



Resurgent Russia in 2030 Challenge for the USAF

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Air War College

Air University

Maxwell Air Force Base

Resurgent Russia in 2030



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Lt Col Michael F. Tarlton is currently a student at AWC. He served on the Air Staff as deputy chief, Air Dominance Division, Global Power Programs Directorate, and Assistant Secretary of the Air Force for Acquisition where he was responsible for coordinating and communicating key Air Force messages on F-22A and F-35 to the Office of the Secretary of Defense and Congress. Colonel Tarlton spent operational tours in the F-16 at Mountain Home AFB, Idaho, and Kunsan AB, Korea, before attending Test Pilot School in 1998. Following Test Pilot School, he served as the operations officer of the 40th Flight Test Squadron at Eglin AFB, Florida, and the squadron commander of the 416th Flight Test Squadron at Edwards AFB, California, flying F-16 developmental test missions. As an operational fighter and test pilot, he has accumulated over 2,400 hours in 25 different aircraft, with over 1,775 hours in the F-16 and over 110 hours in combat. He has been awarded two Air Medals and five Aerial Achievement Medals. He has a bachelor of science degree in electrical engineering from the University of California at Davis and a master of science degree in electrical engineering from San Diego State University. His military educational background includes SOS, ACSC, a National Defense Fellowship at the Defense Advanced Projects Agency, and AWC.

Abstract

Russia has had a turbulent history, and those experiences have had an indelible influence on the nation as it moved from its tsarist past, through the Soviet interregnum, to its brief flirtation with democracy. These traditions and cultural pressures have instilled in the Russian psyche a belief that strives for stability and seeks strong leadership. Furthermore, Russia tends to value stability and its proclivity for strong leadership even when these traits conflict with those democratic ideals that have become mainstays in the West since the time of the Renaissance and the Reformation. After each change in governance, Russia always returns to form, which is now easy to follow in the Putin era. There is a willing consolidation of power in an authoritarian-style government that is leading Russia back onto the world stage. This resurgent Russia will ultimately become a serious competitor to the United States and over the years could well become a threat.

This monograph is concerned with the direction Russia will take over the next 20 years, its growing influence on the world scene, and the particular challenges it will present to the United States by 2030. The determination that Russia will be an adversary is certainly not a foregone conclusion; however, neither is long-term Russo–American friendship a predetermined outcome. What is certain is that whatever the intentions of Russia, the United States must be prepared to handle the challenges they may present. Further, the typical Department of Defense (DOD) myopia of focusing primarily on the war of the present may be blinding decision makers to the challenges of tomorrow.

Handling these long-term threats will require forethought and planning. Preparing the US military will require innovative planning, which needs to include the introduction of emerging technologies, dynamic systems, and insightful strategies that can meet the full spectrum of challenges presented by a resurgent Russia. The purpose of this monograph is to provide the background information necessary to establish a priority listing of the types of systems and organizations needed to meet this kind of future threat. The results of this study will be combined with other alternate futures to optimize the mix of systems and strategies for the US Air Force of 2030.

Preface and Acknowledgments

In 1996 the Air Force initiated a major study effort under the direction of Gen Ronald R. Fogleman, the Air Force chief of staff. That study, *Air Force 2025*, looked 30 years into the future and made enormous contributions toward directing Air Force research and procurement to ready our forces for new challenges. The study brought together some of the brightest minds and most forward thinkers of the age, including Dr. Norman Augustine, president of Lockheed Martin; Alvin Toffler; James Cameron, who later directed the movie *Titanic*; Burt Rutan; Gen Bernard Schriever; Adm Bobby Inman; and Dr. Gene McCall and Dr. Dan Hastings, two chairmen of the Air Force Scientific Advisory Board.

In 2007 Gen T. Michael Moseley, then Air Force chief of staff, directed a continuous series of future thinking and study efforts be undertaken, using Air University (AU) as the “Air Force’s think tank.” This monograph is part of that ongoing effort. The authors collectively spent a year researching and traveling to ascertain what range of challenges Russia may present in 20 to 30 years. The team spent significant effort on researching Russian culture, its political system, its rapidly growing economy, and its recent military buildup. These efforts form much of this monograph.

From this basic research and meetings with Russian experts both in the United States and Russia, the team began to explore directions Russia might take in the future. This exploration is not designed to forecast a specific future, but rather to help the reader better understand the magnitude and shape of a rapidly rising power. This power may be our friend or foe. But whatever Russia does become, the nation must be ready to engage it as a fellow member of the international system.

From all the authors, debts of gratitude are owed to many who offered advice. While too numerous to list here, they are listed in the documentation and endnotes. An even greater debt is owed to our families, who endured lengthy separations as the team traveled to research this monograph. More is owed to them than can be stated here.

Chapter 1

Introduction

The last 100 years have been called the American century.¹ This monograph is about the start of what may be the Asian millennium.² Russia is an unusual case since it is between Europe and Asia with aspects of both. Every indication suggests that, at some time in the next 20–40 years, Russia will reemerge as a world power. While some authors quibble about dates, there are few who argue about the eventual outcome.

This monograph is part of the *Blue Horizons* study commissioned by Gen T. Michael Moseley, the former US Air Force chief of staff, to provide “a new look at the future.” Specifically, the chief of staff asked the Center for Strategy and Technology (CSAT) to “provide a common understanding of future strategic and technological trends for Air Force leaders to make better decisions.” The chief also seeks to “confirm Air University as [the Air Force’s] in-house think tank” and to improve the relevance of Air Force education to the decision-making processes in Washington.³

Within the context of this 2008 study, four separate planning scenarios were examined. The best and brightest officers from the Air Force and the sister services were specially selected to participate during their one-year course of instruction at Air University (AU). These scenarios include a resurgent Russia; a failed state in a vital area of US interests; a successful al-Qaeda overthrow of a Middle Eastern friendly state; and the rise of China to peer status.

Within these works, there is no magic, no fortune-telling, and no attempts at clairvoyant prognostication. These are written as, and intended to be used as, academic works to inform decision makers and scholars about changes happening in our world. The discussion herein is a mix of cultural sociology, political science, economics, military science (sometimes called strategic studies), and international relations.

The final part of the *Blue Horizons* project, not a part of this monograph series, will be an analysis of each of the four alternate future scenarios. While it is not possible to predict with any fidelity what the specific threats will be in 2030, this study’s intent is to look at four world views that cover a spectrum of probable futures, from peer to terrorist. This diverse analysis will help to better understand the nature of the potential threats the US Air Force may face in 2030. There will be obvious substantive differences in threat between a resurgent Russia, a peer China, a failed state, or a terror state on steroids. Finally, the *Blue Horizons* study will examine what systems and technology are best suited across the wide spectrum of possible futures.

Methodology

This monograph is grounded in reputable scholarship and in actual site visits to the locations in question. The researchers performed a data search across the literature covering international relations, political, economic, cultural, and military studies. They also enrolled in specialized coursework pertaining to both Russian domestic and international relations.

Each researcher formulated a series of questions relative to their section on this monograph. They traveled to conduct interviews with senior members of the Department of State, the national intelligence agencies,⁴ and the Department of Defense (DOD). In addition, each member of the team traveled to Russia, meeting with political and military leaders as well as cultural experts and diplomatic staff.

In addition to searching for answers to basic questions, the team engaged in a modified Delphi method⁵ of generating conclusions about both present-day Russia as well as Russia's probable future direction. They identified specific trend lines that will provide guidance and understanding of Russia in 2030. These conclusions were then revetted against a series of experts and fellow team members to refine hypotheses and conclusions. Finally, the team engaged in additional research and interviews to narrow the perspective and focus of this paper.

For the military capabilities sections, the researchers used a war-game methodology to add detail to the political, diplomatic, military, and technological materials gathered in the interviews, discussions, and site visits. In these sessions, a formal Delphi method⁶ was used which included a broad cross section of 22 senior DOD civilian and military strategic thinkers. This scenario-based discussion involved several iterations of discussion wherein the researchers interacted with three opposing teams to generate a more complete picture of the challenges a modernized resurgent Russia might present by 2030.

Members of the Headquarters USAF Strategic Planning Directorate, US Air Force, and Air Force Research Laboratories scientists simultaneously collaborated on developing a list of present and technologically feasible future concepts that the US Air Force either will have or could have in its inventory in the 2030 timeframe. Many of these concepts are in the Air Force today, such as the F-22, and are planned to still be in the inventory 22 years from now. Others are systems wherein the enabling technologies required to field them are sufficiently mature to be developed and procured, if their value warrants, within the next two decades.

The final aspect of this analysis involved using a "value-focused-thinking" quantitative model to formally evaluate the existing and potential future concepts for effectiveness against a Russia with its current and projected systems.⁷ This model was implemented under the direction of the AU CSAT, with the assistance of Innovative

Decisions, Inc., whose members include some of those cited in the seminal works on this method in the footnotes.

Notes

1. Walter LaFeber, *The American Century: American Foreign Policy Since the 1890s*. (New York, NY: W. W. Norton Publishing, 1989).
2. This term was coined by Joseph A. Engelbrecht Jr., et al., in *Alternate Futures for 2025* (Maxwell AFB, AL: Air University Press, 1996), 79.
3. Gen John D. W. Corley, vice-chief of staff, US Air Force, memorandum of agreement, 17 May 2006.
4. There is nothing in this work, nor any source used to compile this work, that is or draws upon classified material.
5. Norman Dalkey and Olaf Helmer, "An Experimental Application of the Delphi Method to the Use of Experts," *Management Science* 9, no. 3 (April 1963): 458-67. Dalkey and Helmer discuss the method in depth, as well as its origins in RAND's *Project Delphi*.
6. Ibid.
7. The value-focused-thinking model closely parallels that used in the *Air Force 2025* study. For details on the *Air Force 2025* model, see J. A. Jackson et al., "Air Force 2025 Operational Analysis," *Military Operations Research* 3, no. 4 (1997): 5-21. For more on value-focused-thinking methodology, see R. L. Keeney and H. Raiffa, *Decision Making with Multiple Objectives and Value Tradeoffs* (New York, NY: Wiley Press, 1976); Keeney, *Value-Focused Thinking: A Path to Creative Decisionmaking* (Cambridge, MA: Harvard University Press, 1992); C. W. Kirkwood, *Strategic Decision Making: Multiobjective Decision Analysis with Spreadsheets* (Belmont, CA: Duxbury Press, 1997); and G. Parnell, et al., "Foundations 2025: A Framework for Evaluating Future Air and Space Forces," *Management Science* 44, no. 10 (1998): 1336-50.

Chapter 2

Overview

The purpose of this monograph is precise but easily misunderstood. The clearest way to minimize confusion is to first detail what this paper is not trying to accomplish. First, it is not a prediction of what Russia will necessarily be like in 2030. The monograph paints a logical picture of how the United States may be challenged by a near-peer competitor with the capacity to destroy the United States. It is written based on Defense Secretary Robert Gates' *National Security Strategy*. Second, there are many potential future paths for Russia. This path assumes energy prices will not decline, the trends in Russian governance will remain stable, and the Russian republic will remain intact as a nation state. Finally, this scenario and the study do not assume that warfare with Russia is inevitable or even likely. This alternate future merely creates a situation where, possibly, the interests of the United States and Russia may not coincide, and uses this situation to explore the types of capabilities the Air Force would need in such a world.

Any alternate future needs to be grounded in a realistic assessment of a likely challenger's military potential. Such a scenario must fall accurately within historical context and be both fiscally viable and politically attainable. The recent actions and directions taken in Russia under then Pres. Vladimir Putin made the task of building a realistic roadmap that leads to a resurgent Russia relatively straightforward. The Russian government is providing all of the fodder necessary for building the case for a resurgent Russia scenario. In a real sense, what started as a theoretical model for purely academic purposes is becoming not only a possible future but also a highly probable one as well.

This monograph begins with an analysis of the political aspects of a resurgent Russia. It looks briefly at the Yeltsin era where power devolved away from Moscow, yet created a new constitution that laid the groundwork for a significant increase in the Russian president's power and authority. It then details the efforts under President Putin, who took advantage of this constitution to bring new powers to the presidency. This section also examines the impact of corruption, the lack of an independent judiciary, and the politicization of key economic forces on Russia's internal political system.

Chapter 4 presents the economic trend line underpinning Russia's resurgence. It provides a brief look at the economic changes following the collapse of the Soviet Union and examines the current status of the Russian economy, its components, and the distribution of resources. The discussion then migrates toward Russia's "strategic industries" of oil and natural gas. These industries are a

key source in Russia's continued economic growth, which is fueling an increase in their military spending.

Next, ongoing trends within the Russian military are examined. As a result of the political centralization of power and the dramatically increasing funds made available through the sale of gas and oil, the Russian military has seen a substantial increase in its political support and has received an infusion of cash and resources that has enabled it to embark on an aggressive reform program. These reforms span five categories: military institutions and command structures, "peopleware" designed to improve personnel problems, military hardware, defense industry reform and international partnerships, and emerging technology. While it will take years to recover from the neglect suffered in the 1990s, the Russian military will make substantial improvements in the next 20 years. Nonetheless, even with these improvements, Russia will still be only a major regional force in the timeframe being studied here.

Chapter 6 posits the types of challenges Russia might pose to the United States. This analysis lays the foundation for what the key implications are for a modernized resurgent Russia in our world.

Soft Sciences behind the Hard Facts—Historical and Cultural Underpinnings

The political, economic, and military trend lines identified are the dominant ones for this research project; however, they do not represent all the variables that must be considered when examining and assessing Russia over the next 20 years. There are critical factors that affect the direction Russia will follow that cross over the political, economic, and military lines; hence, these forces need to be acknowledged up front. They provide the background and often the explanation for particular actions that each of the trend lines introduce.

These are the forces that have evolved over 1,000 years of Russian history. It is the culture—the history of the Russian people. It is a combination of their long bloodied history, the demographic realities at work in their society, and their religious undercurrents. The impact of these deeply-engrained societal influences cannot be overstated. These forces impact everything from politics to how they view their economy and civil-military relations. It even helps explain why strong military power is so central to their collective Russian mindset.

Russia is reasserting itself as a world power in terms of geography, politics, nationalism, and religion.¹ Russia's ideology is deeply rooted in its unique history, which helps explain its focus on national security and its high level of suspicion in the international arena. One cannot look at Russian culture from a Western perspective or as a simple recitation of historical facts. It is a nation that encompasses a large land mass with few natural barriers, a

geographic reality that has motivated many invasions at the hands of its neighbors. Throughout its history, Russia has been required to maintain a large standing army to protect itself from rival countries and internal threats. Their history easily explains why Russia often displays a paranoid-nation mentality. Subsequently, this attitude also illustrates why Russia has the need to flex its military muscle, as it has done with more frequency with the reemergence of its military power.

Putin, now prime minister, is acutely aware of Russian paranoia and is taking steps to restore a sense of nationalism and strength in the Russian people. The latest examples of Putin's efforts to restore Russian pride and prestige include claims to the North Pole as sovereign territory and reviving the Russian space program in an attempt to be the first country to send a manned mission to Mars. All of this "flexing" of Russian international muscle is an effort to show Russian citizens that they are part of a strong and resurgent Russia. It is presumed that Russians will never be comfortable until they believe they are invincible. This constant pursuit of security will drive them to continue spending an increasingly larger share of their gross domestic product (GDP) on their military. Additionally, security concerns will continue to allow for the centralization of authority in the hands of a strong, autocratic leader. Consequently, these security concerns and associated spending priorities will come at the expense of social programs which will continue to be underfunded.

Demographics

The most serious, long-term problem facing the Russian government—a problem that permeates every aspect of Russian politics, economics, and military readiness—is the conundrum of demographics. Topping the list of these concerns is its significantly declining overall population and simultaneous problematic rise in the Muslim proportion of their general public. Though distinctly separate issues, they combine to create even greater dilemmas for the Russian government. Though the Kremlin fully understands the perils associated with their demographic challenges, there is little they can do to reverse the projected trends in their population. Although a decline in population puts less strain on a country's infrastructure, a smaller population will significantly limit future economic potential and dramatically impact future defense-related issues.

Although there are many social factors contributing to the population slide, the nation's dismal health care system is arguably the most direct cause of the Russian population decline. Russia's poor medical infrastructure alone contributes to a staggering 40 percent preventable mortality rate. This rate is a direct result of poor preventive medicine programs, substandard medical facilities, and limited health care accessibility.² This statistic also reflects an infant

mortality rate that alone accounts for 1.4 million female and 1.8 million male deaths annually.³

Further compounding the Russian demographic problems caused by a poor health industry is the extremely high prevalence of suicide. Given the World Health Organization's (WHO) reported suicide rate of 70.2 per 100,000 for males and 11.9 per 100,000 for females in 2003 implies that approximately 46,000 males and 9,000 females annually take their own lives.⁴ Furthermore, the mortality rate among young and middle-age men is increasing. For example, the death rate of the working age population is 350 percent higher than that of the European Union.

Additionally, Russia faces even greater demographic challenges because their birth rates are lower than the mortality rates.⁵ Despite extensive governmental efforts to stem the tide of population decline, the Russian population is projected to continue to decrease through 2050. The causes are wide-ranging, yet all are linked to the effects of widespread alcoholism and drug use, the poor health care system, and the decline in birth rates.

Figures 1 and 2 illustrate the decline in both the male and female military-age sectors of Russian society, as projected out to 2030. There is no denying that Russia will be faced with many challenges over the next two decades, and a shortage of available personnel to serve in the Russian armed forces is arguably at the top of Russia's list of security challenges. Additionally, Russian leadership must also be concerned about fielding a viable civilian workforce in addition to fielding a credible military force. Russia will be required to make significant cultural changes to reverse its declining demographic trend and insure its survival.

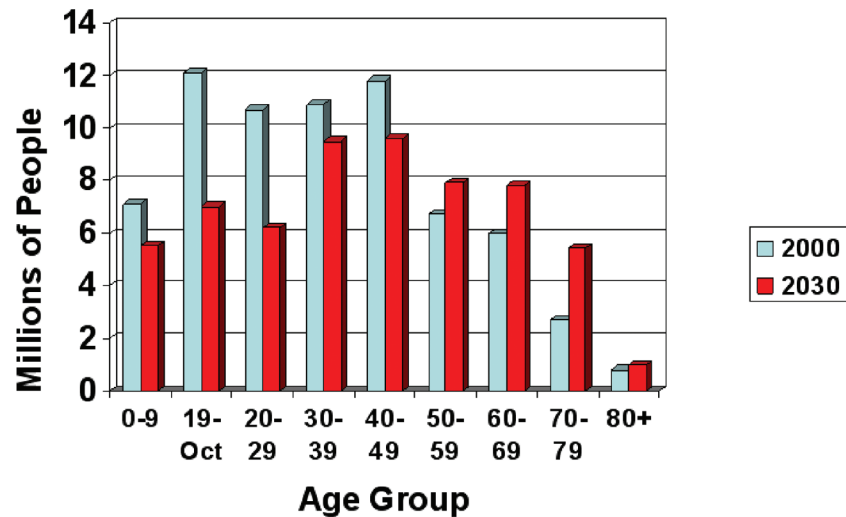


Figure 1. Male Russian population trends. (Data derived from Central Intelligence Agency [CIA] Fact book, <http://www.nationmaster.com/red/country/rs-russia/mil-military&all=1>).

