The Changing Nature and Implications of Russian Military Transfers to China

By Paul Schwartz

Executive Summary

Russian-Chinese military transfers have increased sharply since 2015. These have been highlighted by a series of important arms transactions, including landmark contracts in 2015 for the sale of Su-35 combat aircraft and S-400 air defense systems worth $5 billion, followed by a series of important transactions involving the transfer of helicopters, submarine technology, and aircraft engines. Joint technology projects have been especially important due to their expansion into new areas such as missile defense, taking on greater strategic importance. Together with an increase in combined exercises, joint air patrols, and key leader engagements, the resumption of large-scale arms transfers has contributed to a growing military convergence between Russia and China while enhancing their strategic partnership. These transfers are also advancing China’s military expansion in the western Pacific, helping to tilt the regional balance more in China’s favor.

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Alongside these notable signs of progress, however, there are contrary signs as well, indicating that bilateral arms trade is considerably more complicated for Russia. For one, Russia had to relax strictures on the transfer of advanced military systems and technology to revive arms trade with China after a decade-long slowdown starting in 2006. Likewise, Russian arms sales are giving way to technology transfers, raising costs for Russia in terms of future export revenues as China seeks to advance its defense industry. China’s...
reverse engineering practices have also continued apace, further eroding Russia’s technology lead over China, whose arms exports have made further inroads into Russian arms markets. In sum, the recent upgrade in military relations has come at a significant price for Russia. To offset these losses, the Kremlin will have to find ways to tap into China’s growing technology base to sustain its defense industry, or eventually it may find itself at a growing disadvantage in future arms dealings with Beijing.

The Resurgence of Russian Arms Sales to China Post-Ukraine

The resumption of large-scale arms transfers in 2015 was an important development for bilateral military relations, marking the beginning of a new phase in military-technical cooperation. The signing of the S-400 and Su-35 contracts also marked the end of Russia’s long-standing policy of withholding sales of its most advanced weapon systems, since these two systems are currently the best Russian systems in their classes, even though Russia is currently developing more advanced systems. Although additional arms sales have been few and far between, the recently announced sale of Mi-171 combat helicopters demonstrates that arms sales are likely to continue to play a role—albeit a more limited one—in military-technical cooperation.

The growth of technology transfers has been even more important for bilateral military relations, having increased in scale and expanded into new areas. According to Rostec executive Viktor Kladov, Russia is cooperating with China on the development of weapons for land, air, and naval use. In addition, technology cooperation has taken on greater strategic importance, as exemplified by their recently announced joint early warning system project—their first joint strategic weapons project since the early Cold War. Moscow and Beijing have also been stepping up cooperation on artificial intelligence and space technologies.

At the same time, military relations have been further institutionalized with the signing of a new roadmap for military cooperation in 2017. The two sides are also reportedly discussing a new defense cooperation agreement, which may be signed in the near future. Collectively, these recent actions have led to a sharp increase in Russian arms sales revenues, which are currently averaging around $1 billion per year according to the Stockholm International Peace Research Institute (SIPRI). Yet SIPRI’s numbers likely understate actual revenues by a substantial margin, as they do not reflect pending deliveries under existing contracts, most notably from the S-400 sale, nor do they reflect amounts received under the many joint projects undertaken in recent years.

What do these transactions tell us about the current state of Russian-Chinese military-technical cooperation? For one, they tell us that the two countries have succeeded in restoring a vibrant, diverse, and increasingly important arms sales program since 2015. This is clearly reflected in the enhanced level of arms trade since 2015, which contrasts with the state of trade over the prior decade, a period of relative decline. Between 2006 and 2014, revenues averaged just over $600 million per year, well below current levels, and even these modest levels were only sustained through sales of aircraft engines, components, and occasional helicopter sales, as the two failed to conclude a major new arms sale agreement over this 10-year period.

The turnaround in Russian-Chinese arms sales can be attributed to decisions taken by Presidents Putin and Xi in 2012 to restore arms trade as a central pillar of their relationship. To do so, the two sides had to first

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1 Russian sources cite even higher amounts. In November 2016, for example, Russian defense minister Sergei Shoigu claimed revenues from military transactions had reached $3 billion per year.

2 This was a dramatic decline compared to the sustained levels of arms trade in the early 2000s, when a flurry of major arms sales drove revenues to more than $2.5 billion per year on average.
resolve Russian concerns over Chinese intellectual property theft and latent security concerns over China’s rising military power, as well as Beijing’s frustrations over Moscow’s reluctance to transfer advanced weapons to China. Spurred by the Ukraine crisis, Russia ended up making most of the compromises, accepting more risk by relaxing strictures on the transfer of advanced Russian military technologies.

