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## The Political Economy of Russian Information & Communication Technologies

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In 2017, the term “Russian hackers” became a brand similar to that of Stolichnaya, Aeroflot, and Lada. Russia’s information and communication technologies (ICT) sector became described as having incredible capabilities, to the extent that it can manipulate the political destinies of other states including the United States. This has not been exactly helpful for Russia’s ICT enterprises, the majority of which have nothing to do with geopolitics or disreputable digital activities. Can the “Russian hacker” stereotype be dismantled in order to give Russian ICT firms better chances for success in international markets? Although domestic ICT businesses have benefitted from government contracts and Russia’s good relations with regional and BRICS states, they are destined to remain small due to the sheer size and power of globalized ICT firms as well as the Russia-West relationship breakdown.

The sector made great strides over recent decades, but it is currently in a place of insecurity. The solution for Russia’s ICT sector appears to be that either Moscow improves its relations with the West and Washington specifically, so that Russian ICT firms can emerge on the global scene, or for sector players to focus on growth strategies in smaller Eurasian, Shanghai Cooperation Organization (SCO), and BRICS markets. Because it looks like the Russia-West divide will not diminish soon, Russia’s ICT industry should focus on the second path. However, Russian ICT leaders should still lobby the authorities to improve relations with the West and to provide, once again, favorable sector-specific conditions that encourage one of the country’s only dynamic growth sectors.

### **Soviet Information & Communication Technologies**

The Soviet Union was part of the race for leadership in the development and production of electronic computing machines (ECM). Nonetheless, it has always lagged behind its

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competitors, even though, at times, the USSR's technological marginalization was minimal. For example, the Soviet Small Electronic Calculating Machine was created by the academician Sergey Lebedev in Kyiv in 1950 and it became the first machine of its type in continental Europe. It was technologically similar to the first ECM that was produced in the United States 4-5 years earlier.

The reasons for some initial successes and further failures in the development of the Soviet ICT industry were not purely limited to economic hardships in the USSR after World War II or the failure of Soviet industry to produce high-quality components. In the early 1960s, professor Anatoly Kitov and academician Viktor Glushkov created a nationwide automated data processing and control system (OGAS) for the management of the Soviet planned economy in real time. This had the potential to become a prototype for the modern Internet. But the implementation of this forward-thinking plan was stopped by the politburo in 1970. The explanation for this strategically disastrous decision could be found in the particular qualities of the Soviet command economy model, the domination of the military-industrial complex in decision-making, and the lack of understanding of the role of ICT in a post-industrial economy.

The Soviets began to significantly trail the United States in the computer sphere in the mid-1960s. This was due to the phenomenal success of one machine, the IBM/360, which launched a new generation of computer science. This machine was produced in massive numbers from 1964 onward and was so successful that many companies copied it, including Soviet ones. The Soviet USECM-1 computer was a copy of the IBM/360 and the following USECM-2 was a copy of the IBM/370. There was no consumer market for hardware or software in the USSR but the best products and operating systems found their way into public hands via so-called "societies of ECM users" that had access to different types of machines and could make free software copies. A landmark moment occurred in the mid-1980s with the Moscow exhibition "ECMs in the Soviet Army" that showcased about 200 different types of computers made by different manufacturers.

During the last decades of the USSR, many believed that ICT technologies were areas of strategic importance for the Soviet economy. Academicians Andrey Ershov, Vadim Lednev, and Alexander Kuznetsov struggled for many years to include the discipline of Informatics into the curriculum of secondary schools with a specialization on mathematics and physics. A sort of revolution in secondary education took place in 1985 when the "Basics of Information and Computer Science" was introduced as a compulsory discipline in all schools. Instructors were teachers of algebra, geometry, and physics, or engineers from research institutions. This discipline is still in the curriculum of Russian schools today and is now called "Informatics and ICT." Russia inherited from the USSR a great number of highly professional software engineers and mathematicians. Over the course of the 1980s, a majority of chairs at ICT-industry-related major international academic conferences were Soviet academics. Soviet software engineers and programmers at this time were among the brightest stars in this field in the world.

Large teams of software engineers were active at leading universities, research institutions, and industrial corporations. Since their hardware was less advanced compared to those of their Western colleagues, the Soviet specialists had to demonstrate extra high ingenuity, deep theoretical knowledge, and inventive new algorithms.

