oversees Russia's defense industries and the "Russian DARPA," the Foundation of Prospective Research (*Fond Perspektivnykh Issledovaniy* [FPI]). Grau and Bartles, *Russian Way of War*, 188; Adamsky, "Defense Innovation in Russia," 2, 4.

¹¹² Adamsky identifies many challenges with Russia's research and development sector. However, he notes that "Russian leadership clearly refers in its modernization visions and initiatives to conducting break-through military innovations. Speaking about the roles of the FPI, Rogozin clearly refers to the high-risk, non-incremental, disruptive approaches to research in basic and applied sciences. DARPA is held up as a model of how such an approach pays off in the long run both in the military and the civilian sectors. According to the Russian view, 60 percent of DARPA projects have been 'high-risk, high-output' types of interdisciplinary, initially non-applied, but basic research projects. Russian experts state that among the 'mountains of garbage' produced by DARPA, there were 'pearls' that shifted the established paradigms in the revolutionary way. To them, the FPI should emulate this approach... 'Russia is an example of a country that specifically targets technologies, such as nanotechnology and biotechnology, to concentrate resources where breakthroughs are hoped, rather than spreading resources in all potential innovation areas. The Russian government is also one of the world's largest investors in nanotechnology R&D and it is hoped that this will push the entire innovation area forward in Russia.'" Ibid., 9-10.

¹¹³ Grau and Bartles, *Russian Way of War*, 180, 295.

¹¹⁴ The Defense Security Cooperation Agency released in November 2016 that the United States approved \$278 billion in foreign military sales (FMS) during the Obama Administration, which doubled FMS sales during George W. Bush's eight years in office. See Rick Archer, "Foreign Military Sales under Obama Total \$278B," *Law 360 Online*, November 9, 2016, https://www.law360.com/articles/861200/foreign-military-sales-under-obama-total-278b?article_related_content=1 (accessed February 5, 2017). See also the Defense Security Cooperation Agency, "Foreign Military Sales," <http://www.dsca.mil/programs/foreign-military-sales-fms> (accessed January 8, 2017).

¹¹⁵ For instance, the 2017 National Defense Authorization Act added an entirely new Chapter 16 within Title 10 on security cooperation, including providing the Secretary of Defense – with the Secretary of State concurrence – to train and equip partners to build capacity for

operations related to countering terrorism, countering weapons of mass destruction, counterdrug, transnational organized crime, maritime and border security, military intelligence, and contributing to international coalitions. See *National Defense Authorization Act for Fiscal Year 2017*, Section 1241, 114th Cong., 2nd sess. (December 23, 2016), 498-513, <https://www.congress.gov/114/bills/s2943/BILLS-114s2943enr.pdf> (accessed February 5, 2017).

¹¹⁶ This paper uses “rational” using a political science/rational choice theory (originating in microeconomics) meaning: individual political actors will make choices that, given their goals and preferences, maximize their expected utilities in consistent and predictable ways, within constraints, to obtain their ends. Definition derived from graduate school notes largely drawn from Donald Green and Ian Shapiro, *The Pathologies of Rational Choice Theory* (New Haven, CT: Yale University Press), 1994.

¹¹⁷ Karber and Thibeault, “Russia’s New-Generation Warfare.”

¹¹⁸ GEN Valery Gerasimov, Chief of Russian General Staff, used “hybrid war” with respect to the “‘indirect and asymmetric methods,’ to include color revolutions, the Arab Spring, and the Maidan movement, perpetuated by means of the internet, mass and social media, and Non-Governmental Organizations (NGO) allegedly used against Russia and its allies.” Gerasimov, “The Value of Science,” 23-29; Grau and Bartles, *Russian Way of War*, 9; Hedenskog, Persson, and Pallin, “Russian Security Policy,” 107; McDermott, “Gerasimov Doctrine,” 97-105.

¹¹⁹ The RWW notes that Russians have used the term “new generation warfare” for several years, including by S.A. Chekinov and S.G. Bogdanov in their article “The Nature and Content of a New-Generation War.” The RWW explains that this article in a military publication “discusses the future of warfare in relations to nonmilitary options, mobile joint forces, and new information technologies and highlights how ‘advanced countries’ have used the concept for years.” The RWW adds that “It can well be argued that Dr. Karber’s five elements of Russian New Generation Warfare (political subversion, proxy sanctuary, intervention, coercive deterrence, negotiated manipulation) are nothing more than a Russian application of what the U.S. has labeled the means of state power (Diplomatic, Information, Military, and Economic/ DIME)...From our readings of Dr. Karber we have seen no mention of any sources for the five component elements of Russian New Generation Warfare, and presume that these elements were developed by Dr. Karber himself, and not acquired from any Russian source.” Grau and Bartles, *Russian Way of War*, 9-10.

