CNA

December 2021


# AI and Autonomy in Russia
# Issue 28, December 17, 2021

The Russia Studies Program



DOP-2021-U-031472-Final

**Abstract**

This report, the twenty-eighth in a series of biweekly updates, is part of an effort by CNA to provide timely, accurate, and relevant information and analysis of the field of civilian and military artificial intelligence (AI) in Russia and, in particular, how Russia is applying AI to its military capabilities. It relies on Russian-language open source material.



**Distribution**

**DISTRIBUTION STATEMENT A.** Approved for public release: distribution unlimited.

12/20/2021

This work was performed under Federal Government Contract No. N00014-16-D-5003.

**Cover image credit:** Kamov Ka-226, Wiki Creative Commons, June 4, 2011, accessed Dec. 16, 2021, https://commons.wikimedia.org/wiki/File:Kamov_Ka-226,_Ministry_of_the_Interior_of_Russia_(remix).jpg.

**Approved by:** **December 2021**

Michael Kofman, Research Program Director
Russia Studies Program
Strategy, Policy, Plans, and Programs Division

Request additional copies of this document through inquiries@cna.org.

# Highlights of Issue 28

- Putin once again calls for protection of personal data, while proposed government efforts to study social media may run counter to personal data protection laws.
- "Spy stones" and self-landing helicopters are in the military's future.
- Rostec seeks to build software to predict the probability of riots and public protests.
- Russian officials announce increased investment into artificial intelligence education through funding new programs and tuition-free spots for students.
- A Moscow Institute of Physics and Technology addition to the US Commerce Department Military End User List results in outcry in Russian media and among university officials.

This page intentionally left blank.

# Contents

This page intentionally left blank.

# Governance and Legal Developments

## 1. Putin again stresses the importance of personal data protection

In a November 30 plenary of an investment forum, Russian President Vladimir Putin stressed the importance of personal data protection, saying, "It is necessary to determine the correct model for working with large amounts of information, based on the unconditional protection of the security of personal data. In general, if you look more broadly—the rights and freedoms of citizens." This statement echoes Putin's remarks on November 12 at the AI Journey conference, where he discussed the importance of improving access to large datasets and of securing the personal data of Russian citizens. (Please see issue 27 of *AI in Russia* for a recap of those remarks.)

At this November 30 event, Putin further stated that "Russia is already one of the global leaders in the use of digital services and the development of AI technologies. At the same time, we are well aware that it is important to ensure the balanced development of digital ecosystems, to define the role of financial institutions. Let me remind you that such ecosystems are built around a person and around his so-called digital profile." As discussed in past issues, Putin is relying on digital transformation to push the development of the Russian economy as well as increase labor productivity and wages.

Separately, the Russian Ministry of Digital Development, Communications and Mass Media has made public an order directing that any personal data acquired as part of an experimental legal regime should be destroyed within a week, and that outlines timelines and procedures for the destruction of this previously anonymized information. (See past issues of *AI in Russia* about experimental legal regimes or so-called "digital sandboxes" in Russia.)

Sources: "Putin demands unconditional personal data protection during digitization" [Путин потребовал обеспечить безусловную защиту персональных данных при цифровизации], TASS, November 30, 2021, https://tass.ru/ekonomika/13067579; Order of the Ministry of Digital Development, Communications and Mass Media from Sep 29, 2021 N1015 "On the approval of the procedure for the destruction of personal data obtained as a result of depersonalization by the subject of the experimental legal regime in the field of digital innovations in the event of termination of the status of the subject of the experimental legal regime" (registered Nov 29, 2021, N66042) in Russian], Pravo.gov.ru, November 29, 2021, http://publication.pravo.gov.ru/Document/View/0001202111290065?index=2&rangeSize=1.

