The Evgeny Primakov
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Policy brief

The Gulf monarchies: towards a new technological pole?

Artem Adrianov

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The Gulf monarchies: towards a new technological pole?

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Main points

- Over the past 10–15 years, the countries of the Gulf Cooperation Council (GCC) have made significant efforts to close the technological gap. The elites of the Gulf monarchies have realized that the era of ultra-high oil revenues is coming to an end, while the region's population is growing at a fairly rapid pace. The social contract, based on the redistribution of oil rent among citizens in the form of social benefits, subsidies, and government jobs in exchange for political loyalty, is beginning to erode.
- The Arab monarchies have achieved significant success in developing their own solutions in the areas of e-commerce, urban mobility, and fintech. Local companies are also offering advanced e-government solutions. In terms of innovative technology development, the countries of the region can be divided into three groups: leaders (UAE and Saudi Arabia), those catching up (Qatar, Oman, and Bahrain), and lagging behind (Kuwait).
- The UAE and Saudi Arabia have the potential to rise to the level of Digital Middle Powers. These states mainly focus on four areas: workforce training, the creation of national tech companies, regulation, and integration into global technological value chains.
- The chances of the GCC evolving into a cohesive regional tech hub, something similar to the EU, remain slim. This is largely due to internal competition and a preference among member states to work with outside powers rather than regional neighbors. Gulf countries are primarily focused on getting access to cutting-edge innovations from global leaders, especially the United States in order to gain expertise and form profitable business partnerships. At the same time, they face increasing pressure from Washington to scale back high-tech cooperation with Chinese partners.
- Russia's opportunities to collaborate with Gulf states in advanced technology are limited. When it comes to areas like artificial intelligence and digital infrastructure, the region overwhelmingly looks to the U.S. However, in other sectors, Gulf countries remain open to working with partners from around the world, including Russia. Especially promising areas include cybersecurity and autonomous vehicles.

- Russia and the Gulf states should make greater use of sovereign wealth funds (particularly those of the UAE, Saudi Arabia, Qatar, and Oman) to support tech initiatives. Besides, a key obstacle to scaling up data center infrastructure is energy capacity. Here, Russia could help meet the region's demand for nuclear power, especially in the growing area of small modular reactors.

Introduction

In recent years, the Arab monarchies of the Persian Gulf have drawn the attention of global tech giants. Multibillion-dollar investments from the UAE and Saudi Arabia, the scientific and technological ambitions of Qatar and Kuwait, and the rapid growth of local tech ecosystems in Bahrain and Oman have come as a surprise for many technology experts by surprise.

During the 2010s, the United States and China emerged as the world's dominant technological powers. Their race to lead in advanced technologies has become a key flashpoint in their broader geopolitical rivalry. U.S. sanctions on high-end semiconductor exports, restrictions on American firms cooperating with China's defense industry, and punitive measures against Chinese tech giants have all become features of this growing U.S.-China tech conflict over the past decade.

Yet the landscape of advanced technology isn't limited to Washington and Beijing. Many other countries are actively developing cutting-edge capabilities. In this context, Western analysts often highlight the European Union, introducing the idea of three tech poles[1], with the EU positioned as the third global center of technological innovation, largely due to its proactive role in regulating emerging technologies.

Beyond the EU, countries like Russia, South Korea, Taiwan, Israel, Japan, and others are also serious contenders in the global tech race. These nations are either developing alternatives to cutting-edge American and Chinese technologies, often matching or even surpassing them, or they serve as critical hubs in global value chains. This includes semiconductor manufacturing, equipment manufacturing, industrial robotics, and cybersecurity software, among other sectors. Some analysts have even coined the term *of digital middle powers* to describe these states. Countries that may not dominate the tech landscape like the U.S. or China, but nonetheless play a pivotal role in shaping global technological progress[2].

Despite recent progress, Gulf countries or any other Arab state are still rarely mentioned in global discussions on advanced technology. In the second half of the 20th century, countries like Egypt, Syria, and Iraq made serious efforts to close the technological gap with the West, investing heavily in advanced industrial sectors. However, a series of setbacks, such as armed conflicts, financial crises, and Western sanctions, undermined those ambitions. By the early 2000s, most Arab states had been pushed to the margins of global technological development.

1 Schmid, S., Lambach, D., Diehl, C., & Reuter, C. (2025). Arms Race or Innovation Race? Geopolitical AI Development. Geopolitics, 1–30. https://doi.org/10.1080/14650045.2025.2456019

2 Digital Middle Powers: What Strategies in the Global Tech Competition?// Ifri, 23.02.2023. URL: https://www.ifri.org/en/digital-middle-powers-what-strategies-global-tech-competition

Over the past 10 to 15 years, however, the Gulf monarchies, that were long seen primarily as a world's gas station, have been working actively to overcome their technological lag. As shown in the digital competitiveness and e-government development rankings below (see Table 1 and Table 2), the region has made notable progress in recent years.

This trend may seem surprising, especially given the absence of key factors that have traditionally underpinned technological success in other countries, most notably, a large pool of local skilled labor. However, Gulf states had vast financial resources, something that many of today's advanced tech powers lacked in their early stages. With the state controlling much of the economy, these resources have been strategically channeled into addressing large-scale development challenges. In this context, long-term planning and strong political will have enabled the rapid conversion of financial capital into technological progress. When a specific sector is designated as a national development priority, this can have a real, measurable impact. The effectiveness of this approach depends largely on the capacity of the bureaucratic system and the availability of financial and organizational resources. These are the factors that shape the scale and speed of the resulting progress.

