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A biweekly newsletter on AI and autonomy developments in Russia

CNA Russia Studies Program

HIGHLIGHTS OF ISSUE 44

- Putin delivered a speech to the Council for Strategic Development and National Projects, in which he noted the "moderate" successes made in developing and implementing some end-to-end technologies and described future plans to advance Russian technological progress.
- The Russian military is still working to adapt to drone usage in Ukraine.
- A chess robot operating at the Moscow Chess Open Tournament made world headlines when it accidentally broke a seven-year-old boy's finger, leading to renewed skepticism toward AI and robot safety measures.
- According to Tass.ru, the Ministry of Digital Development will be offering more than 100 free IT education courses for people who are unemployed or have disabilities.
- Russian software exports may fall by 10-15 percent in dollar terms in 2022, but a CNEWS survey states that the Russian economy will remain stable, because of a significant increase in domestic IT profit.

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GOVERNANCE AND LEGISLATION

PUTIN ADDRESSES RUSSIA'S DIGITAL DEVELOPMENT PROGRESS AND GOALS

On July 14, 2022, President Putin spoke at a meeting of the Council for Strategic Development and National Projects. The meeting was called to discuss the development and progress of Russian digital technologies since the halt of foreign cooperation with Russia. In his speech, Putin noted the "moderate" successes by Rostec, Rosatom, Sberbank, and Russian Railways in developing and implementing some end-to-end technologies. These included Rostec's progress in goals such as "projects for the creation of fifth-generation networks, [and] the development of equipment production for the widespread introduction of the internet of things," Sberbank's advancements in AI, and Russian Railways' use of quantum communications. Putin also noted challenges with the development of the microelectronics sphere and stressed that Russia needs to enhance its efforts to meet digital development goals set for the coming years.

Putin emphasized that 5 of the 13 areas of digital development goals are not being implemented and noted that the other 8 have only been implemented to 20 percent. He demanded the use of more ambitious indicators and requested that Prime Minister Mishustin take high-tech projects under careful control. Further, the president emphasized the need to finance IT companies that previously depended on Western technologies and funds, and encouraged Russian state corporations to finance and invest in promising Russian tech companies. The finance minister and Bank of Russia governor proposed five-year extensions as "incentives for investment in tech firms and an increase in the upper threshold of the market capitalization of issuers that may be present in the 'growth sector.'"

Finally, Putin affirmed that Russia will not let foreign adversaries and sanctions impact or reverse its "decades of progress" and assured that Russia's successes and ability to develop end-to-end technologies will make it impossible to isolate Russia from the world. He emphasized the difficulty the West would face in trying to restrict Russia, as he confirmed the impossibility of "fencing off" Russia, especially given its achievements thus far.

Sources: "Putin announced modest results of Rostec digital projects" [Путин заявил о скромных результатах цифровых проектов Ростеха], Tass.ru, July 18, 2022, https://tass.ru/ekonomika/15244269; "Modest results of Rostec and product reduction" ["Скромные результаты" Ростеха и снижение бедности. Путин выступил на совете по нацпроектам], Tass.ru, July 18, 2022, https://tass.ru/ekonomika/15245443; "Putin vows Russia not going to have decades of its progress reversed," Tass.com, July 18, 2022, https://tass.com/politics/1481435.

CHERNYSHENKO SPEAKS ON AI DEVELOPMENT AND GLOBAL GROWTH

Deputy Prime Minister Chernyshenko also delivered a speech at the Council for Strategic Developments and National Projects meeting on July 14, 2022. In his speech he discussed the progress in his areas of responsibility, including the development of competitive AI and production of nanomaterials. He described his work to implement and expand Russian domestic software to facilitate technological independence, an effort that is supported by 16 industry committees and 35 industrial competence sectors that will work to export Russian-made software in the domestic and global markets.

Chernyshenko also spoke about Russia's plans to become a leader in AI and use technology and AI developments to stimulate partner countries' economies. He gave a forecast stating that, with the introduction and active implementation of AI technologies, countries can expect to see 1-2 percent in annual GDP growth in 10 years. He cited current Russian examples as evidence of this capability, including the growth in digital infrastructure and the system of national regulation that is being formed to allow for the broader and more secure use of AI and the creation a workforce of around 10,000 AI specialists. He expressed his optimism about Russia's future status as a reliable global force in digital technologies and concluded that Russia's "task is to guarantee the competitiveness of Russian solutions in the global market, [and] ensure their high export potential."

Sources: "Chernyshenko: AI can provide up to 3=2% BDP growth per year in countries implementing it" [Чернышенко: ИИ может обеспечить до 2% прироста ВВП в год во внедряющих его странах], July 18, 2022, https://tass.ru/ekonomika/15244919; "Prime Minister Mikhail Mishustin approved vice-premiers—curators of high-tech industries" [Вице-премьер Чернышенко: к 2024 году количество внедренных отечественных ИИ-решений в реальный сектор вырастет вдвое], Cnews.ru, July 25, 2022, https://www.cnews.ru/news/line/2022-07-25_vitse-premer_chernyshenko; "Modest results of Rostec and product reduction" ["Скромные результаты" Ростеха и снижение бедности. Путин выступил на совете по нацпроектам], Tass.ru, July 18, 2022, https://tass.ru/ekonomika/15245443.

MINISTRY OF DIGITAL DEVELOPMENT COMPLETES BILL ALLOWING FOR GOVERNMENT ACCESS TO SELECT BUSINESSES' PERSONAL DATA

The Ministry of Digital Development completed a new draft of a bill regulating the circulation of personal data that enables the transfer of personal information from businesses to the state without prior anonymization. The original bill was passed on first reading in March 2021. According to that version, data depersonalization could occur with the individual's consent. The new version of the bill does not regulate the market for anonymized data and transfers public personal data of customers to the government as it is, where it can be depersonalized only by the authorized body, other departments, and the AI developers.

Businesses currently oppose this bill, and critics have publicly spoken on the importance of a regulated anonymization regime and the potential for vast privacy breaches facilitated by this bill. However, advocates of the bill, such as the president of the Big Data Association, Anna Serebryanikova, condemn the use of personal data as an economic asset. Serebryanikova explains

that the "proposed draft will deprive business of an incentive to develop projects in the field of data analytics and artificial intelligence, since it is actually aimed at monopolizing the data market." The Ministry of Digital Development has not provided a statement, and according to Kommersant, this version of the bill has not yet been approved by the government or the Duma.

Source: Anastasia Gavrilyuk, "Tributaries of the State" [Данники государства], Kommersant, July 12, 2022, https://www.kommersant.ru/doc/5458430.

MILITARY AND SECURITY

RUSSIAN SCIENTISTS DEVELOPED A DEEP-SEA PHOTOGRAPHY SYSTEM FOR UNDERWATER DRONES

Researchers at the Roselectronics Holding, part of the Rostec state corporation, have developed a deep-sea photo and video monitoring system for autonomous and remote-controlled underwater vehicles. The system consists of a camera, deep-sea LED lamps, and a control and information processing unit. The system is currently tested on the Rif (Reef) unmanned underwater vehicle, and on the Factor towing vehicle for divers. The developers claim that their system helps increase time spent under water, and enables faster decisions based on the collected information.

The camera can operate at depths up to 1,000 meters, and the device adapts both to the speed of the underwater vehicle and to the transparency of the water. The camera's operational depth points to both scientific and military applications. Once the system passes state tests, it can be installed on Russia's growing fleet of unmanned and autonomous underwater vehicles, and potentially can be tested in Ukraine to monitor the seabed and port territory in the Black Sea areas under Russian control.

Source: "Russia develops a deep-sea photography system for underwater drones" [В России разработали глубоководную систему фотосъемки для подводных беспилотников], tass.ru, July 12, 2022, https://tass.ru/armiya-i-opk/15194065.

