

SEPTEMBER 2023

Seller's Remorse

The Challenges Facing Russia's Arms Exports

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Max Bergmann

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A Report of the CSIS Europe, Russia, and Eurasia Program

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INTERNATIONAL STUDIES

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Center for Strategic & International Studies
1616 Rhode Island Avenue, NW
Washington, DC 20036
202-887-0200 | www.csis.org

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Executive Summary

Russia's role as a major global arms supplier is under threat. This report analyzes how Russia's invasion of Ukraine and the concomitant Western sanctions have affected its status as one of the top suppliers in the global arms trade. The Russian arms export industry has been declining in its international competitiveness since the early 2010s due to previous packages of Western sanctions aimed at deterring third countries from purchasing Russian weapons, as well as the efforts by China and India to strengthen their domestic arms production. Russia's invasion of Ukraine in February 2022 and the subsequent sanctions have aggravated these issues by straining Russia's defense production capacity, negatively affecting the reputation of Russian arms, and complicating payment options for the Kremlin's existing customers. Russia is struggling to meet its arms sales commitment to its partners, calling into question its reliability.

While Moscow still retains its competitiveness in areas such as missile and air defense systems, aircraft, armored vehicles, naval systems, and engines, recent trends suggest that Russian arms exports in virtually all of these major weapons categories will decline. Available evidence also signals that Russia's biggest customers, including India and China, will most likely become less reliant on Russian arms exports due to ongoing import substitution and diversification efforts in these countries, which have been strengthened since 2022 because of the growing instability of Russia's defense industrial base affecting Russian arms deliveries worldwide. Therefore, Russia will struggle to compete for sales in the high-value market for advanced military systems. However, Moscow will likely continue to maintain its strong position in the lower-cost market, as Russian systems remain widely used, relatively reliable, and not cost prohibitive. While those deliveries will likely have little monetary value and thus limited ability to insulate Russia's declining arms export industry, they will continue to bring diplomatic benefits to the Kremlin, particularly in Africa.

Introduction

This report examines historical trends in Russia’s arms exports, including the impacts of Russia’s 2022 invasion of Ukraine and the subsequent sanctions regime on its arms sales globally. Recent trends have not been favorable to Moscow. It has been losing old markets, and its weapons have become less desirable to potential purchasers due in part to new, technologically superior alternatives. While Moscow has generally been considered the second-largest arms exporter following the United States, recent data from the Stockholm International Peace Research Institute (SIPRI) shows that France surpassed Russia in the years 2021 and 2022 as the world’s second-largest arms exporter, and China may also outstrip Russia in the near future.¹

Russia’s 2022 invasion of Ukraine has dramatically accelerated these trends by putting an additional strain on its industrial base and technological capacity, damaging the reputation of Russian weapons as high-quality and durable products and undermining its credibility as a reliable arms supplier. While Moscow will likely remain a major arms exporter in the next few years, its international position will keep deteriorating. Russia’s decline in global market share, however, predates the war in Ukraine. U.S. sanctions against the Russian defense sector after 2014 and the implementation of the 2017 Countering America’s Adversaries Through Sanctions Act (CAATSA) increased the potential costs—both economic and diplomatic—of buying Russian arms.² Now, with the need to sustain a massive war effort in the face of unprecedented Western sanctions, Russia’s defense industrial capacity has been significantly strained—the Kremlin has even been forced to buy back Russian-made weapons systems, spare parts, and components from some of its purchasing countries.

Thus, it is likely that Moscow’s share of the global arms market will deteriorate further. This has significant foreign policy ramifications for Russia and other arms-producing countries. Arms sales have been a major tool of Russian foreign policy, as the sale of weapons to another countries helps build longer-term strategic

partnerships. Former U.S. assistant secretary of state Andrew Shapiro outlined the critical role arms transfers can play in binding countries:³

One way to conceptualize the transfer of an advanced defense system, such as a fighter aircraft, is to think about the sale of a new smartphone. When someone buys a smartphone, they are not simply buying a piece of hardware; they are buying a system that includes the operating system; the system's software for email, photos, and music; as well as access to many other available applications. Therefore, an individual is in fact entering into a relationship with a particular smartphone company over the life of that phone. Similarly, when a country buys a fighter jet or other advanced defense system from a U.S. company, they are not just getting the hardware; they are buying a larger system, one that will need to be updated and repaired throughout its lifespan, which in the case of a fighter jet can be as long as 40 years. This means that in purchasing the hardware, the buyer is actually committing to a broader long-term relationship with the United States.

Similarly, Russian arms sales have helped cement the Kremlin's relationships around the world. For instance, a major reason for Indian reticence to sanction or critique Russia's invasion of Ukraine is that New Delhi and Moscow have a long-term diplomatic partnership rooted in India's dependence on Russia's defense sector.

Indeed, for years, Russia has serviced both ends of the global arms market. It has produced high-end systems, such as advanced aircraft, air defense, and modern battle tanks for its larger and wealthier clients, while also being the supplier of choice to the lower-end market, producing relatively inexpensive, yet reliable systems to lower-income countries. This report highlights that Russia is getting squeezed out of the higher-end market, as sanctions, questions of reliability and performance, and doubts about the existing Russian production capacity are causing the Kremlin to lose its international market share. However, Moscow may prove more resilient at the lower end of the market. Russia's ability to provide low-quality weapons systems and its willingness to do so with limited strings attached, especially related to human rights and end-use requirements, can make it an attractive partner, particularly to conflict-affected countries and autocratic regimes, including in Africa. Additionally, the militaries of many countries often have a long history of engagement with the Russian or Soviet defense industrial sector and have immense familiarity with Russian-origin equipment. While the Russian defense industry is expected to struggle to supply its forces fighting in Ukraine, the diplomatic importance of maintaining defense industrial ties, particularly with African states and other long-standing partners, will likely ensure that Moscow will continue to meet the demands of its loyal customers.

Russia is getting squeezed out of the higher-end market, as sanctions, questions of reliability and performance, and doubts about the existing Russian production capacity are causing the Kremlin to lose its international market share.

Moreover, Western nations, which often produce expensive, higher-end systems, are not well positioned to take advantage of the market gap. The U.S. defense industry, for instance, focuses its efforts on meeting the high-end needs of the U.S. military and rarely focuses on lower-cost systems. The United States, in contrast to Russia and other competitors, also does not have flexible financing mechanisms for lower- or middle-

income countries. Instead, it provides security assistance in the form of grants that are used to procure from the U.S. defense companies. However, this funding is rarely flexible enough to seize new opportunities, as it would have to be redirected from one recipient country to another, forcing difficult trade-offs. Congress could allocate more funding to the Department of State, which oversees the Foreign Military Financing program, or the Department of Defense, which in the last decade has established its own security assistance funding program. But U.S. transfers come with conditions attached, and, inevitably, Russia provides weapons to countries to which the United States will be unwilling to transfer weapons. Nevertheless, there may be opportunities for Washington to incentivize countries to move off of Russian equipment by providing targeted assistance or through other security assistance programs, such as the Excess Defense Articles program, which provides for transfer of older U.S. military equipment to partners.⁴

Should Moscow lose its dominant position in its major foreign arms markets, Russia's entire defense sector will be negatively impacted. While revenues from arms trade constitute a relatively small part of the Russian state budget, foreign sales help fund its defense sector and incentivize further innovation. It also forces Russia's military industrial base to meet the higher standards often demanded by a purchasing country with significant leverage on the Kremlin, such as India or China. Therefore, examining where and in what capacity Moscow will continue its arms trade is central to understanding its international standing as well as the state of its military research and development (R&D) sector going forward.

This report analyzes how the changes in Russia's defense industrial capacity, as a result of Western sanctions and embargoes, affect its status as the second-largest supplier in the global arms trade, which it has kept in the last decades. It first overviews the historical dynamics of Russian arms sales, starting from the collapse of the Soviet Union to before the 2022 invasion of Ukraine. Then it outlines key trends observed in Russian arms exports amid the war in Ukraine and the allied sanctions regime. The report then examines Moscow's most exported weapons categories and top purchasing countries before analyzing possible future trends in Russian arms sales and making policy recommendations for Western policymakers.

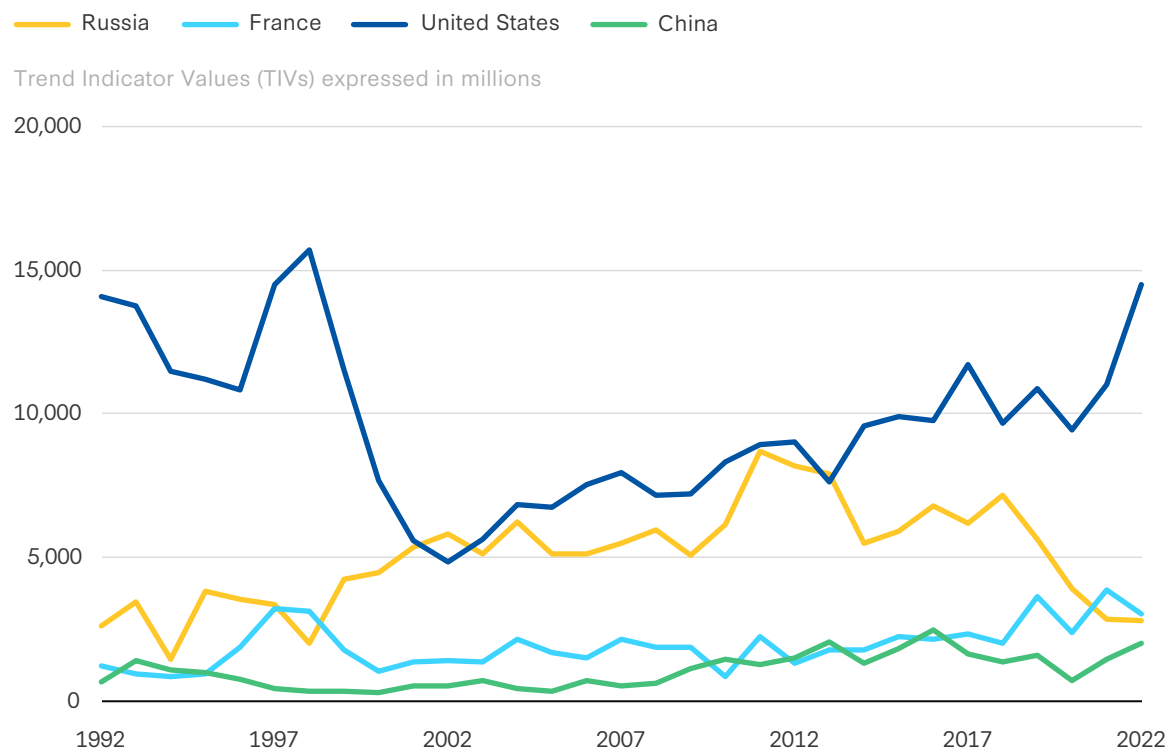
Historical Dynamics of Russian Arms Sales

