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Leonid Tsukanov

ON BOTH SIDES OF THE PERSIAN GULF: THE GROWTH OF THE REGION'S HIGH-TECH INDUSTRY AND RUSSIA'S INTERESTS

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This occasional paper takes a look at the potential of the Persian Gulf states in the field of high technology and the prospects for promoting Russia's interests in this area. The research focused on studying several categories within the high-tech group, to which Moscow pays increased attention (cybersecurity and emerging technologies, energy, space research, biotechnology). The long-term interests of the Gulf States and their achievements in each high-tech sphere, as well as the level of their cooperation with Russia and other global leaders, are assessed.

This occasional paper and other materials are available at:
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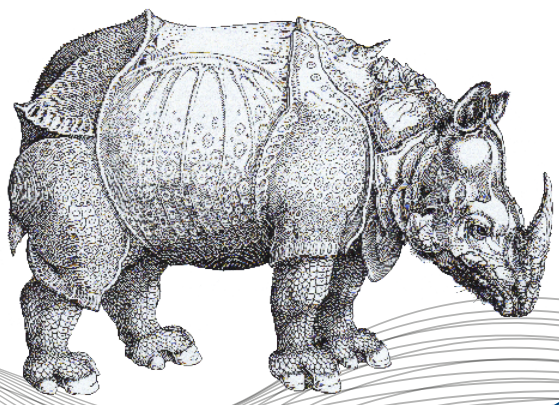

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Highlights

- The technological segment of the region's economies is rapidly evolving, with the vast majority of states predictably seeking to strengthen their positions in the high-tech market – either in all directions at once (Saudi Arabia, the UAE), or in specific niches (Qatar, Bahrain, Oman). However, the desire to procure ready-made solutions rather than produce their own still prevails.

- The countries of the region are focused on individual megaprojects, with the implementation of collective initiatives hindered by internal and external factors, as well as the exclusion of some actors (Iran, Iraq). Another specific feature of the region is the formation of an alternative center (Iran), aimed at complete technological self-sufficiency and de facto a counterweight to the combined potential of the GCC.

- External players' competition is escalating, with new countries entering the market competition. China, the USA, and India demonstrate the most activity in this regard. The interests of EU countries, Israel, and Türkiye are represented to a lesser extent.

- The warming of relations between Iran and the Gulf monarchies has somewhat reduced the friction between the two poles, but there is a high probability that other interested parties (the United States, Israel) will try to upset the fragile balance.

- The region has all the necessary conditions for Russia to gradually increase its presence there. The most promising areas under current conditions include the markets of financial technologies (FinTech) and digital education (EdTech), digital protection of critical infrastructure (cybersecurity), and the biotechnology market (with an emphasis on advanced pharmaceuticals). Moreover, premises have emerged for strengthening Moscow's positions in the regional nuclear energy market.

On Both Sides of the Persian Gulf: The Growth of the Region's High-Tech Industry and Russia's Interests

Leonid Tsukanov

The Middle East's place in the regional relations system is progressively shifting against the backdrop of continuous worldwide changes; in particular, there is a consistent tendency toward gaining technical independence and establishing competences in the area of new technologies. At the same time, the aim of regional countries to establish favorable positions in the new, high-tech world is the reason for the Gulf states' specialized market's most dynamic expansion.

Like other international players, Russia is becoming more interested in maximizing the potential of the region because it sees a chance to accomplish its own long-term objectives, such as breaking into new markets. Given this, questions about evaluating the high-tech sector potential of regional powers, as well as potential areas of contact with Moscow's objectives and capabilities, are becoming increasingly relevant and significant.

In conducting the study, emphasis was placed on studying four categories of the *high-tech market*, to which Moscow is paying increased attention:

- cybersecurity and emerging technologies;
- energy;
- space research;
- biotechnology.

Due to the specifics of its regional interests, it should be noted that Russia's technology cooperation is not limited to the GCC states (sometimes referred to as *Arab monarchies*). In this way, the conventional framework of the concept of the *Persian Gulf* was expanded: Iran and Iraq were included in the study together with the Arab monarchies (Saudi Arabia, the United Arab Emirates, Qatar, Oman, Bahrain, Kuwait).

The sources of the research included materials from international organizations, reports and papers from ministries and departments of the regional states, media materials, and statistical databases. Methods such as system analysis, event analysis, modelling, case study, and a number of other methods of scientific knowledge were used.

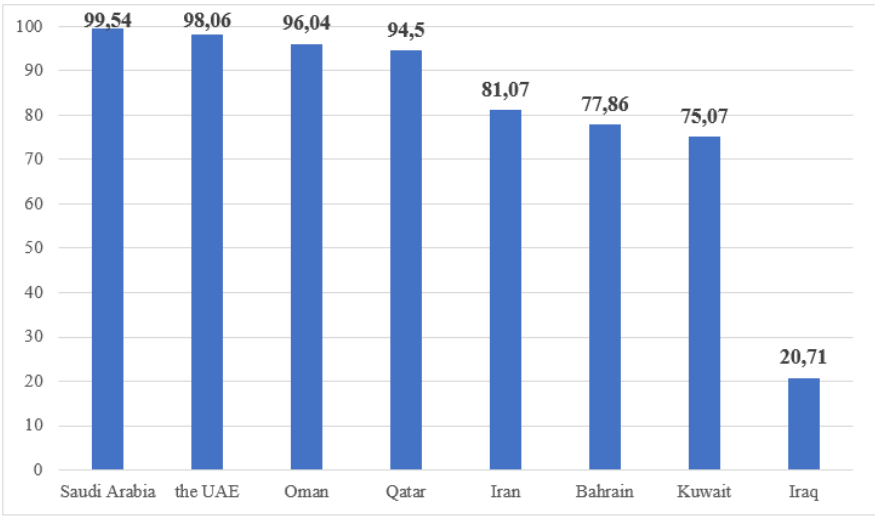
ASSESSMENT OF THE CURRENT STATE OF NATIONAL SYSTEMS OF STATES IN THE REGION IN THE CONTEXT OF GLOBAL SECURITY AND HIGH TECHNOLOGY ISSUES