RUSSIAN MILITARY FIELDS PROHOD-1 DEMINING UGV IN UKRAINE

In July 2022, Russian military tested the "Prohod-1" (Pathway) demining unmanned ground vehicle (UGV) in Ukraine. Russia's TASS News Agency reported that the vehicle was tested in Donbass to clear mines and unexploded ordnance. Prohod-1 was developed by Signal Research Institute (part of the NPO "High-Precision Complexes" of the Rostec state corporation) and is based on the T-90 tank chassis. This makes it the heaviest demining vehicle in Russian service, along with the lighter Uran-6 demining UGV used in Ukraine that we wrote about in an earlier addition of the newsletter. The vehicle creates passages up to 4.5 meters wide, and can be used in crewed and unmanned modes. The use of this UGV is in line with the Russian military's concept for using such systems to safeguard personnel and make missions more effective. While there

have been multiple Uran-6 sightings across Ukraine, this was supposedly the first time that Prohod, which had its official unveiling in 2016, was used in combat. It is not clear at this point how many Prohod-1 vehicles are in Russian service; the Russian MOD also noted that Prohod-1 was tested in Syria alongside Uran-6.

Source: "The newest Prohod-1 robot-sapper was used for the first time in Ukraine" [Новейший робот-сапер "Проход-1" впервые задействовали в спецоперации на Украине], Tass.ru, July 20, 2022, https://tass.ru/armiya-i-opk/15259901; Vikot Sokirko, "The appearance of sapper robots in Ukraine is a good sign for the Russian Armed Forces" [Появление роботов-саперов на Украине – хороший знак для ВС РФ], *Gazeta.ru,* July 19, 2022, https://www.gazeta.ru/army/2022/07/19/15152348.shtml.

RUSSIAN MILITARY USES NEW AERIAL DRONE IN UKRAINE

In July 2022, Russian military unveiled "Lastochka" (Swallow) light combat drone in Ukraine. According to the TASS News Agency, Lastochka inflicted damage on Ukrainian soldiers and destroyed several armored targets, using fragmentation and cumulative ammunition. This is a catapult-launched, aircraft-type UAV that can carry small munitions, and was unveiled for the first time during Zapad-2021 strategic exercises at the Mulino training ground in September 2021. TASS acknowledges that there is practically no information about the Lastochka UAV in open sources, and there are no data on how many of these drones are available to the Russian military.

Lastochka joins other Russian UAVs in military missions in Ukraine, and is probably in the same class as the Orlan-10 drone that can conduct ISR and combat missions. We reported recently that Orlan-10 can carry several small munitions under its wings, although Russia media have only reported on several instances where this modified version was applied. Besides Lastochka and Orlan-10, Russia operates Lancet and Kub loitering drones, and a limited number of Forpost-R and Orion combat UAVs. The Russian military and its expert community all point to the need for Russia to have a greater number of combat UAVs in Ukraine, a goal that Lastochka's fielding is supposed to address.

Source: "Russian military fields newest 'Lastochka' drone" [Российские военные применили новейший дрон «Ласточка» в спецоперации], *Iz.ru,* July 22, 2022, https://iz.ru/1368567/2022-07-22/rossiiskie-voennye-primenili-noveishii-dron-lastochka-v-spetcoperatcii; "Source: newest 'Lastochka' light combat drone used in Ukraine operation" [Источник: в спецоперации на Украине применили новейший легкий ударный дрон "Ласточка"], Tass.ru, July 22, 2022, https://tass.ru/armiya-i-opk/15281775.

TELEGRAM COMMENTARY ON THE RUSSIAN NEED FOR COMBAT DRONES

Pro-Russian Telegram channels are actively narrating and commenting on the Kremlin's war in Ukraine, with many channels amassing a significant following. The commentaries and discussions across this platform are becoming more influential, as the number of Russian Telegram subscribers continues to grow. Vladlen Tatarsky, one such channel, provided commentary on the types of drones that Russian forces need in Ukraine. Tatarsky remarked that target detection by a UAV does not guarantee the target's destruction, given the lag time for artillery to organize and possible movement by the target to new coordinates.

He notes that in contrast to ISR drones, combat UAVs not only monitor the ground around the clock but also can destroy multiple targets, including enemy vehicles and personnel. Therefore, he reasons that the purchase of Iranian combat UAVs can radically change the course of hostilities in Russia's favor, with the added ability to strike not just front-line forces but also rear columns that Russia's long-range artillery cannot reach. Tatarsky noted that massive use of strike drones can paralyze Ukrainian supply and communication lines, and target Ukrainian defenders' stocks of water, food, and ammunition, making it difficult for them to sustain long-term defense against advancing Russian forces. His comments are in line with the official Russian military's commentary on the importance of combat UAVs in modern conflict in general, and in Ukraine in particular.

Source: Vladlen Tatarsky Telegram channel, https://t.me/vladlentatarsky/15012, accessed July 2022.

MARKETS AND PRIVATE SECTOR

CHESS ROBOT MAKES HEADLINES

A chess robot operating at the Moscow Chess Open Tournament made world headlines when it accidentally broke a seven-year-old boy's finger. The robot reportedly "grabbed the boy's index finger and squeezed it hard," according to eyewitnesses. The boy's finger was "fractured and scratched" by the action. According to experts, this occurred because the boy violated the safety rules while playing with the robot: he "went for a quick move despite not waiting for the robot to finish." The video of the event went viral on the internet and led to discussions about both immediate concerns for the safety protocols of the robot and broader potential dangers of artificial intelligence.

Source: Priyali Dhingra, "Russia: Chess robot goes rogue, breaks 7-year-old child's finger mid-play," NewsBytes, July 24, 2022, https://www.newsbytesapp.com/news/world/chess-robot-in-russia-injures-7-year-old/story.

CRITICAL ARTICLE ON AI IN MEDICINE AGAIN MAKING THE ROUNDS

A 2020 article in RBC Trends written by Nikita Nikolaev, the COO of the Celsus startup, pointed out flaws and failures in the field of AI-integrated medicine and the broader healthcare industry. This article from 2020 has been recirculated recently. According to the piece, while AI advances should be able to do a number of things in the healthcare field, such as "improving diagnostic accuracy, automating the work of a doctor, choosing optimal treatment methods, and creating new drugs," these all seem to remain theoretical or only partially applied. The article notes that there have been many promising developments in cancer diagnostics using computer vision in CT scans, mammograms, and fluorograms, but elsewhere this is less evident.

The article frames the issue as lagging behind other applied areas of AI research and application across industry, arguing that some problems with the field include the lack of high-quality, verified, complete, and public datasets for neural network training. It also notes other technical difficulties:

> Another technical difficulty is related to the fact that different equipment is found in medical institutions. Images from different x-ray machines can visually vary greatly. If the neural network has not been trained on such images, it is not surprising that it "fails" and does not detect anything. The simplest, at first glance, solution is to collect all kinds of images from all devices with all settings, mark them up and train the system. Minuses? Long and expensive. However, this is not a panacea, and besides, it requires the collection of all types of images existing in the world, which seems like an impossible task.

Many of the examples in the article draw from failures elsewhere in the world, including the Theranos fraudulent case and the bankruptcy of Jawbone, a manufacturer of electronics and fitness trackers. According to the piece, "The overblown hype around AI is justifiably causing skepticism in the medical community as well. It does not add credibility and the fact [is] that many decisions are created in isolation from the understanding of the doctor's workflow. The developers have neither a medical education nor experience in interacting with medical organizations." This has led to a situation where "there is certainly interest in medtech startups, but investors and funds are now pursuing a very prudent medtech strategy, recognizing the difficulty of entering this market. In medical technology, there is a rather long cycle of companies reaching self-sufficiency, which is associated, among other things, with the need to carry out a complex and lengthy procedure for registering a medical product."