Following the collapse of the Soviet Union, Russian arms transfers came to a brief halt. However, exports to large purchasers such as India and China resumed in 1992 and, by the end of the 1990s, Russia reestablished itself as one of the top arms-exporting nations in the world.⁵ And while its overall capacity to export arms was comparable to that of the United States (see Figure 1), its overall volume of transfers translated into a much larger amount of hardware exported abroad because of the relative cheapness of Russian equipment compared to Western alternatives.

Arms sales comprise a relatively small amount of Russia's overall trade. According to Russian media sources, in the last 10 years, revenue from arms transfers constituted around \$14-15 billion per year, or only 2 to 5 percent of its overall exports.⁶ But while the arms trade has hardly been a significant source of revenue, Russia has relied on it as a soft-power tool to build patronage networks and advance its economic and strategic objectives around the globe.⁷ In the 2000s, Moscow began expanding its role as an exporter of choice for revisionist and rogue leaders, such as Venezuela's Hugo Chávez and Syria's Bashar al-Assad. Russia's arms transfers to Syria spiked from 2010 to 2013 as the West imposed arms embargoes on Damascus.⁸ These policies contributed to a successful expansion of Russia's arms trade by the late 2000s (see Figure 1).

However, the upward trend started to change in the last decade. While the Kremlin's official reports claim that the level of arms sales have remained stable over the last 10 years, alternative sources suggest that growth in Russian arms sales has slowed down, especially following the 2014 Russia-Ukraine war.⁹ According to SIPRI, between 2012 and 2016, Russian arms exports grew by only 4.7 percent, compared to a global average of 8.4 percent, a decline when adjusted for inflation.¹⁰ This occurred despite the fact that the global arms trade kept growing, reaching its highest level since the end of the Cold War in 2019.¹¹

Figure 1: Russia’s Arms Sales Compared to the United States, France, and China, 1992–2022



Source: “Importer/Exporter TIV Tables,” Stockholm International Peace Research Institute (SIPRI), Arms Transfers Database, June 2023, <https://armstrade.sipri.org/armstrade/page/values.php>.

As mentioned above, Russian arms exports were negatively impacted due to pressure from the West on third countries not to buy Russian arms following its invasion of Ukraine in 2014. Subsequent years have witnessed an even more pronounced decrease in Russian arms sales. Moscow’s share of global arms exports fell from an average of 22 percent between 2013 and 2017 to 16 percent between 2018 and 2022, a 31 percent decrease.¹² Meanwhile, the market share of Russia’s immediate competitors grew. While Russian arms exports nearly matched U.S. arms exports in 2011 and were distributed to 35 different countries, they had fallen by nearly 70 percent by 2022, with deliveries to just 12 countries.¹³ As the gap between Russia and the United States, the world’s largest arms supplier, significantly widened, the gap between Russia and France, the third-largest arms supplier, narrowed.¹⁴ Eventually, as Figure 1 demonstrates, in 2021 and 2022, France even surpassed Russia.¹⁵ If this trend continues over the next few years, Russia risks falling behind China as well, currently the fourth-largest arms supplier.

A number of factors have contributed to the decline in the Kremlin’s arms trade in the last five years, including an increased focus of Russia’s defense industry on fulfilling domestic orders, as well as important steps taken by Russia’s key arms purchasers toward indigenization of weapons production and diversification of arms imports. Another important factor contributing to the decline has been the imposition of CAATSA, which the U.S. Congress passed in 2017 in response to Russia’s 2014 Crimea annexation and meddling in the 2016 U.S. elections. Section 231 of CAATSA authorized secondary sanctions on countries engaged in “significant transactions” with Russia’s defense sector.¹⁶ This provision, while sparingly enforced, still deterred many potential purchasers from concluding big-ticket arms deals with Moscow. Russian officials even acknowledged that sanctions were posing difficulties for Moscow’s arms exports and potential clients.¹⁷

Turkey is one example of CAATSA enforcement. In 2017, President Erdoğan brokered a \$2.5 billion deal with Russia for the purchase of the S-400 surface-to-air missile (SAM) system.¹⁸ Turkey then accepted the first of the four missile batteries in July 2019, despite warnings from the United States and other NATO allies. Subsequently, Washington sanctioned Turkey's Defense Industry Agency (SSB) for knowingly engaging in a significant transaction with Rosoboronexport, Russia's main arms export entity.¹⁹ The sanctions included a ban on all U.S. export licenses and authorizations to SSB, as well as asset freezes and visa restrictions on SSB's president and other officers. Ankara was also removed from the U.S. F-35 program. Along with Turkey, the only other country sanctioned to date has been China. In a largely symbolic move, the United States sanctioned the Chinese Equipment Development Department and its director for engaging in "significant transactions" with Rosoboronexport for purchasing two S-400 SAM systems and 10 Sukhoi fighter aircraft in late 2017 after CAATSA had entered into force.

Despite not being consistently enforced—for example, in the view of its strategic partnership with India, the United States waived sanctions on New Delhi despite it purchasing five S-400 SAM systems from Russia in 2018—CAATSA had a chilling effect on many smaller Russian arms purchasers.²⁰ Naturally, there are many factors that go into a country's arms acquisition decisions, making it difficult to pinpoint the exact impact of CAATSA sanctions on decisionmaking. Nevertheless, the potential threat of U.S. sanctions has given U.S. diplomats a powerful tool to push against Russian arms purchases in a number of countries. In recent years, states such as Egypt, the Philippines, and Indonesia have scaled down or canceled orders of Russian weapons in the face of potential CAATSA sanctions. For example, Indonesia acknowledged that it abandoned its plan to acquire Russian Su-35 aircraft due to the threat of sanctions and considered purchasing U.S. and French systems instead.²¹ Thus, CAATSA punitive measures worked best when complemented with other incentives. The combination of suitable, competitively priced Western alternatives to meet buyers' security needs with the threat of sanctions is particularly effective in dissuading countries from purchasing Russian arms.²² In sum, CAATSA has increased the potential costs of purchasing Russian weapons and has contributed to the decline of the profile of Moscow's arms purchasers.

Key Trends following Russia's 2022 Invasion of Ukraine

Russia's invasion of Ukraine in February 2022 and the subsequent sanctions have aggravated issues faced by the Kremlin's arms exports industry, including significantly straining Russia's defense production capacity, negatively affecting the reputation of Russian arms, and complicating payment options for Moscow's existing customers.

Strained Defense Production Capacity

Due to the protracted nature of the war in Ukraine, Russia's defense production has substantially increased since 2022. However, the war has forced the Russian arms industry to refocus inwards by prioritizing supplies for its own armed forces.²³ There have been reports in the Russian media that the fulfillment of some export contracts is being delayed—such as aircrafts for Algeria and artillery systems for Vietnam—to prioritize production for Russia's own armed forces.²⁴

The lack of excess production capacity has contributed to Moscow's declining position in arms exports. This production crunch has created additional security risks for Russia's remaining customers, forcing them to diversify their suppliers. For instance, since the invasion began in 2022, Vietnam, a country historically highly reliant on imports of Russian arms and spare parts, has found its national security jeopardized by the lack of reliability of Russian deliveries. It has sought to increase domestic production, building armored vehicles, small arms, as well as drones and anti-ship missiles. Additionally, Vietnam has begun exploring alternative suppliers of military hardware, including European nations, the United States, Israel, India, Turkey, South Korea, and Japan.²⁵

Furthermore, in a radical turn of events, Russia has now begun to try to purchase back much-needed military components and technology from countries such as India and Myanmar. In late 2022, Russian

tanks manufacturer Uralvagonzavod reportedly imported \$24 million worth of military products that it had previously produced for Myanmar’s armed forces, including sighting telescopes and cameras for installation in tanks.²⁶ In August and November 2022, Russia also purchased six components related to night-vision sight for its ground-to-air missiles from the Indian Ministry of Defense.²⁷ This reflects Moscow’s struggles to domestically produce critical defense equipment as a result of sanctions.²⁸

Negative Demonstration Effects

For years, the fact that Russian-made weapons were tried and tested in combat was good for marketing purposes. Syria, for instance, became an advertisement for the efficacy of Russian arms, helping Moscow boost its status as a major arms producer and exporter.²⁹ The invasion of Ukraine was similarly supposed to allow Russia’s new generation of weapons to be “tested in combat conditions.”³⁰ However, contrary to Syria, the war in Ukraine undermined the reputation of many Russian weapons systems, often demonstrating their ineffectiveness and obsolescence. For example, a sizable share of Russian tanks and other armored vehicles have turned out to be particularly susceptible to modern anti-tank weapons used by the Ukrainian armed forces.³¹ Other instances include Russia’s theoretically superior (in terms of technology and quantity) fighter jets and helicopters being shot down by Ukrainian ground-based air-defense systems; the loss of Russian SAM systems to Ukrainian air strikes; and reports of high failure rates for Russian missiles.³²

While such Russian military struggles may often have more to do with the poor personnel training or deficiencies with command and control, they nevertheless create the perception of a deficient Russian military system and provide more reasons for prospective buyers to look elsewhere. This is particularly true



A man walks past a destroyed Russian helicopter in Kyiv, Ukraine, in May 2022.