### **The Post-Soviet ICT Environment**

American and European technologists knew about the high qualifications of Soviet software engineers. After the fall of the Iron Curtain, many Western technology firms traveled to Russia to make contact and sign contracts with “cheap” Russian programmers. Most of the newly established Russian ICT companies did not have experience in marketing and management, which placed Western management skills in high demand. In effect, the integration of Russian ICT into global markets was designed and executed by Western partners. A rather unique hallmark of the Russian ICT sector is that it has been free from criminal intrusion. In the early 1990s, organized crime groups tried to take control of technology firms but soon realized that it was almost impossible to extract financial benefits from the companies. Key business assets were just cheap computers and Internet access, and major clients were foreigners or Russian incumbent companies (national champions).

An important moment was in October 2010 when a federal law introduced a discounted Unified Social Tax [exclusively for ICT firms](#) (14 percent instead of 34 percent). The sector steadily developed until Russia joined the World Trade Organization’s Information Technology Agreement, a major development in 2013 that affected the dynamics of the whole sector. The process took a record-breaking 18 years of negotiations. The Russian government committed to lifting restrictions on the import of technologies (including encryption tools) and [reduced customs duties to zero](#) on a majority of high-tech products and components. The scheme offered low barriers for investors of high-tech enterprises and software development to enter the Russian market. Whereas representatives of traditional Russian industrial and agricultural sectors lobbied fairly successfully for high duties on competitive products during the WTO transitional period, ICT managers had to accept a zero-customs scheme, which pushed them headlong into the competitive global environment. This probably helped Russian ICT companies be more determined and self-reliant, if only for a while.

A major impact was the Ukraine-related Western sanctions that were implemented from 2014. This forced the Russian Government to initiate an import-substitution strategy for the public sector of the national economy as well as for companies with public ownership. On August 4, 2015, the Government Commission on Import Substitution was established with the [development](#) of the ICT sector as one of its high priorities. In January 2017, the upper house of the Russian parliament [initiated](#) the establishment of the ICT Competence Center, an autonomous non-commercial organization meant to be a

meeting place between public servants and the ICT business community for dialogue on import substitution issues.

### **Bits & Bytes: Putin & Medvedev**

The most dynamic time for the Russian ICT sector took place during the tenure of President Dmitry Medvedev in 2008-2012. For the majority of those in Russia's ICT industry, Medvedev--not Vladimir Putin--is the genuine protagonist of national high-tech industry interests and the guarantor of its stable development. He promoted young talent; for example, Nikolay Nikiforov, who headed Tatarstan's ICT center, became Minister of Communications and Mass Media in 2010 at the age of 29.

Putin, while prime minister in 2008-2012, was not fully aware of the beneficial role that the ICT industry could have on the country's socio-economic development. It took a lot of time and effort by industry leaders to explain to him why Russian ICT companies needed a friendly taxation regime and support from the federal budget. Their reasoning was that this would help them compete with global ICT firms, protect Russia from cyber-attacks, and enable digital cyberspace tools as new methods of confrontation with the West and NATO.

In Putin's third presidential term, 2012-2018, there was rapid development in the ICT industry. But there was evidence that the authorities began controlling key digital players. Putin began to utilize Russian ICT resources to demonstrate to foreign leaders the growing power and potential of the Russian economy and Russia's cyberspace prowess. He was rather successful in these efforts, but the cost was that Russian ICT firms had to relinquish independence. Since 2012, and more significantly from the first Western sanctions in the spring of 2014, the majority of Russian ICT companies increasingly became seen as instruments of Russian state power managed directly and indirectly from the Kremlin. The fact that Medvedev retained his position as prime minister in Putin's fourth presidential term, 2018-2024, is seen positively by ICT leaders.

### **Government Services**

Generally, Russian ICT firms have concentrated on the domestic market. Russian federal and regional authorities require sophisticated ICT systems. However, their firms' orientation toward the government has risks and restrictions. For example, Russian ICT companies became wary when the authorities cut military items in the federal budget by 20 percent in 2017, even while officials sought to replace Western technologies in security-related segments of the public sector by Russian technology substitutes. The Russian digital economy is still growing--mostly due to e-governance initiatives at the regional and local level--but the Federal Government as the key driver is slowly declining. Russia's economic crisis of 2014-2016 demonstrated to Russian ICT firms that a high share of export revenue provides more stability than counting on domestic

markets. The consensus for them is to have at least 50 percent of their cash inflow coming from abroad as a way to outlive any domestic disturbances. This pushes the Russian ICT industry to internationalize and not be entirely dependent on governmental clients.

