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Russian Perspectives on the Third Offset Strategy and Its Implications for Russian-Chinese Defense Technological Cooperation

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The development of the US Third Offset Strategy has been closely watched by the Russian Ministry of Defense, the Russian defense industry, and Russian academics and government agencies. Although Russia has active technology development programs comparable to those associated with the Third Offset Strategy, the Russian authorities are paying close attention to what effects US breakthroughs might have on strategic, especially nuclear, stability. In light of worsening relations with the West, Russia seems to be reconsidering its previous model of defense industry cooperation with China. Joining efforts at this stage may be seen by the two countries as the only way to prevent the United States from gaining a decisive military and technological advantage.

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RUSSIAN VIEWS OF THE THIRD OFFSET STRATEGY

The Third Offset Strategy is rarely directly mentioned in public statements by Russian officials, since the concept is still viewed as being at a formative stage. However, many technologies and priorities associated with it, such as robotics, artificial intelligence (AI), cognitive technologies, unmanned underwater platforms, additive technologies, and hypersonic weapons, emerged many years ago, and the Russian authorities are paying close attention to their development in the United States.

The Third Offset Strategy is viewed by Russian researchers as a response primarily to China's expansion of its anti-access/area denial capabilities and secondarily to the growth of Russian defense capabilities. Based on their analysis of US sources, Russian researchers conclude that the Third Offset Strategy will be primarily focused on ensuring US technological superiority over China as its main competitor in the Asia-Pacific. Countries like Russia and Iran are secondary targets of the strategy. However, it is recognized that the strategy could have significant negative effects on Russian national security.

In examining the possible technological outcomes of the Third Offset Strategy, Russia has been paying close attention to its influence on nuclear strategic stability, since nuclear planning traditionally is at the heart of Russian security planning. The impact of the Third Offset Strategy on Russian conventional force capabilities is given lesser, but still significant, attention.

The Russian authorities are worried about possible US breakthroughs that might undermine the value of the Russian nuclear weapons program, especially given the weakness of Russia's conventional arms arsenal. Russia recognizes that the Third

Offset Strategy can lead to disruptive innovations in other important areas as well. An important feature of the strategy is growing convergence between the civilian and the military industries. Another concern is that the United States might increase restrictions on the export of technologies and equipment that the US government deems to be dual use in nature.

The most important breakthroughs affecting strategic stability are expected to happen in the areas of cyber warfare and hypersonic vehicles development. Another area of concern is the development of robotic combat systems. The impact of nanotechnology and cognition technologies is less clear. The defense industrial sector that will undergo the deepest transformation, according to Russian views, is the aerospace industry. The development of new anti-ballistic missile defense and anti-satellite weapons, the emergence of new types of hypersonic vehicles, new generations of space carrier rockets, and other developments will create potential for a 'turning point' in the development of this industry sometime after 2020.

THE RUSSIAN RESPONSE

Russia so far has not undertaken any measures that can be seen primarily as responses to the Third Offset Strategy. However, the Third Offset Strategy is based on a number of initiatives, ideas, and priorities that had been in existence long before the strategy was finalized or announced. These components had triggered some Russian responsive actions years before that affect its nuclear policy, institutional reforms, and technological policies.

Russia is engaged in a number of high-profile nuclear programs while maintaining or even strengthening the role of its tactical nuclear weapons, which are seen primarily as a way to offset Russian weaknesses in the

conventional field. This calls to mind some parallels to the first US Offset Strategy, President Eisenhower's "New Look" with Russia trying to counter the conventional advantage of the adversary with increasingly diverse and numerous tactical nukes.

Since the late 1990s, Russia has invested heavily in both the development and production of strategic weapons systems and in a wide range of tactical nuclear weapons and delivery systems, including nuclear warheads for naval and air-launched cruise missiles, ground-based short-range ballistic and cruise missiles, and nuclear warheads for air defense systems and torpedo weapons. Rearmament of ground forces with the nuclear-capable Iskander (SS-26 Stone) family of short-range missile systems capable of using both ballistic and cruise missiles is one of the priorities of the GPV-2020 rearmament program. The Russian leadership publicly emphasizes the nuclear capabilities of these new tactical missile systems.