Photo: Oleksii Filippov/AFP via Getty Images

for Russian-made aircraft and air defense systems because these weapons have historically been the most exported arms categories for Moscow and therefore their less than desirable performance record on the battlefield in Ukraine could potentially affect their export rates going forward.

Sanctions and Sanctions-Linked Payment Issues

Following the 2022 invasion, CAATSA has been reinvigorated, inflicting further chilling effects on the remaining purchasers of Russian weapons. As a result, by 2023, Russia had a very low level of pending deliveries. Some potential purchases appear to be on hold, as importers fear falling afoul of U.S. sanctions.³³ For instance, while Turkey has signed a deal with Russia to buy a second batch of S-400 SAM systems, no new developments have yet been observed in this regard. The Philippines has also canceled a contract for 16 Mi-17 helicopters to avoid U.S. sanctions.³⁴ In 2022, Russia made no deliveries to Egypt and its volume of deliveries to China fell substantially.³⁵

Furthermore, the trade of combat aircraft and helicopters, Russia's main arms exports since 1992, also appears to be affected.³⁶ Between 2018 and 2022, trade in this area accounted for roughly 40 percent of Russian arms sales. But by the end of 2022, Moscow had pending deliveries for only 84 combat aircraft and helicopters, as opposed to the United States and France, which had 1,371 and 210, respectively.³⁷ Standing orders are similarly low when it comes to SAM systems and tanks, for which Russia has 13 and 444 pending deliveries, respectively.³⁸ In addition, Russia currently has no known artillery orders, while South Korea, for example, has 1,232 orders on file. One exception is Russian-origin engines, exports of which increased in 2022, in large part due to Chinese reliance on Russian engines discussed in the following sections of this report.³⁹

Sanctions have also led to a reduction in Russia's client base when it comes to providing components and repair services. While no country among those that sanctioned Russia was a major buyer of Russian weapons, a number of them, such as Greece, Finland, Cyprus, and countries in Central and Eastern Europe, had continued to use Soviet- and Russian-style systems and thus consistently relied on Russian-manufactured components and repair services.⁴⁰ Moscow lost these markets in 2022.

Further impact from sanctions appears through Russia's lack of access to high-tech components. A recent CSIS report highlighted Russia's struggle to import much-needed components and spare parts, such as optical systems, bearings, machine tools, engines, and microchips.⁴¹ In the eyes of many current and potential buyers, this limitation creates risks for a sustainable long-term defense partnership. Even prior to 2022, Moscow struggled to develop military R&D, and this trend is likely to worsen in the future.⁴² For example, the latest Russian aircraft designs are incapable of achieving the fifth-generation benchmark and have fallen behind even countries such as China.⁴³ These challenges will be worsened by the ongoing war. Russia already has suspended the contract for the supply of two Ka-32 helicopters to Serbia, allegedly due to Western sanctions and war-related shortages of military equipment.⁴⁴ Going forward, Russia will find it increasingly difficult to deliver updates to the weaponry, components, and infrastructure of its customers as long as the sanctions remain in place.

These risks are further exacerbated by Moscow's de facto disconnect from the international financial system, which makes it hard for its clients to pay for Russian arms supplies.⁴⁵ Moscow's current customers are forced to find alternative schemes, including transitioning to payments in national currencies. As a result, Russia's supplies of defense equipment to India, for instance, have stalled recently due to the fear of sanctions, as both countries have struggled to find an alternative payment solution.⁴⁶ While India is reluctant to settle payments in U.S. dollars or Chinese yuan, Russia has turned down India's request to make payments in rupees, which is not a fully convertible currency.⁴⁷

Top Arms Exports from Russia

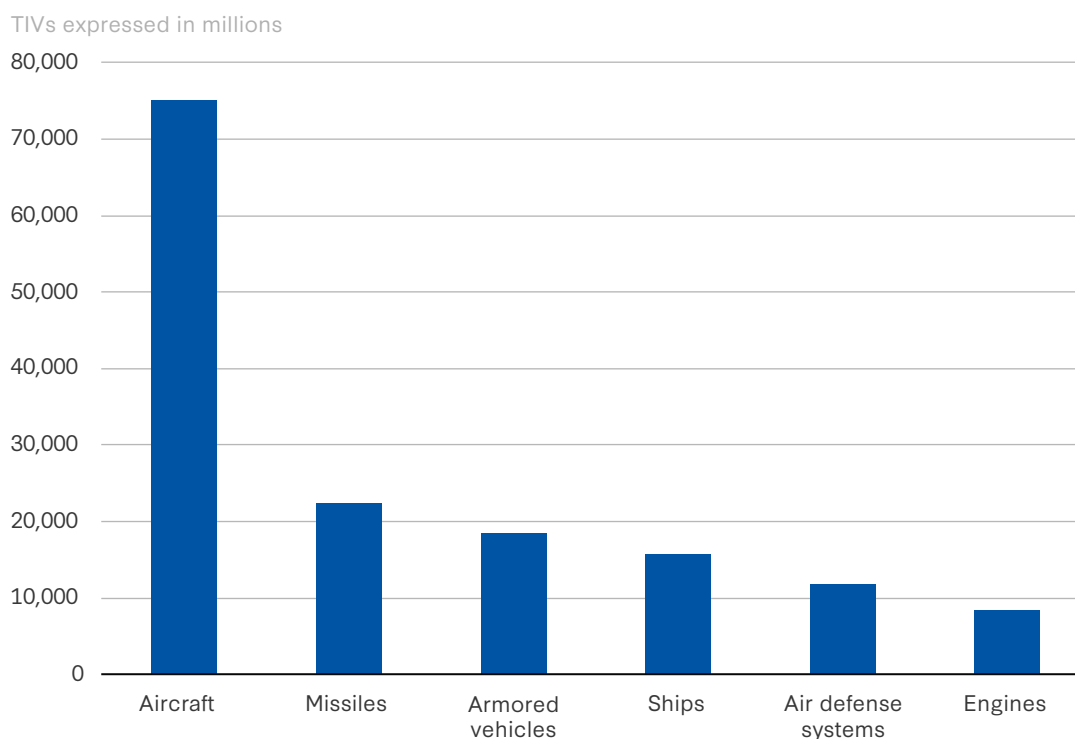
Following the collapse of the Soviet Union, the Russian Federation has exported a wide range of weapons systems, with aircraft, missiles, armored vehicles, ships, and air defense systems being the top five weapons categories from 1992 to 2022 in terms of the volume of transfers, based on the SIPRI Trend Indicator Values (TIV) database (see Figure 2). The TIV figures represent “the transfer of military resources rather than the financial value of the transfer” and they therefore “are best used as the raw data for calculating trends in international arms transfers over periods of time, global percentages for suppliers and recipients, and percentages for the volume of transfers to or from particular states.”⁴⁸ Interestingly, per the TIV database, demand for Russian-made engines has increased significantly since the early 2010s, with this component gradually becoming central to Russia’s arms exports. Between 2017 and 2022, engines were one of the most exported weapons categories, only second to aircraft in terms of TIV, and they even surpassed the volume of aircraft transfers in 2022, according to SIPRI.

This section examines the Kremlin’s most exported weapons and technologies and the areas where Russia has retained a competitive edge. It also analyzes the impact of the Ukraine war and the 2022 sanctions regime on Russia’s likelihood to prioritize defense production for its own armed forces over defense exports. Overall, current trends, including the volume of pending deliveries Russia had by the end of 2022, suggest that Russian arms exports in virtually all major weapons categories will continue to decrease.⁴⁹

Aircraft

Aircraft exports make up around 50 percent of Russia’s total arms trade.⁵⁰ Moscow offers different Soviet-era and more advanced aircraft to its customers, including MiG-29 fighter jets; Su-27, Su-30, and Su-35 fighters; and Yak-130 jet trainers, among others.⁵¹ Deliveries have historically gone primarily to India, China, Vietnam, Algeria, Egypt, and a number of other countries across the globe.

Figure 2: Top Russian Arms and Technology Exports, 1992–2022



Source: “Importer/Exporter TIV Tables,” SIPRI.