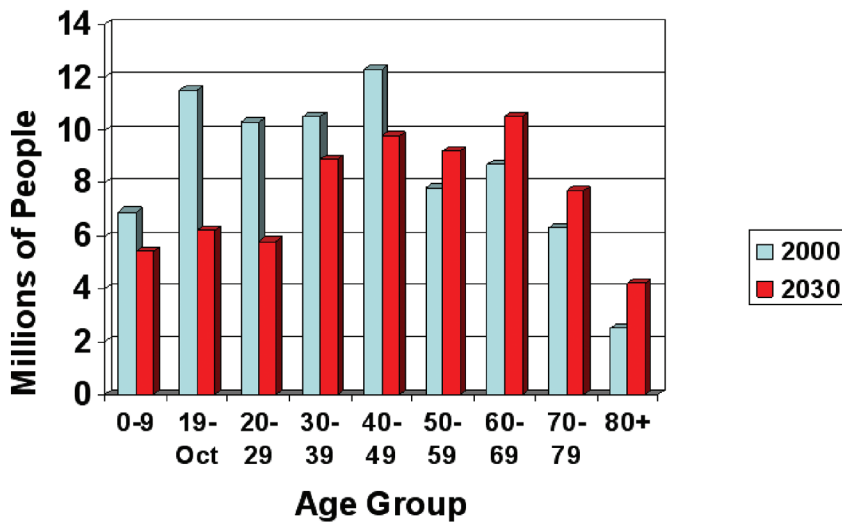


Figure 2. Female Russian population trends. (Data derived from CIA Fact book, <http://www.nationmaster.com/red/country/rs-russia/mil-military&all=1>).

Putin fully understands that he must increase the standard of living, create jobs, and enhance social programs to reverse the downward demographic trend. However, Russia will not noticeably be able to slow the downward demographic trend any earlier than 2015. This is due to the long lead times associated with improving infrastructure, repairing a broken health care system, and altering the “small or no family” mindset prevalent among the child-bearing age groups of society. However, the government is beginning to put programs in place to improve these areas. For example, there is a plan to double (to 6 percent) the amount of GDP spent on health care by 2010. Additionally, public health education and training will most likely move higher on the list of Russian priorities. One area where relatively major results could be realized is in the area of suicide prevention. Even a 50 percent decrease in the number of suicides would equate to an additional population of 750,000 between the ages of 15–24 by 2030. The net impact on population decline, from a relatively minor spending increase in these programs, could result in nearly one million lives saved per year.

In addition to stemming unnecessary population decline, Russia is trying to stimulate larger family sizes with its “Conception Day” program. This highly publicized program awards money to Russian families who conceive.⁶ However, current low income levels and the associated low standard of living of young Russian families creates a further disincentive for procreation than can be made up for by this program. Unfortunately for the government, 70 percent of all families with children live near or below the poverty line. Hence, the Conception Day’s one-time \$10,000 government “prize” for having children will not attract as many families as the Kremlin may desire.

Low amounts of discretionary spending only aggravate this problem. For example, approximately 87 percent of the population spends at least half of their income on food. Interestingly, the current Russian expenditure of \$2.30 per resident per day is equivalent to the cost of feeding a British cat in 2004.⁷ The bottom line is that, for a large segment of the population, it is still too expensive to maintain a large family, and those who do face the additional challenges of a neglected education system. However, a steady increase in personal incomes and a new focus on educational funding will, over time, ameliorate some of the standard-of-living difficulties that exasperate the current demographic curve issues.

Despite these barriers, figure 3 shows the potential impact of the Conception Day program; a moderate increase of nearly 100,000, or roughly 60 percent of those between the ages of 18–49, fit for military service. The first sign of significant growth will be in the 2030 census when the estimated five-year bumper crop of Conception Day babies reaches 18. This can be seen in a leveling of the curves of military-age males and females in the 2025–30 time frame.

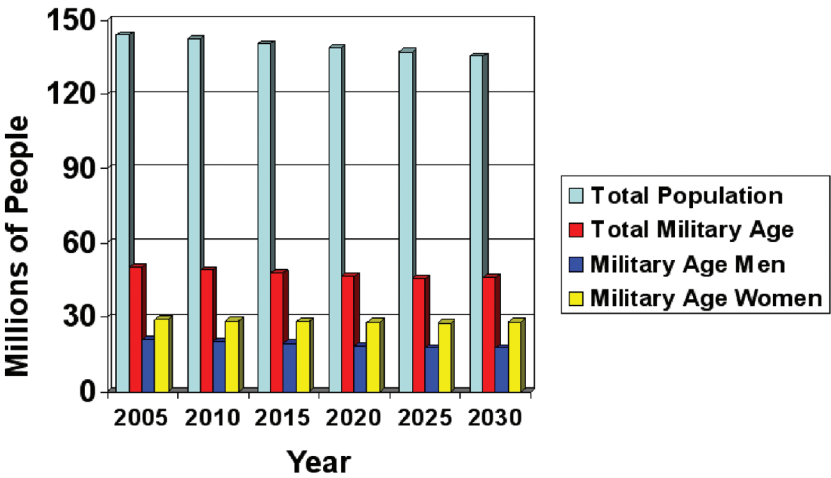


Figure 3. With social reforms—Russians aged 18–49 fit for military service. (Data derived from CIA Fact book, <http://www.nationmaster.com/red/country/rs-russia/mil-military&all=1> (2 October 2007).

Despite these programs, the Russian population currently stands at an estimated 143.1 million and is declining at a rate of 0.484 percent annually,⁸ a rate that is shocking compared to the rest of the modern world. As evidenced by the Russian government’s health crisis plan, Russia has one of the world’s lowest life expectancy averages: 59 for males and 73 for females.⁹ If this negative trend continues, the shrinking population problem will only be compounded. Moreover, the WHO projections show an additional four-year drop in overall life expectancy by 2015.¹⁰

Although short-term impacts are inconsequential, even small improvements in population decline can have tremendous impacts over the long run. For example, over the next 23 years, a 50 percent decrease in the annual percentage of population decline, from 0.484 to 0.242, could be realized and would result in a 2030 population of 135.3 million compared to the current prediction of 127.9 million. Statistical trend analysis also indicates a 56 percent reduction in the number of 18-year-olds by 2018. Figure 4 shows the current extrapolation of data reflecting the number of Russians, between the ages of 18–49, who are fit for military service. Note that in contrast to figure 3, absent any social programs, the number of military age men and women in Russia continues to fall through 2030 and potentially beyond.

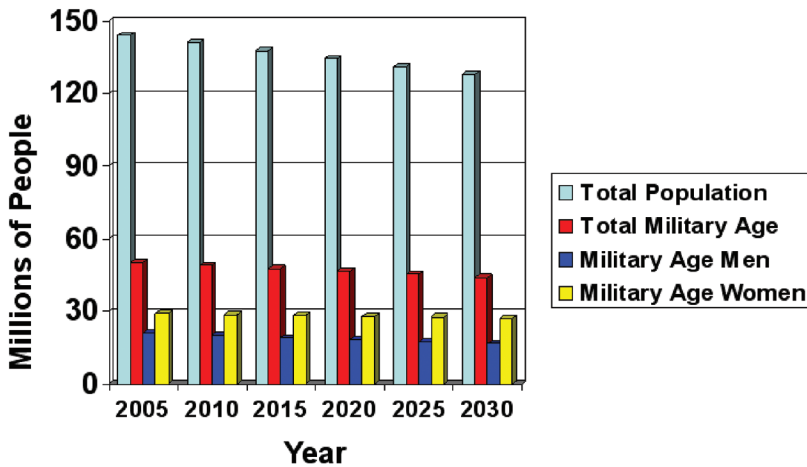


Figure 4. Current Russian population projections (military age defined as ages 18–49). (Data derived from CIA Fact book, <http://www.nationmaster.com/red/country/rs-russia/mil-military&all=1> (2 October 2007).

It is interesting to note that the number of qualified candidates is only 60 percent of the total theoretically available due to a large percentage of physical and mental disqualifiers. Again, based on a plethora of societal limitations that must be overcome, the best the Russian government can hope for is that, by 2030, they will be able to cut the current percentage of population decline by 50 percent. Clearly these numerical challenges will have a profound effect on Russian defense planners. Therefore, in order to reach a truly resurgent Russian military scenario, Russia will be forced to turn to technology to compensate for this limited manpower pool. Such a step is eminently logical and reflects similar decisions made by the United States after World War II, when the United States pursued a high-tech nuclear solution to fend off the threat of a far larger Soviet force. This allowed a dramatic reduction in the Pentagon’s force structure, which freed up critical manpower

and resources for the extensive rebuilding process following the war. Today, with their newfound petroleum wealth, the Russians have the financial resources necessary to fund the development and fielding of such technological solutions, an approach that is both logical and probable.

Religion

A critical subset of the overall demographic change in Russia is the noteworthy shift in the religious diversity of the current population. This religious migration is far-reaching and will play a significant role in Russian society by the year 2030. Russia has a highly diverse ethnic makeup creating a significant potential for internal conflict between the shrinking ethnic Russian population and the quickly growing Muslim portion of Russian society. The extent of this shift is evidenced by a World Bank study that predicts the majority religion in Russia will shift from Orthodox to Muslim by 2050. Will the Russian leadership or the ethnic Russian population allow such a shift in religious affiliation? Is it even possible for such a dramatic shift to occur peacefully?

Amendment 93 of Article 14 of the Russian Constitution, *Law of Religion*, highlights “the special role of Orthodoxy in the history of Russia and in the establishment and development of its spirituality and culture.”¹¹ The Orthodox Church maintains close ties with the prime minister and continues to influence governmental actions, particularly those that affect other religious practices in Russia. Needless to say, the Orthodox Church has a vested interest in keeping the other religions and their potential influence at bay. Subsequently, the government also has a vested interest in this symbiotic relationship since it can use the Orthodox Church and its influence as yet another tool to manipulate the population.

While the Orthodox Church is afforded a privileged status by the Russian government, minor religious movements, such as Lutherans and Jehovah’s Witnesses, face repressive social intimidation, including outright harassment.¹² Additionally, religious groups, such as Buddhists and the Christian Evangelical movement, face additional bureaucratic restrictions not imposed on the Orthodox Church including the requirement to register with the state.¹³ It is interesting to note that well-established Russian Orthodox, Islamic, and Jewish groups do not garner the same level of bureaucratic scrutiny these “new” religious movements receive. Presumably, this is because of their long-standing presence, subsequent acceptance of the public at-large, and strong ties with the Russian leadership and the power-wielding Oligarchs.¹⁴ As a result of these legal discriminatory activities and outright intimidation, Russia has experienced few problems with the minor religious groups within its borders.

However, there is one glaring exception and that is with the radical Islamic movement in the Russian region of Chechnya. Although

the Islamic fighters in Chechnya make up just 0.001 percent of the overall Russian Muslim population, their impact on Russian defense posture has, at times, been near catastrophic.¹⁵ Currently, Muslims comprise a substantial segment of the Russian population; however, they tend to be moderate in their practices and diverse in terms of sect, practicing believers, and geography. Hence, the influence of radical ideologies has been geographically limited to Chechnya.

When compared to members of the European Union, Russia has the largest per capita of citizens professing to be Islamic at 15 million. Nearly all Russian Muslims follow the Sunni branch of Islam; however, a few areas like Chechnya follow Sufism.¹⁶ The number of mosques in Russia now exceeds 8,000, representing an exponential increase from just 300 in 1989. Interestingly, there are currently no mosques located on Russian military bases despite the fact that 20 percent of Russia's military conscripts is Muslim.¹⁷ Trends indicate that the Muslim population will grow by 40 to 50 percent by 2015 due to high birth rates and active religious recruitment.

Russian Muslim families have, on average, three children, while non-Muslim Russians have substantially fewer children.¹⁸ Additionally, compared to the Orthodox Church, the Muslim community is proactively seeking souls and is successfully drawing in new converts. Arab-supported nongovernmental organizations (NGO) are assisting in this area and are gaining momentum as a by-product of the war in Chechnya.¹⁹ Also, a relatively poor social climate is spurring people to look to other faiths as a source of refuge, especially among the younger population. The higher Muslim birthrate, increased support from transnational Islamic organizations, and an expanding Islamic affinity within the youth grouping all contribute to the fact that Muslims, without Russian intervention, will become the majority as early as 2050. Presently, the predominant religion in Russia is Orthodox Christianity, at roughly 50 percent, while practicing Muslims make up 10 percent of the population.²⁰ It is another Russian paradox that it has the largest population of nonpracticing and nonbelievers per capita in the world, yet approximately 80 percent of ethnic Russians claim to be Orthodox followers.²¹

The countervailing forces at work in the area of religious diversity make any prediction difficult. However, the way such dynamics play out will certainly be one of the important variables on the road to a resurgent Russia. The trend line followed for this monograph makes the following assumptions: (1) The Orthodox Church will maintain its dominance. The considerable influence it has within the government and, conversely, the substantial control the government has within the church will guarantee continued close collaboration; (2) The current jihadist forces at work in the Balkans and in southern Russia will abate over time, returning the Russian population to their historical norm of disinterest in religion; (3) The Muslim's increased percentage within the Russian population will still be a

disruptive factor but controlled sufficiently through government oversight, intimidation, and disinterest from the general public.

Notes

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Chapter 3

Political Background

With the fall of the Soviet Union in December 1991, Russia emerged as one of 15 newly independent states. Boris Yeltsin became the first elected president and promptly implemented numerous economic and political reforms that created a completely new theory of government. Under his leadership, Russia dissolved the Congress of People's Deputies, which enjoyed supreme lawmaking powers under the 1977 Soviet constitution, and established direct presidential rule.¹

Back to the Future—The Theory of Russian Politics

In 1993 Russia ratified a new constitution, which established a new parliament and a separate judicial branch. The new constitution combined elements of several Western democracies, including the United States and England, but with stronger executive powers. However, even with \$14 billion in economic aid from the United States to encourage democracy and economic reform, the Kremlin could not prevent the ensuing seven-year economic crisis nor could it quickly overcome the 1,000 years of political tradition that proved so antithetical to the budding democratic process.² By 2000 the Russian economy had all but collapsed, and President Yeltsin's policies had left him extremely unpopular in Russia. Nevertheless, he did win his final political battle, securing the presidency for his chosen successor, Vladimir Putin.³

This new governmental construct was designed to be Western in process and democratic in execution. According to Yeltsin's constitution, the Russian government is composed of the president, a bicameral legislature, and a prime minister. Much like the United States, the president of Russia serves for four years, can serve a maximum of two consecutive terms, and is charged with protecting the rights and civil liberties of the Russian people. He administers domestic and foreign policy while serving as commander in chief of the Russian military. The president also determines issues of migration and has the sole authority to provide pardons and nominate justices to Russia's high courts.⁴

The president appoints the prime minister, and the legislature approves the appointment. In theory, the prime minister and the president share executive power within the Russian Federation. The prime minister is the head of government, while the president is the head of state. In reality, under the Putin regime, the prime minister was more of a presidential puppet than the "head of government." However, this relationship is changing with the recent

presidential elections, and the power of the prime minister appears to have increased.

This new governmental system had many of the trappings of typical democratic nations. The bicameral legislature is called the Federal Assembly and is composed of the Duma, or lower chamber, and the Federation Council, or upper chamber. Under the Russian Constitution, the Duma, the more powerful chamber in the Federal Assembly, has the power to pass laws; approve the presidential nominee to prime minister; and consider and approve federal taxes. It also has the power to override a presidential veto or Federation Council law. Under Putin's presidency, the Duma has undergone changes that strengthen presidential powers. At its inception, the Duma was composed of 225 seats from single-member districts and 225 seats from national party lists with proportional representation. To limit the number of parties, it also maintained a 5 percent threshold for party representation. In September 2004, President Putin proposed that all 450 Duma seats be filled from party lists with proportional representation and with a new 7 percent threshold for party representation.⁵ By doing so, he effectively eliminated several national opposition parties and virtually all Duma members from individual districts who opposed his government. Thus, pro-Putin factions currently dominate the Duma and pose minimal opposition to the president and "his" government.⁶

The Federation Council, the weaker of the two houses and the first to feel the changes under Putin, started with 178 members composed of two seats from each of the Russian Federation's 89 regions. Thus, in theory, the populations of small ethnic regions are well represented. Constitutionally, the Federation Council has powers to approve presidential nominees to the high courts, to approve any actions resulting in territorial boundary alterations, and to consider any legislation that deals with financial policy, taxes, budgets, customs, or the declaration of war.⁷ President Putin altered the makeup of this body to better control members and insure control over the process.

Russia passed a law in 2000 that altered the original purpose of the upper chamber by moving much of the selection process for members into the hands of the executive branch. The heads of regional and executive bodies would no longer gain automatic representation; instead, their regional legislatures or chief executives appoint the members of the Federation Council. Thus, it is now much easier for federal authorities to control the composition of the council,⁸ essentially serving as a "rubber stamp" for the Kremlin. In fact, according to Freedom House, the Federation Council is more of a network of informal alliances used to help allies gain power rather than a legitimate governmental agency.⁹ Thus, although the Federation Council has many important powers granted under the Russian Constitution, it wields very little, if any, real power and certainly poses no threat to the president or his government.

