AI politics and sanctions: comparing the cases of Russia and Iran

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Abstract:

The purpose of this study is to identify similarities and differences in the AI policies of the states claiming global (Russia) and regional (Iran) influence. The context of this study is the sanctions of Western countries, which significantly influenced the policy of these states in this area. The research methodology is based on the principles of comparative analysis. We analyze legislation and strategic documents, as well as institutions and practices in the field of artificial intelligence development in these states. Identifying national AI policy patterns can be an important predictive tool. In order to conduct a comparative analysis of legislation, we developed a set of parameters for comparison: (1) AI development goals, (2) authorities responsible for the implementation of AI projects, (3) AI development priorities, (4) positions of countries in the global AI development rankings. The study is based on the analysis of AI development indices (Government AI Readiness 2021 by Oxford Insights, Nature Index 2020 Artificial Intelligence, and Global AI Index 2021 by Tortoise Media), official statistics, national legislation, and media publications.

Keywords: artificial intelligence, Russia, Iran, sanctions, digital sovereignty, techno-nationalism.

Introduction

Leading powers today are moving towards modernization through new technologies, including artificial intelligence (AI). Of course, the cooperation of countries on AI is strategically necessary for everyone. However, the current dynamics in relations between the leading powers creates the threat of a digital divide.

The purpose of this study is to identify similarities and differences in the AI policies of the states claiming global (Russia) and regional (Iran) influence. The context of this study is the sanctions of Western countries, which significantly influenced the AI policies of these states. The research methodology is based on the principles of comparative analysis. We analyze legislation and strategic documents, as well as institutions and practices in the field of artificial intelligence development in these states. Identifying national AI policy patterns can be an important predictive tool. In order to conduct a comparative analysis of legislation, we developed a set of parameters for comparison: (1) AI development goals, (2) authorities responsible for the implementation of AI projects, (3) AI development priorities, (4) positions of countries in the global AI development rankings. The study is based on the analysis of AI development indices (Government AI Readiness 2021 by Oxford Insights, Nature Index 2020 Artificial Intelligence, and Global AI Index 2021 by Tortoise Media), official statistics, national legislation, and media publications.

Case selection

Before the sanctions imposed against Russia in 2022 in the context of the conflict in Ukraine, it was Iran that for 40 years occupied first position in the world in terms of the number of restrictions imposed against it.[1]

At the same time, direct parallels should not be drawn. Unlike Russia, Iran is a theocratic state headed by a religious leader. Sanctions against Iran were introduced gradually over decades, while in Russia it was a one-time shock imposition of sanctions. At the same time, there are many similar things, especially when it comes to sanctions. In both countries, the assets of the Central Banks are blocked. Almost all of Western brands left these countries (as declared). SWIFT international payment system does not work. Western countries have banned the supply of technologies. Internet is filtered. The oil embargo prevents large quantities of oil from being sold abroad, which means it deprives countries of the foreign exchange earnings needed to import technology which cannot yet be developed in-house.

Theoretical framework

The growing confrontation between the political regimes and military machines of Western countries and Russia shifts to the technological sphere[2]. A number of experts consider the conflict of the modern superpowers for the leading position in the field of the new technologies as a manifestation of techno-nationalism[3], a new type of mercantilism that plays a key role in industrial policy and world trade of the world's leading economies[4]. Proponents of this approach rightly believe that there is a strong relationship between innovations in advanced technologies, on the one hand, and national security, economic well-being, and social stability in the country, on the other hand[5]. Some experts believe that this process solves the issue of global economic leadership [6], so that decoupling in the high-tech sector will inevitably be followed by other sectors of the economy.[7]

Valdai Club experts note that there are only two technological platforms in the world (American and Chinese) and consider it a priority for the Russian Federation and Iran to decide whether to join one of these platforms or build their own, competing with the two already established ones [8].

The problem of sanctions effectiveness in technology was discussed by Tkachenko & colleagues.[9]

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[1]Russia is now the world's most sanctioned country. Castellum.AI, March 8, 2022.
https://www.castellum.ai/insights/russia-is-now-the-worlds-most-sanctioned-country
[2] Filatova O., Bolgov R. Strategic communication in the context of modern information confrontation: EU and NATO vs Russia and ISIS. Proceedings of the 13th International Conference on Cyber Warfare and Security, ICCWS 2018. Pp. 208-218.
[3] Tkachenko, S., Zhiglinskaya Wyrsch, N., & Zheng, C. (2022). Technology platform competition between the United States and China: Decoupling and sanctions against Huawei. Vestnik of Saint Petersburg University. International Relations, 14(4), 378-392. https://doi.org/10.21638/spbu06.2021.40
[4] Nakayama, S. (2012), Techno-Nationalism versus Techno-Globalism, East Asian Science, Technology and Society: An International Journal, vol. 6, no. 1, pp. 9–15
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[8] Bezrukov, A., Mamonov, M., Suchkov M. and Sushentsov, A. (2021), International Competition and Leadership in the Digital Environment. Valdai Club. https://valdaiclub.com/files/33065/

