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EDITION 14.0



IN THIS EDITION

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Drone-on-Drone at Sea: Sargan Opens a New Phase of Naval Warfare

NATO's Northern Flank: Russia Builds for Future Force Expansion

SPECIAL FEATURES

Paying for War: Russia's Military Budget Crowds Out the State

Long-Range Weapons and the New Geometry of War

SEPTEMBER 2026

TABLE OF CONTENTS

SECTION I: SHAHED INTERCEPTION ECONOMY 03

SECTION II 04

LAND 04

UKRAINE DEPLOYS KAMIKAZE UGVs BEHIND RUSSIAN LINES 04

RUSSIA EXPANDS MILITARY CAPACITY NEAR NATO'S BORDERS 05

AIR 06

UKRAINIAN ANUBIS DRONE KILLS RUSSIAN MAJOR GENERAL 06

RUSSIA EXPANDS AND HARDENS ITS SHAHED PRODUCTION BASE 07

UKRAINE'S NEW INTERCEPTORS TARGET RUSSIA'S JET-POWERED GERAN DRONES 08

UKRAINIAN FP-1 DRONES SET NEW DEEP-STRIKE RANGE RECORD 09

KHIZHAK ANTI-DRONE TURRET DEPLOYED ON UKRAINIAN HELICOPTERS 10

REPEATED UKRAINIAN STRIKES TARGET RUSSIA'S EXPANDING GERAN DRONE HUB 11

RAYBIRD SECURES $10.6 MILLION CONTRACT 12

UKRAINE TO TEST LEONARDO'S MICHELANGELO AIR DEFENCE SYSTEM 13

MARITIME 13

UKRAINE STRIKES RUSSIAN WARSHIPS IN NOVOROSSIYSK AGAIN 13

UKRAINIAN SARGAN DESTROYS RUSSIAN UNMANNED BOAT IN FIRST NAVAL DRONE-ON-DRONE ENGAGEMENT 14

EW 15

THIRD ARMY CORPS' EW SHIELD DISRUPTS OVER 20,000 RUSSIAN DRONE MISSIONS 15

CYBER 15

RUSSIAN DEVELOPERS USED CLAUDE TO DEVELOP AUTONOMOUS DRONE-SWARM SOFTWARE 15

SECTION III: RUSSIA'S WAR ECONOMY 16

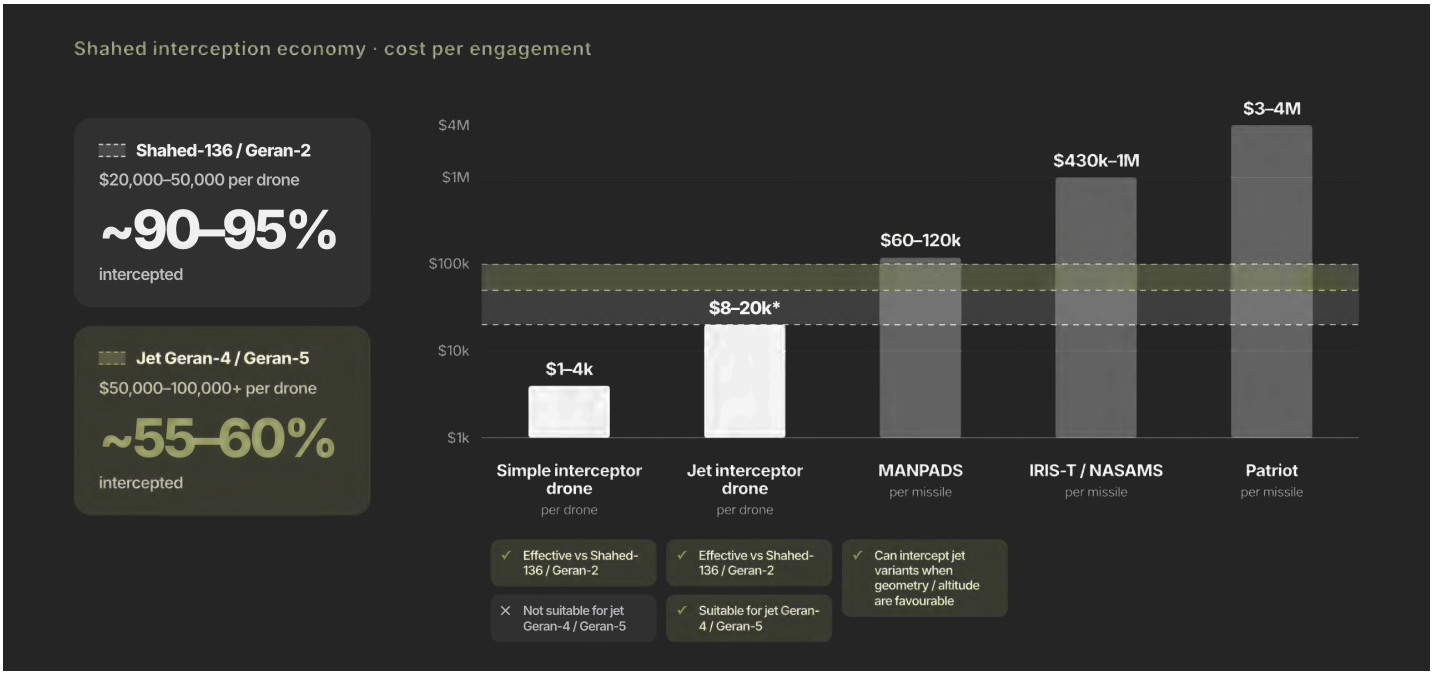
SECTION IV: WHAT LONG-RANGE WEAPONS CHANGE 18

SOURCES 19

SHAHED INTERCEPTION ECONOMY

The economics of defending against Russian Shaheds has changed sharply as Moscow has shifted from conventional propeller-driven Geran-2s toward faster jet-powered variants. Ukraine had developed a relatively favorable cost exchange against conventional Shaheds: low-cost interceptor drones priced at roughly $1,000–4,000 could replace much more expensive missile-based air-defense systems for a large share of engagements, contributing to interception rates above 90%. This reflects the broader evolution described in Serpens Center's **Holding Back the Sky**, which highlights Ukraine's shift toward layered, lower-cost defenses to preserve scarce surface-to-air missiles. By September 2026, Ukraine was still intercepting more than 90% of conventional Shaheds, according to **President Zelenskyy**, showing how effective this layered approach has become against the older threat.

Jet-powered Geran variants have disrupted that equation. Their higher speed and, in some attacks, operating altitude of 4–7 km reduce the effectiveness of the cheapest defensive layers and can force Ukraine to rely on MANPADS, aircraft, or more expensive missile-based systems when favorable interception geometry is unavailable. **Reuters** reported an interception rate of around 60% against jet-powered drones, while Zelenskyy put the latest figure at 55% on September 26, compared with more than 90% for conventional Shaheds. Ukraine is therefore racing to restore the favorable economics of drone defense with a new class of high-speed interceptors: several prototypes have already demonstrated successful interceptions of jet-powered Shaheds, but mass deployment remains in progress.