In strategic weapons development, Russia seeks to maintain a high level of survivability and lethality of its nuclear arsenal in the face of US progress in ballistic missile defense, reconnaissance, and long-range precision strike capabilities. Russian programs include several new types of intercontinental ballistic missiles (ICBMs), including lightweight road-mobile ICBMs such as the RS-26 Rubezh, a new railroad-based ICBM (Barguzin), a new heavy liquid-fuel ICBM (Sarmat), and the hypersonic re-entry vehicle program (4202 Project), in addition to continuing production of the RS-24 Yars (SS-27 Mod 2) system. Russia is continuing to develop its maritime nuclear forces with eight Borei-class ballistic missile submarines (SSBNs) (3 active, 4 under construction, 1 planned) equipped with Bulava ballistic missiles. SSBNs are given very high priority, together with efforts to maintain and upgrade exist-

ing Delta-class 667BDR/667BDRM SSBNs.

Russia's leadership has officially confirmed plans to develop and procure new strategic bombers; most likely these will be 50 aircraft of a radically upgraded Tu-160 design. Russia is also considering development of some new classes of strategic nuclear weapons. In November 2015, Russian TV leaked information (possibly intentionally) about the "Status-6" project—a long-range (more than 10,000 km) unmanned underwater vehicle that could be equipped with a nuclear warhead for destroying coastal targets. The ultimate goal of Russian efforts in strategic weapons development was best described in a 2004 statement by Putin, when many of the programs were still at very early stage: "to make any types of anti-ballistic missile defense, existing or future, useless."

The main Russian initiative in the last several years to boost technological innovation in the defense sector was the establishment of the Advanced Research Foundation (ARF) in October 2012. ARF is set up to finance long-term advanced research that will help to create the next generations of equipment and weapon systems for the Russian military. Original statements by Russian leadership (the ARF concept was proposed by President Dmitry Medvedev in September 2010) suggested that that the organization would be modeled after the US Defense Advanced Research Projects Agency (DARPA).

However, while implementing many of the DARPA functions, ARF is based on principles more reminiscent of traditional Soviet practices in defense innovation. The first publicly known priorities of the ARF were medical research and biotechnology, but now the foundation seems to be financing a wide set of technologies, many of which are similar to announced US priorities. These include robotics and fully robotic combat platforms; hypersonic systems; addi-

tive technologies; advanced underwater technologies; cyber security; and cognitive technologies. Russia also has active rail gun and directed energy weapons programs, but the exact role of the ARF in these two programs is not clear.

RUSSIAN DEFENSE TECHNOLOGY COOPERATION WITH CHINA

The introduction of the Third Offset Strategy happened at around the same time as major changes in relations between Russia and the West brought on by the Ukrainian crisis in 2014–2015. In the current climate of renewed confrontation between Russia and NATO, coupled with Western technological sanctions and an economic downturn, Russia is reconsidering its previous model of defense industry cooperation with China. This cooperation has ceased to be the one-way street of the 1990s and 2000s when Russia provided China with defense equipment and technology in exchange for Chinese cash.

Three new trends have been observed in recent years. The first is the growing role of Russian companies as subcontractors in Chinese defense industry R&D and production projects. A good example of such cooperation is the agreement on an advanced heavy helicopter project signed during Russian President Vladimir Putin's visit to China in June 2016.

The second trend is the start of major joint projects, including a large-body civilian aircraft that is to be produced jointly for the markets of the two countries. The third is the start of significant imports of major Chinese components for Russian military platforms and systems. These include Chinese maritime diesel engines for Russian missile corvettes and border patrol vessels. An agreement on large-scale procurement of Chinese electronic components for Russian space satellites was also signed during Putin's 2016 visit to China.

Russia and China may be moving to a mutually dependent military industrial alliance as opposed to the one-sided dependence of the past. Their cooperation will likely expand to the most sensitive sectors of the defense industry, such as ballistic missile defense technology and ballistic missile attack early-warning systems, and possibly to future long-range bomber projects.