Political parties in Russia are another anomaly. Prior to the collapse of the Soviet Union, the only political party in Russia was the Communist Party. The 1977 Russian Constitution, adopted by Leonid Brezhnev, defined the party as the “leading and guiding force of Soviet society, the core of its political system and of state and public organizations.”¹⁰ According to the constitution, the Communist Party gave planned scientific guidance to the Soviet people for communism’s victory over the West. With the collapse of the Soviet Union in December 1991 and the emergence of a new Russian Constitution under Mikhail Gorbachev, the Russian Federation appeared to be headed for a more Western political system, complete with ideological diversity and a multiparty political system.¹¹ However, even though Article 13 of the Russian Constitution guaranteed respect for all social, racial, national, and religious political party associations, what has emerged today is a political party system that looks nothing like its Western counterparts. Instead of political parties drawn along liberal-conservative, sociocultural ideals or values, the Russian political party system is, more often than not, driven by individual politicians or factions seeking to increase their power base within the Russian Federation.¹²

Of the 23 political parties registered for the 2003 Duma elections, only two had distinct ideologies with a loyal following: the Communist Party of the Russian Federation (CPRF) and the pro-Western Yabloko Party.¹³ Almost all of the remaining 21 parties were either creations to provide the Kremlin with a power base in the Duma or servants as a political platform for a power-hungry individual.¹⁴ Despite the relatively high number of registered political parties, only four won enough votes to clear the 5 percent threshold required to secure general party representation in the Duma. Of the remaining 19 parties, only four were able to achieve the 2 percent threshold required for reimbursement of government-provided election funds. However, 11 parties did win seats in contests for single-member constituencies.¹⁵

Following President Putin’s September 2004 initiative proposing that all 450 Duma seats be filled from party lists with proportional representation and a 7 percent threshold for party representation, only 11 political parties were able to register for the 2007 Duma elections. Only four won enough votes to clear the 7 percent threshold required to secure party representation. Of the remaining seven parties, only one received over 2 percent of the vote. Thus, with the single-member constituency eliminated and the 7 percent threshold requirement in place, the number of political parties represented in the Duma dropped from 15, following the 2003 elections, to four as of December 2007.

By far the largest and strongest political party in 2008 is the United Russia Party. Its main attraction is its pro-Putin platform and the personal support of the Right Honourable Putin. In fact, although it lacks internal discipline and coherence, the absence of

a distinct political platform allows Putin supporters from all walks of life to rally behind this loosely-defined, broad-based cause.¹⁶ In fact, in the Duma elections in 2007, then president Putin effectively turned the vote into a referendum on his time in power, casting the spotlight on his leadership instead of the political party. A vote for the United Russia was really a show of support for Putin and was clearly designed to provide him with moral authority and personal power after he stepped down as president. As of the 2007 elections, the United Russia Party maintains almost complete control of the Duma, receiving 64 percent of the total vote, and now holds 315 of 450 total Duma seats. This represents a two-thirds majority, providing Putin the power to make permanent changes to the Constitution of Russia.

Although a far cry from its heyday power base, the CPRF remains one of the few political parties with any significant political influence, with 134,000 members across Russia in 2006.¹⁷ As late as 2000, the CPRF could count on about 30 percent of the electorate; however, in the 2003 Duma elections, the CPRF received only 13 percent of the vote and lost half of its parliamentary mandates.¹⁸ This drove party leaders to make a determined effort to attract younger Russian voters.¹⁹ However, this effort has failed. The CPRF only received a bit over 11 percent of the vote in the December 2007 elections and now holds a mere 57 seats on the Duma.

In late 2006, a new purported leftist party called Justice Russia emerged with the consolidation of three smaller parties. The merger of Motherland, the Pensioner's Party, and the Party of Life was designed to compete with the CPRF for seats in the 2007 Duma elections. Although its leaders have denied any association with the Kremlin and claim to offer an alternative to the United Russia Party, it is also pro-Putin and is designed to displace what remains of the CPRF as a more "loyal" opposition party.²⁰ In the December 2007 elections, the Justice Russia Party received 7.7 percent of the party list vote and now holds 38 seats on the Duma.

The Liberal Democratic Party of Russia (LDPR) remains the main nationalist group and is far from espousing liberal or democratic values. In fact, much like the Justice Russia Party, the LDPR remains loyal to the Kremlin. Although LDPR membership has fallen by more than half since the mid-1990s, they still mustered 8 percent of the party list vote in the December 2007 Duma elections and hold the remaining 40 seats. Many experts believe the LDPR was able to attract voters and pass the required electoral threshold of 7 percent because of a resurgence in nationalism, increased anti-Western sentiment, and racial hatred of the Muslim population in the Caucasus and Central Asia.²¹

In 2003 the Union of Right Forces and the Yabloko Party represented the sole liberal forces in Russian politics. Neither was able to pass the threshold of 5 percent required for gaining party representation. There was talk of forming an alliance prior to the 2007

Duma elections in order to meet the new threshold requirement, but this alliance never materialized. Thus, as of December 2007, with individual district representation eliminated, liberal political parties no longer have any official voice in Russian politics.

Back to the Future—The Reality of Russian Politics

It does appear that the definitions and processes under the Russian Constitution are flexible. With the election of Dmitry Medvedev, the role of senior leadership is undergoing yet further change. This has changed with Putin assuming the position of prime minister. The exact nature of the shifting power base is unclear, but many expect Putin will continue to exert his influence, simply from a different seat.

The turmoil created by the Yeltsin government, with the rapid diffusion of power away from Moscow, created a sense of chaos and loss of control. With Putin's ascent to power, the Kremlin has sought to correct those problems and consolidate power back into the hands of the executive branch. Early in his first term, Putin won major victories over regional leaders, reclaiming much of the central government authority Yeltsin had allowed to slip away.²²

When Putin first took office, he created seven super-regional districts overseen by his personal appointees, giving himself direct oversight of the regional governors. Then he sponsored legislation that changed the composition of the Federation Council giving control of the council to his new super-regional district appointees.²³ Next, President Putin passed a bill giving him the power to remove popularly elected regional leaders who "violate" federal law.²⁴ Finally, to consolidate his power at the regional level, Putin convinced the Kremlin-controlled parliament to abolish direct gubernatorial elections. Governors are now nominated by the Kremlin and "approved" by regional assemblies.²⁵ All told, since he took office in 2000, power has been continually and increasingly consolidated into the hands of the presidency.

Further, although elections had been relatively free in the past, the most recent Duma elections were suspect. International observers were prevented from monitoring the elections, and governmental control of the press and questionable balloting procedures raised significant issues. The international community judged that the most recent parliamentary and presidential elections were not fair.²⁶ In fact, some candidates have claimed open intimidation and smear campaigns in the media.²⁷

In addition to exercising direct control over the political process, Putin has also steadily worked to gain control of the media. For example, in June 2000, the head of Russia's only independent television network was arrested on "corruption" charges after airing commentary critical of the Putin regime.²⁸ He was later released and

allowed to leave the country. However, less than a year later, his independent television network was acquired by the Kremlin, and Putin loyalists were appointed to run it.²⁹ Similarly, Putin has gained control over all other significant independent news media including newspaper and radio. Russia's leadership has a tight control on media outlets and blocks news related to environmental issues, military bases, events in Chechnya, and activities of the president.

Additionally, President Putin does not like bad press.³⁰ There appears to be a developing trend in Russia for journalists, such as Russian *Forbes* editor Paul Khlebnikov, to have "untimely accidents" if they report on contentious governmental issues.³¹ According to Freedom House, Russia is one of the three most dangerous places in the world to be a journalist. Since Putin assumed office in 2000, 13 journalists have been killed in contract-style murders. Yet, despite their best efforts, Russian political leaders cannot filter all news reaching their people. The Internet is one source of information that the government is finding difficult to control.

Although there is no official censorship of the Internet, Russian security services require each Internet provider to install monitoring equipment at their own expense to monitor all Internet and e-mail activity.³² Yet, Russians still obtain real-time unfiltered news and information from the Internet.³³ For example, Chechen supporters posted videos on *YouTube* showing improvised explosive device operations a mere two hours after detonation.³⁴ News can reach the eight million Internet users in Russia, with an increasing usage rate of 30 to 40 percent annually since 1999.³⁵ In truth, much of the Russian population willingly trade freedom of the press in favor of stability and strong, autocratic control from the top.

The Russian judiciary has fared no better under the Putin regime. In fact, there is a large gap in the Russian judiciary between how laws appear on paper and how justice is exercised within the court system. According to Freedom House, laws are often applied inconsistently, with more emphasis on exigent circumstances or political purposes than justice. Although the judiciary is independent of the executive and legislative branches, judges are often pressured by federal authorities, members of government, wealthy individuals, or powerful businesses. Further, although suspects are allowed a trial by jury, if facing the possibility of more than 10 years in prison, juries currently adjudicate only 8 percent of all criminal cases.³⁶

Moreover, because of the 81 percent conviction rate of jury trials, the Russian Supreme Court has expressed concern about the gap between the jury and nonjury trials that have a conviction rate of 99 percent.³⁷ Finally, unlike the United States, prosecutors are often allowed to do appeal acquittals. In fact, the Supreme Court overturns a much higher percentage of acquittals than convictions and, in a few cases, the prosecution obtains guilty verdicts only after a third jury trial.³⁸ This high rate of double jeopardy convictions and reversal of jury acquittals reduces the usefulness of jury trials.³⁹

In fact, it sets up an atmosphere of oppression in Russia that affects everything else in the country. This naturally undermines the confidence of the people in the legal system and fosters an attitude favorable to graft and corruption.

Corruption in Russian Politics

Since 2000, when Putin took office, the *nomenklatura*, or ruling elite, has taken corruption to heights undreamed of under the Communists or Yeltsin administrations.⁴⁰ Corruption almost defines Russia; it permeates all aspects of Russian society encompassing both the political and economic systems starting with the president. According to a senior Russian analyst at the Defense Intelligence Agency, corruption in Russia begins with Putin and flows downhill. Such corruption ranges from the small and petty to the national level. As an example, in 1996 a cooperative society called the Ozero was formed under the auspices of a business partnership surrounding vacation homes. Since that time, its shareholders wealth has grown to over \$2 billion, and most have assumed top positions in the Russian government and business.⁴¹ As of 2007, some of the Ozero's more prominent members include Putin; Vladimir Yakunin, the head of Russian Railways; Andrei Fursenko, the minister of education and science; Yuriy Kovalchuk, the head of the board of directors of the Russia bank; and prominent Russian businessmen Nikolay Shamalov and Vladimir Smirnov. Together, the Ozero has far-reaching political and economic impact. In a sense, Putin's Ozero has become a "good old boys club" where a very small group of powerful friends control many things including giant businesses, banks, football clubs, and pipeline deals, not to mention the government of the Russian Federation.

Ironically, when Putin took office in 2000, many Russians saw an opportunity to decrease corruption based on his image as an incorruptible former Committee for State Security (KGB) colonel. However, according to the corruption-monitoring group Transparency International, corruption has increased sevenfold since 2000. Russia is now perceived as the third-most corrupt nation in the world.⁴² There is no escaping the graft. Whether a local citizen attempting to accomplish mundane tasks such as seeking medical treatment or a large multinational company seeking a license, a well-placed bribe is essential everywhere. Private citizen bribery accounts for an estimated \$2.8 billion; however, this explains only 10 percent of the overall corruption.⁴³ One recent report suggested the value of big business bribes paid to government officials is now \$240 billion a year or almost equal to Russia's entire annual revenues.⁴⁴ On average, according to the independent Russian think tank, INDEM, Russian businesses now spend \$146,000 or 7 percent of their budgets on business-related bribes.⁴⁵

However, Putin's ties to corruption do not stop with Ozero nor is corruption in Russia limited to business practices. In order to gain true insight into the breadth and depth of the political corruption in Russia, one must examine Putin's ties to the *siloviki*. This network of former and current state security officers controls many positions in Russian politics and have many personal ties to the Soviet-era KGB.⁴⁶ In fact, over the course of Putin's seven years in office, an estimated core of over 6,000 *siloviki* has moved into key government and business-controlling positions.⁴⁷ Some of the more prominent *siloviki* members of Putin's political staff include Igor Sechin and Viktor Ivanov, chief of staff deputies; Sergei Ivanov, first deputy prime minister; Federal Security Service head Nikolai Patrushev; and Boris Boyarskov who heads the Culture and Mass Communications Ministry.⁴⁸ Further, many believe Putin's installation of Viktor Zubkov as prime minister last October served as an excellent example of just how powerful the *siloviki* are within Russian politics. Although Zubkov does not have a KGB background, he was assimilated during his years at the Russian Financial Monitoring Service and is widely believed to know where the country's legal and illegal assets can be found.⁴⁹

Within the *siloviki* are the *chekisty*, the descendants of the founders of the ruthless Russian secret police organization originally set up under Lenin. Unlike ordinary *siloviki*, the *chekisty* see themselves as the messianic saviors of Russia from a raft of internal and external enemies.⁵⁰ True to their heritage, the *chekisty* operate with impunity from governmental prosecution, and their actions are limited only by their own imaginations and consciences.⁵¹ Since Putin's rise to power, the *chekisty* have been linked to multiple high-profile criminal cases.

An independent commission set up in 2002 to investigate possible Federal Security Service (FSB) involvement in a series of 1999 apartment bombings is believed to have been decimated by the *chekisty*. Duma deputy Sergei Yushenko was shot to death in Moscow in April 2003; Duma deputy Yury Shchekochikhin died of suspected thallium poisoning in July 2003; and former KGB investigator Mikhail Trepashkin, who served as the commission's investigator, was arrested in October 2003 and sentenced to four years in prison in a closed trial. The commission's key witness, former FSB officer Aleksandr Litvinenko, died of radiation poisoning in London in November 2006.⁵² Further, a Qatari court accused the *chekisty* of involvement in the assassination of former acting Chechen president Zelmikhan Yandarbiyev,⁵³ while Ramzan Kadyrov, the current Moscow-backed Chechen prime minister, has been widely accused of murdering prominent Russian journalist Anna Politkovskaya, an outspoken critic of Chechen civil rights violations.⁵⁴ The ability to discern illegal behavior is becoming complex and difficult because such activity is going on inside the government structure as well as

within the criminal class. Which criminal group is dominant and how far they coordinate their activities is an open question.

All told, since Putin's rise to power, corruption in Russia has increased dramatically, and Russia is now ranked 121st out of 163 countries based on perceptions of corruption internationally.⁵⁵ Still, foreign investment in Russia reached a record \$60.3 billion in the first six months of 2007.⁵⁶ With oil surpassing \$100 per barrel along with Russia's vast natural gas reserves, there is more than enough money to go around. Further, in a country where the general populace values stability, economic security, and a high standard of living as much more important than corruption, the status quo will most likely be maintained for quite some time. As long as the economy remains strong, the Russian people are likely to turn a blind eye to the rampant corruption in their political and economic system.

Presently, Putin's popularity remains above 70 percent. In fact, the *siloviki* understand the fine line between a fascist regime's outright oppression and ensuring the general population has just enough resources to keep them satisfied. They are pragmatic, goal oriented, and occupy positions of power across the entire political and commercial Russian landscape. If they correctly calculate just how far they can exploit the Russian population, then a resurgent Russia is almost certain to emerge on the other side.

These trends can help discern the direction the Russian government is moving. Though a highly accurate prediction of the state of the Russian government in 2030 is not possible, the broad outlines are visible, and the centralization of the authority will continue. This is driven by several immutable forces alluded to earlier; however, highest among them is the Russian respect and expectation of a powerful government in the hands of a strong leader. This focusing of vast wealth and power in the hands of a small, elite group, created from the spoils of economic policies that exclusively favor that group, and the corruptive effect such wealth and power has on the group is a recurring theme throughout Russian history. Ironically, this historical experience has created, over generations, an inherent belief in Russian society that such power is somehow acceptable and the only protector for a nation without defensible borders.

Clearly a principal factor allowing this reawakening of Russia is its plentiful resources: oil, natural gas, timber, and scarce metals. The wealth these are generating is dramatically changing the landscape and must be studied thoroughly to better grasp the forces creating this resurgent Russia. The long-term future for Russia is not necessarily a bright one. The very weaknesses that were an inherent part of George Kennan's "X" article, describing the underlying factors that ultimately led to the collapse of the Soviet Union, are coming back into play. However, for this study's timeframe, these forces will probably remain in the background. By 2030 the world will be facing a determined nation that has centralized its political power, developed the wealth to rebuild,

and fostered a sense of paranoia sufficient to motivate the return of its powerful military machine.

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Chapter 4

Economic Background

As with the political realm, an understanding of the past is necessary to understand the future trajectory of the Russian economy. History provides significant insight into both the current structure of the Russian economy as well as the Russian government's outlook towards future economic policy.

Historical Background

For the last 1,000 years, Russian history has been one of autocratic rule with the Mongols, tsars, and Soviets all exercising tight control of the Russian economy. Under the Mongols, Russian commerce predominantly served a single purpose—to pay tribute to the khan. Likewise, under the tsars, serfdom ensured that economic activity was solely for the benefit of the “divine ruler.” Most recently, the Soviets centrally planned and controlled the economy. This historical bias towards centralized control with the objective of supporting the government versus supporting the people continues to affect the Russian economy and will play a significant role well into the future. In particular, there are vestiges of the Soviet economy that are still present today.

The Economy of the USSR

For over six decades, the Russian economy was centrally planned and controlled by the State Planning Committee of the Communist Party (Gosplan). Under this system, Gosplan directed all aspects of the economy including its structure, organization, and output, as well as the distribution of that output. The system gave rise to a huge bureaucracy that was responsible for implementing the annual and five-year plans that were passed down from the Gosplan. These directions dictated that industrial development, investment, and production quotas were assigned on a regional basis. In addition, as a consequence of World War II where Russia moved and distributed its industrial capacity, the Russian economy was heavily regionalized with specific sectors of industry centralized in specific geographic regions. This regionalization was implemented by the Soviets initially for strategic purposes during the war. After the war, the further regionalization was accomplished for political rather than economic reasons. This enabled the government to centralize control of the economy and force dependencies of one region upon another and, ultimately, strengthen the control of the Kremlin. In short, by dispersing key components of the industrial base, they guaranteed that no region had all the tools on hand to

complete their required tasks. This creation of critical dependencies insured centralized control could be maintained. Since the collapse of the Soviet Union, such distribution is no longer required. However, the nature of Russia's new wealth, in commodities such as oil, gas, and timber, also fosters a very strong drive for centralized control since these commodities can be used as international leverage to further the Kremlin's goals.

Perestroika, the Collapse, and the Recovery of the Economy

By the mid-1980s, it was clear the Soviet economy had to be reformed, and in 1987, Mikhail Gorbachev convinced the Soviet government to restructure (perestroika) the economy. Perestroika put the Soviet economy in limbo. This extraordinary economic policy change provides an excellent example of the law of unintended consequences. In the Soviet case, the ultimate result had a far more profound impact than the original objectives of perestroika. The economy was no longer centrally planned, nor was it market driven. There were no mechanisms, central government, or free market to guide production, assess value, determine costs, or provide incentives in place to spur innovative change. Industrial output collapsed, even for basic goods, and as a result, inflation skyrocketed.