*Shahed interception economy: the cost of Russian one-way attack drones versus the cost of intercepting them. Serpens Center calculations based on open source reporting. (Sources: Holding Back the Sky, **Ukrainska Pravda**, **Reuters**)*

JET-POWERED SHAHEDS ARE BECOMING THE PRIMARY MEANS OF AERIAL TERROR

Russia has launched more than 7,700 jet-powered Shahed-type UAVs against Ukraine. For comparison, Russia used about 2,800 jet-powered UAVs during the entire month of July. Ukrainian air defenses currently intercept around 60% of the jet-powered drones, compared with more than 90% for earlier propeller-driven Shahed variants.

Russia is simultaneously scaling up production. Ukrainian military intelligence said in August that Russian industry was producing approximately 3,000 Geran-4 and Geran-5 jet-powered drones per month, primarily at the Alabuga production complex in Tatarstan. Satellite imagery showed new construction at the site, indicating preparations for further expansion.

The change is not only quantitative. The newer drones fly at significantly higher speeds and altitudes, reducing the reaction time available to Ukrainian air-defense crews. Reuters reported that the jet-powered Shaheds can fly at 4–7 km altitude, putting them beyond the reach of many mobile groups using man-portable missiles. Russia is also adjusting routes and timing to exploit fog and cloud cover, according to Ihnat.

UKRAINE DEPLOYS KAMIKAZE UGVS BEHIND RUSSIAN LINES

Ukraine's Third Army Corps has disclosed the use of heavy bomber drones to deploy kamikaze UGVs more than 10 km behind Russian lines during Operation Vivaldi in northern Donetsk Oblast. According to **RBC-Ukraine**, the UGVs were transported by aerial drones operated by the Third Assault Brigade. Corps commander Brigadier General Andrii Biletskyi described the operation as the first of its kind, although Ukrainian forces had previously experimented with transporting ground robots by air.

The operation combined airborne deployment of ground robots with a broader effort to conceal Ukrainian movements. According to the **Third Army Corps' account of Operation Vivaldi** , Ukrainian air-defense and electronic-warfare systems disrupted Russian drone reconnaissance, while artillery and unmanned systems struck command posts, communications nodes, logistics, crossings, and reserves. The corps reported that this combination helped its forces conduct a flanking maneuver and regain control of additional territory. These operational results remain Ukrainian military claims.

UGVs normally depend on their ability to traverse terrain from a nearby launch point, which can limit their usefulness across rivers, marshes, dense vegetation, or heavily contested approaches. Transporting a smaller robot by a larger aerial platform can bypass some of those obstacles and place unmanned systems in areas difficult to reach from the ground.

The concept is not entirely new: **Ukrainian forces had previously demonstrated** the aerial delivery of an ARK-1 ground robot, but the Third Army Corps reported employing the approach at greater depth with kamikaze platforms

The concept was then expanded further. **On September 27, the Third Army Corps reported** that operators from the NC13 unit had modified kamikaze UGVs with two Bulgarian-made Bullspike anti-tank grenade launchers. The robots approached Russian positions, fired on troops and fortifications, and then detonated inside the defensive positions. According to the corps, Russian troops initially believed they were facing a larger assault group, while the UGVs were actually being operated remotely from positions tens of kilometers away. The Bullspike is derived from the Soviet RPG-22 design.

The Third Army Corps also disclosed an even heavier robotic breaching concept during the third phase of Vivaldi. **According to Biletskyi,** Soviet BTR armored personnel carriers were converted into unmanned kamikaze vehicles and used against some of the strongest Russian defensive positions. The corps said the modified vehicles were employed to breach fortified positions during the fighting around Nove and surrounding settlements.

UKRAINE TESTS REMOTE-CONTROLLED BUGGIES FOR FRONTLINE LOGISTICS

Ukraine's Ministry of Defence and the Brave1 defense innovation cluster have conducted the first closed trials of Ukrainian-made remotely controlled buggies. **According to the Ministry of Defence**, personnel from Defence Intelligence's Tymur Special Unit operated the vehicles themselves and provided manufacturers with feedback on their suitability for frontline conditions. Developers are now refining their systems ahead of further testing of the remaining models.

The initiative addresses limitations of conventional unmanned ground vehicles. Although ground robots are increasingly used for frontline resupply and casualty evacuation, their relatively low speed and limited mobility can restrict operations over difficult terrain, particularly during winter. Remotely controlled buggies are intended to combine the mobility of light off-road vehicles with the option to operate without a driver in exposed areas. Unlike fully unmanned platforms, they could also retain conventional driving capability when remote operation is unnecessary or impractical.

Ukraine already uses foreign-made buggies, but their cost and limited remote-control capabilities have encouraged the development of domestic alternatives. More than half of the Ukrainian solutions in this category have received Brave1 grants, **according to the Ministry of Defence**. The trials are intended to help manufacturers adapt their vehicles to military requirements before broader procurement and deployment.

Remotely controlled buggies could complement smaller UGVs by offering greater mobility and transport capacity, particularly where conventional ground robots struggle to operate. Their practical value will depend on whether manufacturers can deliver reliable remote control, sufficient off-road performance, and affordable production at scale.



VOLS buggy during off-road trials of Ukrainian remotely controllable vehicles. Source: **Militarnyi**

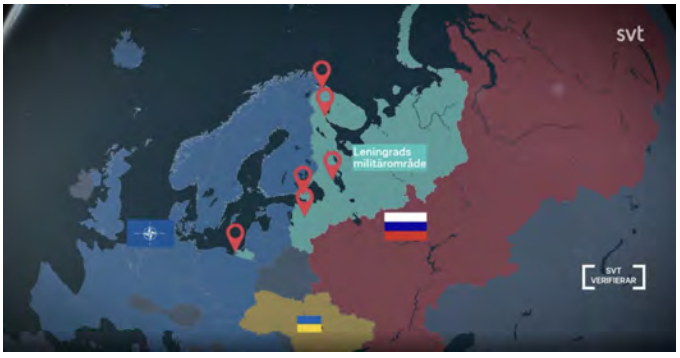


UGV Fantom. Source: **Militarnyi**

RUSSIA EXPANDS MILITARY CAPACITY NEAR NATO'S BORDERS

Russia is expanding its military infrastructure near NATO's northern and eastern borders, with new barracks, equipment storage areas, and concentrations of military vehicles appearing across northwestern Russia.

A **June investigation by Swedish broadcaster SVT**, conducted with NRK, DR, and Delfi using satellite imagery from Planet Labs, documented construction and military activity at several locations near Finland and Norway. Finnish Army Commander Pasi Välimäki said Finland was preparing for the possibility that Russian troop numbers near its border could increase from approximately 20,000 to 80,000. Swedish military intelligence assessed that Russia was establishing infrastructure that could accommodate additional formations once more personnel become available.



Locations of Russian military infrastructure expansion near Finland, including Kandalaksha, Petrozavodsk, and Sapyornoye. Source: **SVT**

The buildup is particularly visible in Karelia and the areas surrounding Finland. At Petrozavodsk, **satellite imagery shows** the redevelopment of military facilities, new construction, and growing concentrations of vehicles. Farther north, Russia is expanding facilities at Kandalaksha, while Sapyornoye, approximately 80 km from the Finnish border, has seen additional military equipment arrive. These developments are part of a wider effort to expand Russia's military infrastructure across its northwestern regions, including accommodation, maintenance facilities, and equipment storage.