It does note some benefits unique to the Russian market at present: "But the situation is changing for the better, and this is facilitated by the state. The government has launched the National Program 'Digital Economy,' one of the priority areas of which is the digitalization of healthcare. A large-scale experiment of the Moscow Department of Health is being conducted on the use of AI services in the work of radiology departments. The results of the project will form the basis for national standards governing the use of AI in clinical medicine."

Source: Nikita Nikolaev, "Artificial intelligence in medicine: how expectations did not match reality" [Искусственный интеллект в медицине: как ожидания не совпали с реальностью], RBC Trends, Sept. 2020, https://trends.rbc.ru/trends/industry/5ef0f9259a7947d3285a473d.

RANKING DIGITAL MEDICAL TECHNOLOGIES

Experts from the Institute for Statistical Research and Economics of Knowledge at the Higher School of Economics (ISSEK HSE) have published a list of the most popular types of "new solutions in IT industries" for the healthcare field using the iFORA big data analysis system. The technologies were ranked both by research interest and by private market applicability. Biosensors, used in fitness bracelets and smart watches for the operational monitoring of body indicators (blood sugar, blood pressure, and others), received the top place in research and were deemed as having the second-most relevance for private market applicability. Other high-ranking technologies include electronic medical record technologies which facilitate the work of doctors and telemedicine.

The top 10 technologies also include brain-computer interfaces used for the treatment of neurodegenerative and psychiatric diseases as well as "neurorehabilitation." Health applications are also in demand; the most popular are those that help people lead a healthy lifestyle. The top 10 also include surgical robots; assistive products (allowing people to compensate for lost functions and organs); medical image analysis technologies using computer vision algorithms; clinical decision support systems; and applications with the Internet of Things framework, which allows combining various instruments and sensors into a coherent ecosystem.

Source: "Digital medical technologies put in their places" [Цифровые медицинские технологии расставили по местам], *Kommersant*, July 18, 2022, https://www.kommersant.ru/doc/5469015.

ARTICLE ON AI RESHORING AND IMPORT-SUBSTITUTION

A recent article in *Izvestiya* by Ivan Petrov claims that Russia will manage to "avoid the digital apocalypse" and that "cyber experts have found that most Russian companies and organizations expect to replace foreign IT security services with domestic ones by 2025." Petrov continues, "By the same time, the share of Windows products in enterprises will drop significantly." The article identifies the development ecosystem of Russian domestic IT services in the effort to introduce import-substitution across a wide spectrum of software and hardware products.

The article reviews data from a recent report on the Russian IT industry, which shows that most companies are actively working on import-substitution policies and mitigation efforts to reduce reliance on foreign-produced products. It notes that "business and the state have begun to pay much more attention to information security issues in the light of the unprecedented discrimination against Russian consumers of IT services and are ready to spend money on it. Moreover, the demand among private customers has increased markedly."

In addition, the report looks with modest optimism about shifting away from Windows as the primary operating system used in Russia, but says that the transition will inevitably be painful and result in a fracturing of the operating system environment for many years:

> It is possible to speak about the preferential rejection of the American OS by 2025, the authors of the study believe. On the final transition to alternative instruments—only in 2030. Of course, the situation in the world may change with the easing of sanctions.... But in order to restore confidence in the OS, additional measures will be required. Russian versions of Linux are becoming an alternative operating system, four varieties are now used, Astra Linux is dominant. However, at the current stage, the business will use different operating systems, which will lead to problems with protecting a heterogeneous architecture.

Interviewing Pavel Korostelev, a cybersecurity expert, the report notes that "much has been done to replace foreign solutions with imports. Without this, the country would be in a significantly worse position than it is now." One reason for the lessening of this "digital apocalypse," in addition to eight years' worth of sanctions pressure already having been applied at a lower level, is the fact

that in large part, "domestic players have not tried foreign cloud services for business," which means that fewer sudden cutoffs of primary operations have occurred. This is partly a result of explicit policy by Roskomnadzor, which has blocked the work of Amazon Web Services several times, leading to customers treating the product "coolly" and relying on domestically based data processing centers. He notes that "Russia is very lucky that customers did not actively switch to foreign remote services; the negative effect in the event of a failure of services to fulfill their obligations due to sanctions would be comparable, for example, to blocking Mastercard and Visa."

Source: Ivan Petrov, "Go into yourself: what helped Russia avoid the digital apocalypse" [Айти в себя: что помогло России избежать цифрового апокалипсиса], *Izvestiya,* July 21, 2022, https://iz.ru/1366478/ivan-petrov/aiti-v-sebia-chto-pomoglo-rossii-izbezhat-tcifrovogo-apokalipsisa.

PROMOBOT REVEALS A ROBOT WITH A REALISTIC HUMAN FACE

The Russian tech company Promobot has announced a new version of a humanoid robot that can show sophisticated emotions through a synthetic face. The face, put on the "humanoid companion robot" Robo-C.2, uses a special three-level silicone covering that can reliably mimic "features of the skin— mimicry, wrinkles, eye shape, lip size, and other human characteristics."

According to Oleg Kivokurtsev, the founder and development director at Promobot, "It is very important for the service robotics industry to have a realistic appearance. That is why our team puts great emphasis on the production of skin that is as similar to human as possible. The one who will be the first to make a robot indistinguishable from a human will capture most of the market."

Source: "'Promobot' has created a new model of a humanoid robot capable of showing emotions. Video" [«Промобот» создала новую модель человекоподобного робота способного демонстрировать эмоции. Видео], CNews, July 19, 2022, https://www.cnews.ru/news/line/2022-07-19_promobot_sozdala_novuyu.

NEW TECHNOLOGY DEVELOPMENTS FOR URBAN AREAS

Several new technologies are being introduced to better govern and monitor city functions in Russia. The Moscow city government has recently announced that images from space will become another tool for remote monitoring of territories and control over the use of city property. According to a statement from the city's State Inspectorate for Real Estate, "A tool for remote monitoring of territories and control over the use of city property will appear in the capital [in the near future]. Images from space will help with this. A project to select the best software for analyzing ultra-high-resolution satellite images using artificial intelligence algorithms and further approbation (or testing) [will be conducted by] the capital's State Inspectorate for Control over the Use of Real Estate and the Department of Information Technology."

Dmitry Golovin, head of the city video surveillance department of the Moscow Department of Information Technology, states that "Moscow is introducing artificial intelligence in industries that

need constant monitoring and prompt recognition of violations. For two years now, the state of city property has been monitored using pictures from quadrocopters and city video surveillance cameras." He notes, "Satellite imagery and analysis of the resulting images is the next stage in the introduction of artificial intelligence to solve urban problems. The new functionality will allow the inspectorate to automate routine work, as well as reduce budget costs due to the timely prevention of offenses."

According to Golovin, "The accuracy of geodetic referencing of images is one in 10 thousand (one centimeter corresponds to 100 meters), and the spatial resolution of photographs is from 0.5 to 0.3 meters per pixel. Due to this quality of the resulting images, the system can effectively recognize the occurrence of construction sites, including on the site of wastelands or green areas, to determine the expansion of the boundaries of a building or site, large holes, an increase in the area of the building since the previous capture, and much more."

In the meantime, the mobile communications company MegaFon has announced a "super video analysis system" to function as part of the Smart City urban technology project. A Bryansk news website points out that "this new solution, which uses a neural network and artificial intelligence, can not only instantly detect emergency situations, such as fires or accidents, but also predict their development." It continues:

> The first city where a comprehensive solution was introduced was the resort of Anapa, where up to 5 million tourists come annually…. For the first time, a safe city solution has a completely closed circuit: a secure communication network with cryptographic protection, gateways and firewalls is connected to it. This allows even in the event of a physical attack on one of the nodes to protect the entire system as a whole. To implement the solution in the central part of Anapa, more than 50 km of fiber optic network were laid, 104 communication centers were placed and about 500 modern smart cameras were installed, which work with the same accuracy day and night.