¹²⁰ See for instance COL Douglas Mastriano, *Project 1721: Assessment on Russian Strategy in Eastern Europe and Recommendations on How to Leverage Landpower to Maintain the Peace* (Carlisle Barracks, PA: U.S. Army War College, September 2016); Comments and testimony by Air Force Gen. Philip M. Breedlove, the Supreme Allied Commander, Europe, and commander of U.S. European Command, including Lisa Ferdinando, “Breedlove: Russia, Instability Threat U.S., European Security Interests,” *DoD News Online*, February 25, 2016, <https://www.defense.gov/News/Article/Article/673338/breedlove-russia-instability-threaten-us-european-security-interests> (accessed January 8, 2017).

¹²¹ For instance, “While a direct aggression against NATO is not on the cards, escalatory dynamics from other crises are very likely to affect Western-Russian relations in the years to come.” Haukkala and Popescu, “Introduction,” 9; Gressel, “The Future of the Military,” 32. See also Renz, “Why Russia is Reviving,” 33-36; Gudrun Persson, ed., *Russian Military Capability in a Ten-Year Perspective – 2016*, FOI Report 4326-SE (Stockholm, SW: Swedish Defense Research Agency, December 2016).

¹²² Haukkala and Popescu, "Introduction," 7.

¹²³ Greene, "Future Approaches," 43. As explained in the edited volume, in May 2009, the European Union (EU) launched the Eastern Partnership (EaP), a joint policy initiative of the European Neighbourhood Policy (ENP) aiming to deepen and strengthen relations between the EU and its six Eastern neighbors: Armenia, Azerbaijan, Belarus, Georgia, Moldova, and Ukraine. After being initially guarded with the EaPs, Russia became increasingly hostile when the EU signed Association Agreements in June 2014 with Moldova, Georgia, and Ukraine and the process moved forward with the Deep and Comprehensive Free Trade Areas (DCFTAs). Carolina Vendil Pallin, "Future Approaches to the Shared Neighborhood," in *Russian Futures: Horizon 2025*, 57-63. As Pallin's fellow author concluded, "In Russia's view, the Eastern neighborhood is not common or shared." Gressel, "The Future of the Military," 32. See also European Commission, "Eastern Partnerships," *European Neighbourhood Policy and Enlargement Negotiations Online*, http://ec.europa.eu/neighbourhood-enlargement/neighbourhood/eastern-partnership_en (accessed February 5, 2017).

¹²⁴ In 2015 and 2016, Levada's polls of the Russian people also found that 68% and 65%, respectively, believed Russia faced a military threat, with only 22% and 28%, respectively, answering "no." Hedenskog, Persson, and Pallin, "Russian Security Policy," 102.

¹²⁵ Several European scholars argue that Russia's weakening economy makes its nationalism-via-military operations more likely: Particularly with its recent economic difficulties, Russia's "nostalgia for the mighty Soviet military past, and pride in current military achievements, have taken an important place in Russia's new identity politics." Haukkala and Popescu, "Introduction," 9; Nikolay Petrov, *Putin's Downfall: The Coming Crisis of the Russian Regime*, Essay 166 (Berlin, Germany: European Council on Foreign Relations, April 2016), 1, http://www.ecfr.eu/page/-/ECFR_166_PUTINS_DOWNFALL.pdf (accessed February 5, 2017). As noted previously, Russia's economy also defied most economists' predictions in November-December 2016, finally increasing after two years of negative growth and expecting growth (albeit weak) in 2017. Rapoza, "Russia's Economy Goes Out With a 'Bang'."

¹²⁶ The U.S. Army Operating Concept states that "To win in a complex world, Army forces must provide the joint force with multiple options, integrate the efforts of multiple partners, operate across multiple domains, and present our enemies and adversaries with multiple dilemmas." U.S. Department of the Army, *The U.S. Army Operating Concept*, iii.

¹²⁷ Potential areas with which we could work with Central Asian partners include mission command, mobility, logistics, and humanitarian assistance and disaster relief response.

¹²⁸ As articulated in "Develop situational understanding through action." U.S. Department of the Army, *The U.S. Army Operating Concept*, 18.