Satellite imagery documenting the expansion of Russian military infrastructure near Petrozavodsk and Luga. Source: **SVT**

The buildup is particularly visible at Luga, south of St. Petersburg, where satellite imagery from October 2025 and February 2026 shows the appearance of more than 100 military trucks at the garrison. The vehicles are reportedly associated with ammunition transport and military logistics, although their cargo cannot be independently verified from the imagery alone.

According to **SVT's investigation**, the concentration of military vehicles forms part of Russia's wider expansion of military infrastructure near NATO territory, even as much of its military remains committed to the war in Ukraine.



Before-and-after satellite imagery of Russian military infrastructure expansion near Luga, showing the site on October 2, 2025, and February 17, 2026. Source: ***SVT***

Russia is also reportedly expanding the medical infrastructure needed to sustain a larger military force. According to a **September 12 Militarnyi report**, citing the Russian Telegram channel Volya, Moscow plans to allocate an additional 16,000–20,000 beds in civilian hospitals for military use during autumn 2026, primarily in the Northwestern Federal District.

Six new military hospitals were also reportedly completed this year, five of which are operational. The proposed allocation has not been independently confirmed, and the continuing burden of Russian casualties in Ukraine may also help explain the demand for additional medical capacity.

Taken together, the developments point to a longer-term expansion of Russia's ability to accommodate, equip, and sustain military formations near NATO territory. The war in Ukraine continues to absorb much of Russia's available manpower and equipment, but construction can proceed before new formations are fully staffed.

As a result, the military infrastructure emerging along NATO's northern flank may become more consequential if Russia is subsequently able to redirect personnel and equipment from Ukraine.

UKRAINE DEVELOPS NEW 110-KM VILKHA MISSILE

Ukraine's Luch Design Bureau has developed a new guided 300 mm missile for the Vilkha multiple-launch rocket system. Designated R-624MS, the missile has a stated range of up to 110 km and carries a 220 kg warhead. The system is currently undergoing final testing.

The R-624MS is presented as a further development of the Vilkha-M programme. The missile is 7.6 m long and weighs 907 kg. It uses a combined inertial and satellite-navigation guidance system and is designed to engage fixed ground targets at predetermined coordinates.

A notable change is the missile's control architecture. Earlier Vilkha variants used a set of 90 small gas-dynamic control thrusters to correct the missile's trajectory.

On the R-624MS, these are replaced by a rotating aerodynamic control assembly in the tail section.

The missile body itself remains stabilised during flight, while the control section rotates. This configuration could improve the continuity of satellite-navigation reception and potentially contribute to higher accuracy, although Luch has not disclosed performance figures.

The missile is compatible with 12-round and eight-round launchers, including existing 9K58 Smerch launchers and a newer Ukrainian launcher configuration. The development therefore extends the utility of an existing 300 mm launcher fleet rather than requiring an entirely new weapon system.

The R-624MS was displayed at MSPO 2026 in Poland, alongside other Luch missile projects. Its development illustrates the continued evolution of Ukraine's indigenous guided-rocket capability from the original Vilkha into a family of longer-range and more technically refined precision-strike systems.



New 110-km Vilkha missile on MSPO 2026
Source: **Defence**

Vilkha-M	Key specifications
Range	Up to 110 km (68 miles)
Warhead mass	220 kg (485 lb)
Caliber	300 mm
Length	7.6 m
Total weight	907 kg

Vilkha Missile Key Specifications
Source: **United 24**

UKRAINIAN ANUBIS DRONE KILLS RUSSIAN MAJOR GENERAL

A Russian major general, Anton Grunis, commander of the 4th Separate Motor Rifle Brigade, **was killed in occupied Donetsk Oblast** on 12 September, according to Ukraine's Unmanned Systems Forces. The strike was carried out by operators of the 427th Rarog Unmanned Systems Brigade against a Russian command post in Kindrativka.

The strike was conducted using an **Anubis long-range strike UAV**, which carried a 40 kg warhead. According to the Ukrainian military, Grunis' movements had been tracked over an extended period before the strike, with the operation focused on hitting the command post where he was located.

Anubis is being developed by Auterion Airlogix, a Ukrainian-American-German joint venture formed by Ukrainian drone company Airlogix and US-based Auterion. In April 2026, the company received a German-funded order for thousands of AI-enabled strike drones, with production planned at a rate of thousands per year.

The Anubis is intended for strikes against personnel, tactical and strategic targets and armoured vehicles. Its design incorporates Auterion's software and hardware stack for highly autonomous navigation, target detection and engagement. Publicly available technical specifications remain limited, although the platform has been described as a medium-range strike UAV.



Anubis drone. Source: **Auterion**

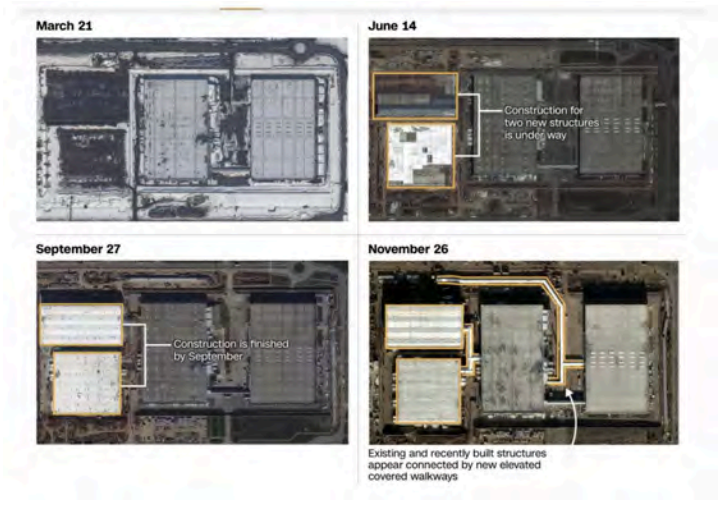


The moment of the strike on the building with the general. Source: **Magyar**

RUSSIA EXPANDS AND HARDENS ITS SHAHED PRODUCTION BASE

Russia is expanding the industrial infrastructure supporting its Shahed-type attack drone program while preparing to move part of its manufacturing capacity underground. According to **documents obtained by Politico**, the state-owned Rosatom corporation plans to expand its Alabuga-Volokno carbon-fiber plant in Tatarstan, adding 500 tonnes of annual aerospace-grade carbon-fiber capacity by 2029.

Weapons expert **David Albright estimated** that this additional material could support the production of approximately 28,000 Shahed-136 airframes per year, equivalent to a potential 78% increase over Ukraine's estimate of Russia's current annual Geran production. This is an estimate of material-supported capacity, not a confirmed production forecast.



Satellite imagery of industrial expansion at the Alabuga-Volokno carbon-fiber facility in Tatarstan. Sources: **Espreso**, **Politico**, **CNN**

The expansion addresses a critical part of Russia's drone supply chain. Carbon fiber is used in the lightweight structural components of Shahed-type UAVs, and Russia remains dependent on imported materials for parts of its production.

Politico previously reported that a Chinese state-owned company had shipped 46 tonnes of carbon-fiber precursor material to Alabuga-Volokno earlier in 2026. Expanding domestic capacity would help Russia reduce this dependence while providing the materials needed to sustain larger production volumes.