COOPERATION BEFORE THE UKRAINIAN CRISIS

Even before the Ukrainian crisis, Russian-Chinese defense industry cooperation was picking up after a period of decline from 2003 to 2010. In November 2012, Konstantin Bryulin, the deputy chief of the Federal Service for Military and Technical Cooperation, said that China accounted for more than 15 percent of the Russian arms trade. Based on the overall value of Russian arms deliveries to foreign customers that year, a 15 percent share translated to more than US \$1.9 billion. These contracts included a very important order for 184 D-30KP2 turbofan engines for the new Chinese H-6K bomber and the future Y-20 transport. In 2012, Russia made deliveries under a series of large aircraft engine (AL-31FN, D-30KP-2, and RD-93) contracts signed in previous years.

At around the same time, the two countries started negotiations on three other major programs: the S-400 SAM system, the Su-35 fighter, and the Amur-1650 submarine. The deal to supply four battalions of S-400 systems to China worth more than US \$1.9 billion was signed in 2014, and another major contract for 24 Su-35 fighters worth at least US \$2 billion was signed in 2015. The submarine deal has failed to materialize, although it is not clear if it can already be declared dead.

There were very likely a number of smaller, but still significant, deals that were not made public. During

the November 2016 Zhuhai Airshow, Vladimir Drozhzhov, the deputy director of the Russian Federal Service for Military Technical Cooperation, told journalists that the total portfolio of the Russian defense industry's outstanding contracts with China was worth US \$8 billion. The total export contracts portfolio for the Russian defense industry at the time was US \$52 billion, so Chinese orders accounted for 15 percent of that volume.

The resumption of large-scale Russian weapons sales to China can be explained by a mix of political and technological factors. Chinese military leaders want to boost the fighting capabilities of the People's Liberation Army as the military-strategic situation in Asia becomes more worrying for Beijing. Also, while Chinese makers of weapon systems and platforms have made great progress in recent years, production of some key parts and components still lags.

An important feature of Russian-Chinese cooperation for some time has been a gradual increase of joint R&D. Although Russia's importance as a defense industry products provider is gradually decreasing, it still plays an important role as a technological partner and is often a major subcontractor on important elements of the overall design. Such work is not new for Russia. The best-known examples of Chinese systems designed by Russia or with a major Russian contribution include the FC-1 fighter, the L-15 combat trainer, the WZ-10 attack helicopter, the PL-12 air-to-air missile, the HQ-9 and HQ-16 surface-to-air missiles, the ZBD-04 infan-

try fighting vehicle, and the Type 054 frigate.

Russia is less involved in developing the platforms as a whole, but instead provides key components such as suspension systems for tracked vehicles, components for aerial vehicles airframes, and specialized software.

POST-CRISIS TRENDS IN COOPERATION

The Ukrainian crisis and resulting Western technological and financial sanctions imposed on Russia had deep consequences for the Russian defense industry and on Russian military and technological planning. The Russian defense industry has encountered difficulties in procuring spare parts, materials, technology, and industrial equipment in the West and in Ukraine. Although domestic Russian production for most Ukrainian products was possible, there were no domestic substitutes for most Western products. Although the import of defense products to Russia before the crisis was quite limited, amounting to US \$150–200 million mostly from the European Union, total imports have dropped to roughly US \$70–80 million, according to Rosoboron export director Anatoly Isaikin.¹ The defense industry was also dependent on Western dual-use products such as electronic components (for space vehicles) and naval diesels for surface ships.