## 2. Efforts to analyze social media could run counter to personal data protection laws

The Russian government is interested in the use of artificial intelligence (AI) to analyze the psychological state of Russians based on their social network activity, according to *Kommersant* newspaper. Reporters found information on the government tender website suggesting that the Analytical Center of the Russian Government is working with the Ivanov Institute of Systemic Programming to find partners for this work in 2024. The Analytical Center told the paper that the intent is also to create a "trusted technology to diagnose personality types" to, among other goals, "recognize the manipulative command of large social group, assessment of creative potential of employees, and modeling of their professional development." The effort is reportedly broadly intended to counter terrorism, extremism, and significant public discord. *Kommersant* quoted legal experts as saying that this proposal could run counter to recent Russian laws on the protection of personal data that require individuals to consent to such use of their data.

Source: Nikita Korolyov, "Government officials are dreaming of electric sheep" [Чиновникам приснились электроовцы], *Kommersant*, November 29, 2021, https://www.kommersant.ru/doc/5098809.

## 3. Ministry of Industry and Trade studies AI development priorities

As part of a sprawling Russian government funding effort, Russia's Ministry of Industry and Trade commissioned a study to help determine levels of government support for the development of AI technologies. The study found that computer vision, speech analysis and processing, and intelligent recommendation and decision support tools were the three priority areas in which investment could be fruitful. The study authors also proposed viewing companies as the primary consumers of AI technologies, recommended the employment of cloud computing and edge computing, and pointed to promising Russian processor developers who could be employed to develop AI systems.

Source: "Russia is developing priorities for AI development" [В России расставлены приоритеты по развитию искусственного интеллекта], 3D News, December 3, 2021, https://3dnews.ru/1055109/v-rossii-rasstavleni-prioriteti-po-razvitiyu-iskusstvennogo-intellekta.

# 4. Article assesses government grants facilitated by the Innovation Support Fund

Russia's Innovation Support Fund has funded more than 700 Russian AI projects, according to a report, and has initiated a large-scale government-funded grant support program in 2021 as part of the AI federal project. This support, intended to progressively increase to at least the year 2024, is aimed at various types of AI developers, including small teams, startups, medium-sized firms, and others with AI projects in various stages of development. The report also mentions some of the tools supported through such grants, including an AI-based tool for analyzing the spine developed by a medical center for orthopedics and prosthetics, a "Smart Field" application that assesses crop growth progress via satellite imagery and proposes approaches to yield increases, and distance learning tools individualized for students. The fund has also supported numerous companies working with large audio and video datasets.

Sources: "Talking city and smart field. What kind of AI is supporting the state and who needs it" [«Говорящий город» и «Умное поле». Какой искусственный интеллект поддерживает государство и кому это нужно], Sekret firmy, November 26, 2021, https://secretmag.ru/cifrovaya-ekonomika/govoryashii-gorod-i-umnoe-pole-kakoi-iskusstvennyi-intellekt-podderzhivaet-gosudarstvo-i-komu-eto-nuzhno.htm.

# Military and Security Developments

## 5. Rubin Design moving forward with autonomous underwater vehicle development

A recent interview with Igor Vilnit, the General Director of Rubin Central Design Bureau, highlighted new platforms and the new direction the company is pursuing in the world of autonomous underwater vehicles (AUVs) and AI. The interview included a discussion of the company's Vitaz-D AUV, sponsored by the Advanced Research Bureau, that descended to the bottom of the Mariana Trench in May 2020. The Vitaz-D likely serves as a platform for the continued development of AUV technology (referred to in Russian as robotic complexes: *robototekhnicheskiye kompleksy*) for use by both civilian and military platforms.

Vilnit listed other AUV platforms his bureau is working on—Klavesin, Yunona, Surrogat, and Talisman—indicating a growing range of such systems for the Russian military and civilian customers. He further indicated that the most prominent trend in underwater robotization is increasing the ability of platforms to carry more equipment, thus increasing mission duration, cruising ranges, and the amount and variety of information that these underwater systems can continually gather. He noted that to achieve long operating times, the AUVs will require control systems that utilize AI for mission execution and navigation. He also pointed out the increased emphasis on the ability of underwater systems to work with other underwater and surface systems (such as the "resident" robots that work for long periods in an underwater area utilizing bottom stations that can relay information and new missions and can recharge the AUVs). Other Russian sources indicate that induction charging systems and optical wireless communication are being integrated into the bottom stations. Earlier, Rubin unveiled an "Iceberg" Arctic underwater exploration concept that utilizes these elements for subsurface crewed and uncrewed systems and platforms.