At the same time, Russia is attempting to make the drone-manufacturing complex itself more resilient. **Dnipro OSINT reported,** based on satellite imagery, that approximately 42,000 m² of underground space has already been constructed at Alabuga for planned production workshops.

The imagery indicates the scale of construction, although the future use of every section and the extent to which underground manufacturing equipment has already been installed remain unconfirmed. The project follows previous Ukrainian strikes on Alabuga and suggests that Russia is investing not only in additional production capacity but also in protecting that capacity from future attacks.

Russia is addressing two vulnerabilities in its long-range drone program simultaneously: the availability of critical industrial materials and the exposure of manufacturing facilities to Ukrainian strikes. Additional carbon-fiber production could support higher Geran output, while underground and dispersed facilities could make production harder to disrupt. Neither development guarantees that Russia will achieve its planned production volumes, but together they indicate a sustained investment in making the Shahed program both larger and more resilient.



Satellite imagery showing construction of planned underground workshops at Russia's Alabuga complex. Source: **Dnipro OSINT**



Satellite imagery showing expansion of Russia's Alabuga complex. Source: **CNN**

UKRAINE'S NEW INTERCEPTORS TARGET RUSSIA'S JET-POWERED GERAN DRONES

Ukraine is accelerating the development of high-speed interceptor drones in response to Russia's expanding use of jet-powered Geran variants.

On September 21, Ukrainian manufacturer Wild Hornets reported that its new Sting S interceptor had destroyed approximately ten Geran-4 drones and several Geran-5s during combat trials, according to **Defender Media.**

The manufacturer said that testing is taking place with selected military units and that mass production could begin relatively quickly afterward.

Most reported interceptions were conducted using remote control, although the company has not disclosed the interceptor's technical specifications ahead of production.

Ukraine's SPYS interceptor has also demonstrated its ability to counter Russia's jet-powered Geran-5. According to **Militarnyi,** the Ukrainian-developed system successfully intercepted the high-speed Russian weapon, adding another platform to the country's growing range of counter-drone solutions.

The reported engagement is particularly relevant as Russia expands its use of faster Geran variants, which reduce the time available for conventional drone interceptors to reach their targets.

Alongside Sting S, SPYS illustrates Ukraine's effort to develop multiple domestically produced systems capable of engaging threats that increasingly resemble small cruise missiles rather than conventional Shahed-type UAVs.



Geran-5 destroyed by a Sting S interceptor. Source: **Defender Media**



Interception of a Geran-5 missile by a SPYS drone. Source: **Militarnyi**

UKRAINIAN FP-1 DRONES SET NEW DEEP-STRIKE RANGE RECORD

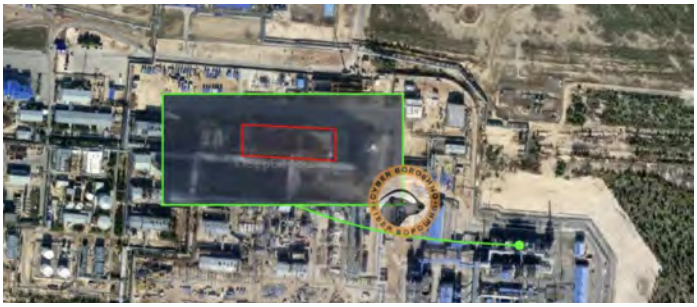
Ukrainian FP-1 long-range strike drones **flew more than 3,200 km** to strike a gas-processing facility in Novy Urengoy, Yamalo-Nenets Autonomous Okrug, according to Ukrainian defence company Fire Point. The strike on 9 September represents the deepest reported Ukrainian strike against Russian territory since the beginning of the full-scale war.

The target was reportedly the Novy Urengoy Condensate Preparation for Transport Plant, a major facility associated with Gazprom's Urengoy gas complex. Russian authorities confirmed a drone attack on an industrial facility and a subsequent fire, while claiming the drones were intercepted and that falling debris caused the damage.

Fire Point stated that the FP-1 covered more than 3,200 km and hit the target, establishing a new range record for the system.

The strike follows Ukraine's previous deep-strike record by FP-1 against the Omsk Oil Refinery in July, located roughly 2,500 km from Ukraine. The progression from approximately 650 km in 2022 to more than 3,200 km in 2026 illustrates the rapid expansion of Ukraine's indigenous long-range strike envelope.

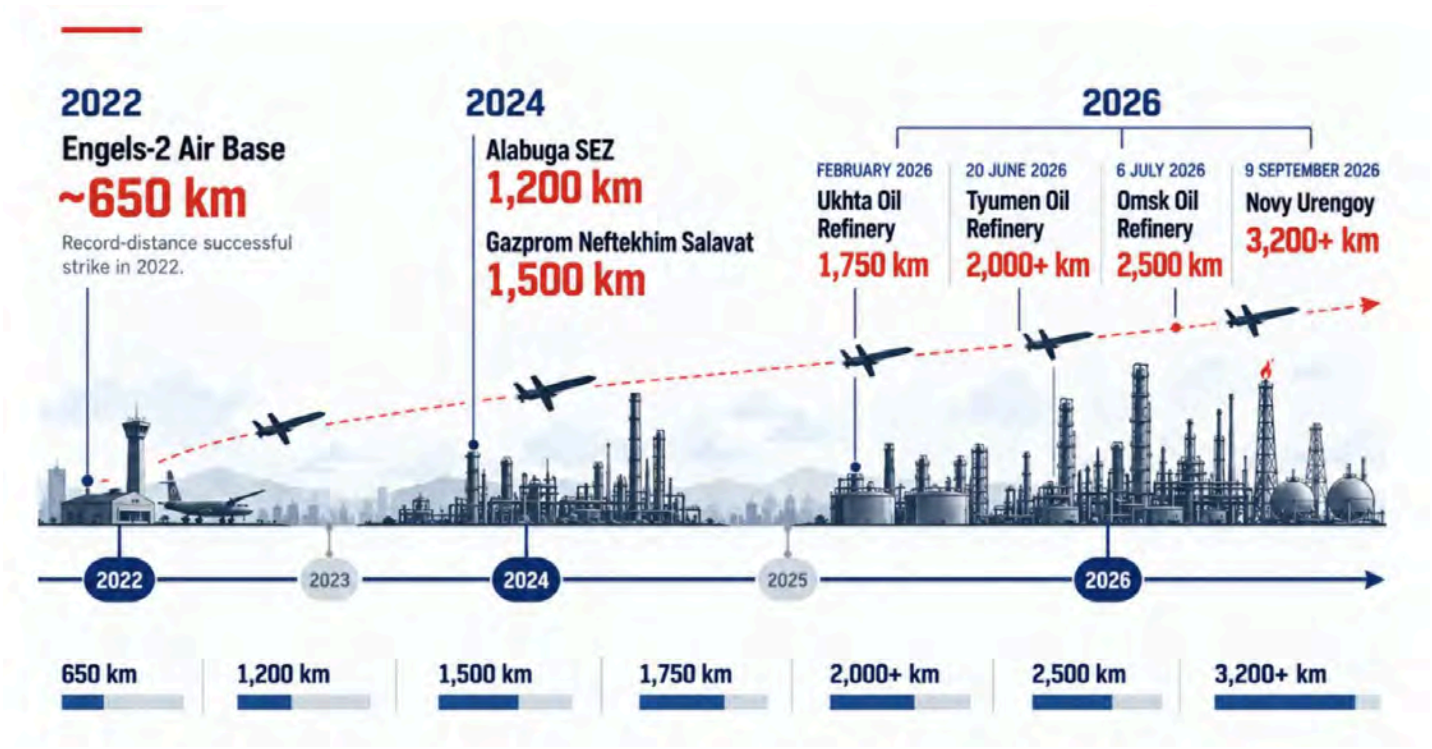
Ukraine's Ministry of Defence has separately presented Novy Urengoy as the latest point in this progression.