By 1991 the Soviet economy was in a dangerous recession. That year, it had contracted over 17 percent; consumer inflation was 140 percent; and both of these trends were accelerating.¹ Beginning in 1992, the government began selling off small- and medium-sized enterprises. By the end of 1993, more than 85 percent of these businesses were in private hands.² This was followed by a voucher program used to privatize large state-run enterprises. The next year the privatization program had divested the state of the majority of its business enterprises, including 70 percent of the large enterprises and over 95 percent of the small- and medium-sized businesses.³ Such a vast redistribution of wealth could not pass unnoticed by opportunists that knew how to work the system.

While the privatization plan successfully transferred control of the Russian industry into private hands, the process allowed the distribution to become highly concentrated and monopolized by a few powerful individuals (usually government insiders) known as the "oligarchs." While there was a façade of capitalism, the aggregation of economic power into the hands of a privileged few was the underlying reality. Furthermore, the oligarchs had strong incentives to extract as much wealth from their new acquisitions as possible, giving little thought to the health of the underlying industries. As a result, Russian industry failed to undertake the required internal restructuring actions necessary to compete in the global market.

In 1998 when oil prices declined sharply, the Russian economy collapsed and, the government defaulted on its debt, causing the value of the ruble to plummet. The development of a resurgent

Russia assumes that Russia will extract considerable revenue from its vast oil, natural gas, and/or mineral resources, thereby feeding, protecting, and growing the Russian economic machine. However, the events of 1998 demonstrate the relatively fragile nature of the Russian economy. It should also provide innumerable lessons for the ruling elite and certainly demonstrates that a strong, petro-centric Russian economy is not necessarily a given.

In the aftermath of the 1998 collapse, the Russian government was able to stabilize the economy and then, with the benefit of a devalued ruble and rising oil prices, begin to grow Russian exports. By 2000 the economy was growing over 7 percent annually. Since then, Putin has been able to sustain the rapid growth in the economy, benefiting from both high oil prices and a series of economic reforms. These reforms have included a revised private and corporate tax code (flat rate), fiscal restraint by the federal government, and the establishment of a stabilization fund to reduce the economy's sensitivity to oil price fluctuations.

A key aspect of Putin's economic policy during this period has been his commitment to remove the oligarchs from power. He claimed to be doing it in an effort to address corporate corruption, but, more likely, his incentives were in restoring state control of key industries (energy and media) and capitalizing on the "political calculus—the populist dislike of the rich, plus a desire by rising businessmen and officials to grab the assets of oligarchs who are on their way down . . . also a desire to maintain his iron grip on the country's politics."⁴ While the crusade enabled him to gain control of almost the entire media industry and a significant portion of the oil and gas industry, the policy has frightened foreign investors. There are numerous arguments that point out the dangers of this approach and the inherent weaknesses of such centralization of control. For this study, the expectation is that the economy will continue to grow, and, though collapse may be inevitable, it will not occur in the period leading into 2030.

Historical Implications for Russia's Economy

There are significant numbers of "artifacts" that remain in the Russian economy today, legacies of the Soviet era and its aftermath. They have shaped the current economic situation in Russia and, in some cases, will continue to influence the Russian economy into the future.

First among these is the Russian propensity for direct state involvement and control of the economy. This tendency reflects the Russian historic experience of the last 1,000 years and, more recently, is a reaction to the perceived inequities and exploitation that occurred during the rise of the oligarchs. The case can be made that the current Russian government is exploiting its population's unfamiliarity with free-market commerce to consolidate power within the state.

Second, the Russian government has not completely addressed the issue of property rights. While parts of the Soviet industry have been privatized, the Russian government has been noticeably ambiguous in its efforts to address land ownership rights and implement legislation that protects basic property rights.⁵ Furthermore, there is significant tension in government policy making between the desire to maintain state control of important parts of the economy and the need to maintain at least the façade of private property rights. This problem has hampered investment, particularly by foreign entities, and remains a drag on economic growth.

Finally, the regionalization of industrial infrastructure implemented under the communists remains today. This has suppressed market forces and forced the Russian government to subsidize inefficient, unprofitable businesses. The problem is exacerbated by restrictive residency rules for urban areas which inhibit workforce migration. This problem is likely to be a burden on Russian industry for at least another decade.

The Current Economy

Today, the Russian economy enjoys robust growth as a result of high oil prices and the stable macroeconomic policies of Putin's administration. The country's domestic consumption is rapidly growing, and the economy is beginning to attract foreign investment. The economy is also becoming increasingly connected with regional and global economic markets. Both of these latter trends are being accelerated by the government's efforts to attain membership in the World Trade Organization. This section will consider the Russian economy as it exists today and examine its structure, strengths, and weaknesses.

At the macroeconomic level (see table 1), Russia's economy exhibits some notable features. First, the economy is enjoying rapid growth (over 6 percent annually). The Russian economy grew an additional 3.9 percent during the first six months of 2007, with forecasts to finish the year with over 7 percent growth.⁶ Second, Russia's economy, in absolute terms, remains quite small. It is less than one-tenth the size of the US economy and only one-third the size of the Chinese economy. On a per capita basis, Russia's GDP is 22 percent smaller than Poland's. Third, while Russia is enjoying some foreign direct investment (FDI), it is still small compared with other nations, particularly those who are members of the World Trade Organization. Finally, while Russia has a large population, it is one of the few countries in the developed or developing world who has a decreasing population. In sum, while Russia's economy has been growing, it is a mixed bag of future macroeconomic indicators. To clarify the true nature of the Russian economy, it is necessary to understand the underlying structure and composition of the economy.

Table 1. Macroeconomic indicators

Annual Data: 2006	Russia	Poland	India	China	EU	US
Population (million)	143	38	1,095	1,315	491	299
GDP (US\$ billion [bn]; exchange rate)	985	342	923	2,774	14,551	13,195
GDP (US\$ bn; purchasing power parity [PPP])	1,741	543	4,312	9,985	N/A	13,195
GDP per head (US\$; exchange rate)	6,905	8,958	843	2,110	29,666	44,071
GDP per head (US\$; PPP)	12,213	14,242	3,936	7,596	N/A	44,071
Historical averages (%): 2002–06	Russia	Poland	India	China	EU	US
Population growth	-0.5	1.2	1.5	0.6	0.1	1.0
Real GDP growth	6.4	2.7	7.8	10.1	2.2	2.7
Real domestic demand growth	8.2	2.1	7.8	9.5	N/A	3.0
Inflation	12.5	6.4	4.5	1.5	2.2	2.6
Current account balance (% of GDP)	9.4	0.8	0.2	5.0	-0.7	-5.4
FDI inflows (% of GDP)	2.1	2.3	1.1	3.1	N/A	0.9

Current macroeconomic indicators for Russia. Comparative data for Poland, India, China, the European Union (EU), and the United States are also depicted.

Economic Growth

While it is commonly believed that Russia's economic boom has come from the exportation of oil, in fact, it is domestic consumption that accounts for over 70 percent of the Russian economy and most of its economic growth. By comparison, Chinese domestic consumption accounts for only 50 percent of its total GDP and only 37 percent of its GDP growth. However, these numbers mask the extent to which Russia's domestic economic activity is the result of the country's natural resources. An accounting practice called "transfer pricing"⁷ artificially inflates the GDP contribution of the consumer services sector, since the trading company's profit is categorized as a "service." This in itself would be innocuous, except that the government's economic statistics are the basis on which access to credit is built. As a result, the World Bank has substantial interest in this issue.

This practice decreases tax revenues and contributes to an environment of corruption within the economy. When Russia's industrial output is adjusted for the effects of transfer pricing, the oil and gas sector was found to account for almost 30 percent of the

domestic demand as compared to the 9 percent reported by the Russian government.⁸

The industrial output of the Russian economy has two important attributes: (1) it is dominated by activity related to the extraction and processing of natural resources, and (2) it is dominated by large enterprises and lacks small- and medium-sized businesses (many of them in high-tech) that normally constitute 50 percent or more of the typical economy in a developed nation. The Russian government claims that fuels, energy, and metallurgy account for 36 percent of Russia's industrial output, followed by heavy machinery at 22 percent, and agriculture/food stuffs at 16 percent.⁹ Light industry, within which high-tech activity is included, accounts for less than 1.5 percent. This is in comparison to the United States, where light industry accounts for over 70 percent of the industrial output and a high-tech sector that alone accounts for more than 5 percent.¹⁰

The industrial output of Russia is also highly concentrated within large enterprises. Small- and medium-sized businesses constitute only 10 to 15 percent of the economic output in Russia, as compared to 50 percent in most of developed economies.¹¹ These businesses, often the drivers for technological innovation, are severely hampered by governmental regulations and taxation. The dominance of large, state-controlled enterprises likely means that technological innovation is driven by the government and focused on technologies related to resource extraction and defense. While this has positive effects now and in the immediate future, it has long-term negative consequences. Though the immediate trend is certainly favorable, the restrictions on innovation and the loss of flexibility inherent in small, agile firms will take an inevitable toll on Russia's future ability to compete in the open market.

Trade

In addition to Russia's domestic demand for its natural resources, external demand on these same resources continues to drive its foreign trade and foreign policy. There is also a growing domestic demand for foreign goods that is shrinking the country's trade balance. Figure 5 highlights the central role that natural resources, oil and gas in particular, play in Russia's export market.

While the full economic implications of Russia's natural resources will be addressed later in this paper, at this point, it is sufficient to point out that they are a critical component of Russia's economy. Figure 6 highlights Russian reliance on foreign producers for machinery and equipment, especially high-tech equipment, and is indicative of the challenges that remain in revitalizing certain parts of Russia's industry.

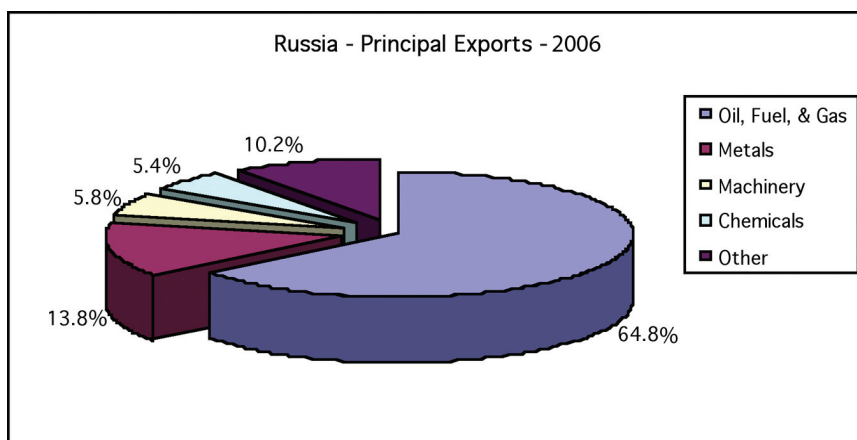


Figure 5. Russian exports—2006. (Reprinted from the EIU, *Country Profile 2007: Russia* [London: EIU, 2007], 31.)

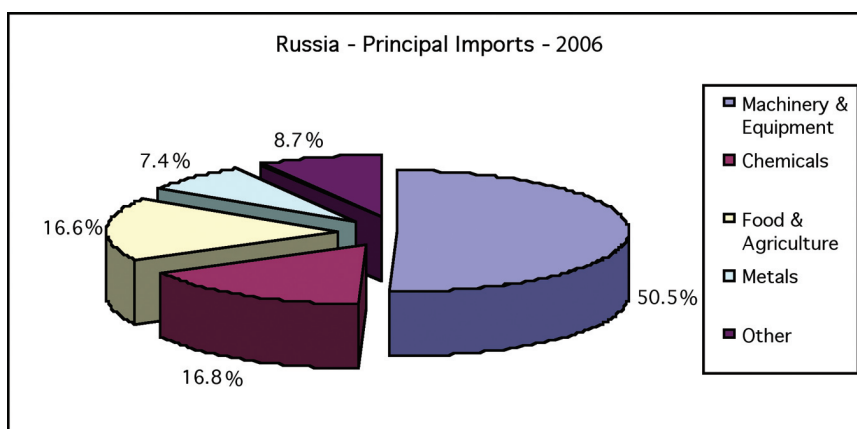


Figure 6. Russian imports—2006. (Reprinted from the EIU, *Country Profile 2007: Russia* [London: EIU, 2007], 31.)

Infrastructure—Economic and Social

The state of Russian infrastructure, by the Kremlin's own admission, is dismal. Hard infrastructure—transportation, power, and communication networks—is strained and decrepit, or both. Even in the natural resource sector, the infrastructure (pipeline, ports, etc.) is not sufficient to meet demand. Additionally, Russia's social infrastructure, especially the health of its citizens, is also under extreme pressure.

Given Russia's geographic size, the most problematic part of the Russian economy is the state of its transportation system. The country has 557,000 miles of roads, yet only three-quarters of them are paved. Over the last 20 years, Russia has added less than 5 percent

of new roadway. Similarly, Russia's railways are also in disrepair. They are only capable of handling 80 percent of the capacity transported during the Soviet era.¹² Worst of all, Russian pipelines and ports are no longer able to handle the high demand for Russian oil. *Transneft*, the state-controlled pipeline monopoly, has numerous projects to upgrade Russia's capacity to transport and export oil. However, the government's refusal to allow private enterprises to be involved in pipeline and port operations will continue to constrain output. These restrictions will insure that the government is able to maintain economic and political control over the country's energy resources but will inhibit growth and development.

Russian power and communications networks exhibit many of the same problems as the transportation systems. The country's electrical infrastructure is undergoing reform and production capacity is being privatized. However, the age and capacity of existing fossil-fuel and nuclear power stations have made it impossible to keep pace with the demand. The government intends to sell off the state-controlled power plants to fund upgrades to the distribution networks, but it is deemed unlikely these revenues will be sufficient to adequately fund the nearly \$10 billion needed annually—an amount that will be required for at least the next decade.¹³ As with the oil and gas infrastructure, the state will retain control of the distribution networks, ensuring it retains political and economic leverage over this segment of the economy.

Government Involvement and Corruption

Corruption is as equally a serious problem in the economic sphere as it was in the political arena. At present, Russia exhibits many of the symptoms of the "resource curse," wherein natural resource wealth fosters rent seeking by the state.¹⁴ When this occurs, the state bureaucracy usually focuses on controlling resource-generated wealth rather than on the rule of law and free market competition. The current trends in this area are not promising. The Russian government is focused on state control of its natural resources. The wealth generated by these resources appears to be flowing to a few, powerful individuals, who are either inside the government or closely aligned with it.

The impact of widespread corruption is well illustrated in the economic realm. First, there is significant evidence that the government bureaucracy is growing ever larger and more inefficient. Since 2001 all levels of Russian government (federal, regional, and municipal) have grown considerably. This trend accelerated in 2006 when the federal government grew by over 10 percent in just one year.¹⁵ In fact, a Russian brokerage house has shown that there is a close correlation between the number of government employees and the price of oil.¹⁶ As oil prices climb, so does government employment,

creating an unhealthy dependency on the federal government, versus private enterprise, for developing jobs.

Second, the government is increasingly reasserting itself by playing a direct role in the economy. Although much of the Soviet-controlled economy was privatized during the 1990s, the recent trend has been in the opposite direction. *Gazprom* (the state-controlled gas company) and *Unified Energy Systems* (the state-controlled power company) are the best examples of the Russian government's direct involvement in these markets. Other examples include *Rosoboronexport* (the state-controlled armament manufacturer), which recently took over *Avtov* (the country's largest auto manufacturer) and *VSMPO-Avisma* (the world's largest titanium producer), and the establishment of *United Aircraft Building Company*, which consolidates the entire aircraft manufacturing industry under state control.¹⁷

Third is the government's push to establish oversight of "strategic" industries. During 2007 Putin's administration proposed regulations that would establish a special government council to oversee 39 industries deemed to be of strategic importance to Russia.¹⁸ Businesses with a majority foreign ownership involved in these key industries would require the approval of this special council. Notably, the council would be headed by the prime minister, a position soon to be held by then president Putin. The immediate result has been extensive pressure on foreign owners. These owners have found their ability to continue to exercise effective control challenged and, in increasing numbers, are forced to sell their controlling shares. The impact on Western oil conglomerates operating on Sakhalin Island is but one case study. Faced with litigation from several governmental sources, they have been driven to cede their controlling interests in the oil extraction process.

An additional concern is the role government plays in ensuring the dominance of large, often state controlled, enterprises. Small- and medium-sized businesses are suppressed by overregulation, particularly in terms of government taxation. Additionally, because the Russian government has not reformed private property rights, these enterprises are frequently subject to capricious action by the government and/or creditors.

Finally, there is significant evidence that governmental corruption continues to hinder the business environment. The British embassy in Moscow has reported that "formal studies and anecdotal evidence alike suggest that corruption is becoming a more severe problem. Since corruption usually involves the use of public office for private gain, this trend is linked to the discretionary use of regulatory, oversight and other powers." The report points out that "[t]here is little evidence that the state plans to reform itself."¹⁹

It is easy to portray the weaknesses in the Russian economy. From a Western perspective, many of the economic forces that proved so untenable in the Soviet era are being resurrected, and the likelihood of a similar outcome in the future is increasing.

Whether correct or not, this assessment has little direct bearing on the evaluation of a resurgent Russia in 2030. The trend lines in the economic life of Russia are becoming very clear. The Russian leadership will foster a centralization of power; they will use this dominance in critical commodities, such as oil and gas, to achieve political objectives; and the numbers of hands controlling that power will remain small, allowing for rapid changes and agenda-driven objectives. This will provide strong political leverage in the short term but will have serious negative consequences on growth and expansion for the future.

These features are not new to the world economic scene. Its name, the “Dutch disease,” is the concentration of wealth and power placed in a small number of individuals or groups. Alternatively, a robust and diverse economy would spread jobs, wealth, and power over a large section of the population. This approach would insure diverse interests are met and that power is spread among the people, building a middle class that fosters a more stable economy. However, the current Russian approach that concentrates the tremendous wealth of natural resources in a relatively small portion of the society is, in the long run, inherently unstable. As long as oil prices stay high, Russia will most likely continue to prosper economically and be able to solidify its role internationally and present substantial challenges to Western powers.

The chief area to benefit from this largess will be the Ministry of Defense. Russia has always believed that only through strong military power can it protect its boundaries and preserve itself as a nation. Currently it has only two mechanisms that it can routinely employ to demonstrate international power: nuclear weapons and its control of energy resources to the rest of the world. These are valuable but limited tools. They are the influence cards that Russia can most easily play in the international arena, but their limitations are real. Russia is now embarking on a rigorous program to increase its military capability, taking advantage of its newfound petroleum wealth and the Kremlin’s increased centralized power that allows for grander plans.