Cybersecurity and emerging technologies

The digital competencies of the region's countries are characterized by heterogeneity – in the Gulf region, both industry leaders (Saudi Arabia, the UAE) and *catch-up* players (Kuwait, Iraq) coexist[1]. The difference in competencies, coupled with the *late start* of most countries in the digital space, determines the chaotic nature of cooperation.

Another characteristic feature of the digital space of the region under consideration is the presence of independent cybersecurity poles (Iran), partly confronting other advanced actors (Saudi Arabia, the UAE). And although tensions between them have been partially reduced due to the beginning of the Iranian-Saudi détente, it is still premature to talk about complete mutual openness.

The financial technology market looks very promising in the context of the region. The COVID-19 pandemic contributed to an accelerated transition to remote forms of activity, which had a positive impact on the digital services segment and led to an increase in the number of FinTech companies in almost all the countries considered. Some states in the region have also focused on launching specialized projects designed to simplify the interaction between the state and business in the field of financial technology. These include, for example, the *Qatar FinTech Hub* (Qatar, 2018)[2], the *FinTech Sandbox* (Kuwait, 2018)[3], the *FinHub* Cross-Border Digital Innovation Platform (Bahrain, 2020)[4], etc.



Graph 1: Digital readiness ranking of the GCC states (aggregate score; maximum score: 100)

Based on: GCI 2020

The situation in the Iranian financial technology market is also quite interesting. The strict sanctions regime imposed on Tehran contributed to the rapid development of startups (as of 2023, there are about 160 startups in the country, which is 3 times more than in

[1] Based on: Global Cybersecurity Index (2020) // ITU. URL: https://www.itu.int/dms_pub/itu-d/opb/str/D-STR-GCI.01-2021-PDF-E.pdf
[2] Qatar has 'global appeal' as hub for fintech growth, says QDB executive // Gulf Times. URL: https://www.gulf-times.com/article/665072/business/qatar-has-global-appeal-as-hub-for-fintech-growth-says-qdb-executive
[3] Kuwait stands at the dawn of a new digital banking era // The Banker. URL: https://www.thebanker.com/Kuwait-stands-at-the-dawn-of-a-new-digital-banking-era-1648197117
[4] FinTech & Innovation // Central Bank of Bahrain. URL: https://www.cbb.gov.bh/fintech/

2017): analogues of foreign applications (including financial instruments) developed in the Islamic Republic have occupied a large part of the domestic market, and this sector continues to show a growth trend[5]. However, copying is not the only thing – the Iranian ICT-sector is also focused on developing its own technological solutions, which is actively supported by the state.

The short period of *thaw* in relations with the West during the JCPOA (2015-2017) also had a positive impact on Iran's domestic technology market. During this period, Tehran actively established ties with foreign firms specialising in financial sector technologies. Subsequently, the developed competencies were used to more effectively adapt the digital infrastructure to restrictive measures. As a result, thanks to the mobilisation of funds, the Islamic Republic managed to form a sustainable fintech market focused on domestic needs as well as implement a number of high-tech projects that strengthened national stability.

As for Iraq, the FinTech industry is developing in a unique way there. Currently, there are about 30 fintech startups in Iraq, most of which are related to the development of electronic payment systems. For their part, government institutions are striving to gradually integrate technical solutions into everyday work and ensure their scaling throughout the country: for example, the *QiCard* smart card system, developed in Iraq, is used to distribute and accrue social payments and salaries to public sector employees[6]. In addition, Iraq is accelerating the development of international cooperation in this industry, which can give the domestic technology market an additional positive impetus. However, despite the emerging rise and spread of e-commerce, the Iraqi fintech industry still faces limitations due to imperfect national legislation and the high level of bureaucratization.

There is a widespread increase in interest in cryptocurrencies. However, not all the countries considered see them as an unambiguous benefit. Thus, a reactionary position is taken by Qatar, Kuwait, and Iraq, for which the widespread introduction of cryptocurrency transactions is associated with threats to national security. Other countries are more positive, but also face the need to update the national legal framework, considering the specifics of regulating this industry. In the case of Iran, cryptocurrency has become one of the pillars of the *Resistance Economy* – for example, in 2019, Tehran launched an alternative digital currency *PayMon*, backed by gold and designed to reduce the impact of the negative consequences of the Islamic Republic's disconnection from SWIFT[7].

[5] FinTech Startups in Iran // Tracxn. URL: https://tracxn.com/explore/FinTech-Startups-in-Iran

[6] Asiacell, QiCard, and Digital Zone join forces in Iraq // Iraq Business News. URL: https://www.iraq-businessnews.com/2023/05/31/asiacell-qicard-and-digital-zone-join-forces-in-iraq/

[7] Iran Launches Gold-Backed Cryptocurrency // RBC. URL: https://www.rbc.ru/crypto/news/5c583cfa9a79471306aef3dc (*in Russ.*).