Strike on the Urengoy condensate pre-transportation treatment plant. Source: **CyberBoroshno**



Strike on the Purovsky Gas Condensate Processing Plant. Source: **CyberBoroshno**



Illustrative timeline of Ukraine's expanding long-range strike envelope, 2022–2026, culminating in the reported 3,200 km FP-1 strike on Novy Urengoy. Source: **Special Operations Forces of Ukraine**, **Militarnyi**, **Reuters**

KHIZHAK ANTI-DRONE TURRET DEPLOYED ON UKRAINIAN HELICOPTERS

Ukraine has deployed the Khizhak remote-controlled weapon station on combat helicopters **to intercept Russian UAVs**. The configuration has already seen combat use, according to **Defence Express**. The turret, developed by UGV Robotics, combines an AI-based target detection and tracking system, laser rangefinder and ballistic computer.

It can be equipped with 7.62 mm machine guns, including the PKT, M240 or FN MAG. A hydraulic stabilisation system allows the weapon to engage targets while the helicopter is moving. The helicopter-mounted configuration is an evolution of the system's earlier use on ground robotic vehicles and maritime drones. Unlike an earlier installation inside an H125 helicopter, the new configuration places the turret on an external platform, preserving cabin space while providing a dedicated anti-UAV weapon.

The system is designed **to automate the most difficult part** of aerial machine-gun engagements: detecting, tracking and calculating lead against a moving UAV. This could reduce the workload on the helicopter's gunner, who otherwise has to manually track a small, fast-moving target while the aircraft itself is manoeuvring.



Khizhak anti-drone turret.
Source: **Serhiy Prytula Charitable Foundation**

UKRAINE TO TEST LEONARDO'S MICHELANGELO AIR DEFENCE SYSTEM

Italian defence company Leonardo plans to conduct the first Ukrainian tests of its Michelangelo Dome air-defence system by the end of 2026. The initial trials will focus on the system's counter-drone component, **according to Leonardo CEO Lorenzo Mariani.**

Michelangelo is designed as a multi-layered, multi-domain air-defence architecture. Leonardo's roadmap envisages the integration of sensors, effectors and command-and-control systems, including existing third-party systems. The company has already demonstrated elements of the architecture in Italy and plans further trials, including ballistic-missile defence and NATO trials.

The Ukrainian test is part of a broader expansion of Leonardo's presence in the country. The company established Leonardo Ukraine, a wholly owned Kyiv-based subsidiary registered in May 2026, with a declared focus on R&D in areas including communications, navigation and electro-optics. The company is also seeking cooperation with Ukrainian defence-tech companies.



Michelangelo air defence system
Source: **RBC-Ukraine**

REPEATED UKRAINIAN STRIKES TARGET RUSSIA'S EXPANDING GERAN DRONE HUB

Ukrainian forces have struck Russia's Tsymbulova drone complex in Oryol Oblast twice in less than a month, targeting infrastructure used to store, prepare, and launch long-range attack UAVs. The first reported strike, on August 30, damaged a drone launcher and a storage facility, according to **Ukraine's General Staff**.

A second attack on September 21 reportedly penetrated protected storage structures, damaged hangars, and destroyed drones awaiting launch.

Tsymbulova has become an important element of Russia's expanding Geran infrastructure. Construction began in August 2024, and the complex subsequently developed into a large storage and launch facility accommodating several variants of Russian long-range attack UAVs.

Earlier **satellite analysis published in May** documented rapid expansion, including additional launch positions and concrete structures associated with the deployment of newer jet-powered Geran variants.

The September strike appears to have affected more than launch equipment. **Militarnyi reported** that satellite imagery showed impacts on bunkers and hangars, several apparent secondary detonations, and debris from destroyed UAVs at a launch-preparation area.

OSINT analysts identified damage to two protected structures, including one apparently penetrated by an incoming weapon. The number of drones destroyed and the extent of the complex's operational disruption remain unclear.

The repeated attacks are significant because Tsymbulova is part of the infrastructure supporting Russia's transition toward faster Geran variants. As Russia expands its use of jet-powered strike drones, the facilities needed to store, prepare, and launch them become an increasingly important part of the broader aerial campaign.

The August and September strikes demonstrate that even expanded and partially protected drone infrastructure remains exposed to Ukrainian long-range attacks.

Ukraine makes the cumulative pressure on Russia's drone-launch network. Destroying a launcher can temporarily reduce launch capacity, while damage to storage facilities and prepared aircraft can impose additional material losses and complicate the organization of subsequent attacks.

The September strike suggests Ukraine is increasingly targeting the systems that generate Russian drone attacks before the aircraft reach Ukrainian airspace, although the available evidence does not yet establish a sustained reduction in launches from Tsymbulova.



Annotated satellite imagery of the Tsymbulova UAV base in Oryol Oblast, showing underground storage areas, UAV garages, and launch-support infrastructure.
Source: **Strategic Aviation**



Post-strike satellite imagery of the Tsymbulova UAV base in Oryol Oblast.
Source: **Absolutely Reliable**

RAYBIRD SECURES $10.6 MILLION CONTRACT

The U.S. Army has awarded a $10.64 million contract to Skyeton Inc., the American subsidiary of Ukrainian drone manufacturer Skyeton, for Raybird (ACS-3) reconnaissance UAV systems and related services.

According to the September 18 **U.S. Defense Department announcement, reported by Stars and Stripes**, the contract is expected to be completed by December 15, 2026. The number of aircraft and the precise equipment package have not been disclosed.

The procurement represents a significant step for a Ukrainian-developed system that has accumulated extensive operational experience during the war against Russia.

Raybird's appeal lies in its combination of endurance, relatively small size, and battlefield experience. According to **Defense Express**, the UAV had accumulated more than 350,000 flight hours by March 2026, completing thousands of combat missions in Ukraine with reported losses of approximately 10%.

The aircraft weighs around 23 kg, can carry up to 6 kg of payload, and has a stated endurance of up to 24 hours. Its modular payloads include electro-optical sensors, synthetic-aperture radar, and radio-frequency detection equipment, while satellite communications enable operations beyond conventional line-of-sight control. The performance and loss figures are manufacturer-reported.

The U.S. contract follows growing European interest in the platform, including a joint production venture in the United Kingdom through Skyeton Prevail Solutions, while Raybird has also been evaluated during British military exercises.

The aircraft's ability to conduct persistent reconnaissance with a relatively compact airframe makes it relevant to Western militaries seeking to expand unmanned surveillance without relying exclusively on larger, more expensive UAVs. The U.S. Army contract demonstrates how Ukrainian defense companies can move beyond supplying their own Armed Forces toward participating in NATO countries' procurement and industrial ecosystems.