Sources: "Satellite images will be used to control city property in Moscow" [Спутниковые снимки будут использовать для контроля за городским имуществом в Москве], TASS, July 19, 2022, https://tass.ru/ekonomika/15251267?; "MegaFon launches AI-based super video analysis system for security of Russian cities" [МегаФон запустил на основе искусственного интеллекта суперсистему видеоанализа для безопасности российских городов], Avchernov.ru, July 15, 2022, https://avchernov.ru/top_news_tooday/megafon-zapustil-na-osnove-iskusstvennogo-intellekta-supersistemu-videoanaliza-dlya-bezopasnosti-rossijskih-gorodov/; "MegaFon will help improve the safety of cities with the help of artificial intelligence" [С помощью искусственного интеллекта МегаФон поможет увеличить безопасность городов], Kaskad.tv, July 14, 2022, https://kaskad.tv/novosti/36556-s-pomoshchyu-iskusstvennogo-intellekta-megafon-pomozhet-uvelichit-bezopasnost-gorodov.

LOGISTICS ROBOTS FROM ROSELECTRONICS UNDER DEVELOPMENT

Roselectronics, a subsidiary of Rostec, is planning to begin mass production of a line of Russian transport and logistics robots with a payload capacity of up to 20 tons. The

equipment will automate the work of warehouses and simplify logistics operations at industrial enterprises. The project is being implemented as part of the Rostec corporate business accelerator and is approved for funding.

According to the company, "The solution is an automated controlled conveyor with an electric drive, moving autonomously along a given trajectory. Robots are designed to transport goods from one point to another. In manufacturing, devices can be used to deliver spare parts to an assembly line or to move products between workshops. The size of the platform installed on the wheelbase is up to 5 meters in length and 2 meters in width, which makes it possible to move, among other things, bulky loads."

The production of equipment is planned to be established by the Kalugapribor manufacturing company together with Metra Digital Logistics, a tech company. It is planned that the Kaluga-based factory will also take part in service maintenance. According to Roselectronics, work on a test model is being completed, and negotiations are underway with potential customers. The first logistics robots are planned to be released in 2023. Domestic components and software will be used in serial production.

Source: "Roselectronics will launch the production of logistics robots" [«Росэлектроника» запустит производство логистических роботов], CNews, July 18, 2022, https://www.cnews.ru/news/line/2022-07-18_roselektronika_zapustit.

TRAFFIC MANAGEMENT SYSTEM DEVELOPED IN PARTNERSHIP

A new traffic management system is being jointly produced by Russian IT companies, Soft Division and VisionLabs. According to company statements, "The solution is based on the PSIM platform Electronika Security Manager (ESM) manufactured by Soft Division. A number of systems are integrated into the platform, including LUNA CARS transport video analytics from VisionLabs. Standard tasks for checkpoints are solved by automation. For example, instead of the usual pass office, all passes are ordered and activated remotely."

The platform is designed to fully resolve issues of vehicle identification and verification that are major roadblocks to AI-based computer vision management systems for traffic. Vehicles are now able to be identified by state license plate number, but this identification is also checked by automatically confirming that the number matches the brand, model, and vehicle color. This enables a backcheck to prevent the system from being "tricked by magnetic overlays and other tricks of scammers." The system also has a performance self-monitoring function using ESM software. According to the developers, "the system constantly monitors the volume of work performed, reduces the negative impact of the human factor, improves the quality of work performed and the level of fault tolerance of equipment and systems, and reduces the risk of equipment failure."

Source: "Soft Division and VisionLabs created an intelligent solution for traffic management at checkpoints" [Soft Division и VisionLabs создали интеллектуальное решение для управления трафиком на

пропускных пунктах], CNews, July 18, 2022, https://www.cnews.ru/news/line/2022-07-18_soft_division_i_visionlabs_sozdali_intellektualnoe.

COMPETITION FOR UNMANNED DELIVERY SYSTEMS HAS BEGUN

A new subsidized competition for developing new unmanned delivery systems, NTI Up Great Aerologistics, has begun in Sevastopol. The National Technology Initiative (NTI) Support Fund is organizing the competition. Participants are tasked with creating an unmanned aircraft "capable of moving cargo between landing sites." The prize fund of the competition is 38 million rubles. The competition consists of three stages (termed "satellites") as well as final tests and is being held over the course of the 2022-2024 period.

According to organizers, "The first stage involves the development and testing of a drone carrying loads up to 15 kg over a distance of up to 600 km. At the same time, the distance from takeoff to landing must be at least 50-100 km, specified in the task. Participants in other stages will create solutions for lighter loads and short distances, the NTI Foundation also specified. The collection of applications for participation in the initial stage will last until December 31, 2022."

Source: "A competition among developers for the creation of unmanned delivery systems has started in Russia" [В России стартовал конкурс среди разработчиков на создание беспилотных систем доставки], TASS Nauka, July 16, 2022, https://nauka.tass.ru/nauka/15233469.

INTERVIEW ABOUT NEURAL NETS IN *SNOB*

A major article by Ivan Ilyn, a natural language processing (NLP) engineer and researcher, was published in the spring-summer issue of the Russian magazine *Snob*. The topic was "Where will neural networks take us?" The article reviews the state of the field in the NLP research area, including Facebook's recently introduced OPT-2, Google's PaLM, DeepMind's Gopher and RETRO, Nvidia's Megatron, and OpenAI's GPT-3 and Codex.

Ilyn explains a variety of issue-areas where NLP advances are showing major results, including multimodal models integrating text and speech, speech technologies and voice activation, computer vision (especially for drones), AI assistance to scientific and basic mathematical research questions, and even quantum machine learning.

He notes, "The next trend is the injection of knowledge about the structure of the surrounding world into language models using Wikipedia or knowledge graphs (creating a kind of 'memory'), which would allow them to use not only the context and data from the training sample when answering questions, but also have a direct access to factual information. One such example is RETRO by DeepMind."

Ilyn also points out that this is due to the emergence of huge dataset arrays now in existence. "By increasing the number of parameters and training on huge data sets, neural networks began to demonstrate the possibility of few-shot learning. This is the ability to literally solve mathematical problems 'by analogy' in a couple of training cases, give answers to remarks, continue the story and engage in dialogue." Yet this is still an ability that is not widely available: "Giant language

models are still the domain of global corporations and their laboratories, as training requires huge computing resources, highly skilled engineers and machine learning researchers."

Source: "Where will neural networks take us?" [Куда нас приведут нейросети], *Snob,* July 14, 2022, https://snob.ru/science/kuda-nas-privedut-nejroseti/.

NEW GEOSPATIAL ANALYTICAL TOOL CREATED BY ROSCOSMOS

The Russian IT company Terra Tech, a subsidiary of Roscosmos, has recently announced a new software platform that analyzes geospatial territory by way of satellite imagery. The program, Pixel.AI, relies on an AI-based algorithm that "selects data, determines the boundaries of the territory [and] the categories of use, and generates a report about the selected area" for the user. The primary purpose is more efficient analysis of agricultural productivity, yield, and efficiencies. According to Roscosmos, "This objective data is useful in selecting and inventorying farmland, putting land into operation, evaluating land plots, exercising control over the territories used, as well as in making decisions on lending, subsidizing and insuring enterprises, monitoring pledged land." The program is designed to be used by government agencies, commercial organizations, and even private individuals.

Source: "'Terra tech' launches a new platform for the analysis of the territory of the Earth using satellite images" ["Терра тех" запускает новую платформу для анализа территории Земли по спутниковым снимкам], TASS Nauka, July 11, 2022, https://nauka.tass.ru/nauka/15186063.

RUSSIAN "SWIFT" ANALOGUE UNDER TESTING

"NTI Platforms," an analogue for the SWIFT financial transfer system, is reported to be ready and undergoing a testing regime. The platform relies on a "decentralized system for the exchange of interbank financial messages" using blockchain technology. It has been under development at Saint-Petersburg State University's NTI Competence Center in their "Distributed Registry Technologies" research program. The platform is designed to be an additional option to the Financial Messaging System platform operated by the Bank of Russia and already in place.