This decision was taken primarily for geopolitical reasons, as Moscow was anxious post-Ukraine to secure Chinese economic and diplomatic support to counter Western efforts to sanction and isolate Russia. Moscow also sought to maintain its preeminent position in China’s lucrative arms markets. For its part, China made only modest concessions, signing new intellectual property agreements and agreeing to purchase Russian weapons in larger volumes. Yet, this basic compromise set the stage for a major upgrade in arms transfers starting in 2015, and it remains an important factor in sustaining its development.

The surge in recent arms transactions also reflects the continuing importance of bilateral arms trade for both countries. For Moscow, the desire for additional revenues continues to drive Russian military sales to China. Global arms sales revenues currently account for around 31 percent of the Russian defense industry’s total budget, while China remains one of Russia’s two most important arms clients (the other being India), with $37 billion in total arms sales since 1992 according to SIPRI. Moreover, China’s market is fast becoming even more important for Moscow as it finds itself increasingly cutoff from its traditional markets due to the growing threat from U.S. CAATSA sanctions on countries buying weapons from Russia.3 By contrast, China remains one of the main countries still willing to deal with Russia in spite of the CAATSA threat.

For China, the sheer number of recent transactions confirms that Russian military systems and technologies remain attractive for Beijing despite recent advances in China’s defense production capabilities. They also confirm that Moscow continues to hold an edge over China in several important defense areas. This is reflected in China’s recent arms purchases, such as the Su-35 purchase, which provided access to advanced Russian radar systems, aircraft engines, and avionics at a time when China is struggling to develop its own fifth generation aircraft. Likewise, access to Russian submarine expertise and technology will help China to overcome enduring deficiencies in hull design, quieting technologies, land attack, and automation.

At the same time, China has become increasingly selective in its acquisitions from Russia, as it continues to transition from Russian platform purchases to transfers of technology in a bid to achieve greater self-sufficiency in defense production. Recent sales indicate that China remains willing to buy platforms from Russia but mainly as a stopgap measure to fill critical capability gaps. For example, China’s acquisition of Russian S-400 air defense systems was taken to fill gaps in long-range air defense, while giving China access to a platform it can copy to advance its own air defense production capabilities.4 As a result, Moscow has had limited success in concluding further arms sale agreements with China, despite several recent Russian overtures, as China continues to pursue the underlying technologies. For the same reason, repeat sales are increasingly rare as well. China’s 2019 decision to acquire an additional 100 Russian Mi-171 transport helicopters is thus far the only notable exception, reflecting one of the few areas in which China is still struggling to develop suitable systems of its own. This too is starting to change as China has begun decommissioning its older Mi-171 in favor of the new Chinese Z-8G and Z-20 helicopters. Beijing is still heavily reliant on Russian aircraft engines, however, due to the great difficulty of reverse engineering advanced turbofan engines. Thus, additional purchases in this area remain likely as well.

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4 China has already succeeded in reverse engineering Russia’s S-300 to develop the HQ-9.
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By contrast, technology transfer has become increasingly predominant in bilateral relations, and this trend is likely to continue given China’s strong desire to advance its own defense production capabilities. Such transactions also tend to be fairly one-sided in nature, emphasizing transfers of Russian technology to China, with little going back to Russia. This is typically true as well of the so-called “joint development” projects. The recent “joint” heavy-lift helicopter project is a good example, as Russia’s role has reportedly been relegated to technical support and the provision of a transmission and tail rotor, even though it is reportedly transferring its core Mi-26 design technologies to China. Chinese chief designer Wu Ximing recently admitted as much, stating that “Our goal . . . is to learn from Russia’s strong points [in transmission design] and close the gap.” So far, the same could be said of the early warning system, since Russia has been officially awarded just a single contract for software development, although it is reportedly providing technical assistance on space control issues and possibly other aspects of the system as well.

Despite recent successes in reviving Russian-Chinese arms transfers, trade between the two remains subject to certain enduring limitations. Most notably, Russian concerns over Chinese reverse engineering practices have hardly disappeared. A Rostec official recently reported on over 500 cases of Chinese intellectual property theft from Russia over the past 17 years. Concerns over China’s expanding role in the global arms markets are growing as well. To address these challenges, Russia continues to deliver scaled-down export versions of its most important weapon systems, while reserving the most advanced versions for its own armed forces. Russia also still refrains from transferring its most sensitive technologies to China. For example, Moscow has thus far declined to transfer Russian RD-180 rocket engines. Likewise, there are strong indications that it would withhold sale of the Iskander missile despite Chinese interest.

Arms transfers are also constrained by Russia’s lingering concern over the dangers of arming a potential future adversary. This explains Russia’s tendency to preference transfers of defensive systems, such as the S-400 air defense system and early warning system technology. While China could conceivably employ previously transferred Su-35 Flankers and Kilo submarines against Russia, they would hardly prove decisive in a future military conflict. Moreover, China has chosen instead to integrate such systems into its counter-intervention strategy, which is aimed squarely at the United States, rather than Russia. By contrast, Russia has refrained from sales of ground combat systems, strategic bombers, and land-attack missiles, offensive weapons that would more fundamentally threaten Russia.