Sources: Krasnaya Zvezda, "The hidden power of Rubin's projects" [Скрытая мощь проектов «Рубина»], December 3, 2021, http://redstar.ru/skrytaya-moshh-proektov-rubina/; "Resident Robots," OCEANOS website, accessed December 12, 2021, https://oceanos.ru/resident_general.

## 6. Russian military cadets are developing a "spy stone" unmanned ground vehicle

Cadets from the Military Educational and Scientific Center at the Zhukovsky and Gagarin Air Force Academy developed an innovative small-scale tracked intelligence, surveillance, and reconnaissance (ISR) ground robot. According to official data, it can collect, process, and transmit information for 15 hours to an operator who is up to 2 kilometers away. Disguised as a stone, the unmanned ground vehicle (UGV) can operate in "sleep mode" and activate when motion sensors are triggered. As the developers explained, potential applications include reconnaissance during an open conflict or perhaps during a "frozen" conflict.

Apparently, the cadet's scientific supervisor brought the idea for the robotic system from Syria, and the Russian military may be potentially interested in acquiring this platform. This "spy stone" can also be useful as a passive data collector in the rubble of urban warfare. The Russian Ministry of Defense (MOD) is now developing different types of robotic systems capable of functioning in urban terrain. The Russian MOD also tested another passive data collection technology in Syria called the "Sfera"—a small, ball-like UGV that can be thrown (or rolled) inside a building to acquire rapid situational awareness.

Sources: "New ground reconnaissance robot disguised as a stone developed in Voronezh" (Новый наземный робот разведки, замаскированный под камень, разработан в Воронеже), TopWar.ru, November 27, 2021, https://topwar.ru/189594-novyj-nazemnyj-robot-razvedki-zamaskirovannyj-pod-kamen-razrabotan-v-voronezhe.html; Official "Spy Stone" video, TVZvezda Channel, November 27, 2021, https://www.youtube.com/watch?v=qria8kdCr4A; Kelsey Atherton, "New Russian Robot Can Climb Stairs and Blow Up Bombs," Forbes.com, May 14, 2020, https://www.forbes.com/sites/kelseyatherton/2020/05/14/new-russian-robot-can-climb-stairs-and-blow-up-bombs/?sh=76553435384; "Russian military engineers are using Scarabey and Sfera newest robotic complexes in Palmyra," Official Russian MOD website, April 18, 2017, https://eng.mil.ru/en/news_page/country/more.htm?id=12119147@egNews.

## 7. Russia is preparing to export the Orion-E combat drone

During the Egypt Defense Expo (EDEX-2021) military expo in Egypt, Aleksandr Mikheev, Russia's Rosoboronexport CEO, admitted that his state export organization is in 10 contract negotiations for the Orion-E reconnaissance and strike drone. The Orion, developed by Kronstadt, is a MALE (Medium Altitude Long Endurance) UAV that can stay in the air up to 24 hours and is the first true combat drone acquired by the Russian military. At the same time, Russia has been actively promoting this UAV for export in order to compete in a lucrative and fast-growing market for combat drones. In July 2021, Russia apparently received about 15

import applications for Orion-E during the Moscow Air and Space Salon (MAKS-2021) military expo hosted outside Moscow. In August 2021, Kronstdat CEO Bogativov stated that Orion export deliveries can begin in 2022, following its delivery to the Russian military. While negotiations for Orion continue, Mikheev announced that this year several foreign customers have already received more than 50 Orlan-10E reconnaissance drones, including Kirgizstan and Myanmar. Orlan-10 remains the workhorse of Russia's drone fleet and provides ISR capabilities at a distance of up to 120 kilometers.