Source: "Russian analogue of SWIFT on the blockchain is ready for testing in banks" [Российский аналог SWIFT на блокчейне готов к тестированию в банках], RIA Novosti, July 11, 2022, https://ria.ru/20220711/swift-1801644984.html

HUMAN CAPITAL

AI HACKATHONS AND EVENTS

There were several developments in AI-related hackathons and training events during this reporting period, the most notable of which are mentioned below:

The first of three Russia-wide championships as part of this year's "Digital Breakthrough" series took place from June 25 to July 25 in Moscow. According to the website, 1,551 people participated in the hackathon. The competition featured three tasks: developing algorithms to prevent railway accidents; linking satellite imagery to geographic coordinates to enable quicker emergency response; and developing an algorithm to map news article trends. The next nationwide championship in the series will run from September 7 to October 5 in Vladivostok. Regional-level championships are currently taking place in the Orenburg, Volgograd, Tatarstan, and Ulyanovsk regions. These are a part of the "116 AI hackathons by 2024" series.

From June 28 to July 12, Sirius University held a "Summer School of Robotics," which was open to 100 Russian students in bachelor's and graduate degree programs. According to the article, "The purpose of the conference is the exchange of skills, new ideas, approaches, algorithms and technical findings that can be used in the development of robotic applications, modeling of robotic systems and calibration of models, synthesis of control systems for robotic systems, and use of robotic systems in applications." Sirius Science and Technology University was established by President Putin's Talent and Success Educational Foundation in July 2019.

SENSE Group, the Opportunity Accelerator at the INTC MSU "Vorobyovy Gory," and the Innotech Group are jointly organizing a big data hackathon to be held on August 5–7. The hackathon will be held online and has a prize of 300,000 rubles.

A data analytics hackathon was held by VkusVill, an online grocery delivery app, from June 23 to July 23. Participants were asked to develop an algorithm that determines the causes of increases and decreases in revenue at various retail locations. The competition offered cash prizes as well as internships and job offers.

Sources: "Digital Breakthrough" [цифровой прорыв], accessed Aug. 1, 2022, https://hacks-ai.ru/; "Scientific conference 'Summer School of Robotics in Sirius - 2022'" [Научная конференция «Летняя школа робототехники в Сириусе – 2022»], Sirius University, https://siriusuniversity.ru/education/educational-modules-and-activities/informatsionnie-tehnologii-i-iskusstvennii-intellekt/nauchnaya-konferentsiya-letnyaya-shkola-robototehniki-v-siriuse-2022; "CDBM took part in a scientific conference at Sirius University" [ЦКБМ приняло участие в научной конференции в университете «Сириус»], EnergyLand, July 17, 2022, http://www.energyland.info/news-show-tek-atom-231015; "Data Hack," Data Hack, https://data-hack.ru/?utm_source=vk&utm_medium=cpc&utm_campaign=hakatonirf&utm_content=innoteh; "Antihackathon from VkusVill" [Антихакатон от вкусвилл], VkusVill, https://data-hackathon.vkusvill.ru/.

RUSSIA TO PROVIDE FREE IT EDUCATION TO UNEMPLOYED AND DISABLED PEOPLE

According to a July 19 TASS article, the Ministry of Digital Development will be offering more than 100 free IT education courses for unemployed people and people with disabilities. Additionally, the Ministry will be covering 50 percent of the price of these courses for low-income citizens, public sector workers, and students, and 75 percent of the price for low-income parents with children under the age of three. The courses are offered on the GeekBrain platform and include instruction on programming, data analytics, artificial intelligence, information security, and marketing and design. In 2021, the project had 25,000 Russian participants. This year the organizers hope to attract 50,000 participants, and in 2024 at least 113,000. According to the article, this effort is intended to help mitigate the shortage of Russian IT personnel.

Source: "GeekBrains, together with the Ministry of Digital Development, will train unemployed and disabled people in IT professions for free" [GeekBrains вместе с Минцифры бесплатно обучат безработных и инвалидов IT-профессиям], TASS, July 19, 2022, https://tass.ru/obschestvo/15252183.

RUSSIA'S FIRST AI AND PUBLIC ADMINISTRATION MASTER'S PROGRAM

According to a press release, Lomonosov Moscow State University and the ANO "Dialogue" have jointly opened a new "Artificial Intelligence and Digital Communications in Public Administration'' master's degree program—the first of its kind in Russia. The program offers 16 specialized disciplines, and will begin instruction in September 2022. According to the press release, the program will allow graduates to integrate modern digital trends and digital communications into the systems of state government and administration.

Source: "The Graduate School of Public Administration of Moscow State University named after M.V. Lomonosov together with ANO "Dialogue" opened the first in Russia master's program "Artificial Intelligence and Digital Communications in Public Administration"" [Высшая школа государственного администрирования МГУ имени М.В.Ломоносовасовместно с АНО «Диалог» открыла первую в России магистерскую программу «Искусственный интеллект и цифровые коммуникации в государственном администрировании»], Higher School for Public Administration, https://anspa.ru/ai/.

INTERNATIONAL COLLABORATION

SURVEY SUGGESTS THAT RUSSIAN TECH SECTOR REMAINS STABLE, DESPITE DECREASE IN EXPORTS

Sales of Russian software companies abroad in 2022 may fall by 10-15 percent in dollar terms, according to the annual study of the Russian software industry produced by Russoft, the Russian software producers association. The cumulative foreign sales of Russian software companies in 2022 will not exceed $10 billion; export revenue will fall by 10-15 percent compared to 2021, which is about 75-112 billion rubles. Also, due to foreign sanctions and the transfer of

sales centers to other jurisdictions, the volume of exports of computer services will decrease. At the same time, the domestic market sales of all domestic software companies will increase by at least 15-20 percent in ruble terms, allowing the total turnover of industry representatives to remain at approximately the same level. Russian IT players have learned to reorient themselves from foreign markets to domestic ones, responding flexibly to changes in demand.

Alexander Egorov, general director of Reksoft, a member of the board of Russoft, predicts that within 10-12 years many foreign solutions will be replaced by domestic ones. As for exports, the primary vector of international expansion, in his opinion, will be changed to the countries of Southeast Asia. Dmitry Dyrmovsky, CEO of the MDG Group, noted that not all companies will have to reorient themselves, because the countries of Latin America, the Asia-Pacific region, the Middle East, and Africa have traditionally formed a large part of the market for Russian AI solutions. "Recently, we have seen an increased demand for AI solutions from the Middle East." Russoft analysts emphasize that the level of state support will affect how quickly Russian companies can gain a foothold in new markets in the Eurasian Economic Union (EAEU), Southeast Asia, the Middle East, Latin America, and Africa.

The drop in revenue occurs against the backdrop of a drain of personnel to countries abroad, although the Russoft survey suggests that only 15,000 to 20,000 IT specialists, rather than the initially feared 170,000, decided to change their country of residence. However, all forecasts for 2022, experts say, are relevant only if there will be no new economic upheavals.

Source: "Russian software exporters are preparing for a 15% drop in revenue. Leakage of IT specialists from Russia will be 10 times less than expected" [Российские экспортеры ПО готовятся к падению выручки на 15%. Утечка ИТ-шников из России будет в 10 раз меньше, чем ожидалось], CNews, July 25, 2022, https://www.cnews.ru/news/top/2022-07-25_vyruchka_rossijskih_it-eksporterov.

RUSSIAN LEADERS REPORT SUCCESSES IN TECH SECTOR IMPORT SUBSTITUTION

RIA-Novosti reports that domestic developers and manufacturers of semiconductors successfully withstood the first blow of sanctions: enterprises are operating, new samples are being created. Russian developers were dependent on the Taiwanese company TSMC for manufacturing domestic processor models such as Elbrus and Baikal. Now that TSMC has joined the sanctions regime, Russia has to find an alternative. One possibility is the Chinese company SMIC, which is one of the few companies in the world capable of producing integrated circuits using 14-nanometer process technology. But so far, there has not been any official talk about it.