Notes

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which is registered as a trading company, then sells the oil at market prices thereby making large profits.

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Chapter 5

Military Background

Built with the backdrop of dynamic internal political reforms and fueled by the economic reality of a cash-laden petroleum state, Russia is currently engaged in an effort to reform its military with the ultimate goal of returning the Red Army to its once revered status as a legitimate world superpower. This desire to return to a Cold War–style military force, one that is once again respected and relevant in the arena of international *realpolitik*, is evidenced both by increased rhetoric coming from the Russian leadership and also numerous antagonistic military actions directed by the Kremlin. Evidence of this new, aggressive strategy can be seen in the resurrection of long-range Bear bomber flights that intentionally violate the sovereign airspace of America and its allies.

Additionally, the Red Army's detonation of the world's largest nonnuclear bomb on the 9/11 anniversary, and the largest cyber-attack since the beginning of the global information age (directed at Estonia over the removal of a Soviet-era statue), points to the Kremlin's new desire to draw attention to its reform efforts. The purpose of these provocative actions also appears to highlight new Russian capabilities and shows the face of a military that is once again capable of projecting power well beyond its borders.

However, the Russian military is far from being the Soviet juggernaut it was during the last half of the twentieth century. Yet, the Kremlin's recent push for true reform appears to be well funded, broad based, and evolutionary in its design. Before simply dismissing Russian reform efforts and prematurely labeling them a "paper tiger," it is important to look at their attempts to reform, to analyze what appears to be five interrelated components of their military reform strategy, and, most importantly, to examine where those reforms will be taking them over the next few decades.

Russian Attempts to Reform Their Military

While the debate over the military reform needs appeared to have been won several years ago, the timing, structure, and funding of those reforms have continued to create confusion and contentious deliberation throughout the Russian government. The initial attempts at military reform occurred even before Putin took office in 2000 and were characterized by false starts, misplaced priorities, and sputtering results. Following the *Kursk* submarine disaster, the head of the Defense Ministry's main directorate for international cooperation lamented, "We have been doing nothing but talking about the reform of the armed forces and making some incomprehensible attempts in this direction."¹ The confusion over reform

efforts was further heightened by Putin in 2003 when he stated, “The period of radical reform [of the military] is finished.”² His minister of defense contradicted that statement just three months later when he conceded that the military was entering a period of “regimentation,” which he described as “more radical reforming of the army.”³

The Congressional Research Service (CRS) noted that Putin took concrete steps in an effort to create favorable conditions and facilitated the desired reform in the armed forces. He appointed his long-time acquaintance (and fellow former KGB officer), Sergei Ivanov, to the position of defense minister, which was followed by a 2004 decision to remove the military’s General Staff from the direct chain of command.⁴ Both moves were aimed at strengthening the civilian control of the military with the ultimate objective of generating enough institutional horsepower to bring about the elusive military reforms. Additionally, the CRS highlighted Russia’s decision to greatly reduce their nuclear force (from 6,000 to 1,500 deployed warheads), shifting their resources from strategic to conventional forces, and their desire to move to a volunteer force suggested “serious intent” to generate a significant transformation of the military.⁵

Military Reform Component 1—Military Institutions and Command Structures

The first reform efforts have been aimed at eliminating inefficiencies in the organizational and command structures. The most fundamental change in the Russian military command structure occurred at the very top, when Article 15 (which listed the main functions of the General Staff) was declared null and void by the Duma. In essence, this move meant the General Staff now worked for (not against . . . as the practice tended to be) the defense minister, a move seen essential by many because much of the inertia behind slow military progress was caused by friction of the top military brass.⁶ The most noticeable structural change within the military ranks themselves was the transition from six military districts and four fleets into three regional commands—western Europe, central Asia, and the Far East.⁷

The command and control relationships were also adjusted under this new regional command framework. The commanding officer would now be in charge of all services and military defense formations in his region, with the exception of the strategic nuclear forces, and would be responsible for territorial defense. Additionally, the air force was to merge with the strategic missile forces and space forces; airborne troops were subordinated to the main ground forces headquarters; and a joint logistics/procurement system was established for all defense and security services.⁸ For the army, the goal of these reforms was to have 209 units on “permanent combat readiness” status, that is, fully equipped and capable of performing missions in both peacetime and wartime without additional mobili-

zation.⁹ In 2003, only 72 of these units existed; however, “since then, it is clear that increasing their number (by 29 units in 2005, 20 units in 2006, and 11 in 2007) remains a priority for the MoD [ministry of defense].”¹⁰ According to one Russian military expert, “[t]hese units, amounting to around 144,000 troops, will be the primary units called to deal with hot spots like Chechnya.”¹¹ Besides the significant changes in command relationships, redefined geographical districts, and a push for improved readiness, the government has also attempted to improve its force from the bottom up.

Military Reform Component 2—Peopeware

The second focus area of the military reform efforts is aimed at improving a wide range of personnel problems. The approach adopted by the Russian leadership appears to be an attempt to emulate many of the positive aspects that are prevalent in Western militaries, especially in the US forces. Hence, special emphasis has been placed on upgrading the individual soldier’s working and living conditions, both sources of long-term frustration and dissatisfaction within the post-Cold War Russian army. Again, the dramatic disparity between the performance of individual soldiers in the post-9/11 Middle East conflicts and the woeful performance of the Russian forces in their regional conflicts provided additional motivation for an “Americanization” of their personnel programs. Russian general Vladimir Dvorkin, former head of the 4th Central Research Institute of the Defense Ministry, assessed, “It is difficult to imagine today’s Russian conscripts being able to use modern weapons systems such as those used by the American soldiers in Iraq.”¹²

The initial part of this transition of the personnel system was a concerted effort to move away from a conscription service to a “professional” military. The reasons for this move to a more voluntary force are numerous but are mainly driven by widespread hazing and corruption in the ranks. “The conditions for ordinary draftees (conscripts) are appalling,” said Russian expert Zoltan Barany.¹³ Several hazing incidents captured national attention and led one Russian human rights observer to identify the hazing as the country’s “most painful and dismal human rights problem” that drives thousands to desertion, suicide, and violent crime.¹⁴ Additionally, there have been frequent reports of commanders selling their conscripts “into virtual slavery to local farmers or businessmen or forcing them into prostitution.”¹⁵

In addition to reducing these “forced labor” practices, the government has also attacked the practice of paying for military deferments and tried to improve the low quality of draftees, a characteristic that has become embedded in Russian society. Defense Minister Ivanov described his current corps of conscripts as “not even an Army of Workers and Peasants. It’s just peasants.”¹⁶ Subsequently, the Duma eliminated nine of the 25 types of deferments

and increased the quantity of the draft pool by 100,000.¹⁷ During the debate concerning the abolishment of these deferrals, the deputy defense minister said the point of the bill was that “decent people should join the army and not the scum of the earth we sometimes get.”¹⁸ Henceforth, no longer will “delays” be given to young fathers, certain medical professionals, graduates of academies of art, or for certain other subjective reasons.¹⁹

Needless to say, the hazing problems and perceived injustices in the draft system and their accentuation in the Russian media have had a dramatic impact on public opinion. A 2003 survey showed that 86 percent of those surveyed thought that Russia needed a “professional” army for exactly these reasons.²⁰ Efforts in pursuit of that professional army appear to be taking shape. In March 2007, the Duma voted to reduce the length of compulsory military service from two years to one, abolishing a practice that had been in effect for nearly 40 years,²¹ and Putin pledged that by 2008, two-thirds of the military members would be professional soldiers with service contracts.²² This goal has not been met, but the intent of the leadership is clear.

Besides reducing the overall percentage of conscripts in the army, the government is also looking to increase the effectiveness of its noncommissioned officer (NCO) corps. “Unlike in Western armies, in which NCOs constitute a cadre of highly trained, effective, and competent middle managers, they remain the most underutilized human resource in the Russian military,” Barany pointed out.²³ Currently, most “sergeants” are conscripts who have been sent to school for six weeks to become NCOs and have very little authority or respect because they are conscripts and not professional soldiers.²⁴ To that end, Putin and Ivanov saw that establishing a strong NCO corps could help repair many of the problem areas in their army, a move that, in the past, has been strongly opposed by senior officers who were reluctant to delegate authority to senior enlisted personnel.²⁵ However, as the Conflict Studies Research Center points out, Putin’s “shake up” in the army is starting to win converts, as “more and more [of] those within the military believe that unless there is a serious attempt at a reshaping, the army could now well be on the brink of an irrevocable crisis.”²⁶

Restoring benefits and prestige to those who serve in the military is also a significant part of the reform plan. As previously mentioned, military pay is an area that has been sadly derelict in the past. Military pay has been a major problem since Mikhail Gorbachev left office, and every pay raise has been wiped out by inflation. For example, the army’s ill-trained conscript forces have been required to serve two-year “terms” for just 100 rubles (\$3) per month, approximately 10 cents per day.²⁷ However, Putin has targeted this lack of funding and has ordered pay raises that began in 2006 with the goal of raising salaries by 67 percent over a three-year period.²⁸ Additional funding has been targeted at the contract

professional soldiers in an effort to double their salaries and make about 15 percent above the average wage, with additional supplements available for various bonuses like combat duty.²⁹

Lack of quality housing has also been an impediment to retaining quality people in the military. A 2006 Defense Ministry survey revealed that less than 19 percent of the contract soldiers reenlisted mostly because of “poor housing conditions and lack of opportunities for rest and leisure.”³⁰ Putin acknowledged this discrepancy in November 2005 when he sarcastically blasted the current housing system stating that “[t]he average price for housing is 29,000 rubles per one square meter of floor space, while we assume it is 11,000 rubles. And we wish [the soldiers] good luck. Why are we pulling the people’s leg?” He then ordered the government to set aside an additional 1.5 billion rubles for military housing.³¹

In addition to the pay and housing reforms, several of the Red Army’s new personnel programs have elements that are strangely similar to programs in the United States. First is the revamped Reserve Officer Training Corps (ROTC) program in Russia. The MoD has changed the rules so that every student enrolled in ROTC will be paid by the military and will be required to sign a contract that obligates them to serve as an officer for three years in the Russian military, very similar to American ROTC programs. Those who leave before completing the commitment will be required to repay the government for their education.³² Political parties in Russia have also pushed for a program similar to the American GI Bill that “promote[s] retraining programs and cover[s] the cost of higher education for veterans.”³³ Additionally, the Russian government has instituted personal savings accounts for their newest servicemen, similar to the American government’s Thrift Savings Plan that opened to US service members in the late 1990s.³⁴ One final area that mirrors changes in Western military personnel systems is the increased presence of women in uniform. As noted by Jennifer Mathers, a British expert on the Russian military, “While fewer and fewer young men have been willing to comply with conscription orders, a considerable number of young women have demonstrated their willingness to join the military.” Hence, females have made up a significant portion of the new volunteers and currently make up about 10 percent of the military.³⁵

Professional military education (PME) and efforts to restore the prestige of the Russian army have also become priorities in the defense reform efforts. Putin has specifically addressed the need for PME improvements and has called for the introduction of new officer training concepts at all military hierarchy levels. Putin’s resolve became even stronger after the Dubrovka Theater hostage incident in 2002 where many of the hostages were killed by the actions of the military as they stormed the theater.³⁶ Following this terrorist incident, his defense minister characterized the attention paid to modern warfare as “unacceptable” and urged the General

Staff to abandon “old stereotypes.” He further directed that “much remains to be done to understand and . . . predict the nature of future warfare.”³⁷ At the same time Putin and Ivanov were chastising the military leadership for insufficient PME, they were also attempting to reestablish the prestige of the military culture within Russian society, something that had dramatically fallen from a time when the uniforms of Soviet superpower warriors garnered tremendous respect in the public. To that end, the president has taken an active role by frequently paying “homage to the armed forces, their history, and their role in the country’s successes, and [has] actually attempted to deepen the age-old societal reverence toward them.”³⁸

Military Reform Component 3—Military Hardware

The aftermath of the Cold War and the impact of the neglectful Russian military policies were not limited to the dismal conditions of the individual soldiers but had tremendous negative consequences on the equipment and weapons systems those soldiers would need in combat. In 1998, the defense minister highlighted the dreadful shape of the Russian military: “About one-third of the armed forces’ military hardware is not combat-ready and . . . some 60 percent of the country’s strategic missile systems have been in service for twice their service life. Some 70 percent of the ships in Russia’s navy require repair . . . while in the air force about two-thirds of all aircraft are incapable of flying. This year . . . the armed forces had not received a single nuclear submarine, tank, combat plane, helicopter, or piece of artillery.”³⁹

However, in 1998 the decline in the Russian military’s hardware was still not a political or budgetary priority for the Russian leadership. Just 10 days before the 2000 disastrous sinking of the *Kursk*, the Russian security council decided on “sweeping cuts” to the entire armed forces in an effort to bring military spending in line with the country’s financial means.⁴⁰ However, the *Kursk* tragedy, which killed 118 Russian sailors, was a significant emotional event, not only for the Russian society but also for the Russian government’s leadership. As noted by Yevgeny Primakov, leader of the Fatherland–All Russia Party in the Duma, the submarine sinking “illuminated the situation in the country, the state of our armed forces, and the situation in the navy.”⁴¹ The leadership in the executive branch also recognized the need for change. Dale Hespring pointed out, “Putin believed it was time for a presidential about-face in dealing with the armed forces. He intended to breathe new life into the army.”⁴² The foundation for that new life came in the form of funding. There were dramatic increases in defense spending and ambitious plans to reenergize the ailing military hardware fleet across the board.

Looking at the current status of the Russian military hardware, the private intelligence agency Strategic Forecasting, Inc. recently noted that while the 17 years since the end of the Cold War had

seen a precipitous decline in the Russian military; during Putin's two terms, "Russia has arrested—and haltingly reversed" this decline. "New or well-maintained military equipment is certainly not the norm—a floor has definitely been inserted under the country, halting the fall," they added.⁴³ Conveniently for the Russian leadership and their desire to rebuild their capabilities, the recent rise in petroleum prices and Russia's enormous natural gas reserves have provided a "cash cow" for the desired upgrade in military hardware. As noted by *Christian Science Monitor*, "Russian defense budgets have been soaring since Putin came to power, buoyed by a rising tide of petroleum income, and are set to jump . . . to a post-Soviet high of \$32.4B [billion]."⁴⁴ This, according to figures from the Stockholm International Peace Research Institute, represented an increase of more than 200 percent since 2001, a funding trend they characterized as "a steep upward trajectory."⁴⁵

Harkening back to the perceived threats from the West, Putin said that a new arms buildup was warranted in a recent state-of-the-nation address.⁴⁶ Details of his rearmament programs are highly classified; however, some details have come to light. Putin's initial "state rearmament plan" was signed just after he took office in 2000 but was significantly altered between August and November of that year, following the *Kursk* incident. The 34-volume "top secret" (now unclassified) document that detailed the plan was divided into three chapters: the first regarding weapon systems to be fielded or modernized between 2001–10, the second concerning weapons under development or other research programs, and the third chapter pertaining to foreign military sales. The initial financial support for this program was limited, amounting to \$70 billion over 10 years with only half of the funding coming from the budget and the other half coming from the profits of arms exports.⁴⁷

Since the initial push for modernization, world events including the US conventional dominance in Iraq and Afghanistan, NATO expansions, and "color" revolutions in Russia's neighboring countries have fueled even more investment in Russian military equipment and weapon systems. Earlier this year, Ivanov unveiled a \$189 billion rearmament program to replace about half of Russia's current military equipment by 2015. The *Christian Science Monitor* reported that "among the armed forces' acquisitions will be a completely revamped early-warning radar networks, new intercontinental missiles, a fleet of supersonic TU-160 strategic bombers, and 31 new warships, including aircraft carriers."⁴⁸ In particular to the Russian air force, *Air Force* magazine reports that "the Russian plans call for acquiring 250 new air force aircraft and upgrading 800 more 'legacy' airframes by 2015," which would constitute an air force procurement budget of between \$8–10 billion per year.⁴⁹

Evidence that these reforms are actually beginning to take hold is beginning to materialize. *Aviation Week* reported "earlier this year that the Russian Air Force had received a few dozen upgraded

combat aircraft and helicopters. While modest, the figure is impressive considering that the previous decade had seen no renewal of the combat aircraft inventory.”⁵⁰ Of particular note with these deliveries was the step up to modern capabilities: satellite communication, laser-guided weapons, and “glass” cockpits.⁵¹

In addition to this buildup in conventional military forces, Putin has also called for an “asymmetric” strategy to balance the lopsided might of the United States by emphasizing a modernized nuclear force. In particular, he drew attention to Russian efforts to preserve their nuclear deterrence capability, noting that Russia will field two new ballistic-missile submarines (the first since the fall of the USSR) and the new land-based *Topol-M* intercontinental ballistic missile. Furthermore, he claimed that work was underway to create “unique high-precision weapons and maneuverable combat units that will have an unpredictable flight trajectory,” a clear response to US efforts in the area of ballistic missile defense.⁵²

The interests in “asymmetric” technologies that might restore more of a balance-of-power relationship with the West have not been limited to nuclear weapons. A desire to achieve innovative military breakthroughs, particularly in emerging technology fields, has spurred the Russian government to make radical changes in its defense industry and international partnerships. The greatest threat to the United States may well reside in this area.