Sources: "Rosoboronexport" reported on the discussions for 10 Orion combat drones"
("Рособоронэкспорт" сообщил об обсуждении 10 контрактов на поставку ударных дронов "Орион"), MilitaryNews.ru, November 25, 2021,
https://www.militarynews.ru/story.asp?rid=0&nid=561126&lang=RU.

## 8. AI will protect Russian drones from attacks and viruses

Scientists at Sevastopol State University (SSU) are working on an "artificial immune system" (IIS) for unmanned and autonomous vehicles in order to safeguard them from information and cyberattacks, attempts to take over control, and even theft. This work titled "Adaptive Neural Network Methods for Detecting Vulnerabilities in the Interfaces of Unmanned Vehicles Based on IIS" is funded by a state grant from the Russian Foundation for Basic Research.

The scientists proposed a new approach to AI-enabled security by growing the antivirus database in advance of any potential contact with the virus, enabling faster and easier threat elimination. According to developers, the defense system itself should choose the response depending on the scale and consequences of the virus attack. The scientists based their research on the assumption that every autonomous/unmanned vehicle has limited resources and must rely on only its own strength when fighting a viral attack. They assert that the design of this defensive system mimics the immune system of a living organism. The scope of the study spans three years. The SSU scientists will attempt to design new mathematical models to teach the IIS how to combat virus attacks. They are also designing a test package based on possible hacking scenarios that will enable training. In the third year, full-scale tests will begin with IIS uploaded to autonomous vehicles. The artificial immune systems in training will utilize the Afalina supercomputer located at SSU.

Sources: Yulia Krymova, "Artificial intelligence will protect Russian drones from viruses and attacks"
(Искусственный интеллект защитит российские беспилотники от вирусов и атак), RG.ru, November 23, 2021, https://rg.ru/2021/11/23/reg-ufo/iskusstvennyj-intellekt-zashchitit-rossijskie-bespilotniki-ot-virusov-i-atak.html.

# Corporate and Market Developments

## 9. New funding scheme to entice Russian technology companies to go public

The Russian Ministry of Economic Development is allocating 10 billion rubles over the next three years for a program designed to assist technology companies looking to refine existing products to better integrate with the needs of large corporations. According to the ministry, individual technology companies can receive up to 250 million rubles under this new funding schema. The target company size is between 500 million and 10 billion rubles, and the funding is therefore not available to Russia's largest technology companies or many small startups.

The ministry is also guaranteeing this money for projects associated with AI, the Internet of Things, and 5G. The ministry anticipates that doing so will increase the number of publicly traded technology companies in Russia—potentially jumpstarting a move towards going public, given continued state support and right-sizing products for existing markets. The ministry explicitly cites the goal of moving mature yet smaller technology companies into the public market as the reason for this new project in the recent strategic initiative "Take Off – From Startup to IPO," which was announced in November. The strategic initiative is broken into three stages of development. The newly announced funding scheme represents the second stage. The previous, ongoing basic support for new startups through the Skolkovo Foundation and the Innovation Promotion Fund is moving in parallel at the same time.

Sources: "Developers of solutions for AI, the Internet of things and 5G will be allocated 10 billion rubles for their adaptation to the needs of large business" ["Разработчикам решений ИИ, интернета вещей и 5G выделят 10 млрд руб. для их адаптации под нужды крупного бизнеса"], CNews, December 3, 2021, https://www.cnews.ru/news/top/2021-12-03_pravitelstvo_mozhet_vydelit; "Authorities will help tech startups go public" ["Власти помогут технологическим стартапам выйти на IPO"], CNews, November 23, 2021, https://www.cnews.ru/news/top/2021-11-23_pravitelstvo_pomozhet_tehnologicheskim.

## 10. New software seeks to predict future riots and public protests

Rostec announced a new special security software called Predictive and Analytical Model: Mass Riots (PAM MB) intended to aid federal and regional security entities by predicting the probability of riots and public protests. Using social media data, media text, "smart" surveillance cameras connected to AI systems, and other unstated sources, the project seeks to

predict riot likelihoods in specific locations in order to guide the deployment of security services to prevent escalating violence.