The Su-35 is Russia’s most advanced fourth-generation fighter jet to date, often described by the Russians as “fourth generation+,” meaning that due to the extent of its upgrades the plane’s attributes have been pushed well beyond standard fourth-generation capabilities.⁵² Yet, even before the February 2022 invasion, the Kremlin was having difficulty finding buyers for its Su-35, in large part due to CAATSA, which played an important role in deterring large arms importers such as Algeria, Egypt, and Indonesia from acquiring the plane.⁵³ While Russia has delivered the Su-35s to China and is now expected to sell them to Iran, low production rates, aggravated by the need to prioritize war-related production, as well as ongoing war and sanctions, will make it increasingly difficult for Moscow to manufacture new batches of the Su-35 for export purposes or provide necessary maintenance and upgrades.⁵⁴ According to the available Russian open-source estimates, Russia allegedly was able to produce only five Su-35 aircraft in 2021, with a goal to deliver seven more by the end of 2022.⁵⁵

In addition to the Su-35s, Moscow has also been marketing two new fifth-generation fighters, the Su-57 and Su-75 Checkmate, intended to compete with the U.S.-made F-22 and F-35 combat aircraft, respectively.⁵⁶ However, with Russian aviation becoming one of the industries hardest hit by the war and export control restrictions, experts believe Moscow’s capacity to finish and mass produce such high-tech fighters will be significantly curtailed in the near term.⁵⁷ While the Russian air force has recently claimed that it received a new batch of the Su-35 fighters—albeit without specifying the exact number—and was on track toward acquiring the Su-57 aircraft within a year, analysts still question the Kremlin’s ability to produce enough to export abroad.⁵⁸

Engines

Russia started selling engines in significant volumes in the early 2010s. In 2022, engines accounted for 32 percent of Moscow’s total arms trade, making them the most exported Russian equipment.⁵⁹ There is a

particularly high demand on Russian-made engines for military aircraft. According to Rosoboronexport, a Russian state agency dealing with defense-related exports and imports, Moscow offers the following main aircraft engine types for sale:⁶⁰

- the AI-222-25 engine, used to power the Yak-130 training aircraft, which the Russians have claimed can replicate characteristics of some fourth- and fifth-generation fighter aircraft;
- the AL-31F, installed on the Su-27, Su-30, and Su-33 fighters;
- the AL-41F-1S, used to power fourth-generation aircraft such as the Su-35; and
- the RD-33 and its variation RD-33MK, designed for the MiG-29 and MiG-35 fighters.⁶¹

China has been one of the key recipients of Russian-made aircraft engines such as the RD-33MK and AL-31F, which have been installed on the Chinese-made fighters as well as imported Russian fighters.⁶² However, as discussed in the next section, since the start of the 2022 invasion, Beijing has been concerned with Moscow's capacity to produce and deliver capable aircraft engines on time, as the inability to do so would have a devastating impact on the Chinese aviation industry, which remains highly dependent on Russian-made engines. Indeed, Russia has been facing issues with engine production for some time and especially since 2014 due to its reliance on Ukrainian manufactures such as Motor Sich and Zorya-Mashproekt, which used to provide key components in Russia's engine production.⁶³ It is likely that the 2022 sanctions regime will further limit the Kremlin's ability to build high-quality aircraft engines in the foreseeable future, forcing China to take concrete steps toward indigenization of the engine industry.⁶⁴

Missiles and Air Defense Systems

After aircraft, missiles and air defense systems have been Russia's most widely exported systems since 1992. SIPRI differentiates between these two weapons categories. It defines missiles as "(a) all powered, guided missiles and torpedoes with conventional warheads, and (b) all unpowered but guided bombs and shells. This includes man-portable air defence systems (MANPADS) and guided anti-tank missiles." Under the air defense systems, SIPRI includes "(a) all land-based surface-to-air missile (SAM) systems, and (b) all anti-aircraft guns with a caliber of more than 40 mm or with multiple barrels with a combined caliber of at least 70 mm."⁶⁵ For the purposes of this paper, these two categories are discussed together.

Russia offers a wide range of air defense systems to its customers, such as upgraded versions of the S-300, as well as the newer and more advanced S-350, S-400, and Pantsir SAM systems.⁶⁶ Before the Ukraine war, the Kremlin sold these systems to a number of countries globally, including S-300s to China, Algeria, Vietnam, and Azerbaijan; S-400s to India, Turkey, and China; and Pantsir-S1s to Algeria, Serbia, the United Arab Emirates, and Syria, among others.⁶⁷ In 2019—amid major defense agreements, which also included a \$2 billion arms deal signed between Moscow and Ankara on the delivery of S-400 SAM systems—Dmitry Shugaev, director of Russia's Federal Service for Military-Technical Cooperation, declared that the share of air defense systems in Russian arms exports had grown to 20 percent within a year.⁶⁸

Yet this trend was negatively affected by the 2022 invasion and concomitant sanctions regime. Based on SIPRI estimates, Moscow had only 13 pending deliveries of its SAM systems by the end of 2022, while the United States, Israel, and Germany had 40, 26, and 25, respectively.⁶⁹ Naturally, Russia's war of aggression against Ukraine can in large part explain Moscow's low volume of pending deliveries last year. Since the start of the invasion, Russia has expended thousands of missiles and lost at least 130 air defense systems in Ukraine that, together with the allied export restrictions, have strained its defense industrial capacity to manufacture

extra systems for export.⁷⁰ However, despite sanctions and the remarkable performance of Ukraine’s air defenses, Moscow has been able to access much-needed Western and Chinese components to sustain current systems and manufacture new missiles and air defense systems—and has inflicted significant damage to Kyiv.⁷¹ Going forward, it is likely that Russia will prioritize war-related defense production over export-related manufacturing, yet it may still sell some missiles and other air defense systems in much lower volumes to states vital to Russian foreign policy (such as China) or to its satellite regimes (such as Belarus).⁷²

Armored Vehicles

Russia exports a wide variety of armored vehicles, including different models of the T-72 and T-90 main battle tanks (MBTs); BMP-2 and BMP-3 infantry fighting vehicles (IFVs); and BTR-80 and BTR-82A armored personnel carriers (APCs).⁷³ Prior to the 2022 invasion, Russian-made tanks, and especially modernized versions, enjoyed popularity among Moscow’s loyal customers.⁷⁴ For instance, the T-90s, first introduced in 1992 and incorporating the best design principles from the previous T-72 and T-80 MBTs, have been purchased by a number of countries across the world, including in the former Soviet Union (e.g., Azerbaijan and Turkmenistan), Africa (e.g., Algeria and Libya), and South and Southeast Asia (e.g., India, Myanmar, and Vietnam).⁷⁵ India and Algeria have been particularly important purchasers of Russian armored vehicles, and especially the T-90s. At one point, Russian tank manufacturer Uralvagonzavod may have been the most active tank factory in the world due to large export orders coming from these two countries.⁷⁶

The ongoing war in Ukraine, resulting in significant losses of armored vehicles, is likely keeping Uralvagonzavod even busier. Russia has lost at least 2,000 tanks of various kinds—two-thirds of its fleet, by some estimates—which is putting a significant strain on Uralvagonzavod’s capacity to refurbish old MBTs and manufacture new ones for both war- and export-related purposes.⁷⁷ In the summer of 2022, Russian news agencies wrote that Rosoboronexport had rolled out the export version of Russia’s “cutting-edge” T-14 Armata MBT developed by Uralvagonzavod—thus implying that the country’s chief tank manufacturer had enough capacity to produce advanced MBTs amid sanctions and the war—but evidence recently emerged suggesting that Uralvagonzavod might actually be facing significant issues with its production capacity.⁷⁸ Allegedly, the factory reimported components originally made on its premises, including 6,775 sighting telescopes and 200 cameras for installation in tanks, from Myanmar in December 2022.⁷⁹ This fact, coupled with sanctions and a weak performance of Russian tanks on the battlefield in Ukraine, already resulted in lower volumes of armor-related exports and pending deliveries (444 tanks on order) from Russia by the end of 2022, especially when compared to the volume of pending deliveries for U.S., Chinese, and South Korean tanks (634, 717, and 990, respectively).⁸⁰ This trend will likely continue in the foreseeable future, especially as China, Russia’s chief competitor in cost-effective MBTs, ramps up its own tank production.

Naval Systems

Although ships remain among the top five most exported Russian weapons categories, Moscow has not made any deliveries of large vessels for four consecutive years.⁸¹ Instead, it has placed an emphasis on the development of smaller vessels able to carry a variety of missiles, such as the Project 22800 Karakurt corvettes and Project 22160 patrol ships.⁸² However, area specialists note that the Russian shipbuilding industry’s aging infrastructure, which in 2022 was also cut off from access to advanced Western components and humiliated by the sinking of the *Moskva* missile cruiser, will likely further hinder Moscow’s naval exports.⁸³ In addition to ships, Russia is also facing issues marketing its Kilo-class attack submarines. While experts believe the

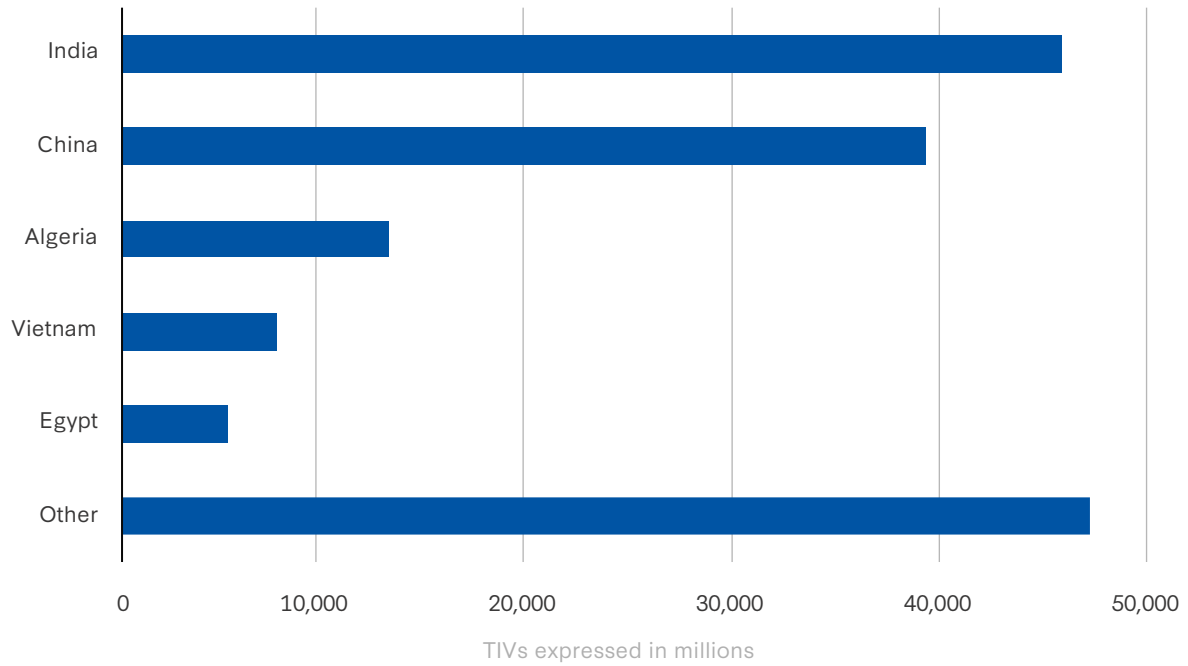
Russian-made submarines retain significant undersea capabilities, such as launching effective conventional cruise missile and undersea infrastructure attacks against adversary fleets, the war and sanctions seem to be impacting Moscow's defense industrial capacity to manufacture submarines for export purposes.⁸⁴ A recent example, also discussed in the next section, includes India choosing Germany over Russia to coproduce new submarines, allegedly due to the growing unpredictability of arms exports from Moscow amid sanctions and the invasion.⁸⁵