Russian arms transfers are also limited to some extent by concerns over Chinese competition on global arms markets. Increasingly, Beijing is selling Chinese weapons based on Russian technology to existing Russian and Chinese clients. Examples include recent sales of HQ-9 SAMs to Turkmenistan and Yuan-class submarines to Pakistan; the former is based on Russia’s S-300, while the latter appears to draw partly on Russia’s Kilo submarine. Yet, Chinese arms exports are less of a concern for Russia, since they are still targeted mainly at the low end of the market. Chinese arms sales are also tempered by Beijing’s continuing dependence on Russian aircraft engines and advanced technologies, which limits all-out competition with Moscow.
The growing number of espionage cases brought against Russian citizens for sharing state secrets with Chinese intelligence provides further evidence of Russia’s reluctance to transfer highly sensitive military technologies to Beijing. These include a spate of recent cases brought against Russian scientists, such as Valery Mitko, head of the Arctic Academy of Sciences in St. Petersburg, who was charged with sharing Russian submarine technology with China, and Russian space scientist Vladimir Kudryavtsev, who was convicted of sharing technical details on Russian spacecraft. A 2018 report by Team 29, a Russian lawyers watchdog group, noted that China has been implicated in 17 cases of this kind over the past two decades, falling just short of the 18 cases brought for sharing secrets with the United States. Ironically, the recent uptick in cases is driven in part by the Kremlin’s push for closer ties with China post-Ukraine, which has led to increased engagement between Russian and Chinese specialists. Yet, these cases also demonstrate that significant limits remain on Russia’s willingness to transfer sensitive military technologies to China.

**Impact of Sino-Russian Arms Transfers on the Western-Pacific Military Balance**

Despite such limitations, the recent resumption of Russian military transfers to China is likely to have a substantial impact on the military balance in the western Pacific, tilting it more in China’s favor. Putin himself has recently noted how Russian military technologies are bolstering China’s defense capabilities. Each system contributes in its own way to bolstering Chinese power. For example, the 24 Su-35 Flankers purchased from Russia, which are now deployed at bases in southern China, have extended Chinese air power well out into the South China Sea. The Su-35 stacks up quite favorably against U.S. fourth generation fighters and can outmaneuver them as well due to its advanced thrust-vector engines. They are no match, however, for the U.S. F-22. Moreover, there is only so much that a single Su-35 squadron can do to impact the regional military balance.

China’s new S-400s will have a significant effect on the balance by virtue of their extended range (400 km) and high performance. China has reportedly purchased six battalion sets of the S-400, a quantity sufficient to provide a substantial boost for Beijing’s integrated air defense system. Deployed near the coast, these systems would extend the reach of China’s air defense network well out into the East and South China Seas, potentially covering much of Taiwan in the process. Posted near the border with India, the S-400 could threaten Indian aircraft well into its northern provinces.

The recent purchase of Mi-171H multirole helicopters will enhance China’s ability to conduct air mobile and maritime expeditionary operations. They are also capable of operating at higher altitudes, an important factor in future border clashes with India. The purchase of additional Russian turbofan engines will allow China to continue building out its military transport fleet, while keeping its J-10 fighters and H-6K medium-range bombers operational. The J-10 is an important component of China’s air force, while the H-6K allows China to conduct cruise missile strikes out to the second island chain.

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Russian arms and technology transfers will have an even greater impact on the balance over the medium to longer term as joint development projects are completed. By the early 2030s, China’s new heavy-lift helicopter will provide a formidable long-range transport capability to support Chinese expeditionary operations. With a range of 630 km and a top speed of 300 km/hour, China could use this helicopter to rapidly transport troops and materiel as far away as Taiwan, the Senkakus, and the disputed Paracel Islands.

Likewise, development of a new conventional submarine would significantly boost China’s anti-access capabilities. While few details were provided about this new system, Chinese conventional submarines still lag behind current Russian designs in terms of their quietness, degree of automation, and advanced weapons and sensors, even though China leads Russia in air independent propulsion. Assuming Russia shares this technology, a fleet of quieter, better-armed, and more capable Chinese multirole conventional submarines would pose a significant challenge for U.S. and allied forces in the western Pacific by threatening choke points and conducting standoff missile strikes against land and naval targets, given proper intelligence, surveillance, and reconnaissance (ISR) support.

Similarly, although still a long way off, development of an effective Chinese ballistic missile early warning system would significantly enhance China’s strategic security by making it more difficult for the United States and its allies to launch prompt missile strikes against Chinese fleeting and high value targets using theater or strategic ballistic missiles. An early warning system would also allow China to adopt a launch-on-warning posture for its strategic nuclear forces, further strengthening China’s deterrence posture.