Media reports suggest strong doubt about the ease with which such a predictive security system can be built, with some noting the great length of time needed to train the program algorithm on a wide range of data. Yet the software is expected to be fully developed by 2022, according to reports. The project is being carried out within the state framework of "Safe City," which is a program run by the Russian Ministry of Emergencies. The new security program is being designed by the National Center of Informatization LLC, a structure of the Rostec Group, as an open-source software program.

Source: Nikita Korolev, "From the Crowds of the Fatherland" ["С толпы отечества"], Kommersant, November 30, 2021, https://www.kommersant.ru/doc/5099759.

## 11. MTS seeks to use AI for road and public transit planning

The Russian telecommunications company MTS is developing a program that will predict where to build new roads and place new bus routes. The program, commissioned by the Sverdlovsk Regional Ministry of Transportation and Roads, uses the observed geographic travel patterns of anonymized MTS cell plan subscribers to assess transport network load and find optimal traffic patterns. The program is focused on the city of Yekaterinburg and the Sverdlovsk region more broadly, although it may expand to other interested regions. A strategic partnership between MTS and the government of the Sverdlovsk region was signed in February 2021, which includes "Smart City" projects and assistance with regional infrastructure projects, such as this program.

Source: "MTS Big Data Will Tell You Where to Build New Roads and Build Bus Routes" ["Большие данные МТС подскажут, где строить новые дороги и прокладывать автобусные маршруты"], CNews, November 29, 2021, https://www.cnews.ru/news/line/2021-11-29_bolshie_dannye_mts_podskazhut.

# Education and Training Developments

## 12. Official announces deeper government investment into AI education

In a recent event discussing the Artificial Intelligence Federal Project, Deputy Prime Minister Dmitry Chernyshenko stated that Russian universities have recently increased the number of AI budget-funded places by more than 7,000. He added that by 2024, Russia will have 10 undergraduate and 40 graduate AI programs, and 97,000 schoolchildren will be trained under secondary education programs in the field of AI. More broadly, the number of students trained in IT specialties in the country will also reach half a million by 2024.

Chernyshenko also said that more than 300 new specialties will appear in Russian universities over the next 10 years under the Priority-2030 project. The Russian government established the project in May 2021 as part of an ongoing effort to increase Russia's competitiveness in education, science, and technology. More than 100 frontrunner higher education institutions have been selected for the project, which has an overall budget of around 100 billion rubles (around $1.36 million USD). A press release on the Russian government's website quotes Chernyshenko as saying that "one in two [of these new specialties] is associated with digital technologies and the development of artificial intelligence." For example, it notes that four new AI master's programs will be created at the Ural Federal University by 2024: Artificial Intelligence Engineering, Practical Artificial Intelligence, Artificial Intelligence in the Electrical Industry, and Intelligent Urban Energy Systems. In the next three years, Tomsk State University will develop four undergraduate and two graduate programs aimed at training AI specialists for the medical and mining industries.

On November 25, a seminar in line with the project titled "Priority 2030 – Artificial Intelligence" was held at the Crimean Federal University's Physics and Technology Institute. The seminar was intended to acquaint experts across leading Russian AI institutions and was attended by scientists from the St. Petersburg State Electrotechnical University (LETI) Samara State University, and Siberian Federal University.

Sources: "Dmitry Chernyshenko: More than 7 thousand budgetary places in the AI direction are additionally opened in universities on behalf of the President" [Дмитрий Чернышенко: Более 7 тысяч бюджетных мест по ИИ направлению дополнительно открыто в вузах по поручению Президента], Fingazeta, November 27, 2021, https://fingazeta.ru/people/eksperty/473855; "Priority 2030: Russia's new excellence scheme for universities," Academic Cooperation Association, accessed December 12, 2021, https://aca-secretariat.be/newsletter/priority-2030-russias-new-excellence-scheme-for-universities/; "About the program," Priority-2030, accessed December 12, 2021, https://priority2030.ru/en/about/.