Country's place in the World Digital Competitiveness Index	**UAE**	**KSA**	**Qatar**	**Oman**	**Bahrain**	**Kuwait**
2017	18	28	36	-	-	-
2024	11	27	26	-	30	45

Table 1. The Gulf monarchies in the World Digital Competitiveness Index.

Source: IMD World Digital Competitiveness 2017, 2024.[3]

Country's points in E-Government Development Index	**UAE**	**KSA**	**Qatar**	**Oman**	**Bahrain**	**Kuwait**
2004	0.4736	0.3858	0.4005	0.2884	0.5323	0.3649
2014	0.7136	0.6900	0.6362	0.6273	0.8088	0.6269
2024	0.9533	0.9602	0.8244	0.8576	0.9196	0.7812

Table 2. The Gulf monarchies in the E-Government Development Index. Source: UN E-Government Knowledgebase[4].

3 World Digital Competitiveness Ranking 2017 // IMD, 2017. URL: https://investcroatia.gov.hr/wp-content/uploads/2018/01/world_digital_competitiveness_yearbook_2017.pdf; World Digital Competitiveness Ranking 2024 // IMD, 2024. URL: https://imd.widen.net/s/xvhldkrrkw/20241111-wcc-digital-report-2024-wip

4 UN E-Government Knowledgebase: Data Center // United Nations Department of Economic and Social Affairs. URL: https://publicadministration.un.org/egovkb/Data-Center

Human Development Index growth rates, 2012-2022	UAE	KSA	Qatar	Oman	Bahrain	Kuwait
Growth rate (%)	1.04	0.7	0.45	0.22	0.88	0.36

Table 3. Human Development Index growth rates in the Gulf monarchies, 2012-2022.
Source: Human Development Report 2023-2024.[5]

The Gulf's recent technological leap is widely believed to be driven by the oil market crisis of the late 2000s to mid-2010s, a period marked by a sharp drop in oil prices and a prolonged phase of low returns. Additional pressure came from the Paris Climate Agreement, which seeks to reduce global carbon emissions partly by curbing fossil fuel consumption, as well as from widespread forecasts predicting a steady decline in global oil demand after the 2030s. Together, these factors called into question the long-standing economic model of the Gulf states, which has been heavily reliant on hydrocarbon exports, particularly oil. Oil continues to be the region's primary source of government revenue and the cornerstone of its export economy, crucial for maintaining currency stability. Faced with this reality, the Gulf countries leadership began to recognize that the era of soaring oil profits was close to an end, just as the region's population was continuing to rapidly grow. Between 2013 and 2023, the average annual population growth rate stood at 2.58%.[6] As a result, the social contract, based on redistributing oil revenues among citizens through social benefits, subsidies, government jobs, and the absence of taxes in exchange for giving up political ambitions, is now under threat. While the Gulf monarchies were only scarcely affected by the Arab Spring uprisings of 2010–2011, these events revealed significant shifts in the nature of this social contract. They even prompted some scholars to speculate about the potential imminent collapse of the region's monarchies[7].

Concerns about technological development and economic diversification in the region were raised long before the 2010s, for instance during the period of low crude prices in the 1980s. However, no concrete, effective measures were taken at the time to accelerate overcoming technological lag. Diversification mainly involved expanding capacities for deeper oil conversion to export higher value-added products. In some countries, during the 2000s, sectors like tourism, real estate, and global logistics began to play a modest role in diversification. The greatest success was seen in Dubai, one of the UAE's emirates, and Bahrain.

5 How can we turn things around? // Human Development Report, UNDP, 2022. URL: https://report.hdr.undp.org/how-can-we-turn-things-around

6 Calculated by the author based on the annual data from GCC Stat Data Portal: Population statistics in the GCC countries // GCC Stat Data Portal. URL: https://dp.marsa.gccstat.org/statistical-domain/population

7 Davidson C. (2012) After the Sheikhs: The Coming Collapse of the Gulf Monarchies. - London: Hurst Publishers.

Yet even in these cases, diversification was driven by unique circumstances: 1) prior to the oil era, Dubai already positioned itself as one of the region's key logistics hubs, so expanding the non-oil sector was always part of its broader development strategy. 2) For Bahrain, limited oil reserves and insufficient resources to support a rapidly growing population's standard of living played the decisive role. Meanwhile, Saudi Arabia, Abu Dhabi, Qatar, and Kuwait still have hydrocarbon reserves expected to last for decades. Nevertheless, in the late 2010s and early 2020s, these countries began making significant efforts toward technological diversification, primarily driven by above mentioned factors.

Table 4 highlights the existing contradictions in the technological development of the Gulf monarchies. While they outperform the global average on several key indicators, such as the Human Development Index and the ICT Development Index, they lag significantly behind in R&D investment and the number of scientists engaged in research and development (see Table 4). On the one hand, the Gulf monarchies have a relatively strong starting position to emerge as a new technological hub. On the other hand, they fall short on many critical parameters. Some countries in the region are actively working to address these imbalances: for example, the UAE has seen a steady increase in R&D spending as a percentage of GDP, rising from 0.5% in 2011 to 1.5% in 2021[8]. However, in other countries, this indicator still remains below 1%, which is less than the global average.