Russia's Key Export Destinations

Since the collapse of the Soviet Union, Russia has exported its arms to around 100 countries worldwide, with India, China, Algeria, Vietnam, and Egypt composing the top five purchasers of Russian weapons systems throughout this time (see Figure 3).⁸⁶ According to Paul Schwartz, a non-resident senior associate with CSIS, “Russian arms sales are very diverse but also concentrated. Diverse because Russia has exported arms to nearly 100 countries since 2000 and highly concentrated because its top 10 arms clients traditionally account for the vast majority of Russian arms sales in any given year.”⁸⁷ This section analyzes Moscow’s chief arms markets and how the ongoing war in Ukraine together with the allied sanctions and export regulations are impacting Russia’s ability to remain the key supplier of weapons and technology to those countries.

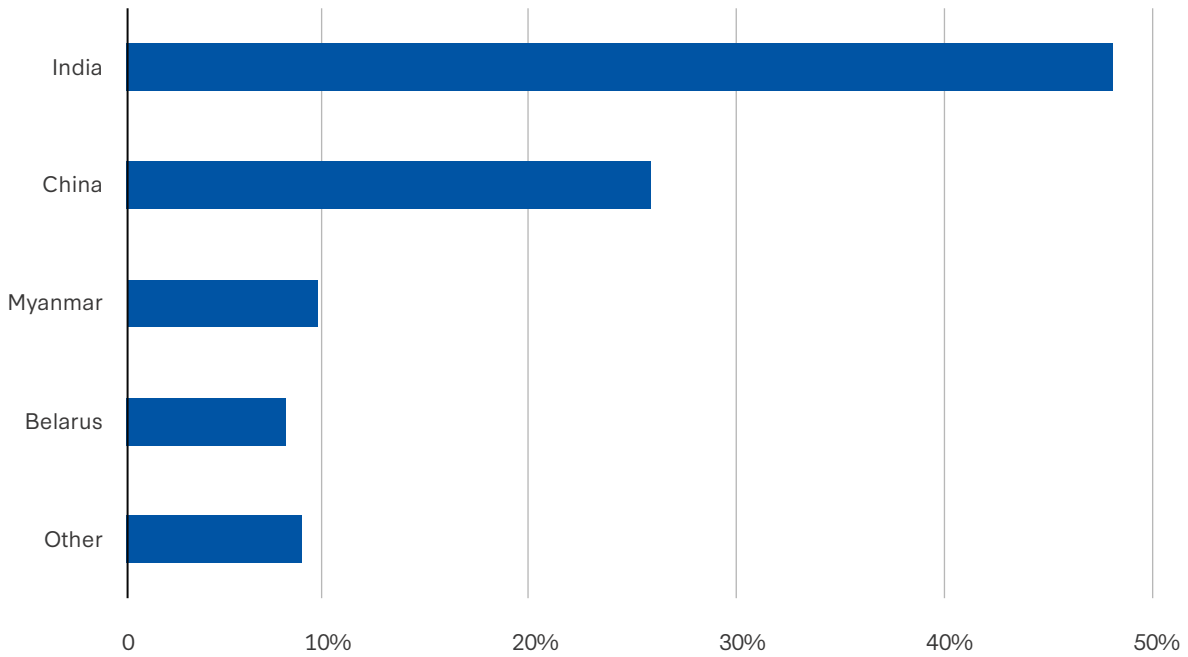
To its customers, Russia’s arms have remained attractive for several reasons. First, for many countries, they are buying what they know. Past purchases have created a path for dependence. For long-time purchasers of Soviet weapons, costs of training and maintenance requirements of Russian weapons are much lower.⁸⁸ Second, Russian military hardware has often been cheaper and easier to operate and maintain than Western analogues. Third, Russia has tended to offer generous financing, such as loans with extended repayment plans. This is in stark contrast to the United States, which lacks flexible financing mechanisms that are often necessary for lower-income purchasers.⁸⁹ Fourth, Russia is a more straightforward seller, due in part to the lack of bureaucratic or legislative oversight that countries such as the United States require to ensure proper end user and human rights conditions. This enables Russia to make deals more quickly and with fewer conditions than Western nations.⁹⁰ Finally, in contrast to U.S. arms sales, Russia has remained attractive to non-democratic regimes due to its willingness to sell weapons without stressing democratic values, human rights records, or internal political situations, as Western countries often do.⁹¹

Figure 3: Top Recipients of Russian Weapons Systems, 1992–2022



Source: "Importer/Exporter TIV Tables," SIPRI.

Figure 4: Top Recipients of Russian Weapons Systems, 2022



Source: "Importer/Exporter TIV Tables," SIPRI.

In recent years, Russia has been forced to increasingly concentrate on the states interested in lower-cost systems (up to \$300 million), such as South Africa, Eswatini (formerly Swaziland), Angola, and Eritrea, among others.⁹² Low (and at times insignificant) volumes of sales with these countries, coupled with Moscow's deepening isolation from the Western nations and their allies, can largely explain why, by the end of 2022, 91 percent of all Russian arms exports were flowing to just four countries: India, China, Belarus, and Myanmar (see Figure 4).⁹³

In the near term, available evidence suggests that Russia's biggest customers, including India and China but also Algeria and Egypt, will most likely strive to become less reliant on Russian arms exports due to ongoing import substitution or diversification efforts in these countries and risk of sanctions. Since February 2022, such efforts have been aggravated by the growing instability of Russia's defense industrial base, affecting the quality and frequency of Russian arms deliveries worldwide. While it is likely that Moscow will continue selling older Russian equipment and technology to a number of conflict-affected countries or authoritarian regimes across Africa, Latin America, the Middle East, and the former Soviet Union, those deliveries will have limited ability to insulate Russia's declining arms export industry.

India

With a 9 percent share of total global arms imports, India has been the world's largest purchaser of major weapons systems between 1992 and 2022.⁹⁴ Russia has been its biggest supplier throughout this time, followed by France and the United States. Yet Moscow's exports to New Delhi began to steadily decline from 2014. Russia's share of total Indian arms imports fell from 64 percent in 2013-2017 to 45 percent in 2018-2022.⁹⁵ A number of factors have affected Moscow's position as New Delhi's key arms supplier, including growing competition from other exporter countries, India's plan to reinvigorate its domestic arms production, and, most recently, the constraints on Russia's military industrial complex induced by the 2022 invasion of Ukraine and subsequent sanctions.⁹⁶

Recent years have seen India increase attempts to diversify its arms imports away from Russia and engage more closely with major Western suppliers, including EU countries and the United States, among others. For instance, arms exports from France rose by 489 percent between the two five-year periods, 2013-2017 and 2018-2022, based on SIPRI estimates.⁹⁷ Such a significant increase in sales has in large part been attributed to France landing several big-ticket arms deals with India, including the 2016 \$8.8 billion inter-government agreement, within which Paris delivered 36 Rafale fighter jets to New Delhi by December 2022.⁹⁸ Besides France, Germany has also made steps to expand ties with India on weapons procurement and counter Russia as a major arms supplier to the South Asian nation. In June 2023, the two countries signed a memorandum of understanding that is expected to be followed by a multibillion-euro deal, according to which Berlin and New Delhi will co-produce six submarines for the Indian navy.⁹⁹ Submarines will be built under Prime Minister Narendra Modi's "Make in India" initiative, designed to reduce military imports and increase domestic procurement and production.¹⁰⁰ Similar to its EU partners, the United States has also expressed its readiness to reinforce "the major defense partnership" and support India's ambitious goal of turning into a significant arms exporter in the near future by fast-tracking "technology cooperation and co-production in areas such as air combat and land mobility systems; intelligence, surveillance, and reconnaissance; munitions; and the undersea domain."¹⁰¹ According to a Reuters exclusive, the Biden administration is set to allow General Electric, a U.S.-based conglomerate, to produce jet engines in India for Indian combat aircraft.¹⁰²

New Delhi's efforts at bolstering codevelopment and coproduction of defense systems with its Western partners have intensified against the backdrop of a declining Russian military industrial complex, strained

by the allied sanctions and the ongoing invasion. The struggles of Russia's military industrial complex could in turn have a significant impact on India's defense sector. According to various estimates, around 60 to 85 percent of major weapons systems in the Indian military originate from Russia.¹⁰³ For instance, 97 percent of India's MBTs are Russian-made variants (2,418 T-72s and 1,200 T-90s). Furthermore, more than half of India's combat-capable aircraft come from Russia, including 263 Su-30MKIs, between 50 to 146 MiG-21s (based on different estimates), and over 100 MiG-29s.¹⁰⁴ New Delhi also possesses seven Russian Kilo-class submarines and three S-400 missile defense systems. All these weapons require regular maintenance and upgrades, which India worries Moscow may be unable to provide.¹⁰⁵