## 13. Russia holds hackathons and AI events

The IV International Scientific Forum "Step into the Future: Artificial Intelligence and the Digital Economy" was held in Moscow from November 25–26. The forum, which was organized by the Russian Ministry of Science and Higher Education and industry partners, brought together more than 2,000 experts to discuss technological leadership and how to develop an optimal future environment that integrates AI and green technology into everyday life.

A medical AI hackathon was held on December 7–9, at which participants developed speech training software to assist people with speech difficulties. The hackathon was organized by the Resource Center for Universal Design and Rehabilitation Technologies (a federal autonomous institution) and Nanosemantics, a chatbot integration company.

Sources: "IV International Scientific Forum 'Step into the Future: Artificial Intelligence and the Digital Economy'" [IV Международный научный форум «Шаг в будущее: искусственный интеллект и цифровая экономика»], Russian Ministry of Science and Higher Education, November 25, 2021, https://minobrnauki.gov.ru/press-center/news/?ELEMENT_ID=42315; "IV International Scientific Forum 'Step into the Future: Artificial Intelligence and the Digital Economy'" [IV Международный научный форум «Шаг в будущее: искусственный интеллект и цифровая экономика»], AI Forum, accessed December 12, 2021, https://aiforum.world/en/; "December 7-9 Medical AI Hackathon 2021" [7-9 декабря хакатон по медицинскому ИИ 2021], Neuronet, December 2, 2021, http://rusneuro.net/novosti/7-8-dekabrya-khakaton-po-meditsinskomu-ii-2021/.

## 14. RAS to establish new council on AI safety

According to a November 23 press release, the Russian Academy of Sciences (RAS) announced they will establish the Council for the Safety of Artificial Intelligence (AI), which will ensure the safety of new AI systems using physics and mathematics. The head of RAS noted that this organization will work in parallel with the Scientific Council of the Russian Academy of Sciences on the Methodology of Artificial Intelligence and Cognitive Research, which has been operating for 15 years and analyzes the development of new AI systems from the points of view

of the humanities and natural and technical sciences. According to the press release, adding physics and mathematics to the analysis of AI development will result in a multidimensional, comprehensive approach.

Source: "The head of the Russian Academy of Sciences proposed to create a Scientific Council on the safety of artificial intelligence" [Глава РАН предложил создать Научный совет по безопасности искусственного интеллекта], the Russian Academy of Sciences, November 23, 2021, http://www.ras.ru/news/shownews.aspx?id=824cd5fe-6907-41dc-bae8-844c04810c35.

## 15. VTB Bank and MIPT to develop joint AI master's program

VTB Bank and the Moscow Institute of Physics and Technology have reportedly signed an agreement to open a joint master's program in Artificial Intelligence and Interdisciplinary Research at MIPT's Phystech-School of Applied Mathematics and Informatics (PAMI, or ФПМИ). Admissions to the new master's program will open in 2022. According to the article, PAMI also launched a Machine Learning in Banking Technologies laboratory in April 2021, which has developed unique AI innovations that "have already made significant contributions" to a number of the bank's efforts, including optimizing finance/market strategies and assessing customer satisfaction.

Source: "VTB and MIPT will jointly train AI specialists" [ВТБ и МФТИ будут совместно готовить специалистов по ИИ], CNews.Ru, December 3, 2021, https://www.cnews.ru/news/top/2021-12-03_vtb_i_mfti_budut_sovmestno.

# International Collaboration

## 16. Russian AI banking robots expanding abroad

The Perm-based Promobot startup, which was founded in 2015 and is supported by MSP Bank, has concluded a contract to provide the National Bank of Oman with robot consultants. The robots are capable of discussing the bank's services, answering questions, and helping customers fill out documents and applications. Robots with similar functions already work in Russia at MFT Bank branches. Other types of Promobot robots are active in the Moscow metropolitan area, at various Russian museums, and in Sberbank branches. Promobot robots are also active elsewhere in the Middle East, fulfilling a variety of tasks including serving in medical clinics in Kuwait, schools in Saudi Arabia, and police departments and the Dubai Mall in the United Arab Emirates. The company notes that this service robot is the first capable of speaking Arabic.