Indicator	**UAE**	**KSA**	**Qatar**	**Oman**	**Bahrain**	**Kuwait**	**Global average**
Human development index (2022)	0.937	0.875	0.875	0.819	0.888	0.847	0.739
R&D expenditures (% of GDP) (2023)	1.49 (2021)	0.56	0.68 (2021)	0.28	N/A	0.1	2.68
Researchers in R&D per 1 million people (2023)	2607 (2021)	1121	948 (2021)	655	N/A	159	1515 (2018)
Points in ICT Development Index (2024)	97.5	95.7	97.8	91.7	97.5	100.0	74.8
Digital Infrastructure Index (2023)	0.15	0.14	0.13	0.12	0.12	0.12	N/A

Table 4. The Gulf monarchies in global ratings. Sources: Human Development Report 2023-2024[9], World Bank Group[10], The ICT Development Index[11], Digital Infrastructure Index.[12]

8 Deryugina, I. Science and Technological Policy of the countries of the East and Africa (Egypt, Iran, UAE, Saudi Arabia, Ethiopia). Moscow: MGIMO-University Press., 2025 - 32 pp. URL: https://mgimo.ru/library/publications/scientific-technological-policy-of-the-countries-of-the-east-and-africa/

9 Expense on research and development (% of GDP) // World Bank Data. URL: https://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS

10 Ibid.

11 Measuring Digital Development – ICT Development Index 2024 // ITU, 2024. URL: https://www.itu.int/hub/publication/D-IND-ICT_MDD-2024-3/

12 Digital Infrastructure Index // International Monetary Fund, 2023. URL: https://www.imf.org/external/datamapper/DI@AIPI/ADVEC/EME/LIC

Despite their substantial financial resources, the Gulf monarchies still face relatively low starting positions in their bid to become a new global center of technological development or even to join the ranks of digital middle powers. Nevertheless, they have the potential to advance in cutting-edge technologies. With a clear national development strategy, strong political will, and the existential need to gradually transition away from a hydrocarbon-based economic model, meaningful progress appears achievable.

Main areas of technological progress

This section will provide a detailed overview of the main efforts undertaken by the Gulf monarchies to overcome technological lag and achieve leadership in advanced technologies, primarily in the field of artificial intelligence (AI). AI has become one of the priority areas of development in the region and is considered one of the key modern technologies capable of driving a new stage of development for the Gulf monarchies in the post-oil era. The strategy of these states in the field of technological development and diversification through technology follows two main directions:

1. accelerated technological development within their own countries through the transfer of foreign technologies;
2. investment in leading foreign tech companies and setting up of mutually beneficial partnerships.

The first area implies several tracks:

• **human capital**: accelerated development of domestic technological personnel through the establishment of specialized institutes, the updating of university curricula, the import of foreign teaching staff, as well as cooperation with international tech giants to train the population in applied skills;

• **regulation**: significant modernization of legislation in the field of technology aimed at creating the most favorable conditions;

• **creating national champions**: substantial government investment in the creation of national technology companies that promote advanced technologies in domestic markets and have the potential to export their own innovations;

• **Integration into global value chains**: a relatively new direction aimed at developing advanced industries, such as semiconductor manufacturing and the construction of data centers for storing data from other countries.

Another important dimension of this strategy is national security, specifically, the growing emphasis on digital sovereignty across the Gulf region. This shift reflects the central role that governments play in both technological development and economic planning. Unlike in the U.S. or EU, where innovation is largely driven by private tech companies, in the Gulf states it is the state itself that sets the agenda, defining priorities, funding development, and ultimately reaping the benefits. As part of this push, the concept of data sovereignty has gained

significant traction. New regulations increasingly require that sensitive and personal data be stored and processed within national borders. Combined with the region's rapid digital transformation, these legal reforms have sparked a data center construction boom. This wave of development has caught the attention of global tech giants, especially leading U.S. cloud providers like Amazon Web Services, Google Cloud, Microsoft Azure, and Oracle. Chinese firms such as Alibaba, Huawei, and Tencent have also been quick to follow, seeking a foothold in the Gulf's growing digital infrastructure landscape.

On the other hand, an important factor driving technology development in the Gulf monarchies is global prestige and regional competition. The leadership of the Arab countries aims to assert themselves on the world stage as states capable of creating their own innovations, not just net oil exporters. In this context, programs to promote advanced solutions and foster cooperation between universities and entrepreneurs have been introduced in recent years, along with the creation of government venture funds and accelerators. However, the ambitions often go far beyond the efforts made. For example, many of Saudi Arabia's strategic documents reflect the intention to become a leader in various technological fields[13]. On the other hand, regional competition plays a significant role: the leadership of the monarchies competes to be the first to adopt certain technologies (such as autonomous transportation or sovereign large language models), often without fully understanding their nature or the long-term potential for boosting economic performance.[14]

The second direction has attracted greater attention from global media and experts, primarily due to the multi-billion dollar deals made by the Emirati and Saudi companies. Over the past two years alone, experts have focused on the following events:

1) In spring 2024, the U.S. Department of Commerce, together with the State Department, brokered a deal between Microsoft and the Emirati AI national champion G42. Under the terms of the strategic partnership, the Emirati company is now restricted in its collaborations and must adhere to strict KYC (Know Your Client) rules to prevent technology transfer to Chinese competitors, who were previously G42's main partners[15]. The deal was prompted by American threats to halt the supply of advanced semiconductor