World practice shows that sanctions, as a rule, do not achieve their goals of changing regimes and reducing the level of well-being of elites, leading to the opposite result - worsening the lives of ordinary people.[10] The oppression of sanctions, on the contrary, is used by the state in order to strengthen the image of the West as a vile enemy and rally the people against it.[11] In addition, as a retaliatory measure, Russia may limit the export to Western countries of chemical elements on which the production of semiconductors depends. 35 percent of the palladium in the United States comes from Russia, and more than 90 percent of the neon comes from Ukraine, where it is delivered for cleaning again from Russia. Currently, Russia produces 80 percent of sapphire substrates, which are used in microelectronics to build up silicon layers. They are used in every processor, including AMD and Intel. Only Apple purchases in Russia over 20 types of parts and consumables for its products, including, for example, special ultra-pure tin for soldering and power tantalum capacitors.[12]

AI development experience in Russia and Iran

Russia

We were able to find 11 policy initiatives in the field of AI in Russian documents.

The National Technology Initiative, adopted in 2015, brings together design and creative teams, dynamically developing companies, leading universities, research centers, academic institutions, business associations, etc. NTI activities are organized around 9 new markets (EnergyNet, FoodNet, SafeNet, HealthNet, AeroNet, MariNet, AvtoNet, FinNet and Neuronet). The latter is focused on the study and development of distributed artificial elements of consciousness and psyche. Among the priority technologies within the NTI are also artificial intelligence and control systems. Responsible authorities are the Ministry of Science and Higher Education of the Russian Federation and the Russian Venture Company.

In addition, in 2019, the "Center for Artificial Intelligence. Leading research centers" (end-to-end digital technology "artificial intelligence"). This is an experiment that aims to create a favorable legal environment for the development of AI-related technologies and the testing of AI-based applications. The responsible body is the Ministry of Digital Development, Telecommunications and Mass Media of the Russian Federation.

It is impossible not to mention the National Program "Digital Economy", which is a comprehensive program aimed at achieving national goals in the field of digital development.[13] It touches on a number of aspects related to the development of AI. As part of the Digital Economy of Russia program, a multilateral body has been created that is responsible for coordinating the development of AI in Russia and the implementation of the National Strategy for the Development of AI. The subcommittee was established in 2019 under the Government Commission on Digital Development and the Use of ICT to Improve the Quality of Life and Business Conditions. The Ministry of Economic Development and the Ministry of Digital Development, Communications and Mass Media are responsible for the initiative.

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[9] Tkachenko, S., Zhiglinskaya Wyrsch, N., & Zheng, C. (2022). Technology platform competition between the United States and China: Decoupling and sanctions against Huawei. Vestnik of Saint Petersburg University. International Relations, 14(4), 378-392. https://doi.org/10.21638/spbu06.2021.40

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[11] Shaw M. (2022) The abyss gazes back: how North Korean propaganda interprets sanctions, threats and diplomacy. The Pacific Review, 35(1), 202-228.

[12] Hitting the number. What anti-Russian sanctions in the field of IT can turn out to be for the West. Lenta.ru, 04/22/2022. https://lenta.ru/articles/2022/04/22/itprblms/

[13] National Program "Digital Economy of the Russian Federation" (2019), http://government.ru/info/35568/

In 2019, the National Strategy for the Development of Artificial Intelligence (AI) was approved.[14] It has the following goals: Research in the field of algorithms and mathematical methods; AI software development; Collection, storage and processing of data for R&D and implementation of AI; Increasing the availability of specialized software; Improving the quality and quantity of training for AI; Development of regulations for the AI ecosystem. The responsible body is the Ministry of Digital Development of the Russian Federation.

The Technical Committee for Standardization "Artificial Intelligence" (TK 164) was established in 2019 on the basis of the Russian Venture Company in accordance with the order of Rosstandart to improve the efficiency of the development of the regulatory and technical base in the field of AI.

In 2020, the Concept for the development of regulation of relations in the field of artificial intelligence technologies and robotics for the period up to 2024 was adopted.[15] The purpose of the Concept is to lay the foundations for the legal regulation of social relations arising in connection with the development and application of systems using AI, including the creation and use of robots. The responsible body is the Ministry of Economic Development.