Ukrainian-made Raybird (ACS-3) reconnaissance UAV developed by Skyeton. Source: **Defense Express**

UKRAINE STRIKES RUSSIAN WARSHIPS IN NOVOROSSIYSK AGAIN

Ukraine's General Staff reported that the September 9 strike on Novorossiysk hit at least three Russian warships: the Zheleznyakov minesweeper, the Admiral Essen frigate, and the Project 11711 Pyotr Morgunov large landing ship. Admiral Essen had already been struck multiple times earlier in 2026 and in 2022, making this the latest in a series of Ukrainian attacks against the Kalibr-capable frigate.

The **General Staff confirmed the results on September 10**, following analysis of additional information. Fuel-oil storage facilities at the port were also struck, extending the operation beyond naval vessels to supporting maritime infrastructure. The extent of damage to each ship remains unclear.

The three vessels perform different functions within the Russian Black Sea Fleet. Admiral Essen is a Project 11356 frigate capable of launching Kalibr cruise missiles against Ukraine. Pyotr Morgunov is a large landing ship designed to transport troops, vehicles, and military equipment, while Zheleznyakov is a minesweeper used to detect and clear naval mines. Their reported damage therefore affects several elements of the fleet rather than a single ship class.

Ukraine's Defence Intelligence also reported a fire aboard Admiral Essen, although the ship's subsequent operational status has not been independently established.

The operation reinforces the vulnerability of Novorossiysk, where Russia relocated much of its Black Sea Fleet after repeated Ukrainian attacks made Sevastopol increasingly exposed. Moving ships farther from Ukrainian-controlled territory reduced some immediate risks but did not remove them from the reach of Ukraine's expanding long-range strike capabilities.

The simultaneous targeting of warships and fuel infrastructure also illustrates how Ukraine is applying pressure to both the fleet and the facilities supporting its operations.

Ukraine has effect on Russia's ability to operate its Black Sea Fleet. Damage to missile-carrying frigates can temporarily reduce available Kalibr launch platforms, while strikes against landing ships, minesweepers, and port infrastructure can complicate transport, maritime security, and maintenance.

The September 9 attack demonstrates that Novorossiysk is no longer a secure substitute for Sevastopol, although the practical impact will depend on the severity of the damage and how quickly Russia can return the affected vessels to service.

13

For a broader examination of how Ukraine's maritime campaign has pushed Russia's fleet away from Crimea, see our report, **The Black Sea's Asymmetric Blueprint**.



Satellite imagery collage highlighting visible damage to Russian warships in Novorossiysk following the Ukrainian strike.
Source: **Victory Drones**

UKRAINIAN SARGAN DESTROYS RUSSIAN UNMANNED BOAT IN FIRST NAVAL DRONE-ON-DRONE ENGAGEMENT

A Ukrainian Sargan-3000 unmanned surface vessel (USV) **destroyed a Russian unmanned boat** in what the **Ukrainian Navy** describes as the first direct combat engagement between naval drones. The engagement took place in the Black Sea, although the Navy has not disclosed the exact location or date.

The Sargan was equipped with a 12.7 mm Protector remote weapon station. According to footage released by the **Ukrainian Navy**, it opened fire from approximately 1 km, first targeting the Russian boat's communications antennas to disrupt its control. The Russian USV attempted to withdraw but was subsequently immobilized and destroyed by further machine-gun fire.

The Sargan-3000 was officially adopted by the **Ukrainian Navy** in April 2026. The platform has a reported combat radius of up to 1,600 km, a maximum speed of 40–55 knots and a payload capacity of up to 450 kg. In July, a Sargan-3000 was also used to sink the Russian FSB patrol ship Izumrud near Novorossiysk.

This is significant not simply because one USV destroyed another, but because naval drones are beginning to acquire counter-USV functions. The Sargan was not used as a one-way strike platform: it detected, approached, engaged and disabled another unmanned vessel using an onboard weapon station.



Screenshot from the video of the destruction of a Russian USV. Source: **Ukrainian Navy**

THIRD ARMY CORPS' EW SHIELD DISRUPTS OVER 20,000 RUSSIAN DRONE MISSIONS

Ukraine's Third Army Corps reported disrupting more than 20,000 Russian drone missions during the first phase of Operation Vivaldi, a Ukrainian offensive in northern Donetsk Oblast.

According to the **corps' September 16 statement**, Russia has nearly doubled its use of strike UAVs since the beginning of 2026, prompting Ukrainian forces to consolidate their EW capabilities into an integrated protective system over the combat zone.

The reported number refers to disrupted missions, not necessarily drones physically destroyed.

The system combines EW assets from multiple units under a coordinated defensive architecture, while unmanned ground vehicles equipped with EW systems provide additional mobile protection. Rather than relying solely on individual jammers protecting separate positions, the corps sought to establish a wider protective shield capable of reducing Russian drone activity across the area of operations.

The Third Army Corps also claimed that its electronic-warfare system is approximately two years ahead of Russian equivalents, although this assessment has not been independently verified.

The reported results are particularly relevant to offensive operations. Persistent Russian drone surveillance and strikes make it difficult for Ukrainian assault groups to move, concentrate forces, and exploit gaps in enemy defenses. By disrupting reconnaissance and strike UAVs, the EW shield could reduce Russian situational awareness and create opportunities for Ukrainian troops to maneuver with less exposure.

During the first phase of Operation Vivaldi, the corps reported clearing 75 km² of Russian infiltration and liberating another 10 km² of occupied territory.

Electronic warfare is becoming an integrated element of offensive maneuver rather than primarily a defensive measure against individual drones. Ukraine's approach combines coordinated EW units, mobile robotic platforms, and centralized control to reduce the effectiveness of Russian aerial surveillance and strikes across a wider area.

The 20,000 disrupted missions remain a Ukrainian military claim, but the reported scale illustrates how counter-drone capabilities can influence not only force protection but also the conditions under which ground operations become possible.

RUSSIAN DEVELOPERS USED CLAUDE TO DEVELOP AUTONOMOUS DRONE-SWARM SOFTWARE

Anthropic has identified and disrupted a group of Russia-linked developers that used its Claude Code AI coding tool to develop software for a fully autonomous swarm of FPV kamikaze drones.

The project, designated “DronDoc” / “Serafim,” was active from May 2026 and aimed to enable drones to select and engage targets without continuous human control. The developers used Claude to write and review code, while combining it with drone simulation software and rented GPU computing resources.

Anthropic says the resulting software included a distributed swarm architecture, allowing individual drones to share information, coordinate tasks and maintain operation despite the loss of individual nodes or communications.

The system also incorporated autonomous terminal guidance: computer-vision models were used to identify and track targets, while the drone could generate the final attack command without an operator providing the final authorization. The developers reportedly tested the software on real hardware and used combat footage from Ukraine to train the system.

Anthropic identified nine accounts associated with the project and linked them to a Russian regional university and a federal research centre connected to the Russian Academy of Sciences, although it did not publicly name the institutions.

Because Claude is officially unavailable in Russia, the developers reportedly circumvented geographic restrictions using commercial virtual private servers.