13 Deryugina, I. Science and Technological Policy of the countries of the East and Africa (Egypt, Iran, UAE, Saudi Arabia, Ethiopia). Moscow: MGIMO-University Press., 2025 - 32 pp. URL: https://mgimo.ru/library/publications/scientific-technological-policy-of-the-countries-of-the-east-and-africa/

14 Ibid.

15 Microsoft's UAE Deal Could Transfer Key US Chips, AI Technology Abroad // Reuters, 24.05.2024. URL; https://www.reuters.com/world/middle-east/microsofts-uae-deal-could-transfer-key-us-chips-ai-technology-abroad-2024-05-23/

models[16], as well as the Emirati leadership's belief in the superiority of American technologies.[17]

Officially, the UAE divester from Chinese technology companies and continued to deepen cooperation with American firms, signing several major partnerships focused on building infrastructure for AI technologies and data storage:

2) In September 2024, the Emirati state-owned company MGX, a joint venture between Abu Dhabi's sovereign wealth fund Mubadala and G42, became a member of the AI Infrastructure Partnership. This partnership also includes Microsoft, one of the largest American investment firms BlackRock, and the investment company Global Infrastructure Partners. The initial goal of the collaboration is to invest $30 billion in building data centers in the U.S. and partner countries. Ultimately, this figure is expected to grow to $100 billion[18].

3) In January 2025, MGX became part of the Stargate project alongside American companies OpenAI and Oracle, as well as Japan's SoftBank. The project aims to invest up to $500 billion in the development of artificial intelligence technologies[19].

4) Following the UAE, Saudi Arabia, which also develops technological partnerships with China, came under pressure. Faced with the threat of semiconductor supply cutoffs[20], Saudi Arabia scaled back its cooperation with China. In autumn, PIF, a Saudi Arabia's sovereign wealth fund, signed a partnership agreement with American company Google. This agreement involves building a new data center and advancing AI technologies in the region with Google's support[21].

5) Several new deals were signed during U.S. President Donald Trump's visit to the Gulf countries in May 2025. The newly established Saudi company Humain, owned by the PIF fund, entered into partnership agreements

16 G42 Made Secret Pact with US to Divest from China Before Microsoft Deal // Bloomberg, 16.04,2024. URL: https://www.bloomberg.com/news/articles/2024-04-16/g42-made-secret-pact-with-us-to-divest-from-china-before-microsoft-deal

17 Allen, G., Adamson, G., Heim, L. and Winter-Levy S. United Arab Emirates' AI Ambitions // CSIS, 24.01.2025. URL: https://www.csis.org/analysis/united-arab-emirates-ai-ambitions

18 Abu Dhabi's MGX teams up with BlackRock and Microsoft to raise up to $100bn for AI infrastructure // The National News, 18.09.2024. URL: https://www.thenationalnews.com/future/technology/2024/09/18/abu-dhabis-mgx-teams-up-with-blackrock-and-microsoft-to-raise-up-to-100bn-for-ai-infrastructure/

19 Announcing the Stargate Project // OpenAI, 2024. URL: https://openai.com/index/announcing-the-stargate-project/

20 China Divestment: Saudi Fund Alat AI to Become Major Hub // Business Insider, 08.05.2024. URL: https://www.businessinsider.com/china-divestment-saudi-fund-alat-ai-artificial-intelligence-us-request-2024-5#:~:text=Saudi%20AI%20firm%20Alat%20would,to%20become%20a%20major%20hub

21 Soliman M. Beyond Oil: Google's Big Bet on Saudi Arabia's AI Future. Middle East Institute. 31.10.2024. https://mei.edu/publications/beyond-oil-googles-big-bet-saudi-arabias-ai-future

with American firms Nvidia, Amazon, AMD, Qualcomm, Cisco, and Groq. These deals, valued at tens of billions of dollars, involve developing cloud infrastructure in Saudi Arabia using American-made semiconductors. The U.S. also signed a major agreement with the UAE to build the largest data center outside the U.S. using American technology. The construction and operation of the center will be jointly managed by G42, Oracle, and OpenAI, all being participants in the Stargate project.[22]

The deals made by the UAE and Saudi Arabia are among the most high-profile in the global tech market. However, other countries in the region are pursuing similar paths; for example, Oman's sovereign wealth fund has invested in xAI, an AI technology company founded by American entrepreneur Elon Musk.[23]. Qatar's sovereign wealth fund, QIA, has adopted a more nuanced strategy: instead of chasing big names, the fund chooses to invest in low-profile projects at earlier stages. For example, in November 2023, it invested in the AI analytics company DataBricks; in November 2024, it participated in a funding round for the American AI platform Cresta; and in January 2025, it invested $100 million in the U.S. data-processing startup Instabase.

The scale of investments and ongoing tech projects show that the Arab monarchies are very serious in their plans, positioning them as potential new global technology powers. So far, they have been known primarily for their financial resources, but they also have the potential to create their own innovations and play a significant role in the global value chain of modern technologies.

This is evidenced by the notable successes of Middle Eastern monarchies in developing local solutions in areas such as e-commerce, urban mobility, fintech, and more. Although the business models of many such applications often mirror those of Western companies, significant resources are required to develop the underlying technological solutions and adapt them to local markets. Some regional players have even been acquired by global corporations wary of competition in local markets: for example, Uber purchased the taxi aggregator Careem, Amazon acquired the e-commerce platform Souq.com, and the German company Delivery Hero took over the food delivery service Talabat.