Military Reform Component 4—Defense Industry Reform and International Partnerships

The radical reforms being instituted within the Russian defense industry are meant to serve many purposes. However, these new policies are mainly viewed as a convenient way to accomplish Putin’s twin priorities—which “remain [revival of] the economy and strengthen[ing] the state.”⁵³ The economic aspects of these reforms are viewed as an investment with potentially huge profits from foreign military sales, something that has not gone unnoticed by the Russian leadership since “the arms sales portfolio is one of the most lucrative sources of presidential slush funds.”⁵⁴ Furthermore, as pointed out by Sergey Chemezov, head of the state arms-export monopoly *Rosoboronekport*, “The fact that our country is playing a leading role in the world in the sphere of export of military production is a sign that the Russian defense industry has not only survived but has a powerful potential for further development.”⁵⁵

Russia’s deputy prime minister reiterated these ideas and went on to say the government was looking for an effective system “for copying the best aspects of [the] foreign experience.”⁵⁶ He further predicted that these defense industry reforms had the potential to become “the main driving force of the Russian economy” over the next few years.⁵⁷ Another impetus behind these reforms is a link between profits and politics. As pointed out by foreign affairs ana-

lyst Jed Babbin, "One of the most powerful cliques in Soviet society was the military industrialist. When the Soviet empire fell apart, they suffered huge losses of wealth and status. Putin is aiming to restore their financial wealth and status in return for their political support."⁵⁸

Political support will be a key ingredient to overcome the tremendous inertia of a well-entrenched defense industry. Vitaly Shlykov, a member of the Defense Ministry's public advisory council, described the magnitude of the overhaul required by saying, "[W]e need a completely new military industry, not just remnants of the old [Soviet] one. And these new defense industries will need a lot of attention, and an influx of resources on the level that today is only going into the oil and gas industry."⁵⁹ Evidence that the defense industry is receiving this increased attention is beginning to mount. In March 2006, the Russian government created a military-industrial commission (MIC) to "centralize and strengthen the operational management of the military-industrial complex and act as a new state institution for unified supply and equipment procurement for all 'power industries,' with the MoD having the leading role."⁶⁰ In other words, the Russian government is taking control of the defense industry in much the same manner that it took a "hands-on" approach with their now very profitable petroleum industry.

Recent actions by *Rosoboronekспорт* highlight the government's new approach with regard to the military-industrial complex. The company, run by MIC member Chemezov, is transforming into an industrial conglomerate and "recently took over Russia's largest auto and titanium companies and is reportedly bidding on a major steel company."⁶¹ The move to control a large percentage of the world's titanium market is particularly noteworthy since titanium is such a key component in defense production, particularly in submarines and modern aircraft.⁶² This increased control will not only benefit the development and fielding of domestic weapon systems but also will foster more international influence on Russia's behalf. For example, *Rosoboronekспорт* will control 80 percent of the titanium going to Europe's Airbus Corporation; a fact that one observer noted was a "secret" advantage and may provide Russia with increased leverage in matters of defense in Europe.⁶³

Besides the government's "takeover" of key defense raw material industries, they have also gone after companies that provide niche military capabilities. This is evidenced by the establishment of two government-run defense holding companies in the radio electronics and space rocket sectors. The first deputy prime minister stated that "both companies would have huge R&D [resource and development] and production potential, as well as large workforce, and would be financed regularly by investors and state defense orders."⁶⁴

Overhaul of the defense industry has also led to new strategic military partnerships that are based on the sale of military equipment; these efforts have also had the fringe benefit of increasing

the Russian's sphere of international influence. Although the United States often criticizes Russian arm sales to problematic countries such as Iran, Venezuela, and Syria, the Russian government is increasingly bold in their efforts to court and use these new military-export relationships many in the West see as antagonistic. Even under the threat of sanctions or other restrictions from the United States over these military exports, the Russians have pressed forward.⁶⁵

In October 2007 at a meeting of the Commission for Military and Technical Cooperation in Moscow, Putin said that Russia will not permit anyone to restrict its arms export business,⁶⁶ something that plays directly into his desires since "arms sales are one of several tools that. . . demonstrate Russia's claim to world-power status."⁶⁷ Moreover, this influential power appears to be growing significantly. Today, Russia does arms business with over 70 countries,⁶⁸ and, between 2001 and 2006, these military exports grew by over 50 percent.⁶⁹ Last year the value of these items accounted for \$6.5 billion in military material and another \$1.5 billion in spare parts and military services.⁷⁰

The increased arms export activity has gone beyond the simple exchange of merchandise and has brought about new military ties and Russian influence. The Shanghai Cooperation Organization (SCO) is a perfect example of this move to more militarized partnerships. Although the original purpose of the SCO was an economic association, it has expanded its scope of issues to include military support and cooperation. Although Putin has said that Russia is not seeking a Cold War-style "military bloc," he has also said the SCO should take on "a greater military role."⁷¹

That increased military role was displayed in August 2007 when the SCO member nations took part in the largest combined military exercise to date. The exercises took place in the Urals and involved 6,000 soldiers, more than 1,000 military equipment units, and more than 70 aircraft.⁷² Of note was the fact that "all participants [in the exercise] except China used Russian ammunition, equipment, and armaments, so Russia also has an interest in supplying its neighbors with weapons from its huge military industrial complex rather than allowing other suppliers to enter the market."⁷³ This SCO Asia-centric attitude has already negatively impacted the US military's influence in central Asia by playing a significant role in recent demands that American forces leave the region. The "growing SCO efforts threatened to make highly difficult the US efforts to clean up growing Taliban/al-Qaeda opposition in Afghanistan, and, indeed, threatened Washington's hopes that Central Asia . . . would move closer to US interests," said Walter LaFeber.⁷⁴ Furthermore, Russia's new SCO power apparatus should be even more disconcerting for the United States since Iran was just granted "observer" status by that organization, while the SCO denied the United States' application for observer status.⁷⁵ These

links between military equipment, military cooperation, and political partnerships could have even greater future impact, depending on the nature of the advancements in Russia's final focus area for military reform—emerging technology.

Military Reform Component 5—Emerging Technology

There is a desire by many Russians to be at the forefront of technological innovation, particularly with defense-related systems, even if it means sacrifices in other areas. There is an old Soviet joke that highlights this sentiment: An inventor goes to the ministry and says “I have invented a new button-holing machine for our clothing industry.” “Comrade,” says the minister, “we have no use for your machine: don’t you realize this is the age of the *Sputnik*?”⁷⁶ While Russian-developed technology has taken the world by surprise in the past (*Sputnik* being the most notable example), a decline in Russian technological innovation has shadowed the atrophy of their military. Adding “salt to the wound” for some Russians is the fact that, in the past, some Russian-derived technological “discoveries” have been exploited by the West and turned into significant military advantages, the most notable being the development of stealth technology by Lockheed’s Skunkworks division. Its work in developing such aircraft as the F-117 was based on the mathematical breakthroughs of the Soviet’s chief scientist at the Moscow Institute of Radio Engineering, Pyotr Ufimstev.⁷⁷ This sense of frustration has fostered a newfound push for technological innovation as part of the efforts to modernize the military. Additionally, Putin has pointed to technology as a unique source of asymmetric power that Russia can use to counterbalance the American hegemonic might.⁷⁸

Fortunately for Putin’s ambitious technology strategy, Russia is awash in intellectual raw materials. Even during the Soviet communist era when most personal freedoms were suppressed by the government, the scientific world was allowed to flourish and created a tradition that, even today, produces some of the world’s finest scientists and technical scholars. These remnants of the old Soviet system are the kind of resources that, if used effectively, could produce an array of revolutionary breakthroughs for Russia’s future war fighters. However, the one major weakness of the post-communism scientific community has been a lack of capacity to transition theoretical ideas into practical applications.

Yet, Russia does have a strong foundation to build that capability. A Russian consultant to the World Bank’s science and technology program recently pointed out that Russia “has one of the world’s largest ‘armies’ of scientist and engineers at its disposal, comparable only to the ‘armies’ of the world’s two leading scientific and technical powers—the United States and Japan.”⁷⁹ This Soviet scientific legacy encompasses 3,500 scientific institutes which

employ 600,000 scientists and engineers.⁸⁰ Furthermore, Russian universities are graduating another 200,000 scientists and engineers each year.⁸¹ This scientific prowess has even captured the attention of the world's leading technology firms. Ashish Patel, a managing director for Intel, identified Russia as "one of the emerging countries with an excellent education system, and a culture of developing high technology."⁸²

The Russian government appears to be taking an Americanization path with their new technology strategies similar to their military personnel reforms; the benefits of which will have tremendous implications both economically and militarily. Ivanov pointed out this dual purpose when he stated that the goal of the new technology strategy was to "overcome the current technology lag and create a powerful economy."⁸³

One major aspect of this new approach is increased government investment and oversight. The Duma's commitment to create a Russian "Silicon Valley" by 2012 illustrates the government's new mindset.⁸⁴ Part of that effort calls for establishing up to 12 "technoparks," which are initially being aimed at software developers.⁸⁵ Each of these technoparks is slated to receive between \$80–100 million in state funding along with tax breaks to encourage private investment.⁸⁶ Indications that this approach is showing early signs of success are plentiful. For example, foreign investors such as Boeing appear very interested in these technoparks⁸⁷ and multinational corporations such as IBM and Motorola have already established in-house programming centers in Russia.⁸⁸

Russian software exports, which surged by 54 percent last year to \$1.5 billion, provide further evidence of progress in technological reform.⁸⁹ A former Intel executive who now heads venture funds at a Russian investment bank said that "[a]ll the pieces of this innovative ecosystem are now coming together."⁹⁰ The military implications of this new technology "ecosystem" are worrisome to the West. Heritage Foundation analyst Ariel Cohen points out that "[t]he US still has a solid lead in top end weaponry. But at the next level Russia is advancing fast."⁹¹ Furthermore, 1,550 Russian firms are now involved in arms production and experts say "they have proven adept at modernizing Soviet designs."⁹²

While the technology upgrade and advancement of traditional military systems should cause concern in the West, it's the Kremlin's new commitment to emerging technology development and exploitation that is even more eye-opening. During his annual address to the Russian Senate in April 2007, Putin announced a massive \$7 billion program aimed at the development of nanotechnology,⁹³ an amount and a commitment that is unprecedented for the Russian government. The formation of this new state corporation called *Rosnanotech*, which will oversee and coordinate nanotechnology research, mirrors the previously discussed establishment of the monopolistic arms-export corporation *Rosoboroneksport*.

Notably however, this nanotech firm will receive “three times more state funding than the rest of the Russian scientists put together.”⁹⁴ While this investment may seem benign, nanotechnology has “captured the imagination” of Russia’s politicians,⁹⁵ and they fully understand the revolutionary potential that this area holds. Ivanov commented that “nanotechnology could not only change our whole economy and the quality of life of Russian people but could also drastically change *all perceptions about modern warfare*”⁹⁶ [emphasis added]. Again, it is obvious that simply pushing large sums of money at a problem will not, by itself, spur innovation (not to mention the conflicting objectives of a corruption-ridden environment). However, capital investment is a prerequisite for any large scale transformation and progress will most certainly be made. The chance for significant impacts will represent a true challenge to the United States in the not too distant future.

In addition to this new push for nanotechnology, Putin has pledged increased funding for science across the board and is also calling on the science community to create “stimuli” to involve the business community and private investment.⁹⁷ He promised to boost government spending on science to more than \$16.5 billion by 2010, doubling the amount spent on it in 2007.⁹⁸ Additionally the Associated Press reported that “he stressed the need to develop new scientific fields such as nanotechnology, nuclear physics, bio-engineering, and others for the country’s defense needs.”⁹⁹

Obstacles and Motivators for a Resurgent Russian Military

Opinions over whether Russia’s military is capable of returning to a superpower status cover the spectrum. Yet all the current indicators certainly point to a nation that knows where it must go, has the political structure in place to direct change, and the economic resources to make good on their plans. However, if the military is going to achieve such a feat, there are many difficult barriers that must be overcome. Barany points out that the “greatest barrier to meaningful defense reform has been political.”¹⁰⁰

The attempts at reform have been complicated and delayed by the military’s top brass who have “acquired an autonomous political voice that is entirely incompatible with even the most generous definitions of democratic civil-military relations.”¹⁰¹ In addition, there are conflicting agendas within the new administration that make further reform difficult. However, there is evidence that Putin’s attempts at consolidating presidential power, combined with his widespread popularity within the rank-and-file members of the armed forces, and his handpicking the new president of Russia bode well for a significant resurgence in the military arm of the Russian government.

Economically, Russia is accumulating large stockpiles of petroleum-derived revenue, much of which is being directed toward the military and its efforts to reform. However, as pointed out by a Russian military expert, “now military leaders have enough money to create a kind of caricature of the Soviet armed forces, and they want to do a lot of the same old things. But their plans are a confused mixture of realistic goals and unworkable Soviet-style symbolism.”¹⁰² Furthermore, crime, corruption, human-rights abuses, and a looming demographic “catastrophe” all detract from the effectiveness of reform efforts.¹⁰³ In particular to the pursuit of emerging technologies, the lack of business skills on the part of Russian scientists and problems with governmental control of intellectual property rights have discouraged many of the privatization efforts that have been tied to improving technology in defense-related areas.¹⁰⁴

The one aspect of military reform that may be underestimated is the Russian desire to resurrect a Soviet-style “military bear” and the associated international influence that accompanies such military power. This warrior ethos and desire for world power status is something deeply embedded in Russian society and dates back to the nation’s earliest days. Evidence of Putin’s relentless efforts to restore this desired “great power” status and a growing confidence in the military are beginning to be displayed in the form of provocative actions aimed at the West and America, in particular. During the same month that the first round of post-Cold War Bear bomber intercepts occurred, a Russian-led submarine team planted a titanium flag on the North Pole and claimed it as sovereign territory.¹⁰⁵

Also in August 2007, the Russians announced their desire to expand their naval presence into the Mediterranean. Their naval chief said they may reclaim a naval base in Syria, from which Soviet warships used to keep track of US ships in the Mediterranean.¹⁰⁶ Finally, in response to US plans to station missile defense assets in eastern Europe, Putin suspended his country’s participation in the Conventional Forces in Europe treaty, opening the door for Russia to move its armed forces into more offensive locations west of the Ural mountains.¹⁰⁷ While the obstacles to successfully reforming the military may be daunting, their ability to achieve a resurgent Russian military will definitely not fail due to a lack of self-confidence. On the contrary, this desire and belief in a warrior destiny may be the one point that propels the Russian society over the obstacles that stand in front of returning to a “super bear” status.

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Chapter 6

Alternate Future—Russia in 2030

Under Putin, Russia has moved away from democracy and toward a more “managed” (read autocratic) regime. The question is, can Putin’s current political system of sovereign democracy survive, or is it just a momentary stop on a trend line leading toward a failed state, a fully democratic, or an authoritarian regime? Further, after examining major trend lines that will drive the answer, is a resurgent Russia plausible given the projected political system in 2030?

Political Future

The least likely scenario is a failed state. Russia has vast economic resources of gas, oil, timber, and precious metals that will serve as a buffer to bad political decisions. Thus, even faced with rampant corruption and large demographic issues, it is highly unlikely the Russian economy will completely collapse. In addition, given Putin’s ability to handpick his successor and capture the support of the population through stability and improving standard of living, there is very little chance this power base will allow Russia to spiral into a failed state. There is too much money at stake, and the available domestic resources are prevalent enough to prevent such a catastrophic event. However, it is interesting to note that Putin himself used the threat of a Russian Federation collapse in order to justify the current political power consolidation.¹

The likelihood of a fully democratic state is only slightly more probable than the failed-state scenario. In order for Russia to transition into a democracy, much within the Russian Federation must change. Democracies require effective governance through free and fair election of representatives within a legal framework that guarantees representation without corruption. Democracies must allow freedom of speech and freedom of the press, as well as governance by the rule of law with the attendant civil society. Further, a democracy must have a judicial system that guarantees the protection of private property, promotes free and fair global business practices, and, most importantly, protects and promotes the rights of individual citizens. For Russia to become a democracy, it must forego 1,500 years of history, undergo radical reforms in the public sector and business community, and create a robust civil society from scratch.

At present, such reforms do not appear viable. There is no historical basis for such reform, no current political or economic interest in making such changes, and no compelling forces that would drive Russia in such directions. Since Putin took power, all leading indicators of democratization have been trending in the

wrong direction. Elections are far from fair; political power has been consolidated among the *siloviki*; the state has taken control of most of the media; legislation has passed reducing the number of opposition political parties; and a tainted judiciary are all prominent forces that are now driving Russia towards an autocratic regime.

With the election of Pres. Dmitry Medvedev, the Right Honorable Putin has taken much of his old authority with him, stripping the power of the president and hastening the consolidation of power into the hands of the few. Thus, although some argue it can take a fledgling democracy an entire generation to mature,² it is highly unlikely Russia will head in this direction. A democratic Russia would require a basic cultural shift among the Russian population and a revolutionary change to the political structure.

A recent poll conducted by *Radio Free Europe/Radio Liberty* concluded only 41 percent of Russians value fair, multiparty elections.³ Further, only 34 percent believe free speech is important, and only 40 percent disapprove of media censorship.⁴ On the flip side, 68 percent trusts Putin and over 50 percent have a positive view of the Russian economy.⁵ Thus, in what appears to be an ironic twist, the more Putin consolidates power, the more authoritarian the regime becomes, the stronger his approval rates grow. With this attitude among the Russian population, the chances of a fledgling democracy taking hold are very small indeed.

It is apparent that some form of authoritarian rule is the most probable course. Yet, a slide toward the totalitarianism of the Soviet era is equally unlikely. The new Russian strength comes from oil, not nuclear weapons. The sale of oil forces Russia to participate in the global market and come to at least partial accommodation with the pressures of world market and world opinions. The China model seems the most likely outcome where strong central governmental control is maintained, while the economic sphere and limited personal freedoms at the individual level are allowed. A slide into a fully authoritarian regime similar to the Soviet era poses far too great a risk for Putin and his *siloviki* power base within the Kremlin. As politically astute as the Roman Republic corrupt power brokers who knew that bread and circuses ruled the masses, the *siloviki* well understand the fine line between outright oppression of an authoritarian regime. Therefore, the *siloviki* ensures the general population has enough resources to keep them pacified. They are pragmatic, goals oriented, and believe they understand how much exploitation the Russian population will tolerate.

The Possibilities—Sovereign Democracy

Prediction of future Russian actions is difficult in the specific details, but, in the macro sense, it is far easier to define. The imponderables include price structure of commodities into the future, the byplay of political control with Medvedev as president and Putin

as prime minister, and the chaotic international security environment. How each of these forces will interact and alter the direction in detail is well beyond the scope of this study. Yet, in the broader sense, all roads do appear to lead to new Russian definition called sovereign democracy. Since 2000, Putin has continually worked toward a more centralized and authoritarian political system while being perceived as the most trusted figure in Russian politics. Although evidence shows a dramatic consolidation of power in the Kremlin combined with rampant corruption, Putin has been able to win the hearts and minds of his own people as well as the respect of the international community. Further, according to a recent survey, most of Russia's well-educated youth believe contemporary Russian society requires a charismatic leader who wields an iron hand.⁶ Thus, Putin's style of sovereign democracy ironically appears to satisfy nearly everyone from the corrupt to the powerful *siloviki* to the general population at large. As long as the economy prospers, so will Putin's sovereign democracy.