Over the longer term, transfers of advanced Russian military technologies are likely to have important second order effects on the western Pacific balance. Once mastered, the latest Russian technology will further Chinese development of a generation of even more advanced Chinese air defense systems, conventional submarines, combat aircraft, and assault helicopters. Collectively, when coupled with existing Chinese capabilities, such systems will help China to further press its advantages in the western Pacific.

It is important to recognize, however, that acquisition of Russia military technology is only one component of a deep and well-financed technology acquisition strategy designed to transform China into a military superpower. Indigenous innovation and civil-military fusion fueled by access to advanced foreign dual-use technologies are even more important components of this long-term strategy. Through such programs, Beijing is essentially looking to rely increasingly on internal innovation, while further reducing its dependence on Russian military platforms and technology.

**Conclusion**

The resumption of a vibrant and expansive defense transfer program has been a major achievement in Sino-Russian relations, reflecting a qualitative improvement in military cooperation. Coupled with a sharp increase in combined military exercises, joint air patrols, missile defense drills, and key leader engagements, defense cooperation between the two countries has become once again a central pillar in their expanding strategic partnership. Enhanced military relations, coupled with growing trade and energy ties and geopolitical cooperation, have in turn contributed to a growing strategic convergence between Russia and China. No wonder Putin claimed that Russian-Chinese relations have reached unprecedented levels.

Recent developments would also appear to validate Putin’s decision post-Ukraine to assume greater risks in its dealings with China by making further concessions on the transfer of advanced weapons and technology. By doing so, Putin has succeeded in reviving Russian arms transfers and establishing close military
ties with Beijing while forging an increasingly close strategic partnership targeting the West. Moreover, having wagered its security on maintaining close ties with Beijing, the Kremlin has succeeded in reducing the possibility of conflict with China at least for the foreseeable future. At the same time, Moscow has been able to secure its strategic rear, leaving it free to focus on its ongoing conflict with the West and its growing involvement in the Middle East.

Yet, despite these notable gains, Moscow’s growing alignment with Beijing carries significant costs for Russia. For one, traditional arms sales are becoming increasingly tenuous. Notably, following the two major sales announced in 2015 (Su-35, S-400), the next major arms sale wasn’t announced until 2020 (Mi-171H), nearly five years later. Moreover, this trend looks increasingly irreversible, as rapid Chinese advances have undercut Russia’s former strategy of selling China its “second-best” systems while keeping a generation ahead in weapons development. Instead, technology transfer and joint development projects will increase in importance, and as this process unfolds, Russia’s remaining technological lead over China is likely to erode even further. Although the Kremlin tends to downplay such risks, the consequences for Russia in terms of lost military technology and export revenues will be significant. Absent fundamental changes in global alignments, Russia’s best hope for mitigating these unfavorable consequences is to gain greater access to Chinese commercial and dual-use technology, which would help both to sustain its defense industry and develop a more innovative economy. Pursuing closer defense industry ties with China is another possibility, although so far mutual efforts in this area have been limited due to persistent technological nationalism on both sides. The recent increase in cooperation on the development of civilian and dual-use technologies provides some cause for optimism for the Kremlin, although Russia’s access to Chinese military technology remains limited. Whether Russia can navigate these challenges without becoming overly dependent on China remains to be seen.

Finally, it should be noted that Moscow’s growing military ties and increased arms transfers to China have had other important consequences for Moscow, complicating Russia’s relations with other countries in the Indo-Pacific region, including longtime partners India and Vietnam. Driven partly by concerns over China’s rising military power, for example, India has been diversifying its military relations in recent years, both through its active participation in coalition-building against Beijing through the Quad and increased arms purchases from the United States, France, and Israel. As a result, Russia has lost its predominant position in India’s arms market and must now compete more vigorously to preserve its remaining market share. Likewise, Russia’s dominant position in Vietnam’s arms market has come under pressure in recent years due in part to Hanoi’s concerns over Russia’s strengthening military ties with China. As a result, Hanoi has recently upgraded military relations with the United States while exploring new arms purchases as well.

Despite these unfavorable developments, Moscow has thus far been able to maintain its status as India’s leading arms supplier, as evidenced by a series of new orders placed by India during the 2019–20 timeframe. Likewise, Vietnam continues to buy arms from Russia, such as the recent purchase of 12 Yak-30 combat aircraft/trainers in 2019 for $350 million. By contrast, Hanoi has yet to make a substantial purchase of new military systems from the United States, despite their growing military dialogue. The fact remains that the large installed base of Russian weapons systems maintained by India and Vietnam coupled with these countries’ desire to avoid overdependence on other countries virtually ensures Russia an important role in both countries’ arms acquisition programs, at least for the foreseeable future.
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