Promobot company is also active elsewhere in the world, including the United States, Germany, Kazakhstan, Turkey, and China. It is currently the largest manufacturer of autonomous service robots in Europe. Altogether, 43 countries currently use its products for a variety of functions, including as administrators, promoters, consultants, guides, and concierges. The robot has many uses in the security sphere, such as providing a service role in police departments and patrolling in malls, airports, and other areas with large crowds.

The Promobot robot consultant is an autonomous service robot for business that can fully replace human employees. It can communicate with people, answer questions, and provide consultations while moving freely around the room. AI capabilities allow the Promobot robot to provide a variety of information about a business, such as its products.

Sources: “Russian robot bankers begin work in Oman” [Российские роботы-банкиры начали работу в Омане], December 3, 2021, RIA-Novosti, https://ria.ru/20211203/roboty-1762045063.html; “Russian robot to work in Dubai police” [Российский робот устроился на работу в полицию Дубая], April 21, 2021, Izvestiya, https://iz.ru/1154765/2021-04-21/rossiiskii-robot-ustroilsia-na-rabotu-v-politciiu-dubaia; “Russian Promobot robot begins to work as a guard in Berlin” [Российский робот "Промобот" начал работать охранником в Берлине], July 30, 2021, RIA-Novosti, https://ria.ru/20210730/promobot-1743615106.html.

# 17. MIPT added to US Commerce Department Military End User List

In late November, the US Commerce Department announced that it added a number of foreign commercial and academic organizations to its lists of proscribed entities. Significantly, the Moscow Institute of Physics and Technology (MIPT) was added to the Bureau of Industry and Security (BIS) Military End User (MEU) List. The MEU List informs the public of parties in China, Russia, Venezuela, and Burma that the US government has determined to be military end users. Exports, reexports, and in-country transfers of items identified in the Commerce Department's Export Administration Regulations require a license from the BIS.

The inclusion of MIPT on this list resulted in an extensive reaction in the Russian media. MIPT has a long history as one of the leading Russian (and previously Soviet) research institutions in theoretical and applied physics. More recently, it has been a focal point in Russia's academic work on AI. The institute houses DeepPavlov Neural Networks and Deep Learning Lab and the National AI Center that is part of the National Technology Initiative (NTI). MIPT is the leading academic institution that assists other Russian universities with AI research, development, test, and evaluation (RDT&E). In this coordinating role, it publishes regular editions of its AI Almanac and has developed maps of Russian AI research networks and an index of the strength of Russian AI-oriented research institutions.

Russian media generally portrayed this announcement as unexpected for MIPT specifically but also for the Russian academic community in general. Reports highlight the lack of information in the US government's announcement on specifically which MIPT products might be considered military end user products. They suggest that the sanction against MIPT is misguided, since MIPT is an academic research institution rather than a producer of technology. One report speculates that the decision is perhaps intended to hinder the development of autonomous Arctic research stations powered by clean hydrogen. Russian experts discuss the possibility that Russian work on satellite technology or hypersonic missiles has led to this outcome. Part of the puzzlement among Russian academics is the sense that MIPT is much less connected to the Russian defense industry than it was in the Soviet period. However, neither US nor Russian officials provided any clarity on the reasons for MIPT's placement on the list.

MIPT officials and Russian commentators suggested that MIPT might experience greater difficulty in procuring Western equipment and software, since companies would now have to apply for a license from BIS before selling to MIPT. However, much of the reporting neglected the difference between the MEU List and the Entity List—a list that sanctions certain Chinese and Pakistani companies. Although providing products to organizations on the MEU List requires a license, providing products to organizations on the Entity List is generally

prohibited without specific permission from the BIS. Several Russian reports conflated the effects of the two lists, leading to misplaced concerns in the Russian media that MIPT would be unable to purchase basic Western software or other materials.