The scenario is set, and the political trend lines are relatively easy to follow. The consolidation of power within the Kremlin is ongoing and will finish its most important work within the next few years. Medvedev has been talking about a more liberal western view; yet his actions demonstrate little change from the Putin line established over the previous eight years; and his reduced authority dramatically limits any autonomous action on his part. This is not to imply the future will be easy or that challenges will not continually crop up testing political structures. There is already evidence of internal competition within the power structure, but it will, in the best Russian tradition, remain opaque to outside observers. There is a great deal of friction within this type of system created by internal fighting among the powerful few, endemic corruption in the system, dependence upon commodities that fluctuate from forces outside Russian control, and restlessness of a population that is held back. These forces closely resemble the same issues listed by George Kennan in his famous "X" article that recommended the strategy for the Cold War. However, as powerful as the negative forces will be, this team's research indicates that any failure of the sovereign democratic process will occur well past the 2030 time frame of this study.

So the die is cast; sovereign democracy will dominate and, at least for the short term, successfully direct the interests of Russia. Those interests include the return of Russia in prestige and power to the ranks of the elite nations, the economic clout to influence the actions of other nations, and sufficient military power to protect the integrity of the Russian nation and compel actions within its near abroad.

Nonetheless, corruption, internal dissent, and lack of innovation in a rapidly changing world will take its toll. Such events, however, will take decades to fully unfold. Of interest to this study is that by 2030 Russia will be either reaching its peak or, at worst, just meeting

its culminating point. It will be resurgent, and the United States will be facing serious challenges in 2030 that must be addressed.

Economic Future

The economic forces at work, principally the revenue and power generated by its oil and gas sales, act as the enabler for Russia's development of a hybrid system called sovereign democracy. The concept of a resurgent Russia is directly dependent upon the wealth generated through its commodity sales, and strong evidence indicates that such wealth will continue for several years to come. For this scenario, it is envisioned that government policies will continue along current trend lines seeking to control strategic sectors of the economy, while allowing some free market reforms to occur in other areas. The Russian leaders will leverage their control of the economy for domestic and international political power and, in some cases, for personal gain. The changes will be sufficient for Russia to successfully complete its application to the World Trade Organization, further integrating Russia into the global economy. Finally, the government will implement regulations that provide some economic transparency but only to the degree necessary to appease foreign investor concerns over state control of businesses.

Infrastructure rehabilitation will take longer to achieve. In the next three to five years, only limited progress will be made in modernizing the infrastructure, and that modernization will be focused on the energy sector. Within a decade, other parts of the infrastructure will begin to improve as the government budget surpluses flow into other sectors of the economy. The changes will be noticeable and worthwhile; however, they will be small in comparison to other countries that adopted a more open economic model, such as India and China. The infusion of money will improve the transportation and communications networks, especially in western Russia; will start important yet hesitant steps towards rebuilding the health care system; and foster programs to stop the demographic downward slide of the Russian population. These measures, while expensive, will improve the state of the national workforce and will enable the government to "mask" its exploitation of the economy from the general population.

As with infrastructure, industrial diversity will also be slow to develop and will be the weakest part of the Russian economy. The impact of corruption will tend to stifle innovation and risk taking necessary to foster new enterprises, and an open environment will receive little support since it is antithetical to a centralized system. So in the short-term, some diversification will occur in sectors related to domestic consumers, especially the financial markets, but will be limited in those areas important to the nation's political survival. Energy resources will still account for over 50 percent of the country's industrial output and 35–40 percent of Russia's gross

domestic product (GDP), ensuring that Russia will not be able to avoid the negative impact of the “Dutch disease.”

Within a decade, the Russian government will begin to see a limited return on its investment in technology zones and its nanotechnology investment fund. By 2015 the combination of infrastructure development, continued investor confidence, and sustained domestic demand will have enabled the light manufacturing sector, including the high-tech industry, to grow to nearly a quarter of Russia’s total industrial output. Consumer services sector will have grown to 10–15 percent, reducing commodity sales to less than half of the country’s GDP.

The plan is for this diversification to posture the Russian economy for the latter part of the century when the country’s natural resources will be depleted. However, there are few historical examples of a resource-based economy that has successfully diversified the economy to move beyond commodity dependency. Intellectually, this challenge is well understood by the Russians, and they have set up funds specifically designed to allow this transition. There has been, however, a stark divide between the theory of diversification and the actions necessary for such economic diversity. But as with the political case, these factors will not be fully in play by 2030.

More importantly, state control of strategic industries will enable the government to focus its resources on defense modernization. When Putin came to power, he recognized that rehabilitation of Russia’s economic power had to come first. His policies over the last eight years have come to fruition, enabling Russia to now begin rehabilitating its military forces.

While the industrial side will see only modest gains, the high technology sector will have far more success. Russia will be able to capitalize in this important arena with a large influx of money and a broad scientific base from which to draw. There are other forces at work that will influence and escalate the status of science and technology. The first is the declining population base, which will have a positive impact on the technical side of the economy. Russia will not have the manpower for developing an overly powerful military and fully developing the large industrial side of the economy. Advances in science and technology have had a profound ability to substitute for manpower in developed nations, and this lesson will not be lost on the Russians. The second falls under the lessons of history. The perception of many in Russia is that the collapse of the Soviet Union was partially caused by its inability to compete with the United States technologically. As the United States developed the “Star Wars” concepts, the Soviets were not able to compete. Making advances in areas of technological competition is one way the Russians can restore their pride.

Resurgent Russia

By 2030 the resurgent Russia envisioned here will have largely continued the path set during the Putin presidency. It will have become the world's eighth or ninth largest economy (up from 11th in 2007) and will have surpassed Canada and Spain in terms of GDP. The economy will remain heavily dependent on Russia's natural resources but will also have had some limited success in diversifying its industrial capacity. The government, much like today, will be strongly nationalistic and will have direct control over critical elements of the Russian economy.

To better understand what power Russia will bring to bear in 2030, an examination of the growth of the GDP is helpful. These are only broad estimates but illustrate that Russia will be an increasingly important actor on the global stage.

The progression of the Russian economy over the next 25 years under this scenario is shown in figure 7. It envisions that Russia will experience steady economic growth (five percent annually) over the next decade. In 2015 it is envisioned that economic growth will rise slightly to 5.5 percent on the strength of Russia's economic diversification and infrastructure development. For comparison, figure 7 also depicts the US economy with growth of 2 percent annually. Under this scenario, Russia would grow its economic output from one-tenth of the United States to over one-quarter of the US GDP by 2030. This highlights that while Russia will enjoy strong economic growth, it will not challenge the United States, the European Union, or China in terms of overall economic power.

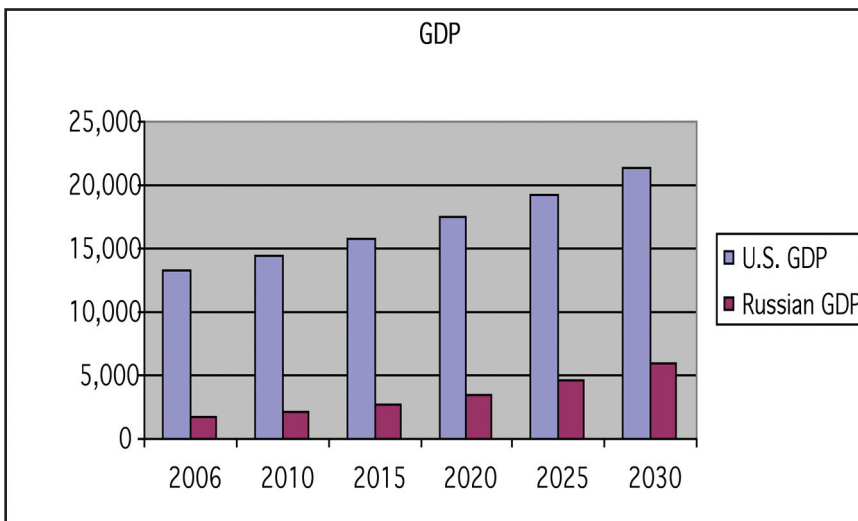


Figure 7. Gross domestic product—scenario projection. (From our analysis.)

Government Revenues and Defense Spending

Revenue growth for the Russian government will be episodic, a characteristic of a commodity-based economy, but it will, nonetheless, enjoy growing revenues over the entire course of the next 20 years. This growth will enable the government to modernize infrastructure, address social issues, and reinvigorate its military establishment. Figure 8 depicts the expected growth of the Russian government's defense budget out to 2030. Presently, the Russian government spends 3.1 percent of GDP on defense. However, Putin has increased the defense budget by over 20 percent in each of the last three years, and Medvedev has committed to continued increases in defense spending. It seems likely that Russian defense spending will reach at least 5 percent of GDP during the next decade and could exceed that as the Russian government seeks to strengthen its military power.

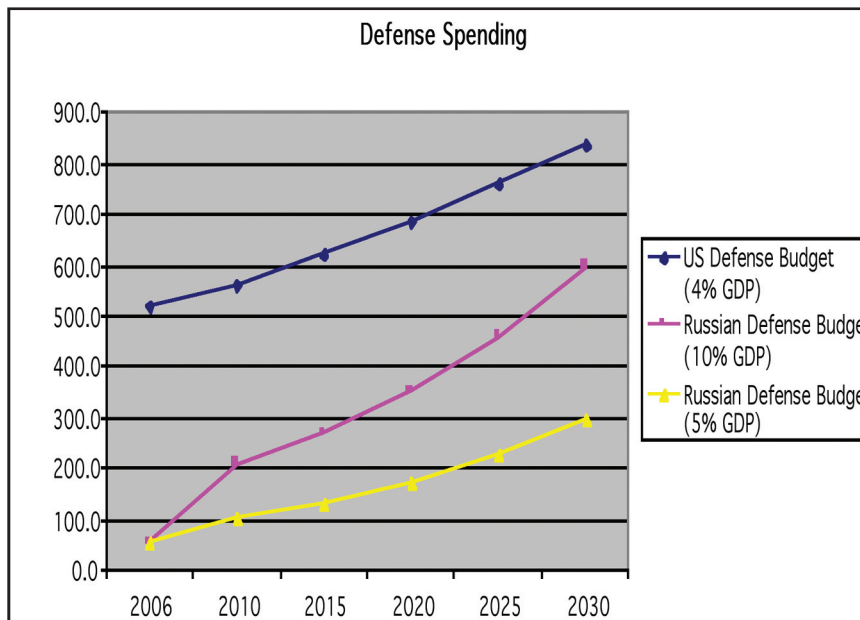


Figure 8. Defense budgets—scenario projections. (From our analysis.)

While higher defense spending will significantly increase Russia's military power, it will have limited expeditionary capability for its conventional forces, restricting it to a regional power. Russia will be unable to achieve military parity with the United States for two reasons. First, in spite of strong economic growth, the Russian government would have to grow its defense budget by over 13 percent annually until 2030 to reach an equivalent level of annual spending with the United States. Second, the Russian military is

starting from a low state of capability, having been drastically underfunded during the last two decades.

During the last decade, much of Russia's geopolitical strength has stemmed from its nuclear forces and its permanent seat on the United Nations' Security Council. By 2030 the resurgent Russia will have also established itself as a global economic power. Furthermore, state control over much of the economy will have enabled it to revitalize its conventional military forces and its ability to project conventional military power in eastern Europe, the Caucasus, and central Asia. In sum, Russia will have become a nation that possesses all the traditional elements of national power. Resurgent Russia will play a much more significant role in regional politics and, to a lesser degree, global politics.

Military Future

Even with substantial progress in all five of the military reform components, it is hard to envision a Soviet-like conventional superpower arising from the programs that are currently in place, even by 2030. At best, the Russian military will probably be considered no more than a regional conventional military power. But that takes nothing away from its ability to defend itself. In this regard, they will certainly field a modern and robust system for homeland defense. Just their demographic limitations alone will prevent them from deploying large fielded forces as they have in the past, and they have no plans for large expeditionary efforts.

However, the Russians still possess unique asymmetric capabilities in the form of nuclear weapons, space access, and orbital systems that still give them superpower niches; ones they will surely not give up, but enhance. Putin himself has discussed "new spirals" in an arms race that could include nuclear weapons based in space,⁷ something the United States must recognize and defend against. *Strategic Forecasting, Inc.*, summed up recent moves by the Kremlin, "Russia is back, and it no longer accepts its decline into obscurity."⁸ Part of this "nonacceptance" attitude is a push for asymmetric technologies that may produce surprises that significantly shift the balance of power in Russia's favor. Although these surprises are, by definition, hard to predict, it is worthwhile to watch areas the Kremlin is centralizing its control over and expanding its funding for, since these emphasis areas may be places from where these surprises emerge.

For example, it is not hard to imagine a scenario where the current Russian investments in nanotechnology lead to miniaturized control and power systems that allow massive numbers of inexpensive titanium-built unmanned aerial vehicles (UAV) that are capable of delivering biotech-engineered weapons. The recent Russian cyber attacks against Estonia and Georgia demonstrate that the Kremlin is very much interested in and capable of pursuing non-

traditional approaches to warfare.⁹ These threats may not look like those of “Cold War–Fulda Gap” timeframe, but they may be just as lethal. For some it may be hard to imagine that Russia could produce such a technological leap, but *Sputnik* is a reminder that Russia has done it before. Furthermore, as noted by the Central Intelligence Agency’s Russian analyst, most experts “consistently underestimated the Russian economic capabilities in the early 2000s,”¹⁰ a miscalculation the United States can ill afford to make when it comes to future asymmetric military capabilities.

In sum, resurgent Russia of this alternate future is a major supplier of global energy resources that is not closely aligned with either the West or the East. As a result, resurgent Russia will be particularly concerned with defending its natural resources and the infrastructure that brings these resources to markets in Europe and the Far East. The country will be a regional power in terms of conventional military capability with only limited global expeditionary capabilities.

The military will be smaller but more capable, with professional soldiers and technologically advanced military systems. The Russian military will have the ability to project its full combat power into the Russian “near abroad” including eastern Europe, the Caucasus, and central Asia but will be limited in its ability to deploy conventional forces globally. In part to make up for the limitations in its conventional forces, resurgent Russia will have developed significant strategic reach through its nuclear forces and its development of advanced strategic technologies for space and cyberspace. In this alternate future, the Russian military will possess significant, advanced capabilities across all warfighting domains, including air, space, and cyberspace.

By 2030 a resurgent Russia’s air power will be dominated by UAVs. Conventional aircraft is still present on the battlefield, but Russia will not likely have invested in fifth-generation (F-22 or Joint Strike Fighter) technology to any degree. Thus, they have no F-22 equivalent aircraft, but they have a small inventory of fourth-generation MiG-29s, MiG-31s, SU-27s, and SU-34s. UAVs have taken over the battlefield and represent 70 percent of Russia’s air power. This is a natural extension of earlier military philosophy. It alleviates the manpower issue while maintaining strong ground control of air assets, just as with their manned systems. Technology has advanced sufficiently to allow near autonomous operations.

While most UAVs in 2030 will still be large, “micro” and “nano” UAVs will provide niche capabilities in the area of psychological operations, intelligence, surveillance and reconnaissance, and perhaps combat swarming.

Further, from a purely quantitative targeting standpoint, trying to take out a swarm of UAVs, or even the infrastructure associated with a swarm, is problematic at best. The traditional large infrastructure associated with aircraft, such as fuel tanks, shelters,

runways, and control towers, does not apply to UAV squadrons. Finally, attempting to destroy a UAV that weighs 50 pounds and is only three feet long will be very difficult with today's weapons arsenal and targeting capability. Tracking objects this small is a difficult technological problem; thus the traditional means of defeating enemy aircraft and their associated infrastructure will have to be completely reevaluated.

From advancement in air platform weapons, UAVs and fourth-generation manned aircraft equipped with solid-state laser and high-power microwave weapons are likely. Solid-state laser technology has evolved to a point where the offensive potential can be lethal against both air and ground targets. High-power microwave (HPM) weapons will advance along with solid-state lasers. HPM capability provides for self-protection and introduces a disruptive and destructive ability that will present a very serious challenge. Advance production capacity and proliferation will make them ubiquitous on air platforms.

In 2030 resurgent Russia's ability to operate in space will be on par with the United States and superior to China. Militarily, the Russians will have pursued an aggressive space power program to take full advantage of their existing space lift infrastructure and to fully exploit the asymmetric benefit that is possible through space operations. The Russians will deploy their own networks of communication and navigation satellites. Networks are highly redundant and capable of transmitting enough bandwidth to support all Russian military operations. Additionally, excess bandwidth that is not used for military functions will be sold to commercial companies in order to generate additional revenue for Russian military efforts. These communication satellites will be of a traditional size and will use mostly laser-based transmitters and receivers in order to support their enormous bandwidth capacity.

Besides these traditional satellites, the Russians will take advantage of their investments and their discoveries in the fields of nanotechnology and robotics and pursue much smaller satellites. Advances in these two areas will allow the Russians to field whole new classes of micro-sized satellites. These microsatellites will be launched in very large quantities and on short notice by a variety of air breathing and ground-based systems. They will be deployed with the full spectrum of state-of-the-art sensors, providing the Russians with the ability to quickly monitor any part of the earth through multi-spectral surveillance. Additionally, these microsatellites will provide the Russians with a similar ability to detect and monitor on-orbit assets. This situational awareness of space-based hardware will play an important role in the strategy of Russian space operations.

In order to take advantage of this space situational awareness, the Russians will continue to pursue antisatellite (ASAT) technologies. These ASAT systems will be both ground- and space-based and prolific in their ability to destroy or disrupt an adversary's

satellite in low Earth orbit. Ground-based systems will harness both kinetic and nonkinetic weapons. Additionally, the Russian on-orbit ASAT capability will present a significant threat to any satellite, regardless of its orbit. Although more limited in number than their ground-based counterparts, these ASAT microsatellites will provide the Russians with a potentially nonattributable capability to destroy, disrupt, or simply monitor most critical space-based assets. The Russians will also pursue and field a very small number of space-based directed energy weapons that will have the capability to quickly target other on-orbit satellites.

One major aspect of Russia's future space power force will be its rapid regeneration capability. Historically, the Russians have always been faster at getting missions into space, and they will maintain this advantage into the future. They will possess large numbers of traditional ground-based launch facilities, both fixed sites and mobile launchers. While these systems will be limited in payload size, they will provide a very responsive ability to launch microsatellites on order. Plus, the Russians will continue to develop a limited amount of air-launched platforms that are capable of deploying microsatellites or kinetic kill vehicles for low Earth orbit targets. These air-launched rockets will be mated to the new classes of UAVs that the Russians will develop. For satellites of a more traditional size, the Russians will make more limited progress in their ability to deploy these systems.