In May 2022, New Delhi reportedly suspended plans to upgrade its Su-30MKIs with Russian assistance, instead aiming to equip the fleet with indigenous products, including Indian-made radar and avionics, to reduce dependence on Moscow.¹⁰⁶ In March 2023, the Indian Air Force (IAF) declared that Russia would be unable to meet arms delivery commitments for the current year due to the war and sanctions. The IAF also stated that the invasion had a significant impact on its arms supplies, causing it to slash projected capital expenditure on modernization for FY 2024 by nearly a third compared to the previous fiscal year.¹⁰⁷ Besides India's aviation and air defense sectors, it has also been reported that New Delhi's plans to lease another Russian nuclear attack submarine could be delayed beyond the planned 2025 delivery date due to the ongoing war.¹⁰⁸ Furthermore, according to some recent reports, beyond Russia's inability to deliver new systems, it has been repurchasing spare parts for tanks and missiles that it had originally exported to India.¹⁰⁹ Even when Russia is able to meet its delivery commitments—such as deliveries of S-400 systems in 2022—other issues arise, including finding a payment mechanism for India that would not violate U.S. sanctions.¹¹⁰

Despite these challenges, Russian officials continue to claim that the Russo-Indian defense partnership is not affected by the war and sanctions. In February 2023, Vladimir Drozhzhov, deputy head of the Federal Service for Military-Technical Cooperation, declared that Moscow and New Delhi are in talks over additional Su-30MKI fighter jets, which will be produced under a Russian license in India and will cost New Delhi \$1.4 billion.¹¹¹ Rosoboronexport has also announced that Russia is ready to produce Ka-226T helicopters together with Indian defense companies as part of the "Make in India" initiative.¹¹² However, none of these plans have thus far been crystallized. In fact, according to scholars Vasabjit Banerjee and Benjamin Tkach, in the short run, India will most likely focus on partnering with countries that have experience manufacturing spare parts and upgrades for Russian-origin weapons. These may include Israel, Bulgaria, and Poland, among others. In the long run, New Delhi will "move ahead with its stated intention of developing a stronger indigenous defense industry."¹¹³ Siemon Wezeman, a senior researcher with the SIPRI Arms Transfers Program, also believes that issues with the quality of Russian arms deliveries together with India's ongoing import diversification efforts and pivot to domestic production will most likely contribute to Russia losing India as its chief arms importer in the coming decade.¹¹⁴

China

China has been the second-largest importer of Russian arms and equipment since 1992, yet the nature and type of deliveries have changed significantly over this time. In the early 2000s, Russian arms played a central role in the development and modernization of the Chinese military, and particularly its navy and air force. Beijing purchased numerous classes of missiles, aircraft, and submarines from Moscow, including the S-300 surface-to-air missiles, Su-27S and Su-30MKI fighter aircraft, and Project 636 Varshavyanka submarines.¹¹⁵ Even though those systems were capable, they still represented "Russia's older, second-best ones and did not include more-advanced technologies."¹¹⁶

After 2006, Russian exports to China started to decrease (but remained significant) for multiple reasons. A decline in part resulted from Moscow's growing frustration with Beijing's continued attempts to steal Russian military technology and intellectual property, especially in aerospace, through espionage and hacking as well as by reverse-engineering Russian equipment to produce Chinese equivalents.¹¹⁷ For instance, China developed its own J-11 fighter jet and the HQ-9 surface-to-air missile based on Russian prototypes, the Su-27 fighter jet and S-300 missile system, respectively. In 2019, in a rare public display of frustration, Russian state-owned defense conglomerate Rostec accused Beijing of copying "aircraft engines, Sukhoi planes, deck jets, air defense systems, portable air defense missiles, and analogs of the Pantsir medium-range surface-to-air systems."¹¹⁸ Consequently, as China's domestic defense industry continued to develop, in large part thanks to the earlier Russian arms exports, it became less willing to purchase older Russian-made technology, instead focusing on acquiring newer and more advanced Russian weapons such as the Su-35S combat aircraft and S-400 air defense system.¹¹⁹

Furthermore, starting from 2014 when the West first imposed sanctions against Moscow, followed by the 2022 allied sanctions regime, the nature of the Sino-Russian defense partnership has changed, with Beijing becoming a vital source of components and spare parts that the Kremlin has often been unable to officially obtain from the Western nations, such as machine tools and microchips. In recent reports, Ukrainian experts and officials have argued that Chinese-made components are now discovered in captured Russian navigation systems, drones, and tanks. According to Vladyslav Vlasiuk, a senior adviser in President Volodymyr Zelenskyy's office, Ukraine now finds "less Western-made components" and instead more Chinese components.¹²⁰ As the war continues, Russian dependence on Chinese-made spare parts will likely grow, even if a significant share of these components turns out to be defective or of lower quality.¹²¹

At the same time, even though Beijing has strengthened domestic defense production and reduced arms deliveries from Moscow, it still relies on imports of the most advanced Russian weapons systems and technologies, especially in the aviation sector. For instance, between 2018 and 2022, 83 percent of Chinese arms imports came from Russia, with most deliveries consisting of helicopters and engines for aircraft that China has had difficulties producing.¹²² The key issue for Beijing remains the development of powerful fighter engines, as Moscow has so far managed to protect its advanced technology from being copied by China. Additionally, according to area experts, it is difficult to reverse-engineer this equipment. Up to 40 percent of China's air force fleet depends on Russian-made engines, which will create issues for Beijing if Russia becomes unable to provide these parts for the Chinese aviation industry due to the ongoing sanctions and war in Ukraine.¹²³ This may incentivize China to redouble its efforts to produce combat aircraft and engines. In fact, Beijing has already made strides in recent years in developing advanced aircraft, such as the J-16 and J-20 fighters, and has even provided upgrades to its engines.¹²⁴ For instance, it modernized its WS-10 engines to power the J-20 aircraft. However, Chinese efforts in this area are still limited due to the lack of domestic expertise; Beijing reportedly has struggled to develop its WS-15 engine, which is expected to give the J-20 supercruise capability.¹²⁵ Going forward, China may leverage Russia's growing economic and security dependence to in turn gain access to long-desired Russian engine technology. Therefore, benefits derived from existing arms trade between the two countries may be greater for Beijing than for Moscow in the near term.

Going forward, China may leverage Russia's growing economic and security dependence to in turn gain access to long-desired Russian engine technology.

Overall, it is expected that the Sino-Russian defense industrial partnership will continue. Yet Moscow's technological utility to Beijing will be significantly weakened due to Russia's impaired defense production capacity and China's strengthened emphasis on indigenizing production and increasing its self-reliance.¹²⁶

Africa

Russia has been the chief arms supplier to Africa, surpassing U.S., European, and Chinese arms deliveries in the region by a significant margin for well over a decade. For instance, between 2018 and 2022, Moscow accounted for 40 percent of African imports of major weapons systems, which exceeded the continent's combined arms imports from the United States (16 percent), China (9.8 percent), and France (7.6 percent) during the same time period.¹²⁷ There are a number of reasons that explain the dependency of African countries on Russian-made weapons and equipment. Modern Russian arms are usually cheaper—at least in the shorter term—than their Western alternatives and are compatible with Soviet-era stocks retained by many states in the region due to the strong military-security ties shared between Africa and the Soviet Union during the Cold War era. Additionally, unlike major Western arms suppliers, the Kremlin does not make its arms deliveries contingent upon adherence to human rights principles or respecting the rule of law.¹²⁸ Russia has sent weapons to different conflict-affected countries in Africa where the United States and its allies have usually avoided such exports, including Libya, Mali, Sudan, and the Central African Republic (CAR), among others.¹²⁹ Yet, while Moscow sells its weapons to a number of countries across the continent, these deliveries are usually marginal in value and resemble more military assistance than arms trade, according to SIPRI's Siemon Wezeman.¹³⁰ Although these sales may have little monetary value, they have significant diplomatic and geopolitical value, as they have helped solidify Russia's relationship with many African countries.

Russia has only two sizable arms importers in Africa: Algeria and Egypt. From 1992 onwards, both countries have been among the top five purchasers of Russian military equipment and technology globally, with Egypt replacing Algeria as Russia's third-largest arms market during the last five years. Overall, Algeria has accounted for 8 percent of total Russian arms exports since 1992, while Egypt has accounted for 3 percent, based on the SIPRI data.¹³¹ Both states have signed several multimillion-dollar agreements with Moscow to purchase Russian-made defense technology and equipment, including combat aircraft, armor, and air defense systems, thus making their militaries dependent on Russian arms deliveries, maintenance, and upgrades. Egypt retains obsolete Soviet-era systems, such as the MiG-21 aircraft first issued in the 1950s, yet it has also made steps toward upgrading its aging fleet with somewhat newer Russian equipment, including the fourth-generation MiG-29M aircraft, Ka-52 attack helicopters, and the S-300 missile defense system.¹³² By contrast, Algeria has purchased more modern and advanced Russian weapons, including the Pantsir-S1 air defense system, the latest versions of the T-90 MBT, and Kilo-class submarines.¹³³

Both countries buy from other countries as well. For instance, Egypt has sourced combat aircraft from France, submarines from Germany, and unmanned aerial vehicles from China.¹³⁴ Furthermore, Egypt receives \$1.3 billion in U.S. security assistance annually. The Egyptian Ministry of Defense has also assembled certain types of weapons locally, including over 1,000 M1A1 MBTs from U.S.-supplied kits.¹³⁵ Similarly, since the early 2010s, Algeria has begun to diversify its arms imports and has made investments toward strengthening the domestic defense industry, leading to joint ventures with several Western arms exporters, including a deal with Italy to produce seven modern helicopters and agreements with Germany to deliver a tank assembly plant and armor personnel carriers.¹³⁶