Energy

The oil and gas component still forms the basis of the national energy systems of most of the countries considered (in the case of Oman, for example, oil and gas revenues form ¾ of the state budget), but there is a desire to reduce dependence on raw materials by developing a system of renewable energy sources. Plans for the development of the renewable energy sector are included in the long-term planning documents of all Gulf monarchies without exception. At the first stage, it is planned to provide 30 to 50% of national energy consumption by the early 2030s through renewable energy sources[8].

Iran is also placing a significant bet on developing an alternative energy system. According to the authorities, the emphasis on renewable energy sources (primarily solar power plants) will not only improve the overall level of energy security in Tehran by meeting the population's growing needs for electricity but will also free up some energy resources to increase export volumes to neighboring countries. Great hopes are also placed on the hydroelectric power station system. Iran has at least four hydroelectric power plants operating on a permanent basis, covering up to 10% of energy needs during peak periods – however, the final capacity indicator fluctuates due to unstable precipitation volumes[9].

Iraq occupies a specific position. The country's energy balance is based on gas turbine (about 50% of primary production) and thermal power (30%) generation, while Baghdad purchases a significant portion of the gas for its power plants from neighboring Iran (due to the lack of sufficient capacity for independent gas production and processing). One way to reduce Baghdad's external energy dependence could be the development of a renewable energy system. Supporters of renewable energy point out that, due to its advantageous geographic location, the density of solar energy in Iraq is one of the highest in the world, and the landscape features (deserts occupying up to 60% of the country's area) make it possible to deploy solar stations on an area of up to 437 thousand km^2. In addition, Iraq can also use water energy to its advantage. There are several large facilities in the country that provide up to 5% of Iraq's energy needs during peak periods[10]. On the other hand, these facilities also serve as a source of concern for Baghdad: at least two of the facilities are located on the territory of Iraqi Kurdistan, which makes them a

[8] См., напр.: Oman's huge renewable hydrogen potential can bring multiple benefits in its journey to net zero emissions // IEA. URL: https://www.iea.org/news/oman-s-huge-renewable-hydrogen-potential-can-bring-multiple-benefits-in-its-journey-to-net-zero-emissions

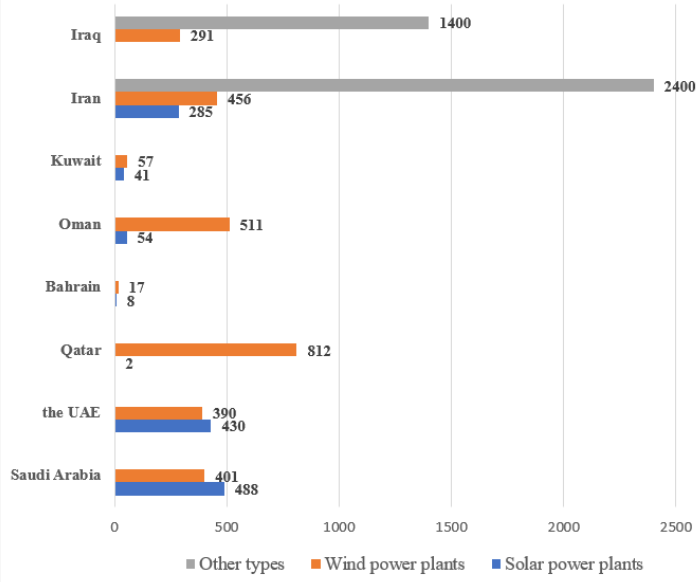
[9] Iran has increased hydroelectric power generation by 9% since the beginning of the year // Corporate Energy University. URL: https://tesiaes.ru/?p=7536 (*in Russ.*).

[10] Obeid J. Iraq needs renewables, but they won't solve its power problems without broader reforms // Middle East Institute. URL: https://www.mei.edu/publications/iraq-needs-renewables-they-wont-solve-its-power-problems-without-broader-reforms

convenient tool for blackmail by the Kurdish autonomy authorities. In addition, due to a budget deficit, the Iraqi authorities do not have the ability to ensure timely repairs of the hydroelectric facilities.

At the same time, officials from the examined countries, as a rule, have no illusions about the imminent replacement of traditional energy sources by renewable energy sources and therefore continue to develop related areas – for example, the integration of energy-saving technologies into the oil and gas production system.

It is also necessary to mention the hydrogen market, which is in the stage of active development but is characterized by heterogeneity: while Saudi Arabia and the UAE are currently fighting for leadership in this segment (both at the regional and global levels), in Iran and Oman the hydrogen energy system is in the formation stage; in some countries (for example, in Iraq) this industry is not represented at all.



Graph 2. Total capacity (in Megawatts) of renewable energy generation facilities by category (as of 2023)

Based on: World Energy, Energy Monitor

Nuclear energy occupies an ambiguous position. The states of the region show considerable interest in nuclear power projects (with the exception of Oman and Kuwait, where alarmist sentiments prevail). The UAE, where the *Barakah* NPP is located, is a *pioneer* in this matter. In addition, Iran has a strong position in the nuclear power market, but in its case, the development of the generation system is complicated by international sanctions, as well as constant accusations of attempts to secretly develop a military component of the nuclear project.

Iraq is showing interest in nuclear energy. Baghdad is considering this direction as one of the options for strengthening energy sovereignty and reducing dependence on other states. In addition, Iraq is considering the construction of a nuclear power plant from an image point of view: a full-fledged launch of a peaceful nuclear program with the participation of external partners, according to Iraqi senior officials, would increase the investment attractiveness of the country[11]. However, due to the high cost of the project and the unstable domestic political situation in Iraq, the development of the project is moving slowly.