### **Potencies, Failings, and Sanctions**

The ICT industry exists in a globally competitive environment. The Russian state and its executive bodies can be helpful in promoting this sector of the economy but their approach should be neither too strong nor too weak.<sup>2</sup> When authority structures are weak, businesses lack support to grow in domestic and international markets. When they are super-centralized and unnecessarily strong, there is governmental temptation to intervene in business matters. In the Russia case, this means utilizing ICT resources for solving foreign policy challenges. The liberal nature of the contemporary Russian ICT sector can suffer when there are political directives and artificial barriers restricting the mobility of people, goods, services, and finance—these can occur due to governmental reactions toward security threats and economic problems such as Western sanctions.

In order for Russian ICT firms to be competitive, it is important to note the strengths and weaknesses of the sector. Russia has about 500,000 IT specialists compared to about four million in the United States, three million in India, and two million in China. Of those, about 200,000 are software writers and the rest provide technical services, although about 2.3 million Russians work in the Russian ICT sector at large. Some of the big Russian system integrator companies that are capable of operating on the multinational level are Technoserv, LANIT, Compulink, CROC, and I-Teco. Some positive elements of the Russian ICT sector are:

- The Russian IT market is worth \$17-20 billion (2016).
- The Russian Internet audience is 87.7 million people and growing (2017).
- [Online retail turnover](#) (domestic and international-to-domestic shopping) reached \$18 billion (2017).
- Advertising and marketing on the Russian Internet exceeds \$3 billion.
- Russia has one of the fastest and cheapest mobile traffic networks in the world.
- The Russian [software export industry](#) is worth of about \$7.5 billion annually.

Yet, the Russian IT sector makes up less than one percent of global ICT. Russia's weak entrepreneurial culture is partly to blame, but perhaps more so is the troublesome

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<sup>2</sup> See Professor Yingyi Qian's writings about the role of "transitional institutions" through an analysis of [China's market transitions](#). Some sectors in developing countries can integrate successfully into global markets in the absence of fundamental factors such as long-term economic growth, rule of law, secure private property rights, and efficient political and economic institutions. However, a precondition for success of the "transitional institutions" model is confidence on behalf of enterprises that the state will fulfill its commitments to their sector of economy.

economic sanctions environment. The Russian ICT industry's modernization<sup>3</sup> and globalization was thwarted by recent geopolitical tensions. Due to the sense that the U.S. government may activate, at any moment, new sanctions against Russian ICT firms and/or their partners, many firms have moved their companies offshore. Quite a few CEOs recently changed their citizenship—for example, Arkady Volozh (Yandex), Alexander Nesis (ICT Group), and Boris Mints (O1 Properties) became citizens of [Malta](#)—even though their company's research and development is still done in Russia.<sup>4</sup>

### **A Separate Internet?**

The Russian ICT industry is currently waiting reactions from BRICS member-states about Moscow's project to construct a "parallel Internet," a worldwide digital network outside the control of the West, which administers core parts of it such as ICANN, IANA, and VeriSign. The overall mission of this Russian project is to guarantee that query serving is provided to all users in BRICS states in the case of a World Wide Web network crash or, more importantly, the isolation of any BRICS states/users by U.S. authorities. However, if a separate, independent segment of the Internet for BRICS states can be constructed, the Russian ICT industry will suffer technical and financial harm and it will lose niches in the global marketplace.

### **Conclusion**

The Russian ICT industry is at a crossroads. The reality is that its technological and business links with major Western tech giants have been disrupted, which produces negative effects for the industry and its prospects. On one hand, it enjoys the patronage of the government—especially considering that officials see it as a powerful source of advantage for the military-industrial complex—and it actively explores growing opportunities in the domestic market. Its cooperation with BRICS member-states provides business opportunities, but in the contemporary global economy, size matters, and it cannot ignore the technological and science-based hegemony of the OECD states. Therefore, the captains of the Russian ICT industry should 1) convince Russian leaders to downgrade the intensity of their confrontation with the West and 2) abandon any ambitious plans to do business globally over the near future and concentrate on growth domestically, in the neighborhood, and in SCO and BRICS states.

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<sup>3</sup> For more information about Russia's ICT modernization, see: [Electronic Russia 2002-2010, Information Society 2011-2020](#), and [Data Economy Russia 2024](#) (which entered into force in 2017).

<sup>4</sup> In 2016, 1,700 Russian businessmen [became](#) Maltese citizens.