Telecom operators like Saudi Arabia's STC and the UAE's Etisalat have begun building their own ecosystems, including apps for e-commerce, urban mobility, and financial services. Over the past decade, many other local players have also emerged across the region:

22 OpenAI, Oracle to Help UAE Develop Massive Data Center

23 Oman's Investment Authority acquires stake in Elon Musk's xAI company, state news says // Reuters, 18.12.2024. URL: https://www.reuters.com/technology/artificial-intelligence/omans-investment-authority-acquires-stake-elon-musks-xai-company-state-news-says-2024-12-18/

- In fintech, notable players include Saudi BNPL (Buy Now, Pay Later) solutions Tamara and Tabby, Emirati banks Wio and Liv, as well as several Saudi banks.
- Food delivery services are led by Saudi apps such as Mrsool, Hunger Station, Jahez, Kitopi, and Nana.
- Key players in e-commerce platforms include Noon, Namshi, and Floward.
- In digital entertainment services (video and music streaming), prominent platforms are Shahid, OSN, StarzPlay, and Shasha.
- The Saudi company HudHud focuses on developing mapping and navigation solutions.
- Local Saudi firms like Elm, Thiqah, and Tahakom create advanced e-government solutions.

The region is also rapidly developing the financial infrastructure to support tech startups: accelerators such as Hub71 in the UAE and The Garage in Saudi Arabia are emerging, and the number of venture funds[24] and business angel associations is growing. Even traditionally conservative family offices have started paying attention to new technology companies. All of this indicates that the region has the potential to train its own engineers and entrepreneurs capable of developing national technologies and bringing them to market.

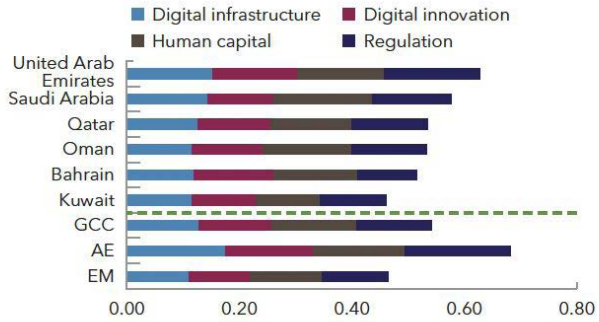
24 GCC VC funding soars 30% amid global downturn // Zawya, 11.10.2024. URL: https://www.zawya.com/en/wealth/alternative-investments/gcc-vc-funding-soars-30-amid-global-downturn-p5zrea2s

Regional classification by advanced technology development

Based on their success in developing advanced technologies and the priority given to these solutions at the state level, the countries in the region can be grouped into three categories: 1) leaders (UAE and Saudi Arabia); 2) catching up (Qatar, Bahrain, and Oman); and 3) lagging behind (Kuwait).

Box Figure 1.2. AI Preparedness by Components

(Scaled score to [0, 0.25] each higher = better)



Source: Cazzaniga and others (2024).

Note: AE = advanced economy; EM = emerging market; GCC = Guld Cooperation Council.

Fig 1. Comparison of the Gulf monarchies by AI preparedness by components
Source: Digital Transformation in the Gulf Cooperation Council Economies // IMF, 01.04.2025. URL: https://www.imf.org/en/Publications/Departmental-Papers-Policy-Papers/Issues/2025/04/01/Digital-Transformation-in-the-Gulf-Cooperation-Council-Economies-557187

1) Leaders

This group includes the UAE and Saudi Arabia. They were the first in the region to prioritize the development of advanced technologies, including AI, and currently lead other Gulf countries in various rankings related to this technology. In the late 2010s, the UAE and Saudi Arabia shifted from relying on stopgap measures or isolated megaprojects, such as Masdar City in Abu Dhabi or King Abdullah Economic City in Saudi Arabia, to adopting a comprehensive approach, reflected in four key areas (see below). As a result, the UAE aims to generate 20% of its non-oil GDP from AI by 2031[25]. However, due to differences in economic development and demographics, the countries' approaches vary significantly.

25 Allen, G., Adamson, G., Heim, L. and Winter-Levy S. United Arab Emirates' AI Ambitions // CSIS, 24.01.2025. URL: https://www.csis.org/analysis/united-arab-emirates-ai-ambitions

Rating	UAE	KSA	Qatar	Oman	Bahrain	Kuwait
Government AI Readiness Index 2024 (place in the rating)	13	22	32	45	68	77
AI Maturity Matrix (place in the rating)	top 25%	top 50%	top 75%	top 90%	top 90%	top 90%
The Global AI Index (place in the rating)	20	14	54	64	62	-
Global Index on Responsible AI (points)	44.66	28.95	29.84	14.8	8.71	19.11
AI Preparedness Index (IMF) (points)	0.63	0.58	0.53	0.53	0.52	0.46

Table 5. AI development indexes in the Gulf monarchies.

Source: Government AI Readiness Index 2024[26], AI Maturity Matrix (BCG)[27], The Global AI Index[28], Global Index on Responsible AI[29], AI Preparedness Index (IMF)[30]

1.1 Training and developing local talent

The shortage of qualified personnel is a pressing issue in the Gulf countries. In the smaller states of the region, most citizens prefer government jobs due to higher salaries, lighter workloads, and lower skill requirements. Such work doesn't demand a high level of technical expertise from university graduates, and the most attractive sector in both the public and private spheres remains oil and gas. Against this backdrop, developing local technical talent capable of building national tech companies, bringing competitive products to market, and creating their own regulatory frameworks is an urgent challenge.