Russia's ongoing invasion of Ukraine and the allied sanctions regime have further pressured the two countries to lessen defense ties with Russia. In 2022, amid a rising fear of Western sanctions, Egypt rejected a deal to buy Russian Su-35 combat aircraft, which later were purchased by Iran.¹³⁷ Algeria also finds itself in a political-security

conundrum. In 2021, it reportedly signed a deal worth more than \$7 billion with Moscow to purchase Su-57 fighter jets, air defense systems, and other advanced Russian equipment, with deliveries expected in the next several years.¹³⁸ However, with Russia depleting its stockpile of arms and facing challenges to produce advanced weapons systems, Algeria worries Moscow may not be able to provide new arms deliveries or necessary upgrades for its existing Russian-made defense inventories.¹³⁹ This has allegedly forced the Algerian authorities to raise the army's budget to a record \$23 billion to find alternative suppliers, including France and Brazil.¹⁴⁰

Despite the increased unpredictability of a long-term defense partnership with contemporary Russia, as mentioned above, smaller scale African purchasers of Russian weaponry will likely continue to place orders with Russian firms. Sudan and the CAR fit this description. Both countries have established defense partnerships with Moscow, including particularly well-publicized contracts with the Wagner Group (though the future of this private military company and its operations around the world, including in Africa, is now in question following Wagner chief Prigozhin's death in August 2023).¹⁴¹ Both the CAR and Sudan are countries experiencing intense domestic instability and violence, which give added urgency to their purchasing of Russian matériel.¹⁴² In the case of Sudan, Russia has accounted for around 45 percent of Sudanese arms imports since 1997.¹⁴³ The CAR's volume is much smaller, with only 5 percent of arms deliveries coming from Moscow (although it should be noted that the volume of major arms imports to the CAR has been historically low due to the country's inability to purchase advanced weapons and related matériel and the United Nations' arms embargo imposed on the republic since 2013).¹⁴⁴ However, in both countries, the major value for Russia is not the financial scale of these transactions but the political influence and Russian access to key natural resources these defense partnerships enable—particularly within the context of utilizing extractive industries, including gold and diamond mining, to evade international sanctions.¹⁴⁵



A Russian armored personnel carrier seen driving in the streets of the capital Bangui during the delivery of Russian-made armored vehicles to the CAR army in October 2020.

Photo: Camille Laffont/AFP via Getty Images

A more complicated example is oil-rich Angola, which since 1993 has imported around 37 percent of its arms from Moscow, including Mi-171Sh helicopters and Su-30K fighter jets.¹⁴⁶ Russia's relations with post-independence Angola go back to the Soviet period, when Moscow backed the Popular Movement for the Liberation of Angola (MPLA) during the resource-rich country's fight for decolonization. Angola will likely continue its partnerships with Russia, as the country hosts Wagner Group mercenaries, and an early 2023 visit by Russian foreign minister Sergei Lavrov indicated the launch of a potential deal to build a Russian nuclear power plant in the country.¹⁴⁷ However, in December 2022, Angola had already announced its interest in purchasing weapons from the United States, despite a previous 2019 announcement that the country would be constructing factories for the domestic production of Russian weapons.¹⁴⁸ This stated desire to purchase American weaponry comes in the wake of increasing defense ties between Angola and the United States such as Angola's March 2022 participation in a U.S.-led maritime exercise, and a November 2022 high-level visit to Angola by General Michael Langley, the commander of United States Africa Command—demonstrating that the contest between Washington and Moscow for influence in the country remains more open-ended than history would suggest.¹⁴⁹

It is likely that these trends will only intensify going forward. According to Bhaso Ndzendze, an associate professor at the University of Johannesburg, while the Kremlin will continue selling its arms to conflict-affected countries across Africa, those deliveries will likely be limited to obsolete Soviet-era equipment, such as Soviet-era tanks, and cheaper weapons, including battle rifles, grenades, and signal and communications systems.¹⁵⁰ Therefore, such sales will remain marginal in terms of their direct monetary value. However, such limited defense relationships will most likely continue to yield significant geopolitical benefits for the Kremlin in the region. At the same time, the two key arms importers on the continent, Egypt and Algeria, will probably proceed with their efforts to diversify away from Russia, thus impacting the share of Russian arms exports globally. However, the large quantities of previously acquired Russian equipment in both countries are likely to sustain ties at some level.

Southeast Asia: The Cases of Vietnam and Myanmar

Both Vietnam and Myanmar have existing defense partnerships with Russia, and the future course of these relationships could serve as an important indicator of the Russian defense industry's international reach post-2022.

In the context of what many believe to be China's increasingly aggressive behavior in the South China Sea, Vietnam has leaned into international arms imports to support its military's efforts to deter potential Chinese military action. Having launched a brief invasion of Vietnam in 1979, China remains an ongoing security concern for the government in Hanoi, as described in a noteworthy and long-awaited defense white paper released by the Vietnamese government in 2019.¹⁵¹ While Russia has historically been Vietnam's primary arms provider, the government in Hanoi has increasingly tried to diversify its supply of defense systems, including from Israel, Canada, Spain, the Netherlands, and South Korea.¹⁵² Notably, during a widely publicized presidential visit to Vietnam in 2016, President Barack Obama announced an end to the United States' Cold War-era arms embargo on the country, which some analysts perceived as part of a broader U.S. strategy to strengthen ties with Hanoi as a potential counter to Chinese efforts at hegemony in the Indo-Pacific, despite U.S. claims to the contrary.¹⁵³ For instance, in 2021, the United States transferred a refurbished Hamilton-class Coast Guard cutter to the Vietnamese navy.¹⁵⁴

However, given the scale of Vietnam's purchases going back to the emergence of post-Soviet Russia in 1991, the country will remain dependent on Moscow for spare parts, technology upgrades, and long-term maintenance

arrangements for already purchased systems. Since 1995, an overwhelming 82 percent of Vietnam's arms imports have originated from Russia.¹⁵⁵ These purchases have included everything from aircraft and air defense systems to critical components and systems needed to maintain these weapons. The Vietnamese military reportedly has 1,383 Russian MBTs in its reserves, ranging from long-outdated models such as the T-34 to the newer and more advanced T-90S. The Vietnamese air defense reserves include the Russian S-300 system, with the Su-30MK2 acting as a key model within Hanoi's reserve of fighter jets.¹⁵⁶ There have long been reports that Vietnam is interested in acquiring more advanced Russian fighter jets, such as the Su-35 or even the Su-57.¹⁵⁷

But despite Vietnam's long-held dependence on Russia for military equipment, it has recently announced new plans to develop the country's domestic defense industry, including reforms of the General Department of Defence Industry, a state-owned conglomerate.¹⁵⁸ Additionally, in December 2022, Hanoi organized its first-ever international defense exhibition, which observers interpreted as a major push by the Vietnamese leadership to expand the country's range of foreign defense partnerships away from Russia.¹⁵⁹ Given Russia's expanded domestic defense needs to supply its war in Ukraine, combined with the ongoing risk of Russian defense production bottlenecks caused by international sanctions, these moves by Hanoi to diversify its means of defense procurement away from Russian firms appear well timed.

As with Vietnam, Russian defense firms have an established export relationship with the military of Myanmar, which rules the country. Russia has been second to China in terms of defense-related exports to Myanmar since 1995, accounting for 35 percent of arms deliveries.¹⁶⁰ Like Russia, Myanmar faces its own set of international sanctions due to the ruling military junta's coup and human rights violations in the ongoing civil war. Myanmar's military junta remains interested in Russian weaponry and combat know-how to assist in its efforts to crush opposition to its 2021 coup and help fight various armed resistance groups that oppose the central government.¹⁶¹ Myanmar's political isolation and ongoing domestic turmoil limit the country's defense import options, making continued reliance on Russian weapons, technology, and upgrades likely over the medium term.

In 2023, Russia reportedly requested to buy back matériel it had sold to Myanmar in order to help fill supply gaps related to Moscow's war effort in Ukraine.¹⁶² Russian tank producer Uralvagonzavod apparently purchased \$24 million worth of military components, including an estimated 6,775 sighting telescopes and 200 cameras.¹⁶³ This purchase is logical, given the Russian military's now well-known challenge of replacing their previously Western-supplied optical systems.¹⁶⁴ Sanctions enforcers should track Myanmar as a potential source of needed components for the Russian military and continue to crack down on existing loopholes that enable these kinds of defense-related transactions by the military leadership.¹⁶⁵

Conclusion and Policy Recommendations

Since the onset of Russia's full-scale invasion of Ukraine in 2022, the Russian military industrial complex has faced the dual challenge of supplying the Kremlin's troops for the war in Ukraine while circumventing international sanctions to gain access to critical components required to maintain the necessary levels of production. As Russian defense firms are forced to prioritize supplying the war effort, they are facing the inevitable choice between expending critical components and resources on fulfilling contracts for the Russian Ministry of Defense and using those same inputs for the production of weapons systems ordered by customers abroad. To add to the Russian defense industry's troubles, Russia's often lackluster performance on the battlefield in Ukraine, in comparison to the fierce resistance of Ukrainian troops armed with cutting-edge Western systems, serves as a powerful global advertising campaign in favor of Western arms over their Russian competitors.