Space research

Space exploration is another area that has attracted increased attention from the Gulf states. The vast majority of countries have joined the space race. At least three countries (Saudi Arabia, the UAE, and Bahrain) have now created specialized agencies to coordinate relevant scientific and commercial programs. In the remaining states,

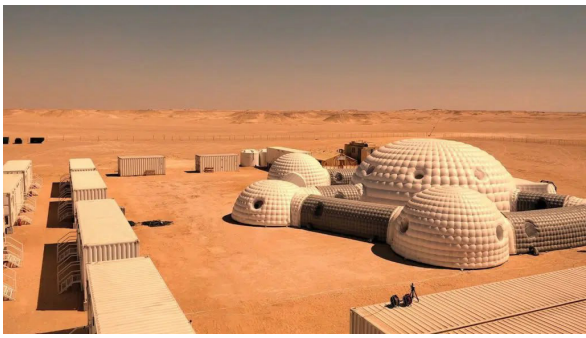
[11] Iraq may build nuclear reactor for energy // Zawya. URL: https://www.zawya.com/en/projects/utilities/iraq-may-build-nuclear-reactor-for-energy-ij58lvi5

the work has been delegated to two or more state institutions.

The Gulf states place considerable emphasis on the development of the satellite program – each of the countries has launched at least one artificial satellite. At the same time, the undisputed leader in this area is Saudi Arabia, which has launched at least 17 satellites. The missile program is actively developing. Its unofficial leader is Iran, whose space industry demonstrates positive development dynamics, which is facilitated by the active involvement of structures and organizations associated with the Islamic Revolutionary Guard Corps. At the same time, Tehran's research work in this area is focused on its own interests and has virtually no impact on the overall landscape of space research in the region.

It should be noted that the ambitions of several countries extend far beyond the typical regional boundaries of space program development. For example, the UAE is betting on a comprehensive study of the solar system, including its distant parts. In 2021, the Emirates announced the launch of a series of projects to study asteroids in the orbit of Venus, and a year earlier, they successfully conducted a monitoring mission on Mars (the *Al Amal* project)[12]. As a long-term development benchmark, the UAE noted its readiness to participate in the creation of a permanent settlement on Mars in 2117[13]. Oman is also aiming to explore new planets, having provided its territory in 2018 for the modelling of a promising Martian mission[14].

It should be noted that at the official level, the overwhelming majority of countries advocate for the peaceful use of space (and, as a result, actively promote the idea of rejecting the militarization of outer space through national media), although in practice they also show interest in military solutions in the space industry.



The Kepler Station in Oman, used for human-robotic Mars expedition simulation (AMADEE-18 mission)

Source: www.omanobserver.com

Biotechnology

The biotechnology market in the region demonstrates significant development dynamics, although its condition is uneven. The Gulf monarchies – Saudi Arabia and the UAE – are the most active here. Both states consider the biotechnology sector to be one of the leading areas in the comprehensive transformation of national economies. In this regard, Riyadh and Abu Dhabi place significant emphasis on the development of human resources, as well as on the creation of high-quality conditions for conducting research (creation of specialized laboratories, launch of scholarship and grant programs).

[12] Al-Amal: UAE targets ambitious goals in first Arab mission to Mars // WION. URL: https://www.wionews.com/photos/al-amal-uae-targets-ambitious-goals-in-first-arab-mission-to-mars-362574
[13] Ibid.
[14] How southern Oman doubled for surface of Red Planet // CNN. URL: https://edition.cnn.com/2018/02/28/middleeast/mars-oman-mission-oewf/index.html

As for the other GCC members, their contribution to the development of this sector is somewhat more modest. However, in all countries without exception, active scientific research is being conducted in the fields of advanced pharmaceuticals, molecular genetics, and microbiology. In some cases (such as Kuwait), the foundation for the relevant work was laid in advance, back in the late 20th century. In this context, it is inappropriate to talk about a significant lag of any of the Arab monarchies. In addition, in all the countries considered, public-private partnerships are effectively developing, as well as developing international contacts, which allows for a partial reduction in the *brain drain* from national economies.

Iran is also actively working on developing its biotechnology sector. Despite the ongoing pressure of sanctions, the country has created a network of research institutions, where most of the relevant research is conducted. In addition to the production of vaccines and serums, priority areas for the development of Iranian biotech include genetic engineering (with an emphasis on integrating solutions into agriculture) and advanced prosthetics. In some industries, Tehran competes on equal terms with global leaders, exporting its solutions to allied countries in West Asia.

In the biotechnology market, Iraq takes a slightly different approach. Even though one of the goals of the national *Vision* Program is to create a healthy and safe environment, Baghdad at this stage cannot ensure sustainable development of this area – due to a number of objective reasons. In the pharmaceutical industry, Iraq is heavily dependent on imported products – its own production covers, according to various estimates, only 10 to 15% of the country's needs[15]. Baghdad is trying to compensate for the lack of national capacity by developing specialized cooperation and opening foreign production facilities in the country.

RUSSIA'S PARTICIPATION IN REGIONAL INITIATIVES

Since 2019, Russia has been increasing its participation in the region's **digital and cybersecurity projects**, seeking to interact with all powers at a unified level. Moscow, in general, positively assesses the Gulf countries' course to increase mutual trust in the digital sector and offers its own projects in the field of regional security (including the cybersecurity segment). Work on the business front has significantly intensified: Russian stakeholders are seeking to expand their presence in the digital security niche, offering Iran and the GCC monarchies advanced data protection solutions.