Instead, experts often talk about the possibility of creating a "full cycle" microprocessor industry in Russia. According to Igor Kalganov, general director of the T1 Group IT holding, this is a real possibility, but is subject to many conditions. "We need domestic CAD (computer-aided design) and an electronic component base, new materials, our own optics and lasers, hundreds of prototypes of new types of electronics, design centers and project teams, tens of thousands of specialized specialists," he lists. "And still there is a dependence on imports of raw materials. Thus,

the world's leading manufacturers of microelectronics are tied to the supply of silicon, neon, palladium. Russia also needs imported equipment."

The main domestic manufacturer of microprocessors, the Zelenograd-based Mikron, now mainly produces chips for bank and transport cards and RFID tags. The company also fell under sanctions, and the thinnest process technology it has mastered is 65 nanometers, which is a serious limitation.

According to NexTouch CEO Vladimir Krikushenko, the demand for domestic electronics in the consumer segment will be determined by pricing policy. "Consumers don't care where what is produced. They are interested in appearance, characteristics and price. In terms of quality, we will be able to replace foreign products. But if we talk about price, of course, the market of one country will never compare with the global market. The cost of hundreds of millions of products will always be lower. But with support from the state, which can compensate this [price] difference in the first years or before the lifting of restrictions, the [possibility of] replacement [with domestic products] is quite real," he believes.

Import substitution will be easier for software parts than for hardware. In recent years, Linux-based operating systems have already appeared in the country, and Russia has even developed its own operating system for smartphones and tablets, called Aurora. For computers, there are even more options: Alt, Red OS, Rosa Linux, and other Linux distributions localized to meet the requirements of Russian law. Most often they are used by government customers. But, for example, OS Simply Linux from "Basalt SPO" is positioned as software for business and private use. At the same time, it can be installed for free on computers with x86_64, i586, ARM64 architecture processors—that is, on almost any PC.

According to Deputy Prime Minister Dmitry Chernyshenko, despite external restrictions and the withdrawal of foreign companies from the Russian market, the potential of the country's IT industry makes it possible to fully compensate for the consequences of sanctions within three to five years. His report to President Putin on the progress of digital transformation in the country noted that before competitive solutions appear in all niches, the authorities need to determine the conditions for using foreign software. He suggested that a relevant draft decree be prepared that would determine these conditions in a way that would avoid punishing bona fide users and would prevent technological setback. Putin supported this initiative, as well as a number of ideas related to the use of software at critical infrastructure facilities.

As a result of these successes, Russian manufacturers need to prepare for the fact that the parallel import mechanism—which was launched in May and allows the import of certain goods into the Russian Federation without the consent of the copyright holder—may soon be canceled. During a visit to an industrial enterprise in Udmurtia, Denis Manturov, the minister of industry and trade and recently appointed deputy prime minister, noted, "Today, we have parallel imports. We did it consciously in order to balance the market. But this is a temporary solution. Get ready for the fact that we will soon cancel parallel imports by groups [of goods], when we understand that we have enough Russian products." At the same time, the Federal Antimonopoly Service of the Russian

Federation, which has always supported this mechanism, has suggested that parallel imports could be maintained on a permanent basis. Currently, the mechanism of parallel imports is valid until the end of the year.

Sources: Kirill Karimov, ""Replace for real": when Russia will switch to domestic computers" ["Заместить реально": когда Россия перейдет на отечественные компьютеры], RIA-Novosti, July 17, 2022, https://ria.ru/20220717/elektronika-1802805997.html; "Manturov said that parallel imports for certain groups of goods may soon be canceled" [Мантуров заявил, что параллельный импорт по отдельным группам товаров могут скоро отменить], TASS, July 21, 2022, https://tass.ru/ekonomika/15274987; "Russia to determine conditions for use of foreign software amid sanctions — Putin," TASS, July 18, 2022, https://tass.com/politics/1481565.

ROSKOMNADZOR EXPANDS SAFE COUNTRIES LIST

Roskomnadzor has made changes to the list of states that provide adequate protection of the personal data (PD) of Russians. The newly added countries include Côte d'Ivoire, Kyrgyzstan, India, China, and Thailand. The list of foreign states that provide adequate protection of the rights of PD subjects has now been divided into two categories. The first comprises 55 foreign states that are parties to the Council of Europe Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data. The second category comprises states that are not parties to the convention. To be included in the first list, countries must implement measures to ensure the confidentiality and security of personal data during their processing, which are consistent with the provisions of the convention. Until recently, there were 29 countries on this list; now there are 34, including Australia, Canada, Malaysia, Mongolia, Brazil, Singapore, Morocco, and Tunisia.

The Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data was adopted in Strasbourg in 1981, and changes were made in 1999. The document states that the purpose of the convention is to ensure respect for the rights and fundamental freedoms of every person on the territory of each of the parties, regardless of his citizenship or place of residence, and, in particular, his right to privacy. In particular, the convention states that PD is accumulated and processed for precisely defined and legitimate purposes and is not used for other purposes. Also, information should not be redundant (in other words, one should not collect too extensive a dossier on a person). It also states that personal data about nationality, political opinions or religious or other beliefs, and information about health and sexual life can be subject to automatic processing only in cases "where national law provides for appropriate safeguards." The same rule applies to personal data relating to a criminal record. At the same time, any of these principles can be violated in order to protect state and public security or "monetary interests of the state" or to suppress crimes. They will also be violated if it is necessary to protect the data subject or the rights and freedoms of other persons.

At the beginning of July 2022, amendments to the law "On Personal Data" were adopted in the third reading. According to the latest changes, countries included in the register can participate in the cross-border transfer of PD: for this, a resident company of a particular country needs to

notify Roskomnadzor of its plans. If a country is not on the list, personal data cannot be transferred to that country without the permission of the controlling agency. For countries on the list, a simplified procedure is provided: the personal data operator notifies Roskomnadzor of its intentions only once, not for each transaction. In addition, there is no need to wait either 30 or 10 business days after the notification is sent; the company can operate with the personal information of Russians during the Roskomnadzor approval procedure.

This means, for example, that foreign online stores, which, among other things, operate with the data of their customers, do not need to be afraid of sales falling due to increased delivery times. Before the adoption of amendments to the law on PD, they feared that they would have to constantly notify Roskomnadzor of each transaction and wait for clearance from the department. According to some experts, the inclusion of China and Kyrgyzstan on the list of trusted countries may facilitate the logistics of importing goods through parallel import channels.

Source: "Kyrgyzstan and Côte d'Ivoire are recognized as safe countries for the processing of personal data of Russians" [Киргизия и Кот-Д'Ивуар признаны безопасными странами для обработки персональных данных россиян], CNews, July 20, 2022, https://www.cnews.ru/news/top/2022-07-20_personalnye_dannye_rossiyan.

HUAWEI'S VOLATILE RELATIONSHIP WITH THE RUSSIAN MARKET

Huawei's relationship with Russia has been highly unstable in recent weeks. In mid July, Huawei resumed deliveries of smartphones and other gadgets to Russia. Earlier, in early June, the company had announced the closure of its official outlets in Russia, a decision explained at the time by a lack of gadgets for sale in Russia and spare parts for them. The main problem was the lack of batteries and screens.

However, at the end of June, Huawei also suddenly cut the number of freelancers working for it in Russia by at least 50 percent. The fate of regular Huawei employees remains in question. Most of them are currently on leave, which was supposed to last no more than a month but has instead dragged on. All hiring in Russia remains frozen. At the beginning of 2022, the situation with personnel in the Russian division of Huawei was the exact opposite, with many posted job openings.