The case is significant because the AI was not simply being used as a general-purpose assistant. Claude Code was incorporated into the actual development workflow of an autonomous weapons system, helping produce software for swarm coordination, target recognition and terminal guidance. Anthropic's separate capability testing found that frontier models can now perform some conventional-weapons engineering tasks that historically required scarce, highly trained specialists.

Anthropic says it blocked the accounts and used information from the investigation to strengthen its safeguards. The company also shared relevant intelligence with authorities and industry partners.

RUSSIA'S WAR ECONOMY: THE GROWING COST OF SUSTAINING THE WAR

Russia's economy has undergone a fundamental transformation since the full-scale invasion of Ukraine, with military expenditure evolving from an extraordinary wartime measure into a central driver of economic activity.

Government defense orders have expanded industrial production, military recruitment has absorbed labor, and state spending has increasingly shaped investment and employment. Yet the same mechanisms that helped Russia sustain the war have created mounting fiscal and structural pressures.

Nearly five years into the invasion, the central question is no longer simply how much Russia can spend on its military, but how long it can maintain this level of expenditure without further undermining the rest of its economy.

Russia's military spending reached an unprecedented level in the first half of 2026, with direct military expenditure totaling 10.7 trillion rubles (approximately $125 billion), a 30% increase compared to the same period in 2025.

According to calculations by economist Janis Kluge, based on **Russian Finance Ministry data,** military spending accounted for 43.8% of all federal expenditure and 57.3% of federal revenue. Russia is now allocating nearly half of its federal budget to sustaining its military, illustrating the extent to which the war has reshaped the country's economic priorities.

Before the full-scale invasion, Russia maintained a substantial military budget, but defense spending had not yet become the dominant driver of federal expenditure.

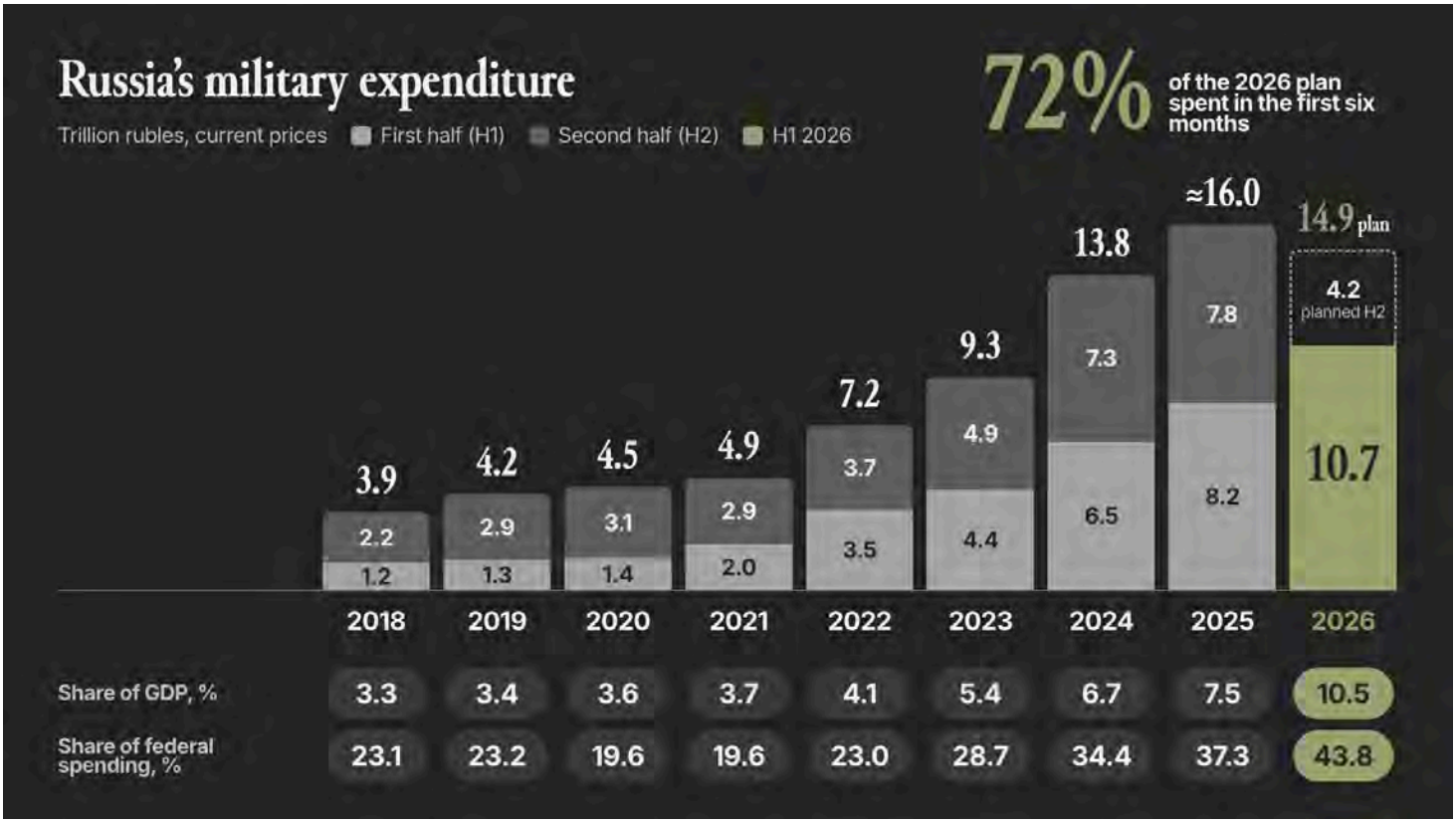
According to Russian Finance Ministry data, annual military expenditure stood at approximately 3.9 trillion rubles in 2018 and increased to 4.9 trillion rubles by 2021.

The invasion fundamentally changed this trajectory: spending rose to approximately 7.2 trillion rubles in 2022, 9.3 trillion in 2023, and 13.8 trillion in 2024. By 2025, annual military expenditure had reached an estimated 16 trillion rubles, more than three times its pre-invasion level.

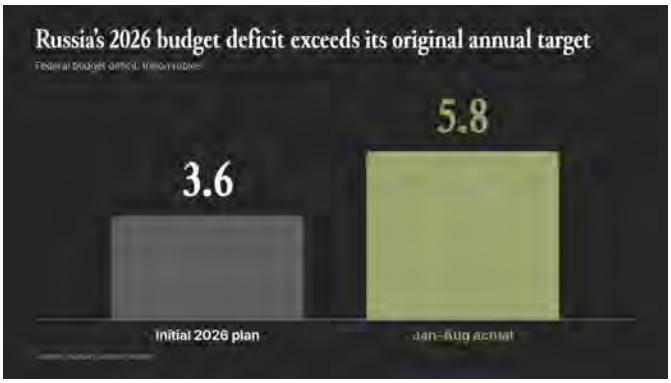
These figures are expressed in current rubles and therefore reflect both increased expenditure and inflation.

Military expenditure has also reshaped Russia's broader economic structure. Defense procurement has supported manufacturing, while higher wages in military industries and payments to servicemembers have generated additional demand. However, this growth has depended heavily on government expenditure rather than a corresponding expansion of civilian productivity.