¹²⁹ Some of the most advanced thinking on this is conducted by Matthew Kroenig, who argues that the U.S. and NATO must be able to respond to a Russian tactical nuclear strike with a proportionate nuclear response that he argues is not currently feasible, including for deterrence (military) and precedent (political) reasons. See for instance Kroenig, "Toward a More Flexible NATO Nuclear Posture."

¹³⁰ This is also in line with TRADOC Pamphlet 525-3-1, which expects the proliferation of WMD in the future operational environment. U.S. Department of the Army, *The U.S. Army Operating Concept*, 11.

¹³¹ Andrew Feickert, *Selected Foreign Counterparts of U.S. Army Ground Combat Systems and Implications for Combat Operations and Modernization* (Washington, DC: Congressional Research Service, January 18, 2017), 14; Johnson, “The Challenges of the ‘Now’,” 3, 5, 10.

¹³² Argument first raised by Chuck Battles, e-mail message to author, December 9, 2016. In specific: We should “emulate the adversary MDMP [military decision-making process] process for OPFOR [opposing forces] purposes, if known, then attempt to use a generic system predicated on how we use the Warfighting Functions.”

¹³³ See for instance the U.S. Department of the Army and U.S. Marine Corps, *Multi-Domain Battle: Combined Arms for the 21st Century*, White Paper draft version 0.92 (Fort Eustis and Marine Corps Base Quantico, VA: U.S. Army Training and Doctrine Command and Marine Corps Combat Development Command, December 1, 2016).

¹³⁴ “If you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself but not the enemy, for every victory gained you will also suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle.” Sun Tzu, *The Art of War*, trans. Samuel Griffith (New York: Oxford University Press, 1963), 84.

¹³⁵ See for instance Robert Work, “Remarks to the Association of the U.S. Army Annual Convention,” public speech, Washington, DC, October 4, 2016, <http://www.defense.gov/News/Speeches/Speech-View/Article/974075/remarks-to-the-association-of-the-us-army-annual-convention> (accessed January 30, 2017); “Remarks by Deputy Secretary Work on Third Offset Strategy,” public speech, Brussels, BE, April 28, 2016, <http://www.defense.gov/News/Speeches/Speech-View/Article/753482/remarks-by-deputy-secretary-work-on-third-offset-strategy> (accessed January 30, 2017); “CNAS Defense Forum,” public speech, Washington, DC, December 14, 2015, <http://www.defense.gov/News/Speeches/Speech-View/Article/634214/cnas-defense-forum> (accessed January 30, 2017); “Reagan Defense Forum: The Third Offset Strategy,” public speech, Simi Valley, CA, November 7, 2015, <http://www.defense.gov/News/Speeches/Speech-View/Article/628246/reagan-defense-forum-the-third-offset-strategy> (accessed January 30, 2017); “Remarks at the Royal United Services Institute,” public speech, London, UK, September 10, 2015), <http://www.defense.gov/News/Speeches/Speech-View/Article/617128/royal-united-services-institute-rusi> (accessed January 30, 2017).

¹³⁶ See for instance the U.S. Department of the Army and U.S. Marine Corps, “Multi-Domain Battle.”

¹³⁷ The World Bank lists Russia’s GDP dropping from a high of \$2.123T (in USD) in 2013, to \$2.053T in 2014, and \$1.331T in 2015. Its GDP rose at 1.5% in 2016, although this is still significantly slower than its rapid rises through between 1999 and 2008. Russia’s GDP in 2015 is also still close to Russia’s GDP in 2008 when it launched the reforms, which was also almost ten-fold above the GDP in 1999. The World Bank Online, “Russian Federation”; Rapoza, “Russia’s Economy Goes Out With a ‘Bang’.” Analysis on problems causing Russia’s economic problems come from Inozemtsev and Zhuchkova, “The Future of the Economy,” 25.

¹³⁸ Gudrun Persson, “Russian Military Capability,” 188-189. Project 1704 also noted that Russia’s 2014 “defense spending is projected to account for over 20% of all government spending.” U.S. Army War College, *Project 1704*, 26.

¹³⁹ Ibid. Trenin notes that the projected \$700 billion cost is projected through 2020. Trenin, “The Revival,” 24. Grau also noted that this inability to modernize its entire force “is why Russia does not replace all its old tanks with T-14s. Instead, it rebuilds T-72s into T-72B3s which can outgun and outrange the [M1] Abrams [tank].” Les Grau, e-mail with author, February 17, 2017.