Analysts believe that Huawei cannot decide whether it will stay on the Russian market or leave. But, despite the fact that the Chinese authorities did not support anti-Russian sanctions, Huawei has repeatedly demonstrated its willingness to go along with them. In March 2022, it announced a 50 percent reduction in the supply of devices to Russia, blaming the weakness of the Russian national currency. At the same time, Huawei also stopped the shipment of base stations to Russian telecom operators. But, whereas in the case of consumer electronics the company provided explanations, in the case of base stations it simply stopped communicating with its customers. In April 2022, Huawei removed apps from several Russian banks under Western sanctions from its AppGallery store without warning. In June 2022, four of the company's 19 Russian stores were closed. A month later, in Russia, the shortage of spare parts for Huawei smartphones had become

serious: there was a shortage of screens and batteries, as well as soaring prices and lengthy repair times.

In mid-July 2022, Huawei unexpectedly seemed to have decided to change its attitude towards Russia. After several months of interruption, it again began to supply smartphones and other devices to Russia. Given the new job cuts, albeit among freelancers, it remains unknown whether Huawei plans to re-impose restrictions on the import of its equipment to Russia. Since May 2022, parallel imports have been operating in the country, allowing the supply of foreign equipment to stores without the consent of the manufacturer.

These perturbations continue: demand for products from Chinese electronics manufacturers in the Russian market grew markedly due to the departure of alternatives from Apple and Samsung. Chinese products now occupy two-thirds of the Russian market; Xiaomi is in first place in smartphone sales in the second quarter of 2022, having pushed Samsung to second place. Other Chinese manufacturers are also strengthening their positions. For example, Realme's share increased from 8.3 percent to 13 percent in this quarter.

Sources: "Huawei has resumed deliveries of smartphones and other gadgets to Russia" [Huawei возобновила поставки смартфонов и других гаджетов в Россию], *Izvestiya,* July 13, 2022, https://iz.ru/1364413/2022-07-13/huawei-vozobnovila-postavki-smartfonov-i-drugikh-gadzhetov-v-rossiiu; "Huawei has fired half of its freelancers in Russia without warning" [Huawei без предупреждения уволила половину внештатных сотрудников в России], CNews, July 25, 2022, https://www.cnews.ru/news/top/2022-07-25_huawei_bez_preduprezhdeniya_uvolila.

SAMSUNG RESUMES HIRING IN RUSSIA, BETS ON GREY-ZONE IMPORTS

Samsung continues to recruit staff in Russia despite the suspension of its activities there. Since the end of June 2022, Samsung Electronics Rus Company has published 19 vacancies on the HeadHunter resource. Among them are the head of the consumer electronics department, a regional manager, and a key account manager. Except for two vacancies (in Vladivostok and Novosibirsk), all are territorially related to Moscow. Samsung Research Russia (Samsung Research Center in Russia) is also looking for specialists. Since June 21, 2022, the center has published 22 vacancies, for scientists, programmers, and developers, as well as a project manager. All of those vacancies refer to Moscow. It remains unclear whether Samsung has stepped up the search for employees since the end of June 2022, or whether it never stopped recruiting. On the HeadHunter resource, it is not possible to view vacancies moved to the archive, which is inactive at the moment. Representatives of the resource refused to provide CNews with data on Samsung vacancies for previous months.

In addition to searching for managers and executives, the company is looking for an indirect procurement specialist for the company's Moscow representative office. According to the job description, the future specialist will be responsible for supporting the process of selecting suppliers for "indirect" procurement—in other words, the sale of "gray" goods that were originally intended for other EAEU countries (which, in addition to Russia, include Armenia, Belarus, Kazakhstan, and Kyrgyzstan), but were redirected to Russia as part of the parallel import process.

According to a CNews source, "Officially, Samsung does not approve the sale of gray goods in authorized retail, but pretends not to understand where the goods come from." There are two types of "gray" goods. One is completely contraband (that is, a product that was intended for sale in other countries); the second is "conditionally gray" (a product that was intended for the EAEU countries that have Rostest certification). CNews explains, "The second type of 'gray' product is considered relatively honest. Now in Samsung branded retail stores, in fact, they sell exactly it, although it is intended for the EAEU. Samsung does not ship anything, but turns a blind eye to what goods enter Russia, pretending that authorized retailers are selling leftovers." According to the source, the vendor maintains contact with its retailers, perhaps "in the hope of somehow maintaining a presence on the Russian market."

Officially, Samsung left the Russian market in early March 2022. According to Bloomberg, the company has suspended deliveries of TVs, household appliances, PCs, chips, and smartphones to Russia. At the time, Samsung representative told TASS that the supply of Samsung goods to Russia was only temporarily suspended but did not specify how long this would last. He also added that Samsung's service and apps will continue to operate, as will its branded stores.

In March, Samsung also suspended TV assembly at its plant in the Kaluga region. But in early June, the company partially resumed its work at the plant, noting that equipment produced there will be sent to neighboring countries.

Source: "Samsung, which left Russia, is recruiting massively, including to support 'indirect' purchases" [Ушедший из России Samsung массово набирает сотрудников, в том числе для поддержки «непрямых» закупок], CNews, July 18, 2022, https://www.cnews.ru/news/top/2022-07-18_ushedshij_iz_rossii_samsung.

SMART ENGINES RECOGNITION SYSTEMS LOOKING FOR NEW DOMESTIC PARTNERS

The Russian developer of recognition technologies, Smart Engines, has announced that it is searching for new partners due to the growth in applications for import substitution. With the departure of Western software vendors such as Abbyy and Kofax, several of its projects for digital transformation and digitalization in the ecosystems of state corporations, as well as private and backbone banks, were in jeopardy. It is now looking for up to three partners who will help Russian companies effectively solve the import substitution problem with the help of Smart Engine products.

Vladimir Arlazarov, CEO of Smart Engines, said:

> Today in Russia the task is to replace recognition systems introduced over the past more than 25 years. These are working systems that are deeply integrated into the business processes of customers and provide the main activity of enterprises. Solving the problem of import substitution, we offer not just migration to a new software product, but development through the transition to premium quality and speed technologies for automatic document recognition, which have no analogues

> in the world. In order for integration projects for their implementation to be carried out professionally, we place high demands on our future partners.

With the help of these new partners, Smart Engines expects to more effectively solve the issue of import substitution of recognition technologies in Russia. Integrators will be able to provide a high level of customer service by delivering technologies with better quality, performance, speed, and security than those that have left the market. New partnerships will increase the presence of the company's software products on the Russian market in industries critical to the country.

According to Dmitry Nikolaev, CTO of Smart Engines, "The scientific activity of Smart Engines in the field of artificial intelligence continues the traditions of the Soviet mathematical school, which allows us to bring recognition technologies to a new level. When choosing a partner, it is important for us to find not a marketplace on the Russian market, but an experienced player who has high-quality expertise in the field of b2b integration of IT solutions."

Companies with which Smart Engines will cooperate in the implementation of its own products will be selected on a competitive basis. Among the requirements of Smart Engines is that the integrator has technical expertise and presence in most regions of Russia. The main selection criterion is the size of the annual turnover from sales of software, which should be at least 5 billion rubles. In addition, the company must confirm that it does not have contracts to supply competing software. Applications are accepted until August 15, 2022, and partners will be chosen by September 1, 2022.

Source: "Smart Engines announced the search for integrator partners for import substitution of recognition systems in Russia" [Smart Engines объявила о поиске партнеров-интеграторов для импортозамещения систем распознавания в России], CNews, July 19, 2022, https://www.cnews.ru/news/line/2022-07-19_smart_engines_obyavila_o_poiske.