The UAE and Saudi Arabia have the most advanced educational infrastructure in this field. UAE universities tend to be relatively small and specialized due to the limited number of citizens and foreign students, while Saudi universities have the capacity to produce national tech talents in numbers. The largest and most well-known Saudi universities, King Saud University in Riyadh, King Fahd University of Petroleum and Minerals in Dammam, and King Abdulaziz University in Jeddah, have steadily climbed global rankings in technology disciplines over the past decade. In the QS ranking for Engineering and Technology, King Fahd University of Petroleum and Minerals ranks 40th (101st overall), King Abdulaziz University ranks 71st (149th overall), and King Saud University ranks 112th (200th overall).[31] More than two-thirds of the leaders

26 Government AI Readiness Index 2024 // Oxford Insighs, 2024. URL: https://oxfordinsights.com/ai-readiness/ai-readiness-index/

27 The AI Maturity Index // BCG, 2024. URL: https://web-assets.bcg.com/fe/61/6962e74b44328f148c8a9ac1002d/ai-maturity-matrix-nov-2024.pdf

28 The Global AI Index // Tortoise Media, 2024. URL: https://www.tortoisemedia.com/data/global-ai

29 Global Index on Responsible AI // Global Center on AI Governance, 2024. URL: https://www.global-index.ai/

30 AI Preparedness Index // IMF, 2024. URL: https://www.imf.org/external/datamapper/datasets/AIPI

31 QS World University Rankings by Subject 2025: Engineering & Technology // QS Top Universities. 12.03.2025. URL: https://www.topuniversities.com/university-subject-rankings/engineering-technology?countries=sa

of Saudi tech companies and government agencies in charge of information technology have graduated from these universities[32].

The main technical universities in the UAE have also made significant progress: between 2015 and 2025, Khalifa University rose in the QS rankings from the 441–450 range to 202nd place, while the United Arab Emirates University moved up from 385th to 261st[33]. The UAE has also established a specialized AI institute, the Mohamed bin Zayed University of Artificial Intelligence. Founded in 2019, the university quickly gained a strong reputation among AI experts. Initially, it offered only graduate and postgraduate programs, aiming to attract established researchers and specialists to secure top positions in global rankings for the quality and quantity of AI-related research papers and thesis. In 2025, the university announced the launch of its first bachelor's program in AI. Meanwhile, most of the university's staff and students are foreigners, with UAE citizens making up a small minority. This ratio reflects the broader tech sector in the country. Due to demographic factors, unlike Saudi Arabia, the UAE is unlikely to develop advanced technologies solely through national talent and will continue to rely significantly on foreign specialists. So far, this strategy has been effective: the UAE leads other Gulf countries on many advanced technology development indicators, as well as in the number of R&D researchers per million people (see Table 4). The UAE also surpasses other countries in the region in the number of patents registered domestically, totaling 2,423 in 2021. However, it's important to note that 97% of these patent applications were filed by non-residents, i.e., foreigners.[34]. The leaders in terms of patent applications are Khalifa University, UAE University, the oil and gas company ADNOC, the petrochemical firm Abu Dhabi Polymers Company Limited, and the metallurgical holding Shaheen Innovations. It means that the majority of patents are in the oil and gas sector and heavy industry. Computer technology accounts for 10.5% of patents[35], indicating that for the UAE to become a fully-fledged tech hub, it needs to invest more actively in R&D within the ICT sector.

1.2. Setting up national technological companies

The UAE and Saudi Arabia were the first in the region to focus not only on talent development and research but also on the practical application of these technologies. To this end, national tech companies began to emerge,

32 Calculated by the author based on data from personal social media profiles of Saudi executives.

33 Khalifa University // QS Top Universities. URL: https://www.topuniversities.com/universities/khalifa-university; United Arab Emirates University // QS Top Universities. URL: https://www.topuniversities.com/universities/united-arab-emirates-university

34 Russia and the UAE: Pathways for Technological Cooperation // Roscongress, 14.06.2023. URL: https://roscongress.org/materials/rossiya-i-oae-puti-tekhnologicheskogo-vzaimodeystviya/

35 Ibid.

developing solution-oriented products primarily based on artificial intelligence. These companies have become part of a state-backed AI ecosystem that includes the key components necessary for progress in this field: 1) access to high-quality, structured datasets essential for training large language models; 2) data processing infrastructure (data centers and semiconductors); and 3) engineering talent to develop new solutions.

In the UAE, the leading company in advanced technologies is G42, whose chairman is Sheikh Tahnoon bin Zayed Al Nahyan, the UAE President's National Security Advisor. This clearly shows how seriously the country's leadership takes development in this area. G42 aims to cover every link in the AI value chain (see Figure 2): from building data centers (Khazna) to specialized AI products designed to solve problems in specific industries (M42 for healthcare, AIQ for oil and gas, Space42 for satellite communications and geoanalytics). The company has also launched its own chatbot, Jais[36]. G42 strives to develop its own technologies and employs around 25,000 people[37]. However, most of its workforce are foreigners, many from China, since G42 initially partnered with Chinese firms. After its deal with Microsoft in early 2024, the company shifted its focus towards collaboration with American companies.

Fig.2. G42 subsidiaries and their place in the AI supply chain. Source: Center for Strategic and International Studies[38].