However, the challenges facing Moscow's arms industry predate the February 2022 invasion, which has in fact aggravated already existing problems within a domestic sector declining in its international competitiveness. Russia's post-Soviet arms sales began to decrease in the early 2010s due to Western sanctions on third countries purchasing Russian weapons, a collapse in the purchasing power of particular countries such as Venezuela, and the efforts of the massive Chinese and Indian markets to strengthen their domestic arms production, increase arms exports (especially in the case of China), and diversify international partnerships.¹⁶⁶

To be clear, Russia is still competitive in areas such as missile and air defense systems, aircraft, armored vehicles (including different models of battle tanks), submarines, and engines. Current trends, however, indicate that Russian arms exports in virtually all major weapons categories will continue to decrease.

China's rise as a competitive arms manufacturer represents one of the largest challenges to the Russian defense industry. Chinese defense technology is increasingly on par with Russian exports and proves to

be a particularly challenging competitor for Russian arms exports in less wealthy regional markets such as Africa. Given Russia's growing macroeconomic and political-security dependence on China after the launch of the 2022 invasion, it has significantly less leverage to resist China's long-term efforts at acquiring—or stealing—highly protected Russian defense technology.¹⁶⁷ Increasingly, reports are emerging about Russia's Federal Security Service (FSB) arresting Russian scientists for allegedly spying for Beijing.¹⁶⁸ These high-profile charges may serve as a signaling mechanism to warn Russia's defense industry workers to be on guard when collaborating with China and that Russian intelligence will be watching.

But while the Kremlin may have qualms about its defense industry's vulnerability to Chinese penetration, Russian weapons manufacturers will nonetheless be increasingly dependent on the Chinese and Indian markets, as the two Asian powers remain among the small circle of countries that are still purchasing Russian arms in bulk. Russia will try to maintain its existing defense export markets, leveraging its long-standing diplomatic and military relationships in the Global South and offering unique security partnerships via investment deals and contracts with Russian private military companies such as the Wagner Group (or its alternatives). Moscow will likely maintain a role as the chief supplier to rogue states, as countries locked out of the global arms market will often find Russia a willing supplier.

However, despite the Russian defense industry's existing vulnerabilities, the experience of fighting the war in Ukraine under international sanctions may lead to the emergence of important innovations that Russia can then market to Global South purchasers as a competitive alternative to Western technologies. For example, Russia's effective use of kamikaze drones, in particular the Lancet, may turn out to be a future Russian defense industry success. Russia is already expanding its domestic production of attack drones, and the intermittent hostilities between Azerbaijan and Armenia demonstrate that states can overpower their regional rivals with effectively deployed, low-cost drone technology.¹⁶⁹ Russian drones could become a weapon of choice for lower-budget militaries or proxy forces such as those funded by Iran throughout the Middle East.

The experience of fighting the war in Ukraine under international sanctions may lead to the emergence of important innovations that Russia can then market to Global South purchasers as a competitive alternative to Western technologies.

With those considerations in mind, there are ways for the West to further accelerate and deepen existing negative trends in Russia's arms exports:

- **Play the long game.** Recognize that shifting nonaligned countries away from Russian military equipment is a long-term diplomatic effort that requires not just pursuing sales but strengthening bilateral relationships between countries. Deepening dialogue and developing strategic partnerships with major regional players who continue to maintain close ties with Russia will allow the West to assess opportunities for more attractive substitutes or diversification options for arms supply. Recent engagement with India offers one successful example in that regard.¹⁷⁰

- **Develop a targeted strategy to squeeze Russian arms sales, including through the allocation of new security assistance funding for this effort.** The United States should seek to engage countries that buy Russian weapons and highlight that doing business with the Russian defense industry would merit U.S. sanctions and offer an alternative. For some countries, this may mean pushing that country to buy from the United States or allied countries. For others, the United States could offer security assistance to help acquire U.S.-origin systems. Given the need and demand, this may merit additional congressional funding for State or Defense Department security assistance programs. However, there are a number of countries to which, due to foreign policy concerns, the United States would not be willing to transfer weapons. Nevertheless, Washington should still press these states that a step toward rebuilding relations and trust with the United States begins by foregoing future arms purchases.
- **Highlight Russia's military failures with the states dependent on Russian equipment.** In many of the countries where Russia still maintains a competitive advantage, perceptions of the war often stem from a gap in knowledge about Ukraine, which Russia fills with its wartime propaganda. The West could help amplify Ukraine's position in these countries and undermine Russia's by coordinating messaging and public diplomacy.
- **Close sanctions loopholes when they emerge and be willing to sanction countries for buying Russian weapons.** Sanctions enforcement agencies remain grossly understaffed and underresourced. Their capacity is not remotely sufficient for the economic warfare mission that policymakers have thrust upon them. Likewise, these agencies do not receive the information flow to execute their mission. The internet has incredible open-source resources, far too few of which make it to enforcement offices. Instead, these offices rely on highly classified information from the intelligence community. The classified nature of such information makes it difficult to speak about, but it also leaves gaps in coverage. Additionally, the United States should be less reticent to sanction countries for buying Russian arms. While there will be hard cases, such as India, sanctioning countries, even partners, such as Turkey, sends a signal to others that buying Russian weapons comes with significant additional economic costs beyond what is needed to pay for the specific system. The threat of sanctions has clearly deterred states from purchasing Russian arms, and the United States needs to make countries understand that it is willing to deploy sanctions.
- **Closely monitor Russian efforts to buy back Russian-made or licensed equipment from partner countries.** A recent news report highlighted efforts from Moscow to buy back weapon components, especially those used in tank and missile production, from its current customers such as India and Myanmar, showcasing war- and sanctions-induced struggles faced by Russian defense industry. If true, this could also point to a potential path for Russia to augment its own struggling domestic defense industrial production by outsourcing production to partners through providing licenses to them to manufacture certain arms and components. For instance, Moscow has given permission to New Delhi to manufacture T-90 tanks, as well as MiG-21 and MiG-23/27 fighters. Considering Russia's outstanding equipment shortages, the Kremlin could conceivably seek to buy back some of those weapons and systems. While there is no evidence that Russia has thus far attempted to do this, New Delhi's desire to access or lease advanced foreign technology to boost its domestic defense industry, coupled with Moscow's readiness to provide more relaxed rules for technology transfers, make such cooperation probable. Likewise, the Kremlin may introduce or revisit its licensing deals with other partners such as China or Iran. Therefore, Western policymakers should closely monitor Russia's licensing agreements with its militarily capable partners, including India, as well as China and Iran, and develop targeted solutions highlighted above to avert such future scenarios.¹⁷¹

- **Finally, continue supplying to Ukraine.** As CSIS has argued earlier, it should remain a priority for the West to provide Ukraine with continuous supplies of higher-end military equipment at a pace that exceeds Russia's production rate. Attrition will make it harder for Russia to simultaneously maintain domestic production while exporting arms globally. Additionally, the West should consider granting Ukrainian manufacturers rights to use selected Western technologies for licensed domestic production of selected weapons systems, component parts, and/or ammunition needed to wage the ground war in Ukraine.¹⁷²

About the Authors

Max Bergmann is the director of the Europe Program and the Stuart Center in Euro-Atlantic and Northern European Studies at the Center for Strategic and International Studies (CSIS). Prior to joining CSIS, he was a senior fellow at the Center for American Progress, where he focused on Europe, Russia, and U.S. security cooperation. From 2011 to 2017, he served in the U.S. Department of State in a number of different positions, including as a member of the secretary of state's policy planning staff, where he focused on political-military affairs and nonproliferation; special assistant to the undersecretary for arms control and international security; speechwriter to then secretary of state John Kerry; and senior adviser to the assistant secretary of state for political-military affairs. Before serving in the State Department, Bergmann worked at the Center for American Progress as a military and nonproliferation policy analyst and at the National Security Network as the deputy policy director. Bergmann holds a master's degree in comparative politics from the London School of Economics and Political Science and a bachelor's degree in political science from Bates College. His recent commentary has been published in outlets such as *Politico*, the *Washington Post*, *Foreign Affairs*, and *Sasakawa USA*.

Maria Snegovaya is a senior fellow for Russia and Eurasia with the Europe, Russia, and Eurasia Program at CSIS and a postdoctoral fellow in Georgetown University's Walsh School of Foreign Service. She studies Russia's domestic and foreign policy, as well as democratic backsliding in post-communist Europe and the tactics used by Russian actors and proxies who exploit these dynamics in the region. Her analysis has been published in multiple policy and peer-reviewed journals. Her research and commentary have appeared in a number of publications such as the *New York Times*, the *Wall Street Journal*, Bloomberg, *The Economist*, and *Foreign Policy*. Throughout her career she has collaborated with multiple U.S. research centers and think tanks such as the Center for a New American Security and Center for European Policy Analysis. Snegovaya holds a PhD in political science from Columbia University.

Tina Dolbaia is a research associate with the Europe, Russia, and Eurasia Program at CSIS, where she examines and analyzes political, economic, and security developments in Russia and Eurasia. Previously, Tina worked in the international development sector, including at organizations such as Chemonics International and the Center for International Private Enterprise. She holds an MA in Eurasian, Russian, and East European studies from Georgetown University's School of Foreign Service, where she also worked as a graduate fellow, examining the intersection of the Russian defense and technology sectors, as well as great power competition in Eurasia. Tina is originally from Tbilisi, Georgia, where she obtained her bachelor of science in sociology.

Nick Fenton is a program coordinator and research assistant with the Europe, Russia, and Eurasia Program at CSIS, where he supports the program's event management, outreach, and research agenda. Before joining CSIS, Nick completed a Fulbright grant working as an English teacher in Omsk, Russia, at Omsk State Pedagogical University. Additionally, he worked as a security and defense intern at the German Marshall Fund of the United States. Nick holds a master's degree in European and Russian studies from Yale University, where his research focused on the intellectual history of Soviet foreign policy during the interwar period. Nick earned his bachelor's degree at the University of Virginia, where he double majored in political and social thought and Russian and Eastern European studies.

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