The crisis forced the Russian defense industry to seek alternative partners and suppliers in China. Russia has substituted naval diesel

engines produced by Henan Diesel Engine Industrial Co. for the German MTU engines it used to procure for its coast guard patrol ships and 21631 missile corvettes.² In 2014, Russia and China began looking at an exchange of space-grade radiation-resistant electronic components and production technology from the China Aerospace Science and Industry Corporation for Russian RD-180 rocket engines and technology. An agreement on intellectual property protection was signed during Putin's 2016 visit to China. That is a necessary step for a large contract currently under negotiation, according to Russian Deputy Prime Minister Dmitry Rogozin.³

Also during Putin's visit, the two sides signed agreements on the joint development of an advanced heavy lift helicopter and a wide-body passenger aircraft. Over the course of eight years of painful negotiations, the helicopter program evolved from a proposed joint project to a Chinese project with Russian assistance, to produce an entirely new aircraft with a maximum takeoff weight of 38 tons.⁴

The details of the wide-body aircraft agreement are less clear. Most likely it will be developed on a more equal basis, although the main final assembly facility will be in Shanghai. While Russia has no plans to procure the heavy-lift helicopter for domestic use in any significant numbers, there are plans for large-scale procurement of the passenger aircraft. The two will also establish a joint venture to develop and produce aircraft engines. The total scale of investment for the wide body aircraft project is expected to

1 "Some Results of the Rosoboroexport Work" [in Russian], *Livejournal*, October 25, 2015, <http://bmpd.livejournal.com/1547499.html>.

2 "Russian Border Patrol Ships to Get Chinese Diesels," [in Russian], *Korabel.ru*, November 16, 2015, http://www.korabel.ru/news/comments/rossiyskie_pogranichnye_korabli_poluchat_kitayskie_dizeli.html; "Chinese Engines for 21631 Project Missile Boats" [in Russian], *Topwar*, March 28, 2016, <https://topwar.ru/93011-kitayskie-dvigateli-dlya-mrk-proekta-21631.html>.

3 "Russia and China to Sign an Agreement on Intellectual Property Protection in Rocket Technology" [in Russian], http://vpk.name/news/157870_rossiya_i_kitai_podpishut_soglashenie_o_zashite_intellektualnoi_sobstvennosti_v_raketnoi_sfere.html?new.

4 "Russian Helicopters and Avicopter Will Create a Heavy Helicopter for China" [in Russian], *Rostec*, July 27, 2016, <http://rostec.ru/news/4518458>; "Russia and China to Create a Radically New Heavy Helicopter" [in Russian], *Rostec*, September 2, 2015, <http://rostec.ru/news/4517158>.

be US \$13 billion, with financing split equally.⁵

Russia and China have also signed a framework agreement to integrate the GLONASS and Beidou satellite navigation systems.⁶ They will jointly develop ground electronic equipment that can use signals from both systems for greater precision in navigation. China's Norinco Group will co-develop the necessary electronic microchips with their Russian counterparts. The Russian space industry has also expressed an interest in a technological alliance with the Chinese. Joining efforts with China and other BRICS countries are seen as key to staying competitive.

CONCLUSION

Taking into account the general trend towards closer industrial cooperation

and the strengthening of the political and military ties between China and Russia, it seems likely that the implementation of the Third Offset Strategy in the United States will result in even closer cooperation between the two countries in the technology sectors prioritized by the strategy. Joining efforts at this stage may be seen as the only way to prevent the United States from gaining a decisive military and technological advantage. However, due to the long term-nature of modern high-tech defense and dual-use-related projects, many years may pass before this new drive towards cooperation produces concrete results.

The framework of this cooperation will be different from the previous joint projects implemented in the 1990s and 2000s, since the Chinese negotiating position has become stronger and the Russian one weak-

er. It is possible that China will come to dominate some projects where Chinese financing and technology are absolutely vital for success. In other cases, the projects will be implemented on a 50/50 basis. However, Russia will not be able to withhold its intellectual property from its Chinese partners as it preferred to do in previous agreements.

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5 "Russian-Chinese Aircraft Will Cost \$13 bn" [in Russian], ATO.Ru, January 25, 2015, <http://www.ato.ru/content/rossiysko-kitayskiy-samolet-oboydetsya-v-13-mlrd-dollarov>.

6 "Russia and China Will Create a Unified Navigation Space" [in Russian], *Izvestia*, September 18, 2014, <http://izvestia.ru/news/576854>.