Among the Gulf monarchies, the UAE ranks second in the number of data centers (see Figure 3). These are built by both foreign and domestic companies, including Khazna, owned by G42, and Moro Hub, which is affiliated with Dubai Electricity and Water Authority (DEWA). Data centers located in Abu Dhabi are managed by Zero Two, a company owned by the sovereign wealth fund ADQ. In effect, the UAE's data infrastructure and AI development are closely linked to G42: both ADQ and G42 are chaired by Sheikh Tahnoon bin Zayed, the country's leading proponent of AI advancement.

36 G42 launches JAIS 70B and 20 other AI models to advance Arabic natural language processing // Abu Dhabi Media Office, 06.08.2024. URL: https://www.mediaoffice.abudhabi/en/technology/g42-launches-jais-70b-and-20-other-ai-models-to-advance-arabic-natural-language-processing/

37 G42 // Mubadala. URL: https://www.mubadala.com/en/what-we-do/g42

38 Allen, G., Adamson, G., Heim, L. and Winter-Levy S. United Arab Emirates' AI Ambitions // CSIS, 24.01.2025. URL: https://www.csis.org/analysis/united-arab-emirates-ai-ambitions

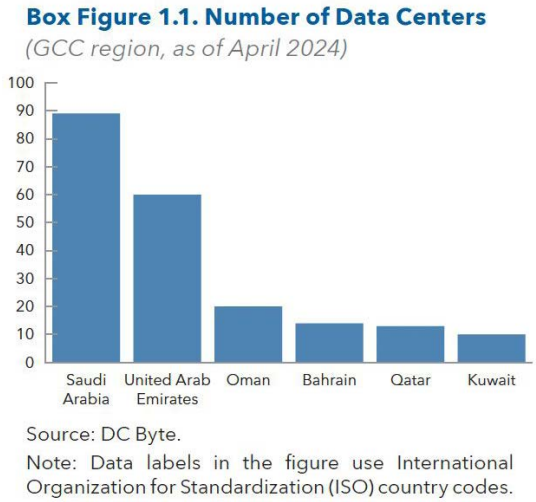


Fig 3. Number of data centers in the Gulf monarchies as of April 2024.
Source: Digital Transformation in the Gulf Cooperation Council Economies, IMF.
https://www.imf.org/en/Publications/Departmental-Papers-Policy-Papers/Issues/2025/04/01/Digital-Transformation-in-the-Gulf-Cooperation-Council-Economies-557187

Among Saudi companies, key players include the Saudi Company for Artificial Intelligence (SCAI), Elm, and various entities under the NEOM, an innovative project of a city of the future. Elm initially operated as a private company developing IT solutions for various clients but came under the control of the Public Investment Fund (PIF) in the mid-2010s. SCAI and NEOM were established after the launch of the Vision 2030 reform program specifically to drive the development of advanced technologies. SCAI works closely with the Saudi Data and AI Authority (SDAIA), which manages the country's national data bank. This gives the company exclusive access to a vast array of data sources. Saudi Arabia has also made it a priority to develop Arabic-language AI models and datasets, including those in various dialects. Programs in this area are being implemented by the King Salman Global Academy for the Arabic Language, established in 2020[39]. To address the shortage of data processing infrastructure, Saudi Arabia is actively attracting foreign companies to build new data centers and establish cloud regions that enable fast and efficient information processing. These partners include leading American and Chinese tech firms, as well as South Korea's Naver.[40].

1.3. Regulation

Regulation has arguably become the second most critical area in the tech sector, after the development of the technologies themselves. It encompasses not only the creation and use of AI, but also the collection, processing, and storage of the data required to build it. The emergence of new international bodies, special committees and councils under the UN and other organizations, along with global tech companies signing international self-regulation

39 King Salman academy launches AI Arabic language processing center // Arab News, 30.04.2024. URL: https://www.arabnews.com/node/2501956/saudi-arabia.

40 Naver to set up Middle Eastern headquarters in Saudi Arabia // KED Global, 23.09.2024. URL: https://www.kedglobal.com/artificial-intelligence/newsView/ked202409230014

agreements, all point to the growing importance of regulation at a global level. The U.S. and the EU are competing for leadership in this area, actively promoting their regulatory frameworks in international forums and multilateral meetings.

In the Gulf and broader Middle East, the UAE and Saudi Arabia are competing for leadership. In the UAE, a dedicated AI Office was established in 2017, headed by the Minister of State for Artificial Intelligence, Remote Work Applications, and the Digital Economy. The UAE also became the first country in the region to publish a doctrinal document on AI, its National AI Strategy 2031, released in 2021. This was followed by the AI Ethics Policy, the Charter for the Development and Use of Artificial Intelligence, and Foreign Policy on Artificial Intelligence (see Table 6).