In terms of cooperation in the field of financial technologies, Russia and the Gulf countries have not yet reached high positions: interaction is of a *targeted* nature, although Moscow expects to

[15] Iraq hopes to establish joint production of medicines in the Republic with Russia // TASS. URL: https://tass.ru/ekonomika/14168675 (*in Russ.*).

further intensify its efforts in the field of FinTech in the future – with a focus on the Middle East region as a whole.

Russia continues to maintain working-level contacts with key participants in the *space race* in the Middle East. At the same time, the emphasis, with a high degree of probability, will be placed in the future on joint projects in the field of satellite communications. In particular, Russia will continue to provide launch vehicles for launching satellites of regional players into orbit. However, in this case, it is important to take into account the growing competitiveness of the private sector of the space business, which in the future may well *lure* some of the interested participants.

In the **energy sector**, the leading direction remains nuclear energy – although Russian companies also declare their readiness to participate in the development of solar and wind power systems. In addition to ongoing work on modernizing the *Bushehr* NPP (Iran), the Russian nuclear business may in the future take part in the construction of new generating facilities in the Gulf monarchies.

Russia's position in the **biotechnology market** has significantly strengthened against the backdrop of the COVID-19 pandemic. In particular, the volume of supplies of Russian solutions in the field of vaccine and serum production to the region has increased, and the demand for Russian competencies in the field of advanced pharmaceuticals has also risen. At the same time, the biotechnology market of the Gulf states is still dominated by Western pharmaceutical businesses, which creates certain restrictions for the expansion of the presence of Russian enterprises.

AN ASSESSMENT OF RUSSIA'S MAIN REGIONAL RIVALS' STANCE

As noted earlier, the Gulf region is a promising area for high-tech business. In this regard, it is not surprising that, in addition to Moscow, other states are also interested in strengthening their positions.

Let's consider the most active competitors. For a more thorough understanding of each state's stance, however, their involvement was first evaluated on a scale of 1 to 5, where "0" denotes no participation (for political or other reasons), "5" denotes high participation, and "1" denotes poor participation. The degree of business activity, the country's involvement in the implementation of megaprojects and the experience of their successful implementation, the intensity of the specialized dialogue between the countries, and the existence of long-term agreements (including those that are documented) were all taken into consideration when determining the indicator.

China

Beijing, to varying degrees, shows interest in all areas of cooperation with the states of the Gulf region, using mega-projects (for example, *One Belt, One Road* Initiative) as a common denominator.

China pays special attention to developing ties with the GCC *engines* represented by Saudi Arabia and the UAE but does not focus exclusively on them. On the contrary, one of China's declared objectives is to *ensure open and equal cooperation* with all the powers of the region[16]. Thus, Chinese businesses are expanding their share in the technology markets of Oman, Bahrain and Kuwait; national companies are working intensively in Iraq, developing energy and biotechnology projects. In addition, to achieve its goals in the region, Beijing is actively exploiting the idea of a *technological renaissance* in the Arab world, offering partners joint initiatives in the field of data protection.

On the other hand, the weak point of Chinese high-tech business today is its integration into Beijing's mega-projects. The *checkbook diplomacy* that China has been relying on for the last decade has a downside in the form of a *debt trap* – when, in exchange for favorable loans and assistance in developing projects, Beijing gains influence over the foreign policy decisions of a partner country[17].

Given the desire of the Gulf monarchies to position themselves as independent players, the prospect of their possible dependence on someone leads to a surge in alarmist sentiments and reduces confidence in the projects proposed by China. In addition, the intensification of China's rivalry with the United States and Washington's attempts to use political tools to squeeze Chinese businesses out of the GCC domestic markets also affect Beijing's eventual involvement in regional affairs.

Overall, it is to be expected that the level of China's involvement in regional affairs will only grow in the future, and the main *growth points* will remain the areas of *cybersecurity*, *space research* and *biotechnology*.

Table 1. Index of China's involvement in the development of the Gulf countries' high-tech system (on a 5-point scale)

Country	Cybersecurity and emerging technologies	Energy	Space research	Biotechnology
Saudi Arabia	4	3	4	3
The UAE	4	3	4	3
Qatar	2	3	1	2
Kuwait	2	1	1	2
Bahrain	3	3	2	2

[16] Xi calls on China, GCC countries to expand cooperation in innovation, sci-tech // Xinhua. URL: https://english.news.cn/20221209/568855c0c0e-c4e179797aa211b518065/c.html

[17] China's empire of debt: The Belt and Road Initiative // New Arab. URL: https://www.newarab.com/analysis/chinas-empire-debt-belt-and-road-initiative

Oman	3	2	4	2
Iran	2	2	2	2
Iraq	2	3	1	2

The USA

The Gulf region has long been considered an unofficial *zone of special interests* for the United States, and Washington has been considered one of the key guarantors of regional security, which has made it possible to more effectively promote American approaches to ensuring technological security.

Washington has a strong influence on the digital security market of the GCC monarchies, providing them with access to advanced solutions in the field of cyber intelligence and digital defence. In addition, as one of the sponsors of the *Abraham Accords*, the United States additionally facilitates the penetration of Israeli ICT-business into the region, which also brings them certain benefits in terms of increasing the cyber readiness of their Arabian allies.