The promising standardization program in the priority area "Artificial Intelligence" for the period 2021-2024 includes 217 documents and is designed for 4 years, standardization will affect the introduction of AI in various areas, such as transport, medicine, education, construction and a number of others.[16] The program is designed to overcome existing regulatory and technical obstacles to the implementation of the federal project "Artificial Intelligence" in Russia.

In addition, Vladimir Putin formed an interdepartmental commission of the Russian Security Council to ensure technological sovereignty in the development of IT infrastructure, which will be headed by Deputy. Security Council Chairman Dmitry Medvedev. The Ministry of Economic Development also plans to create "sandboxes" that will become experimental platforms for testing innovative digital technologies.

The sanctions forced the Russian government to announce its desire for technological sovereignty.[17] In the view of the Russian authorities, the key parameters of technological sovereignty are, firstly, "the presence of their own bases, platforms, which are provided with their own" software, hardware "and technologies that are not completely dependent on other corporations and countries. Secondly, this is legislation that is flexible, nuancedly regulates online, protecting where necessary from outside aggression, docking with the environment for which it is beneficial, ensuring the technological process. At the same time, no country should be able to censor and moderate someone else's space, based on own vision."[18] According to the representative of the President of the Russian Federation for digitalization Dmitry Peskov, in order to achieve technological sovereignty in 10-20 years, it is necessary to create a fund of several dozen of our own developments.[19] But so far, the share of researchers and developers per

[14] Decree of the President of the Russian Federation of October 10, 2019 No. 490 "On the development of artificial intelligence in the Russian Federation".
[15] Decree of the Government of the Russian Federation of August 19, 2020 N 2129-"On approval of the Concept for the development of regulation of relations in the field of artificial intelligence technologies and robotics until 2024". http://www.consultant.ru/document/cons_doc_LAW_360681/7f2affb15ff9b9d6f75a9aa566d1b0646b3d2e94/
[16] A promising standardization program in the priority area "Artificial Intelligence" for the period 2021-2024. https://www.economy.gov.ru/material/file/28a4b183b4aee34051e85ddb3da87625/20201222.pdf
[17] Maria Zakharova at PHDays 11. Interview at the Positive Hack Days-2022 cybersecurity forum at WTC Moscow. May 18, 2022. https://wtcmoscow.ru/company/news/1495/
[18] Ibid.
[19] There is no one to ensure the technological sovereignty of Russia yet. Nezavisimaya Gazeta, 06/29/2022

thousand population in Russia is 16 times less than in China. In recent years, the Russian Federation has maintained a steady downward trend in the total number of scientists and scientific and technical personnel involved in research and development. In 2000, there were 888 thousand people in the domestic field of research and development. In 2010 and 2019, these figures were 737 thousand and 682 thousand people, respectively. In the US, spending on science is 2-3% of GDP. In Russia, spending on science is a little more than 1% of GDP. "Preservation of technological sovereignty requires an aggregate level of R&D spending at the level of 2.2-2.5% of GDP. Such requirements require cooperation in research with friendly countries," said Alexander Shirov, director of the Institute for National Economic Forecasting. According to him, Russia now has no alternative to strengthening scientific and technological development, since the main sanctions restrictions are related to the separation of Russia from the most effective results of research and development.[20]

A number of AI-based IT services left Russia after February 24, 2022, in particular, the Spotify music service with an audience of 2.1 million Russians. However, the recommendation algorithms of the Russian Yandex.Music service have been well pumped in recent years. The resource can automatically generate playlists based on user preferences. In addition, with the help of a neural network, this service recognizes what music is playing near you.

YouTube and Apple have not formally stopped working in Russia, but users have experienced serious difficulties with monthly payments. This happened after Visa and Mastercard suspended their activities in the country. But you can also watch and upload videos on Yandex.Zen. The platform has an advanced recommendation system based on smart algorithms. In the Odnoklassniki service in February 2022, user correspondence was protected using artificial intelligence from obscene photos of strangers: now they come blurry.

Russia purchases almost 85% of IT products in Asia, but often its quality leaves much to be desired (for example, among Chinese chips purchased by Russia, which Iran also buys, 40% turn out to be defective) and they are based on technologies from foreign companies that can limit exports and impose anti-Russian "secondary sanctions". To get out of this situation, support for domestic software is needed, including a guaranteed order from large businesses and government organizations, as well as cooperation with friendly countries in the digital sphere.