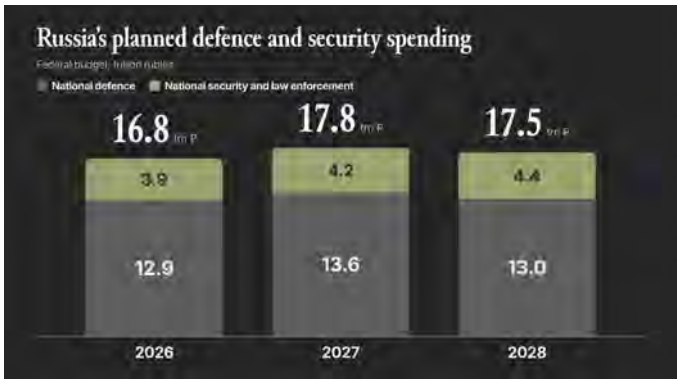
As the military-industrial complex absorbs an increasing share of labor, investment, and industrial capacity, civilian businesses face greater competition for resources. The economy has consequently become more dependent on continued state orders, while the costs of sustaining military production extend beyond the defense budget itself.



Russia's military expenditure, 2018–2026. Source: **ycharts**, **Defense Blog**



Russia's 2026 Budget Deficit Exceeds Its Original Annual Target.
Source: **Russian Finance Ministry**



Russia's planned federal expenditure on national defence and national security, 2026–2028.
Source: ***Russian Governmental Data***

By the end of August 2026, the federal budget deficit had reached approximately 5.8 trillion rubles, exceeding the original full-year target of 3.8 trillion rubles.

On September 21, Finance Minister Anton Siluanov acknowledged that the deficit could reach 3% of GDP in 2026, compared with the initial target of 1.6%, citing additional military expenditure, including air defense requirements, among the contributing factors. The government consequently plans to increase borrowing beyond its original target of 5.5 trillion rubles.

In a September analysis for Carnegie, economist Alexandra Prokopenko describes Russia's predicament as an increasingly difficult balance between financing the war, sustaining economic growth, and maintaining price stability. The government previously relied on accumulated reserves, taxation, and high interest rates to manage these competing objectives.

However, Prokopenko argues that this approach is becoming less effective as financial buffers narrow and the costs of the war increasingly reach businesses and households. Rather than predicting an imminent economic collapse, her analysis points toward a prolonged deterioration in which Moscow must either reduce competing expenditures or redistribute resources more aggressively toward military priorities.

Despite mounting economic pressures, **Russia's adopted 2026–2028 federal budget** preserves substantial allocations for defense and security. The National Defence budget is set at 12.93 trillion rubles in 2026, rising to 13.57 trillion (202 billion dollars - 2x times more then Ukraine's budget) in 2027 before declining to 13.05 trillion in 2028. National Security and Law Enforcement expenditure is planned to increase from 3.91 trillion rubles in 2026 to 4.23 trillion in 2027 and 4.43 trillion in 2028. Combined, these two categories account for approximately 17.8 trillion rubles in 2027 and 17.5 trillion in 2028.

These are official budget allocations, not a comprehensive estimate of all military-related expenditure.

The adopted budget also demonstrates the growing competition between military commitments and other government priorities. While **total federal expenditure** is planned to rise from approximately 44.1 trillion rubles in 2026 to 49.4 trillion in 2028, the government faces higher debt-servicing costs and continued pressure to finance social obligations, infrastructure, and civilian development.

The original budget envisaged debt-servicing expenditure of 4.52 trillion rubles by 2028, compared with 3.90 trillion in 2026.

These plans were formulated before the latest deterioration in the 2026 fiscal outlook, leaving future allocations subject to revision.

The combination of sustained military expenditure and long-term industrial investment points to continued preparation for a prolonged military confrontation. However, the economic consequences are becoming increasingly difficult to contain. Russia retains the financial and industrial capacity to support substantial military production, but maintaining this commitment requires growing competition for public resources, labor, and capital. Its future war-making capacity will therefore depend not only on the size of military budgets, but also on whether the state can convert those resources into sustained production while managing the accumulating costs elsewhere in the economy.

WHAT LONG-RANGE WEAPONS CHANGE



Borys "Fidel" Martynenko, *founder of the 14th Separate Unmanned Aerial Systems Regiment (now the 1st Separate Center), Head of the Project Team, 1st Separate Center of the Unmanned Systems Forces*

When people talk about long-range weapons, they often say that these weapons change war.

But I think it is more accurate to say it differently: long-range weapons do not so much change war as level the justice and the capabilities of the sides.

This is especially clear in the war that Ukraine is fighting today. For a long time, the enemy had a significant advantage precisely in the ability to act at great depth. He could plan strikes on our infrastructure, on military facilities, on logistics, on command and control systems. He could set the tempo of the war not only on the front line, but far beyond it. And this created an asymmetry.

Ukraine did not start from zero. We had a Soviet legacy: the Tochka-U tactical missile system with a range of up to 120 kilometers. We also had our own designs: the Vilkha guided rocket and the Neptune anti-ship missile. Before the full-scale war, these weapons had only just entered service. All these weapons operated at tens and hundreds of kilometers. A depth of one thousand kilometers remained out of our reach.

Today the situation is changing. Ukraine is building its own long-range strike capability very quickly. And this capability is not just a new tool. It is a new level of freedom in planning. There are specific products behind these words. The Liutyi long-range drone made its first flight in 2022. The first serial batch appeared in 2023. The FP-1 and the Sichen are long-range drones.

The FP-5 Flamingo and the Long Neptune are cruise missiles. The Palianytsia is a missile-drone. The range of the Long Neptune has reached one thousand kilometers. Other products stand beside them: the Bober drone, the Peklo and Bars missile-drones, the Ruta missile. According to the developer, more than 90 percent of the FP-1 consists of Ukrainian components. The Sichen is designed to operate under active electronic warfare.

The stated range of the Liutyi, the FP-1, the Sichen and the Flamingo exceeds one thousand kilometers. The depth that was out of reach has become a working depth. Long-range weapons allow us to build long-term operations and to work at strategic, operational and tactical depth at the same time. And most importantly, they allow us to connect these levels with each other. In modern war, successes at strategic depth almost always convert into opportunities at the operational level. And opportunities at the operational level create the conditions for a result at the tactical level. It is a single system. That is why a long-range weapon is not a separate tool. It is an architecture of influence.

It becomes especially important when you have to fight an enemy who has more resources, more territory and more inertia in his military machine. In such a situation, the ability to work in depth allows you to change the logic of the confrontation. Long-range weapons force the enemy to think: they force him to review his logistics routes, to move his depots, to change his command and control system, to relocate production, to disperse his forces, and to spend resources on defense instead of offense.

This is one of the key elements of modern deterrence. For Ukraine, building its own long-range capability has become more than a military task. It has become a task of the state and of the nation. The military gives the manufacturer combat experience. The manufacturer gives the military a better product in return. This cycle is short in our country, and it is this cycle that gives us speed.

In effect, our own "long arm" is taking shape. It already exists. But now it is growing quickly, gaining strength, accuracy and consistency. And it is this capability that is gradually changing the balance of capabilities in the war.

So the answer to the question of what long-range weapons change is in fact very simple: They change more than the battlefield. They change the sense of justice in this war, and return our ability to act as equals. And that is why long-range weapons are today one of the key foundations of the modern defense of the state.

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