Increased activity is also observed in the biotechnology industry – the strengthening of American influence in it was facilitated, among other things, by *vaccine diplomacy* implemented with the participation of the *Pfizer* corporation during the peak periods of the COVID-19 pandemic[18].

The United States also remains involved in regional space research. At the same time, private agencies (for example, *SpaceX*) play a significant role in promoting American interests in the space sphere, ensuring the indirect preservation of Washington's influence on the vector of development of specialized projects in the Gulf countries.

As for the energy sector, Washington is, in most cases, *playing catch-up*: the participation of American contractors in the implementation of mega-projects in the field of renewable energy and nuclear energy in the region is episodic.

It is important to note that Iran, with which the US is in a state of open confrontation, is completely excluded from Washington's cooperation field. In addition, there is a weak (in comparison with other sectors of the region) representation of American business interests in Iraq.

As a result, in the near term, the USA will likely focus on maintaining its current positions and deepening partnerships with the Gulf monarchies in the digital and biotech sectors – especially in light of China's attempts to win back more advantageous positions in these areas. At the same time, there is currently no prospect of a sharp change in Washington's position in any of these areas.

[18] The geopolitics of vaccine diplomacy in the Middle East // New Arab. URL: https://www.newarab.com/analysis/geopolitics-vaccine-diplomacy-middle-east

Table 2. Index of the USA's involvement in the development of the Gulf countries' high-tech system (on a 5-point scale)

Country	Cybersecurity and emerging technologies	Energy	Space research	Biotechnology
Saudi Arabia	4	2	3	3
The UAE	4	2	3	4
Qatar	3	2	2	2
Kuwait	3	1	3	2
Bahrain	4	1	2	2
Oman	4	2	3	2
Iran	0	0	0	0
Iraq	1	2	1	1

India

India's built-up activity in the Middle East is part of a national strategy to increase its *global weight* and bring the state into the ranks of leading global players. At the same time, in terms of priority interaction, there is a clear bias towards the Gulf monarchies – starting in 2021, New Delhi's *anchor* partners are Riyadh, Abu Dhabi, and Muscat; Doha has also recently shown interest in strategic partnership.

At the same time, India is not limited to bilateral cooperation. On the contrary, Delhi is considering the development of comprehensive cooperation with regional associations as an independent track – primarily with the League of Arab States, as well as with the GCC. In both cases, the issues of joint development of artificial intelligence and digital solutions for business are at the forefront.

The formation of a *two-level dialogue* with the Arab world fits organically into India's strategy of behavior in the region, since it allows maintaining a dialogue with all players, as well as offering an alternative to Chinese specialized initiatives and thereby providing room for maneuver for its own ICT-business. On the other hand, India's results in this area are more modest: the country has not yet been able to offer the region any mega-projects in the digital sector, similar in scale to, for example, the *Global Data Security Initiative* announced by China in 2021.

Another area that Delhi has placed its bets on is space exploration. India, whose space program is developing rapidly, supports similar aspirations of the UAE, Bahrain and Oman, providing both technical and scientific support for the initiatives.

Indian energy giants are also involved in developing energy security systems in Saudi Arabia and the UAE, and deepening its cooperation in the field of green energy with Qatar appears promising.

A few words should also be said about the interaction between India and Iran. Despite the fact that both countries similarly see their place in the emerging world order and strive for the comprehensive development of contacts (primarily through the joint implementation of large-scale infrastructure projects), the level of real mutual trust leaves much to be desired, especially in matters related to digital security. In addition, India is concerned about the ongoing rapprochement between Iran and China, which has accelerated significantly against the backdrop of Beijing's mediation activities in the Gulf region. At the same time, Iran and India maintain individual contacts in the field of advanced pharmaceuticals and energy.

As a result, India is still playing catch-up in terms of its influence on the regional market but is demonstrating intensive development of relations in the energy and space sectors, as well as in the digital industry. It should be expected that in the near future, Delhi will focus on developing its *space brand* as well as on promoting initiatives related to the diversification of the energy balance of the Arab monarchies.

Country	Cybersecurity and emerging technologies	Energy	Space research	Biotechnology
Saudi Arabia	3	4	2	3
The UAE	3	4	3	3
Qatar	3	2	1	2
Kuwait	1	1	1	1
Bahrain	2	1	3	2
Oman	4	2	4	2
Iran	0	1	0	1
Iraq	1	1	0	3

Table 3. Index of the India's involvement in the development of the Gulf countries' high-tech system (on a 5-point scale)

The European Union

The EU policy towards the Gulf countries is characterized by heterogeneity. On the one hand, European countries, understanding the strategic importance of the region, traditionally strive to deepen ties with it – both bilaterally and multilaterally.

In 2022, Brussels made another attempt to intensify dialogue with regional powers: the focus was supposed to be on jointly addressing global issues, including the green and digital transition, as well as the fight against terrorism and climate change[19]. Also in May 2023,

[19] The EU intends to step up cooperation with Gulf countries // RT. URL: https://russian.rt.com/world/news/950326-es-persidskii-zaliv-sotrudnichestvo (*in Russ.*).

the EU appointed a special representative for the Gulf States[20].

On the other hand, not all European states are equally involved in cooperation. The most active are Germany, France and Italy, relying on energy and digital projects. However, their efforts, with rare exceptions, are focused on the *Arabian Three* – Saudi Arabia, the UAE and Qatar. There are individual attempts to expand the dialogue with Oman and Bahrain; to strengthen influence on the energy sector of Iraq. The dialogue with Iran is much more complicated: the EU supports the sanctions regime against the Islamic Republic, which reduces to zero the possibility of developing a business dialogue.