Iran

Over the past decades, Iran has created a whole system to counter the economic blockade. In 2010, Ayatollah Khamenei announced the country's transition to a "resistance economy", the meaning of which is the transformation of sanctions into new opportunities. China has become one of the main importers of Iranian energy resources and a supplier of computers, smartphones and chips.[21]

At the end of 2006, UN Security Council Resolution 1737 was adopted, according to which the supply of goods and other equipment that could be used in Tehran's military and nuclear missile program was prohibited. This includes AI technologies.

An important tool for Iran to circumvent sanctions was the legalization of cryptocurrency in 2019. In fact, the country has a way to exchange oil for foreign goods, bypassing the dollar and its associated restrictions. Iran extracts oil, which is converted into electricity using oil-fired power plants, which allows the state to give a huge discount on the payment of electricity for

[20] Ibid.
[21] China-Iran. OEC. https://oec.world/en/profile/bilateral-country/chn/partner/irn

mining farms. These enterprises rent bitcoins and other cryptocurrencies to the Central Bank of Iran, and keep part of it as payment. The Central Bank, in turn, buys high-tech products abroad with cryptocurrency. It is curious that there are mining farms in a number of mosques in Iran, since mosques are exempt from paying taxes and electricity for them is practically free. In 2020, 4.5% of the world's bitcoin mining was in Iran.

An example of success is the artificial intelligence-powered navigation app BALAD, which was downloaded 1.2 million times in a few days after its launch in March 2019.[22] Cafe Bazaar, the Iranian version of the Google Play Store, is working on Persian speech recognition technology (although Google already has 10 years of experience in this and much more investment). Before that, Google banned the Iranian ridesharing company Snapp from using Google Maps in its apps. Snapp Tehran has reached 2 million rides per day, more than any Uber city.

But this is not about popular applications. The end result is determined by the state of the entire science management system and the interaction between the business of the state and scientific organizations. Iran has another advantage in AI research: it is the fifth largest producer of STEM (science, technology, engineering and mathematics) graduates with 335,000 graduates per year after China, India, the US and Russia. Most of these graduates are engineers who can contribute to AI research.[23]

Iran ranks 14th in the world in terms of research capacity in the field of artificial intelligence. It ranks higher than Turkey, Brazil, Taiwan and South Korea.

In addition to AI research, many applications have been developed domestically. Traffic management in Tehran relies heavily on License Plate Recognition (LPR) technologies developed domestically over the past decade based on pattern recognition, machine learning and neural networks. Some companies have developed facial recognition software.[24]

Iran has also directed investment in AI to the military. There is news about the Iranian army of robots, including suicide robots, automatic mine detectors and automatic machine guns. There are allegations that Iran tested some of its military robots in the battle against ISIS in Iraq. After the use of Iranian UAVs by Russia in the conflict in Ukraine, 24 countries expressed a desire to acquire Iranian Shahid combat drones.

Thus, the main obstacles for Iran in bridging the gap with the world leaders in the development of AI are the lack of foreign investment, the lack of a national strategy and weak external ties. The development of AI is still limited to the development of local applications that are inferior to world leaders, and the labor-intensive production of robots.

AI development in Russia and Iran in a comparative perspective

Table 1 shows the positions of the three countries under consideration in the international AI development indices.

Table 1. Positions of China, Russia and the United States in the international rankings of AI development (compiled by the author)

[22] Pargoo M. Sanctions propel Iran in the global race for terminator-like AI. Atlantic Council, April 2, 2019. https://www.atlanticcouncil.org/blogs/iransource/sanctions-propel-iran-in-the-global-race-for-terminator-like-ai/
[23] Ibid.
[24] Ibid.

Indicators in three areas: Public administration; Technology sector; Data and infrastructure[25]

Global Position	Country	Overall Score
1	USA	88.16
15	China	74.42
38	Russia	61.93
72	Iran	46.23

Indicators: Talent, infrastructure, operating environment, research, development, government strategy, commercial activity [26]

Position	Country
1	USA
2	China
32	Russia
No data	Iran

Indicator: total number of publications (# publications) in the field from 2015 to 2019[27]

Position	Country	Score
1	China	318,534
2	USA	275,916
13	Iran	30,221
16	Russia	22,344

Table 2 compares the policy initiatives of the countries under consideration on AI development.