PROMOBOT GOES TO WORK AT SAUDI ARABIAN UNIVERSITY

The Russian service robot "Promobot," created by the company of the same name, which is based in Perm, has begun operating at the King Abdullah University of Science and Technology in Jeddah. The robot is designed to meet and greet employees, students, and applicants at the entrance to the university lobby and cheer them up. According to the developers, the Russian droid is the only service robot in the world that speaks Arabic. It can also speak English. Promobot can maintain a dialogue, answer questions, and inform employees, students, and applicants about anti-COVID measures and other university news. The robot moves within the university entrance hall with the help of sensors that allow it to "see" any obstacles and calmly go around them. Promobot, together with the local integrator Action to Action, developed a special linguistic database that contains several thousand questions and answers, as well as a face recognition system. This allows the robot to give correct recommendations, tell the latest corporate news, and greet executives by name. Oleg Kivokurtsev, development director at Promobot, notes that the university chose Promobot because it "speaks Arabic well, can integrate with third-party systems and services, and has the highest speech recognition rate. But the most important thing is that it is more affordable in comparison with competitors, since the entire

production cycle is concentrated in Russia." In total, more than 50 Promobot robots are already working in the Middle East, in countries including the UAE, Saudi Arabia, Kuwait, and Oman.

Source: "Russian robot starts work at Saudi Arabian university" [Российский робот приступил к работе в университете Саудовской Аравии], CNews, July 11, 2022, https://www.cnews.ru/news/line/2022-07-11_rossijskij_robot_pristupil.

RUSSIA AND BELARUS TO DEVELOP JOINT TECHNOLOGY STRATEGY

The joint Russian-Belarusian Commission for the Formation of a Common Scientific and Technological Space of the Union State recently held its eighth meeting, under the chairmanship of Russian Deputy Minister of Science and Higher Education Natalia Bocharova and Chair of the Belarusian State Committee on Science and Technology Sergei Shlychkov. The commission works to coordinate joint research and development, provide consultations on scientific and technical policy, and set priority areas for scientific, technological, and innovative cooperation.

To date, within the framework of the work of the commission, six priority areas have been identified: digital technologies, big data, and artificial intelligence; new materials and additive technologies; new, including nature-like, energy, and the development of nuclear energy; high-tech medicine, personalized medicine, genetic technologies, and prevention of antibiotic resistance; development of agriculture and aquaculture, including the use of genetic technologies, and food security; and countering of man-made, biogenic, socio-cultural threats, and cyber threats, terrorism, and ideological extremism.

One key vector of cooperation between the two countries is to attract young professionals to science. At the meeting, a draft concept of the Union State Prize for Young Scientists was presented. It was proposed to award the prize to Belarusian and Russian young scientists and specialists, under the age of 35 inclusive, for significant results achieved in joint scientific fundamental and applied research. Young researchers will be recognized both for the results of scientific research that have made a significant contribution to the development of the natural, technical and human sciences, and for the development of samples of new equipment and progressive technologies.

Together with the State Committee on Science and Technology of the Republic of Belarus, the Russian Ministry of Education and Science is developing 10 concepts of scientific and technical programs of the Union State. They are based on the applied results of joint Russian-Belarusian scientific work in such areas as geological exploration, agriculture, additive technologies, and robotics. The agreed-on concepts will soon become the basis of the scientific and scientific-technical potential of the Union State.

The Council of Ministers of the Union State approved three concepts, the draft programs of which are being coordinated in the Republic of Belarus and the Russian Federation. The first concept concerns the development of basic elements of orbital and ground facilities in the interests of creating multisatellite constellations of small spacecraft for observing the Earth's surface and near-

Earth space. The second concerns the development of promising basic technological processes for obtaining functional materials, structures, components, and modules for high-performance photonics products in the Union State. The third concerns the development of intelligent, high-tech digital and electronic components and systems for special and dual-purpose vehicles.

At the meeting, the parties approved the Concept of the Strategy for Scientific and Technological Development of the Union State and agreed to start developing a draft strategy. The ninth meeting of the Commission is scheduled for the fourth quarter of 2022.

Source: "Russia and Belarus will develop a Strategy for scientific and technological development of the Union State" [Россия и Беларусь разработают Стратегию научно-технологического развития Союзного государства], Russian Ministry of Education and Science, July 22, 2022, https://minobrnauki.gov.ru/press-center/news/mezhdunarodnoe-sotrudnichestvo/55256/.

BELARUSIAN-CHINESE-RUSSIAN PARTNERSHIP ON UAVS PROPOSED

The head of the administration of the Belarusian-Chinese industrial park "Great Stone," Alexander Yaroshenko, spoke on the STV channel about plans to develop projects on unmanned aerial vehicles, pharmacy, and electric transport together with Russian partners. He suggested that while the potential for interaction is significant, it is underused at present, and stated, "Our joint projects are related to the field of pharmacy, unmanned aerial vehicles, including helicopters, electric vehicles, energy storage." In 2022, six new residents appeared at the industrial park—three from China and three from Belarus. Their new projects are related to digitalization and digital platforms, including promotion of goods and logistics.

Source: "Russian projects on UAVs will be developed in the Velikiy Kamen Industrial Park" [В индустриальном парке «Великий камень» будут развивать проекты с РФ по БПЛА], *Gazeta.ru,* July 17, 2022, https://www.gazeta.ru/business/news/2022/07/17/18145610.shtml.

SPOTLIGHT

WHITE HOUSE INDICATES THAT IRAN WAS PREPARING TO SEND RUSSIA DRONES FOR UKRAINE WAR

In July 2022, the White House announced that it had information that Iran might be transferring "several hundred" military drones to Russia. White House National Security Adviser Jake Sullivan also noted an intelligence estimate that Iran was preparing to train Russian forces to use the drones, and added that it was unclear whether Iran had delivered them yet. Mr. Sullivan added that US intelligence indicated that Russia's war in Ukraine came at a cost to the sustainment of its own weapons.

Since the start of its February 2022 invasion of Ukraine, the Russian military has indeed sustained a lot of UAV and drone losses—some to Ukraine's capable air and electronic warfare defenses, others due to friendly fire and operator error. While most of Russia's UAV losses were smaller (ISR-

capable drones such as Orlan-10 and Elerton-3), the lack of mass-scale application of combat drones revealed a significant capability gap in Russia's Ukraine operation. While the Russian military has limited numbers of combat-capable Orion and Forpost-R UCAVs, it still has too few UCAVs to cause significant damage to Ukrainian defenses. Russia also lacks a large number of loitering munitions, despite fielding a limited number of Lancet and Kub types against Ukraine. This is where Iran may come in, with its combat-tested drone lineup: Tehran operates a large number of ISR, loitering munitions and combat drones, and many were tested with its allies in Yemen, Lebanon, Syria, and Iraq.

Iranian transfer may include Ababil, Shahed, and Mohajer combat drones, along with a number of loitering munitions. Such an acquisition would be in line with Moscow's adaptation of existing technology from global leaders, similar to its procurement of Israeli drones in 2009-2011 to fill a capability gap in its armed forces. Should Iran in fact transfer several hundred military drones to the Russian forces, Moscow would add a major capacity to its stalled offenses across Ukraine, and would be able to degrade and destroy Ukrainian high-capacity defenses such as HIMARS long-range artillery and other key assets.

Source: Morgan Chalfant, "White House: Iran preparing to send Russia drones for Ukraine war," TheHill.com, July 11, 2022, https://thehill.com/homenews/administration/3553782-white-house-iran-preparing-to-send-russia-drones-for-ukraine-war/; Jordan Fabian and Justin Sink, "Iran Plans to Send Russia 'Weapons-Capable' Drones, US Says," Bloomberg.com, July 11, 2022, https://www.bloomberg.com/news/articles/2022-07-11/iran-preparing-to-send-russia-weapons-capable-drones-us-says; Samuel Bendett and Jeffrey Edmonds, "Russian Military Autonomy in Ukraine: Four Months In," CNA.org, July 2022, https://www.cna.org/reports/2022/07/russian-military-autonomy-in-ukraine-four-months-in; "The Iranian Drone Threat," UANI, https://www.unitedagainstnucleariran.com/The-iranian-drone-threat.

This report, the forty-fourth 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.

Approved by August 2022: Michael Kofman, Research Program Director
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