Although the EU's involvement in the affairs of the Gulf monarchies leaves much to be desired, the positions of European companies are still relatively strong in the energy and cybersecurity sectors. In addition, common strategic interests with the United States allow European states to take a *hedging* position and implement their tasks in the region's markets. In this regard, we should expect increased competition with Moscow and Beijing in the energy and digital sectors.

Table 4. Index of the EU's involvement in the development of the Gulf countries' high-tech system (on a 5-point scale)

Country	Cybersecurity and emerging technologies	Energy	Space research	Biotechnology
Saudi Arabia	3	2	1	2
The UAE	2	4	2	2
Qatar	2	2	1	2
Kuwait	1	1	0	1
Bahrain	3	1	1	1
Oman	2	3	2	1
Iran	0	0	0	0
Iraq	1	3	1	1

Türkiye

Like most states, Türkiye is increasingly involved in the development of the region's digital security system, focusing on private business. Turkish ICT-companies operate in Qatar, the UAE, and Saudi Arabia, and there is occasional cooperation with other GCC states. At the same time, in matters of increasing the level of cyber defense, Ankara places the main emphasis on supporting Qatar, its key regional partner and ally.

Certain successes are also observed in the energy sector: Ankara has increased cooperation in the development of renewable energy sources with most Gulf monarchies (with the exception of Kuwait),

[20] The EU appoints special representative for Gulf States for the first time // Armen Press. URL: https://armenpress.am/rus/news/1110983/ (*in Russ.*).

as well as with Iran.

Another area that Türkiye has placed its bets on is establishing cooperation in the development of biotechnology. Today, the Gulf monarchies are most interested in the advanced methods of treating oncological diseases and innovations in the field of prosthetics developed by Turkish specialists.

The least developed area remains the sphere of space research. Although Ankara is showing interest in the specialized projects of the GCC states, it is noticeably losing to the global leaders (Russia, the USA, China, India, etc.). In this regard, Türkiye's current efforts are mainly limited to increasing academic cooperation: permanent cooperation has been established with three countries (the UAE, Qatar, Kuwait).

As a result, Türkiye's interests today are focused on deepening existing contacts, with an emphasis on energy and digital security. However, given the current situation in the region (as well as the state of affairs within Türkiye), Ankara is unlikely to force the issue.

Country	Cybersecurity and emerging technologies	Energy	Space research	Biotechnology
Saudi Arabia	2	4	1	2
The UAE	2	3	1	2
Qatar	5	3	2	2
Kuwait	1	0	0	0
Bahrain	1	3	0	1
Oman	1	2	0	0
Iran	0	2	0	1
Iraq	1	0	0	0

Table 5. Index of the Türkiye's involvement in the development of the Gulf countries' high-tech system (on a 5-point scale)

Israel

A specific feature of Israel's business policy towards the Gulf states is its limitation to the framework of relations that were formed as the Arab-Israeli conflict was being resolved. For a long time, the Gulf monarchies had no public ties with this country and developed cooperation behind the scenes, which allowed the Arab states, on the one hand, to receive advanced technological solutions from Israeli firms, and, on the other, not to violate their previously assumed obligations to defend the interests of Palestine.

With the signing of the *Abraham Accords* in 2020, secret cooperation was replaced by direct interaction with the participants of the agreement – the UAE and Bahrain. In addition, other Gulf monarchies also made certain symbolic gestures to Israel, which had a beneficial effect on the pace of country's involvement in the

regional business system.

One of the key areas in which Israel is increasing its presence is information security. Despite the fact that Israel is somewhat inferior to the Gulf monarchies in key cyber readiness indicators, the level of its applied competencies, developed in the process of asymmetric confrontation with Iran, is significantly higher. The Arab countries of the Gulf, for the most part, show interest in technological innovations produced by Israel and use Its experience to eliminate gaps in national digital security systems. Interaction is carried out both at the state level and in the private sector.

The pinnacle of Israel's integration into the digital security systems of the Gulf monarchies was the *Iron Cyber Dome* presented at the first Arab International Cyber Security Conference and Exhibition in Bahrain (2022)[21].

As one of the regional leaders in space research, Israel supports similar endeavors of the Gulf monarchies. Also, since 2021, Israel has been actively involved in the development of the UAE space program, and since 2022, it is considering the possibility of similarly deepening cooperation with Bahrain.

In the energy sector, Israel's efforts at this stage are episodic and limited to expressing support for the initiatives of its partners; no major joint projects are envisaged for the short term.

118th Extended Summer Session of the *Trialogue* Club International dedicated to the topic "Iran, Israel and the Gulf. A Changing Geopolitical Landscape. Assessing Emerging Trends", June 8, 2023

Source: nonproliferation.world

In the biotechnology sector, Israel, as one of the leaders in advanced pharmaceuticals, is gradually looking at the domestic market of the Gulf monarchies and increasing the share of supplies through public channels.

At the same time, the general specificity of Arab-Israeli relations (and, first of all, the continuing influence of the Palestinian factor) does not allow mutual distrust to be completely overcome – moreover, some actors (Kuwait, Iraq) take a pronounced anti-Israeli position and deliberately distance themselves from interaction.

Israel is in a state of strong confrontation with Iran (which automatically closes the Iranian market for it), and also seeks to involve as many Arab partners as possible in the struggle. The idea of forming a *united anti-Iranian front*, previously supported by Washington, in the context of a gradual detente in relations between the GCC countries and the Islamic Republic has in fact become much more difficult to implement, which forces Israel to look for alternative ways to influence the situation.