The overall concern among Russian academics and university administrators is that the placement of a leading Russian technological university on what is being described as a sanctions list will have a chilling effect on its ability to cooperate with foreign academic and commercial organizations. If other Russian academic institutions were added to the list, they speculate that the chilling effect might apply to the entire sector—negatively affecting the Russian science community's ability to conduct cutting edge research, since such research often results from international collaboration. This concern is especially prominent in new technology fields, such as AI.

Sources: "Commerce Lists Entities Involved in the Support of PRC Military Quantum Computing Applications, Pakistani Nuclear and Missile Proliferation, and Russia's Military," Department of Commerce press release, November 24, 2021, https://www.commerce.gov/news/press-releases/2021/11/commerce-lists-entities-involved-support-prc-military-quantum-computing; "Snowflake in the US sanctions against MIPT" [В санкции США против МФТИ вкралась «Снежинка»], MK, November 25, 2021, https://www.mk.ru/politics/2021/11/25/v-sankcii-ssha-protiv-mfti-vkralas-snezhinka.html; "Science knows many sanctions" [Наука знает много санкций], Kommersant, November 26, 2021, https://www.kommersant.ru/amp/5090990; "Russian scientists judge US sanctions against MIPT" [Российские ученые осудили санкции США против МФТИ], VZ, December 2, 2021, https://vz.ru/news/2021/12/2/1132096.html; Aleksandr Panov, "Fitzekh under sanctions" [Физтех под санкциями], Novaya Gazeta, November 27, 2021, https://novayagazeta.ru/articles/2021/11/27/fiztekh-pod-sanktsiiami.

# Spotlight: Russian Helicopters and the Future of Combat


Ka-226T, Wikipedia media commons, accessed December 15, 2021, https://en.wikipedia.org/wiki/Kamov_Ka-226#/media/File:Kamov_Ka-226T_at_the_MAKS-2009_(01).jpg.

During Dubai Airshow 2021, Andrey Boginsky, the General Director of Russian Helicopters (a subsidiary of defense giant Rostec State Corporation), discussed trends in future combat helicopters. Boginsky noted first that future combat helicopter systems must be "optionally manned," but provided no indication of the level of autonomy Boginsky envisioned. Second, future systems must be fully integrated into a unified information space to make use of disparate aircraft, sensors, and weapon systems. The goal of achieving a "unified information space" is often discussed in Russian professional military journals and among military professionals and is consistent with modernization and new production trends in Russian command and control systems. Boginsky noted that in 2021–2022, Russian Helicopters will invest 24 million rubles (around $27 million USD) in developing AI-enhanced autopilot capabilities. These will be tested first on the Ka-226 helicopter, a win-engine utility helicopter serving a wide range of uses across civilian and military agencies in Russia.

Sources: Tass, "Head of Russian Helicopters: What the helicopter of the future will look like is an open question," November 22, 2021, https://tass.ru/interviews/12981239; Interfx, "Russian Helicopters will spend 24 million rubles. for AI research in autonomous flight," December 4, 2021, https://www.interfax.ru/russia/806581.

This page intentionally left blank.

**This report was written by CNA's Strategy, Policy, Plans, and Programs Division (SP3).**

SP3 provides strategic and political-military analysis informed by regional expertise to support operational and policy-level decision-makers across the Department of the Navy, the Office of the Secretary of Defense, the unified combatant commands, the intelligence community, and domestic agencies. The division leverages social science research methods, field research, regional expertise, primary language skills, Track 1.5 partnerships, and policy and operational experience to support senior decision-makers.

CNA is a not-for-profit research organization that serves the public interest by providing in-depth analysis and result-oriented solutions to help government leaders choose the best course of action in setting policy and managing operations.

Dedicated to the Safety and Security of the Nation

DOP-2021-U-031472-Final

3003 Washington Boulevard, Arlington, VA 22201
www.cna.org ● 703-824-2000