While small advances will occur as a result of scientific research and the Russians pursuit of lunar and Mars missions, the Russians will still rely on a "brute force" method for deployment of large satellites. While these systems will be more numerous than their present systems, they still will not provide a very responsive capability for deploying large satellites. Overall, similar to their decision to pursue a UAV-centric airpower force, the Russians will pursue a space force that is highly reliant on microsatellites, a force that can rapidly employ small, niche asymmetric effects on their intended space targets.

The Russians have also moved rapidly into the cyber world. Though at an initial disadvantage to the West, their well-educated computer force quickly garnered the asymmetric advantages associated with the art of using cyberspace. It is a cheap and effective way to have strategic effects with minimal investment, low manpower requirements, and difficulty in attributions. By 2030 a resurgent Russia will have fielded advanced cyber-warfare capabilities as a means of developing an "asymmetric" counter to the United States' superiority in conventional forces. They will possess cyber power that is both offensive and defensive in nature, which enables engaging within the cyber domain using both "hard" and "soft" systems.

Software systems will represent an area of expertise that could well exceed the United States. In the early years of computing, the Russians did not have many of the advantages of state-of-the-art

hardware created in the United States and had to develop elegant software to compensate. That software, when combined with the robust commercially available hardware, will enable the Russians to employ global networks to find, fix, track, and target information technology systems operating in the cyber domain. These software systems will be capable of operating in the face of active deception by adversaries and will provide Russia the means to locate targets within the network, positively identify those targets, and then determine available means for engaging the targeted system.

Russia's offensive cyber-warfare systems will be capable of direct, immediate attacks on adversary systems and of causing effects that manifest, both in physical destruction of the targeted system, as well as in the destruction/corruption of data that is stored on the targeted system. Russia's offensive cyber systems will also be capable of infiltrating an adversary's networks and assuming control of some (or all) of the systems operating on the network. Finally, they will have the ability to employ its offensive cyber power, through Trojan horse attacks, where the attack mechanism is infiltrated into an adversary's network but remains dormant until activated. In short, Russia will be a formidable foe, though not as pervasive as China but more lethal in focused areas with a greater willingness to use direct attack as a preferred approach.

Russia, always cognizant of a defense in depth, will have developed defensive cyber systems to protect its own networks from attack by an adversary. These systems will provide a layered hardware and software defense designed to detect, isolate, and block attempts by an adversary to infiltrate Russia's computer networks. It is important to note that unlike the United States, where there is a clear delineation between government and the private sector, this defensive system will protect not only government networks but also private networks as well. In particular, those networks associated with the utility (oil, natural gas, and electricity) and financial sectors will be heavily defended by Russia-cyber systems.

In summary, the Russians will represent a formidable threat to US safety and interests. The economic power generated by oil wealth will imbue the Russians with power that was formally garnered through military strength. This wealth will allow an essentially regional power to have inordinately strong international effects considering its small population and relatively minor industrial capacity. Their strengths will be enhanced by their wealth through the creation of strategic capability in economic persuasion, cyber systems, and space capabilities that can directly threaten the United States, and a respectable defensive military force sufficient to influence those in the "near abroad."

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Chapter 7

Implications for the US Military

How should the US military prepare for a resurgent Russia? In order to answer this question, it is important to look at it from two different perspectives. First, what is the current American approach to warfare deficiencies that are being built into our future combat systems, bureaucracies, and force structure of which a resurgent Russian military might take advantage? To do this, one can look at today's combat systems, along with those currently being designed and built for future combat, and project vulnerabilities that may arise as those systems and organizations come online. Due to the longevity of modern weapon systems, the footprint of today's global war on terrorism force will most assuredly be visible in the American military of 2030. Furthermore, the underlying assumptions driving the current development of many American "transformational" systems have associated risks that might be exploited by a Russian military that is focused on returning to a Cold War-type rivalry status. The second perspective, useful when looking at the potential future threat presented by a resurgent Russia, is that of the Russians themselves. In particular, what systems are the Russians likely to design in order to overcome their own shortcomings and physical limitations? Economic, demographic, and geographic realities are likely to influence many of the Russian decisions when it comes to funding future defense projects. These existential weaknesses of the Russian state and its society will most certainly drive a serious effort toward asymmetric capabilities, most specifically in the technological areas to make up for these shortcomings.

The modern American way of war is heavily dependent on technology in its attempt to lift the fog of war through ever quicker, smarter, and stronger weapons systems. However, this approach and quest for efficiency on the battlefield have exponentially driven up the cost of individual weapon systems. While the pursuit of these "force multipliers" has produced lopsided victories on the present-day battlefield, it has also left the American military highly dependent on a finite and ever-decreasing number of weapon systems which have become prohibitively expensive to build in large quantities. Additionally, because most of these advances involve "system-of-system" technologies, many of today's and tomorrow's combat capabilities will be even more interdependent and thereby more susceptible to single-point failures. This significant decline in the overall number of weapons platforms and the increased potential for a strategic "Achilles' heel(s)" has opened up opportunities that a resurgent Russian military can take advantage of by focusing on certain emerging technologies.

Like a risky stock portfolio that is overly invested in too few stocks, the future American military force structure may not be diversified enough to handle a Russian military that invests in a strategy of procuring large numbers of small systems. The current Russian government's unprecedented investment in nanotechnology provides some evidence that they are interested in technologies that might facilitate building military capabilities on a much smaller and less expensive scale. Thus, while an American F-22 Raptor may be capable of defeating modern enemy aircraft, even when greatly outnumbered, this may not be the threat that matters. Nanotechnology may provide Russia with the capability of fielding small, less-capable UAVs, but at a cost vastly below that of an F-22. This creates a dilemma for the United States. While technology will be a mainstay for both US and Russian future systems, Russia will probably seek to specialize in areas of asymmetric advantage, such as flooding the skies with less capable but greater numbers of weapons systems. Russian futurists and technology innovators may well return to the Soviet concept that "quantity has a quality all its own," an approach that if adopted and successfully developed could potentially change the military calculus by introducing a new category of "force dividers."

Besides the pure numerical vulnerabilities of the future US combat platforms, their inherent "information bandwidth" architectures expose key nodes to potential attack. Global positioning system (GPS), for example, has become a mainstay and vital lifeline for every US high-tech combat platform (not to mention the potentially catastrophic dependency of a large portion of the global economy). The value and vulnerability of these few dozen hard-to-defend satellites are truly astronomical. A Russian space force capable of conducting a relatively small number of offensive attacks against GPS satellites could not only prevent the precision engagement and data-linking capabilities that our military forces have become dependent upon, but it could also shock the global economy by taking automated teller machines and world financial markets off line.

The United States will not be static in defending its assets and will certainly have developed capabilities to secure GPS and dramatically improve onboard navigation. But every new system comes with new vulnerabilities, and the point is that Russia will have the incentive, the wherewithal, and the capability to find those weaknesses. Furthermore, recent Russian investment and interest in information technologies provide them yet another asymmetric avenue for inexpensively developing techniques and tools that could potentially disrupt the information pipelines.

Russian Challenges to the USAF

Given the evolving Russian resurgence, what then are the principal challenges of a resurgent Russia to the USAF? Principally,

there are four key areas that Russia will focus on that will pose a challenge: (1) Russia will continue to use space to its advantage; (2) due to demographic problems, Russia will focus on asymmetric technologies such as nanotechnology and cyber technology that will provide advantages that cannot be achieved through quantity; (3) with increasing economic prosperity and a focus on reforming conventional military capabilities, Russia in 2030 will have a strong regional, conventional capability to add to its already strong nuclear arsenal; and (4) Russia's interest and investment in directed energy technologies will provide further advances in compensating for reduced population.

Russia has an active space program and has made further commitment to increase its presence in space. In particular, while Russia benefits from US GPS technology, the Russian paranoia for self-reliance is driving development and deployment of inherent precision, navigation, and timing (PNT) satellites. While Russia attempted to launch and operate the Global Navigation Satellite System (GLONASS) PNT satellites, in the 1980s, economic collapse prevented a fully deployed system. With renewed funding, GLONASS now has 14 satellites on orbit heading toward a constellation of 24. At present, there are few GLONASS receivers commercially available, and there are few plans to develop them. However, the Russian military will exploit this inborn technology to its advantage.

Russia's commercial space launch program is best known by the Soyuz program. Russia remains committed to growing this program as well. With obvious military implications, Soyuz provides the infrastructure necessary for a variety of platforms to be launched into space. Continued research of miniaturizing payloads coupled with technology on disabling, disrupting, and/or destroying technologies presents a credible challenge to US space systems.

Discussed earlier is Russia's economic commitment to asymmetric technologies principally in the forms of cyber and nanotechnology. With regards to nanotechnology, Russia may seek to overcome improved detection technologies by using the inherent stealth properties of nanomachines. Nanobots may have the ability to deny and disrupt our systems on multiple fronts from launch to command and control to end-use capability. Similarly, nanotechnology promises to revolutionize materials technology providing for stronger, smaller, cheaper, and more capable systems.

Capitalizing on a well-educated populace with a strong centralized government, Russia has demonstrated a willingness to use cyber technology to deny and disrupt. As evidenced in the infamous Estonian cyber attack of 2007, the globalized world presents a wide target set for those willing to "push the button." The complete reliance on cyber for all phases of USAF operations presents an inherent vulnerability that is subject to exploitation.

Russia will modernize its air defenses between now and 2030. It will use the technologies mentioned to form a fully integrated air

defense system to enhance command and control (C2) capabilities. Russia's desire for border security will enable fully controlled entry into its territory.

Lastly, Russia's directed energy (DE) developments will challenge the USAF in 2030. Covering the gamut from communications disruption to personnel denial to tracking and targeting, DE in 2030 promises to be a true "game changer." Deployed on the ground, in the air via UAVs, and possibly in space, DE gives rise to multiple ordeals.

USAF Response

How the USAF should respond to a resurgent Russia is the central concern of this paper. While this monograph does not recommend any specific weapon systems for development (those answers are provided in the final *Blue Horizons* report), both alternate future research and operational analysis point towards important areas for future investment and essential enabling technologies.

With identified vulnerabilities of manned flight systems, UAVs are becoming and need to become even more important and ubiquitous. Future UAV development will need to improve overall intelligence, surveillance, and reconnaissance (ISR) awareness as well as kinetic capabilities. From long endurance to survivable communication protection, UAVs enhancements will provide cost efficiencies while further reducing manned exposure.

The USAF's reliance on space will continue to grow over the next two decades. GPS dependence and vulnerability are well documented. But, all of the key space platforms and space launch capabilities will be required in times of conflict. As such, increased protection of space assets coupled with a rapid reconstitution capability becomes more important. This is particularly true in the areas of PNT, ISR, and communications and warning—the areas necessary for the United States to operate in the high ground of space.

In the domain of cyberspace, it is not possible to fully envision every avenue by which the United States can be attacked. To that end, the USAF must work on increased protection capability combined with the ability to rapidly reconstitute operations in this domain. The USAF's need for certain C2 is central to executing any campaign. Securing and being able to rapidly restore cyber capability are imperative.

Just as DE has become a focus for Russia, it should also be a focus area for the United States. The USAF needs to develop DE protection capabilities for its ground and airborne systems as well as the ability to use DE, both lasers and microwaves, in an offensive capacity. These systems are not domain specific; thus investments in systems for operations on the surface, in the air, and in space are all areas ripe for investment.

Conceptual Systems and Their Enabling Technologies

Part of the *Blue Horizons* study relied on a “value-focused-thinking” quantitative analysis of current and future systems against each of the four alternate futures. With specific regards to a resurgent Russia, the team evaluated the likelihood of success of weapon systems fulfilling the USAF mission of Global Reach, Global Vigilance, and Global Power.

The top 10 concepts across the three USAF defined mission sets when confronting a resurgent Russia in 2030 are shown in figure 9. The number one and two concepts are based on DE and point toward the usefulness of developing technologies in a conventional capability package. The third highest ranking concept is called “pathfinder” and refers to a UAV that serves multiple roles from sensor awareness to networking to kinetic capability while accompanying other aerial platforms. Fourth on the list is “cyberspace UAV” which refers to the growing importance of understanding and exploiting this domain. Of note in the other concepts is an emphasis on other unmanned systems in a conventional context. Five of the top 10 systems, in terms of their utility against a resurgent Russia, are unmanned.

All 58 systems in the study were then used to discern which underlying technologies were most important for investment in each scenario. A list of 172 comprehensively exhaustive and mutually exclusive technologies was mapped against all 58 of the scored

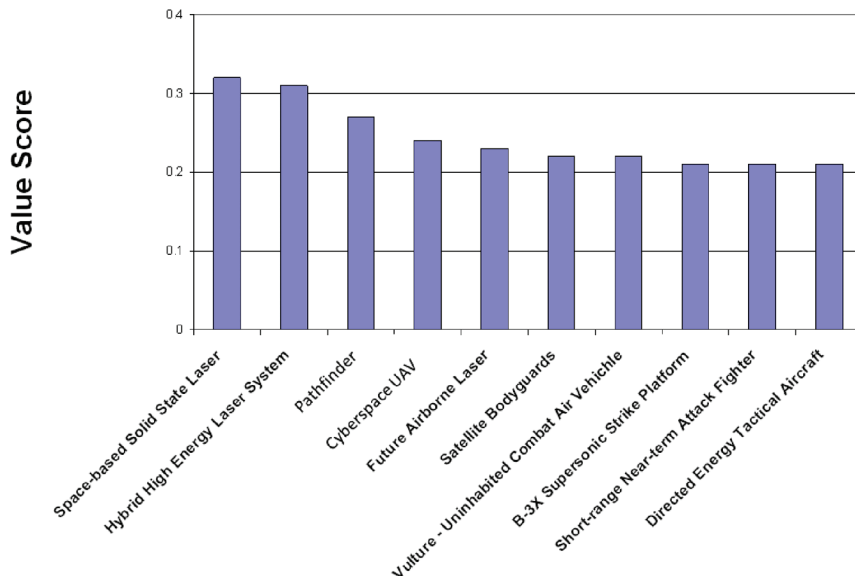


Figure 9. Conceptual systems scores in resurgent Russia. (From our own analysis.)

concepts and systems. This enabled determining which underlying technologies had the greatest importance for each alternative future. The model accorded points to each technology based on the value of the concept(s) that technology enabled. The top 10 technologies for a resurgent Russia are listed in figure 10.

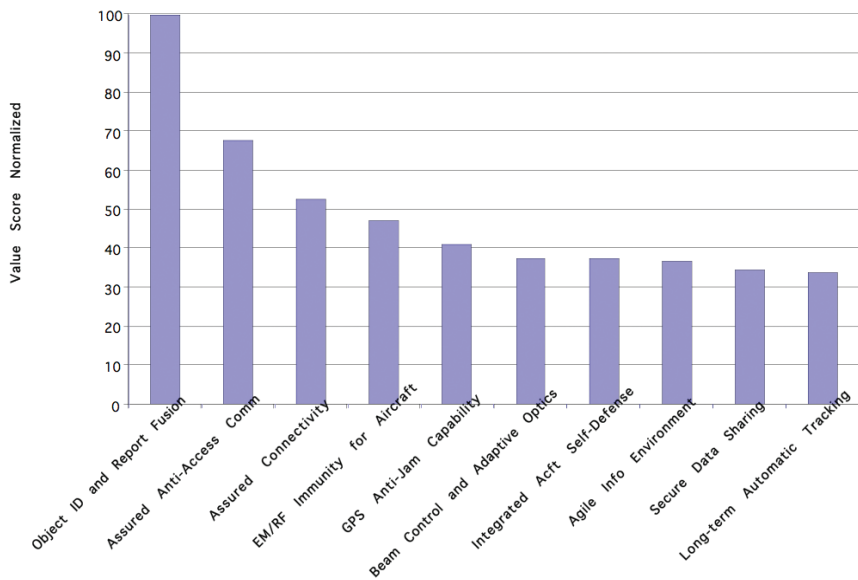


Figure 10. Enabling technologies for a resurgent Russia. (From our own analysis.)

The highest valued enabling technology is “object identification and report fusion.” Specifically, our ability to accurately identify targets and seamlessly integrate into reporting systems enables superior C2. The next two technologies support the C2 requirement for access and connectivity even in a denied access environment. Protection of aircraft, manned and unmanned, from electromagnetic/radio frequency was a key enabler of many systems in the 2030 timeframe. GPS antijam highlights the importance of PNT across all aspects of the battlespace from employment to defense. Beam control and adaptive optics facilitate numerous concepts in 2030 from space awareness to DE applications. Integrated aircraft self-defense alludes to the necessity of survival in demanding environments. The remaining technologies highlight our dependence on the global information grid and the importance of accessing and sharing data for the purposes of maintaining awareness.

Final Thoughts

The thesis of this study is how the underlying impact of rapidly changing technology will alter the future in unexpected ways. The study team evaluated four separate alternative futures that would stress the Air Force in fundamentally different ways.¹ One of these scenarios is a resurgent Russia. The stresses created by this resurgent Russia present specific threats that can be identified and for which planning can be accomplished. In this scheme, Russia represents the nation that creates the most classic threat, a major force-on-force conflict. It is also a scenario with many of the new technologies that will allow regional powers to project powerful strategic effects. As such, it represents, potentially, a major challenge for the United States. This resurgent Russia was created to specifically challenge the USAF and to highlight areas that must be pursued in order for the Air Force to be prepared to fight and win in 2030. The Russia created for this study was manipulated to ensure the resurgent characteristics, but, in the view of the researchers, it also represents a very logical and even probable future for Russia.

Notes

1. The study was designed to look for commonalities across the four future scenarios, and it was these common aspects of all four that became the heart of the final report. The *Blue Horizons Summary Report* is available from CSAT.

Center for Strategy and Technology

The Center for Strategy and Technology was established at the Air War College in 1996. Its purpose is to engage in long-term strategic thinking about technology and its implications for US national security.

The center focuses on education, research, and publications that support the integration of technology into national strategy and policy. Its charter is to support faculty and student research; publish research through books, articles, and occasional papers; fund a regular program of guest speakers; and engage with collaborative research with US and international academic institutions. As an outside-funded activity, the center enjoys the support of institutions in the strategic, scientific, and technological communities.

An essential part of this program is to establish relationships with organizations in the Air Force, as well as other Department of Defense agencies, and identify potential topics for research projects. Research conducted under the auspices of the center is published as occasional papers and disseminated to senior military and political officials, think tanks, educational institutions, and other interested parties. Through these publications, the center hopes to promote the integration of technology and strategy in support of US national security objectives.

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