Thus, Israel's current interests in the region today are focused primarily on developing the *Abraham Accords* brand and strengthening its position in dialogue with the Arab world. The high-tech sector

[21] "רבייס לזרב תפיכ"...תוסיפדמה ברע תונידמו "לארשי" לש חתושמ טקיורפ ("Iron Cyber Dome": A Joint Project of Israel and Arab Countries) // Tasnim. URL: https://www.tasnimnews.com/he/news/2022/12/15/2822055/חתושמ-טקיורפ-רבייס-לזרב-תפיכ-תוסיפדמה-ברע-תונידמו-לארשי-לש (*in Hebrew*).

serves as one of the tools for establishing a constructive dialogue. On the other hand, three countries (Kuwait, Iran, Iraq) are *dropping out* of the interaction, and in some sectors, Israel's interaction with the region is limited to declarative measures.

Country	Cybersecurity and emerging technologies	Energy	Space research	Biotechnology
Saudi Arabia	2	1	0	1
The UAE	5	2	3	5
Qatar	2	0	0	2
Kuwait	0	0	0	0
Bahrain	4	1	2	3
Oman	3	0	0	1
Iran	0	0	0	0
Iraq	0	0	0	0

Table 6. Index of the Israel's involvement in the development of the Gulf countries' high-tech system (on a 5-point scale)

Summarizing the information presented in this section, we can derive a generalized indicator of the activity of competing actors in each of the Gulf countries (in terms of high technologies), and also present an average indicator for the region as a whole (*see table* 7).

	China	the USA	India	the EU	Türkiye	Israel
Saudi Arabia	3,5	2,75	3	2	2,25	1,5
The UAE	3,5	3,25	3,25	2,5	2	3,75
Qatar	2	2,25	2	1,75	3	1
Kuwait	1,5	2,25	1	0,75	0,25	0
Bahrain	2,5	2,25	2	1,5	1,25	2,5
Oman	2,5	2,75	3	2	0,75	1
Iran	2	0	0,5	0	0,75	0
Iraq	2	1,25	1,25	1,5	0,25	0
Region	**2,44**	**2,1**	**2**	**1,5**	**1,31**	**1,22**

Table 7. Index of the overall involvement in the development of the Gulf countries' high-tech system (on a 5-point scale)

CONCLUSIONS

The technological segment of the Gulf economies is rapidly developing, and the vast majority of countries are expectedly striving to strengthen their positions in the high-tech market – either in all areas at once (Saudi Arabia, the UAE), or in individual niches (Qatar, Bahrain, Oman). At the same time, the greatest interest among regional actors is generated by projects and initiatives in the fields of digital technologies (cybersecurity, FinTech) and energy (green energy), as well as space research. The growth in investment in these industries by the states of the region will continue.

However, it is too early to talk about a full-fledged *high-tech transition* for the Gulf states: even the countries that are in leading positions in terms of the pace of development of high-tech industries prefer to rely on purchasing ready-made solutions rather than producing their own. This trend tends to gradually erode (due to the emphasis of the Gulf monarchies on capacity development at the national level).

On the other hand, it is too early to talk about unity of positions on issues of digital transformation. The difference in capabilities and interests of the players further contributes to the deepening of the split. In turn, this explains the lack of effective mega-projects that include several regional powers at once.

In addition, the specifics of interstate relations that have developed in the region do not contribute to overcoming mistrust and full integration of *disputed* states (Israel). Another specific feature of the region is the formation of an alternative center (Iran), aimed at complete technological self-sufficiency and de facto a counterweight to the combined potential of the GCC.

The warming of relations between the Islamic Republic and the Gulf monarchies has somewhat reduced the friction between the two poles, but there is a high probability that other interested parties (the United States, Israel) will try to upset the fragile balance.

In addition, against the backdrop of global geopolitical transformations, the rivalry between external players is noticeably intensifying. In addition to the United States, which is seeking to maintain its influence in the region (including by rebooting regional alliances and strengthening their technological component), Asian states (China, India) are fighting for the Gulf market, which, on the one hand, gives additional impetus to the development of high-tech spheres of the region's powers, and, on the other hand, serves as a constant source of tension.

As for Russian interests in the region, their representation remains at an average level. Russian high-tech business (both state and private) has a solid reputation (primarily in the field of space and energy solutions) and is in demand both by Arab states and by Iran.

Overall, it can be expected that Russia will continue to gradually increase its presence in the Middle East markets, including promising

ones (FinTech, biotechnology), relying on the principles of equality and openness of dialogue. However, in order to increase the overall efficiency of work, more attention should be paid to the long-term interests of regional players and participation in the development of those industries where competition is at a relatively low level (for example, EdTech) should be increased. ■

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On Both Sides of the Persian Gulf: The Growth of the Region's High-Tech Industry and Russia's Interests

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PROSPECTS FOR COOPERATION BETWEEN RUSSIA AND THE GULF STATES ON GLOBAL SECURITY AND HIGH TECHNOLOGIES

This occasional paper was made within the framework of the project *Prospects for Cooperation between Russia and the Gulf States on Global Security and High Technologies*, which is part of the *Global & Regional Security: New Ideas for Russia* Program.

The project is aimed at improving the existing methodological approaches to studying the situation in the Gulf region and developing scientific and practical recommendations for analytical support of government departments and commercial organizations with a foreign policy focus, which should contribute to the growth of bilateral and multilateral cooperation.