Table 2. Political initiatives on AI in China, Iran, Russia and the United States (compiled by the author)

	China	Russia	USA	Iran
Number of political initiatives	22	11	55	7
Responsible authorities	National Committee for the Management of New Generation Artificial Intelligence, Ministries of Science and Technology	Ministry of Digital Development, Ministry of Economic Development, Rosstandart (standardization agency)	Ministry of Commerce; Interdepartmental Council for Statistical Policy; National Institute of Standards and Technology, etc.	Ministry of Commerce; Ministry of Defense, Ministry of Health , etc. Committee on artificial intelligence
Goals	Integrate **ethics** into the entire	**accelerate the pace** of development of	laying the foundations for the	**accelerate the pace** of

[25] Government AI Readiness 2021 by Oxford Insights.
https://www.oxfordinsights.com/s/Government_AI_Readiness_21.pdf
[26] Global AI Index 2021 by Tortoise Media. https://www.tortoisemedia.com/intelligence/global-ai/
[27] Nature Index 2020 Artificial Intelligence. https://www.natureindex.com/supplements/nature-index-2020-ai/tables/countries

	AI life cycle. By 2025, achieve "**world leadership**" in some areas of AI. By 2030, become a "**primary**" hub for AI innovation	robust, reliable and trustworthy AI technologies, expansion of public-private partnership	**legal** regulation of **social** relations arising in connection with the development and application of systems using AI, including the creation and use of robots	development of artificial intelligence technologies

Discussion & Conclusion

Thus, we can conclude that Iran and Russia are not among the world leaders in AI and are just starting to lay the foundations for the development of AI, while China and the United States are already global leaders in this area. Both countries do not have a dedicated ministry of artificial intelligence, although there is talk of establishing one in Iran.[28] As for the responsible authorities, in Russia these issues are dealt with at the federal level by the Ministry of Economic Development and the Ministry of Digital Development, as well as security services. Large businesses are also involved in the projects, in particular, Yandex and Sberbank [29]. In addition, a number of projects are tested first at the regional level (in particular, an experiment on the trial operation of highly automated vehicles on public roads in Moscow and the Republic of Tatarstan[30]), and only then a decision is made to replicate the experiment to other regions.[31] [32]In Iran, in the system of bodies responsible for the development of AI, powers are divided between line ministries and departments (Ministry of Trade, Ministry of Defense, Ministry of Health, etc.). A number of departments (in particular, the Ministry of Defense) have their own AI development strategies. In addition, a number of interdepartmental committees and special bodies have been created (in particular, the Committee on Artificial Intelligence), and public-private partnership tools are also actively used. At the same time, both countries have adopted a number of special documents regulating the development of AI. In addition, a number of broader initiatives and programs are already addressing aspects of AI development (in particular, the Russian National Program "Digital Economy").

Since Russia is larger and stronger economically and technologically than Iran, technology sanctions will not have the same devastating impact on the Russian economy as on the Iranian one. But if Russian IT professionals decide to cut ties with Russia, the Russian economy will suffer quite a lot.

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[28] Pargoo M. Sanctions propel Iran in the global race for terminator-like AI. Atlantic Council, April 2, 2019. https://www.atlanticcouncil.org/blogs/iransource/sanctions-propel-iran-in-the-global-race-for-terminator-like-ai/
[29]Agreement of intent between the Government of the Russian Federation and the Joint Stock Company "Managing Company of the Russian Direct Investment Fund" for the development of the high-tech field "Artificial Intelligence" in the Russian Federation dated September 3, 2019 N 1964-r. https://docs.cntd.ru/document/561124424
[30]Decree of the Government of the Russian Federation of November 26, 2018 No. 1415. http://government.ru/docs/34831/
[31] Bolgov R., Chugunov A., Filatova O., Misnikov Y. Electronic identification of citizens: comparing perspectives and approaches. ACM International Conference Proceeding Series. 8th International Conference on Theory and Practice of Electronic Governance, ICEGOV 2014; Guimaraes; Portugal; 27 October 2014 through 30 October 2014. Pp. 484-485.
[32] Bolgov R., Ermolina M., Vasilyeva N. Open Budget Effects for Urban Development: Russia's Cases. ACM International Conference Proceeding Series. 3rd International Conference on Electronic Governance and Open Society: Challenges in Eurasia, EGOSE 2016; St. Petersburg; Russian Federation. 2016. Pp. 184-188.

The Iranian experience shows that the legal and regulatory framework in the initiating countries takes on the character of a "web of laws".[33] More and more restrictive US measures will be recorded in the form of statutes, limiting the executive branch in lifting sanctions even when there are prerequisites for this. This problem exists at the level of the European Union. Here, the lifting or even mitigation of sanctions will require a unanimous decision of the EU Council. The Iranian theme can hardly be considered a stumbling block in the ranks of the EU. But the policy towards Russia can definitely become such.

As an attempt to get out of this situation, one can consider Russia's cooperation with Iran in this area, in particular, Russia's purchase of Iranian UAVs for combat operations in Ukraine.

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