However, none of these documents are legally binding; they outline recommended principles for AI development and leave companies with considerable freedom to innovate, test, and deploy new technologies. In contrast, data legislation is significantly stricter. For example, Dubai's Data Law, enacted in 2015 (applicable only within the emirate), imposes strong restrictions on the cross-border transfer of sensitive and personal user data, as does the Federal Personal Data Protection Law adopted in 2021.[41]

Saudi Arabia is also active in the area of tech regulation. Oversight is handled by SDAIA, a government body reporting directly to the Prime Minister and operating alongside the Ministry of Communications and IT. Similar to the UAE's AI Office, SDAIA mainly focuses on soft law, aiming to leave enough room for companies to develop and test new technologies. However, Saudi regulation can be quite specific. The kingdom emphasizes AI applications in particular sectors, for example, in 2025, it released generative AI in education guidelines. Data regulation remains a top priority in Saudi Arabia, especially in terms of data storage and processing. The Personal Data Protection Law, enacted in 2021, is considered by some to be significantly stricter than comparable laws in other Gulf countries[42] and draws heavily from the EU's General Data Protection Regulation (GDPR), one of the most rigorous frameworks globally. Overall, Saudi Arabia has taken a firmer regulatory stance on data and AI compared to the UAE, where a soft law approach dominates. This difference may stem from the UAE's homegrown tech champion, G42, which can lobby at the highest levels for looser AI regulations to allow greater flexibility in development and experimentation. In contrast, despite the presence of domestic tech firms, Saudi Arabia remains more reliant on foreign companies, whose ambitions the government is keen to keep under control.

41 Digital Dubai: Data Regulations // Digital Dubai. URL: https://www.digitaldubai.ae/data/regulations; Personal Data Protection Law // UAE Artificial Intelligence Office. URL: https://ai.gov.ae/personal-data-protection-law/

42 Comparison between GCC Data Protection Legislation // Plexal, 2023. URL: https://www.plexal.com/wp-content/uploads/2023/09/COMPARISON-BETWEEN-GCC-DATA-PROTECTION-LEGISLATION_.pdf

Saudi Arabia is also working to assert influence over the global regulatory agenda for advanced technologies, particularly among developing countries. To this end, the Kingdom established the Digital Cooperation Organization (DCO) in 2017. Its official mission is to promote an inclusive and sustainable digital future for all member states.

As of 2025, the organization includes 16 Arab and African countries, including all Gulf monarchies except the UAE, which pursues its own innovation agenda[43] independently. One of the DCO's flagship initiatives is the establishment of the world's first international Center of Excellence for Generative Artificial Intelligence in Riyadh. The goal of the center is to enable DCO member states to become not just consumers, but also developers of generative AI solutions, and to take on leadership roles in innovation and intellectual property.

43 Digital Cooperation Organization: Governance // DCO, 2024. URL: https://dco.org/governance/#council-members

Category	UAE	KSA	Qatar	Oman	Bahrain	Kuwait
Strategic development documents	- UAE National Strategy for Artificial Intelligence 2031 (2021) - Dubai Universal Blueprint for Artificial Intelligence (2024)	National Strategy for Data and AI (2020)	Qatar's National Artificial Intelligence Strategy, adopted in 2019, was never implemented, and the full text is currently unavailable. Official press releases reference a National AI Strategy and Digital Agenda 2030, but the contents of this document are also not publicly accessible.[44]. Some experts suggested their own drafts[45]	- National Program for AI and Advanced Digital Technologies (2024) - There is also Future Opportunities for Artificial Intelligence Applications and Advanced Technologies in the Sultanate of Oman white paper[46]	No public data is available	The national strategy is still in the making, a draft document for 2025–2028, developed by the Central Agency for Information Technology[47], is currently available to the public. There is also Kuwait's National AI Strategy Framework[48], proposed by Microsoft

44 His Excellency the Prime Minister unveils FANAR: a breakthrough in Arabic AI // Government Communications Office, 11.12.2024. URL: https://www.gco.gov.qa/en/media-centre/top-news/his-excellency-the-prime-minister-unveils-fanar-a-breakthrough-in-arabic-ai/

45 National Artificial Intelligence Strategy for Qatar // Qatar Computing Research Institute, 2019. URL: https://qcai-blog.qcri.org/wp-content/uploads/2020/04/QCRI-Artificial-Intelligence-Strategy-2019-ENG.pdf

46 Future Opportunities for Artificial Intelligence (AI) Applications in the Sultanate of Oman // ITA Oman, 2021. URL: https://www.ita.gov.om/itaportal/Data/English/DocLibrary/202161395323666/Future%20Opportunities%20for%20Artificial%20Intelligence%20(AI)%20Applications%20in%20the%20Sultanate%20of%20Oman%202.pdf

47 Kuwait National AI Strategy 2025-2028 // CAIT, 2024. URL: https://cait.gov.kw/media/filer_public/3f/b4/3fb49a45-4a78-4489-8898-b68e2bd260ca/kuwait_national_strategy.pdf

48 Kuwait National AI Strategy Framework // Microsoft, 2024. URL: https://info.microsoft.com/CE-GOV-CNTNT-FY24-05May-21-Kuwait-National-AI-Strategy-Framework-SRGCM11996_LP01-Registration---Form-in-Body.html

Category	UAE	KSA	Qatar	Oman	Bahrain	Kuwait
AI legislation	- AI Ethics Principles and Guidelines (2022) - AI Adoption Guideline in Government Services (2023) - The Charter for the Development and Use of Artificial Intelligence (2024) - Foreign Policy on Artificial Intelligence (2024)	- AI Ethics Principles (2022) - Generative AI Guidelines (2024) - Generative AI in Education Guidelines (2025)	No public data available	- National Artificial Intelligence Policy (2024) - Public Policy for the Safe and Ethical Use of Artificial Intelligence Systems (2025)	The draft of AI Law was passed by the Parliament but blocked by the Government (2024)	No public data available
The regulator and the year of its establishment (in case there is a specialized AI regulatory body)	Artificial Intelligence, Digital Economy and Remote Work Applications Office (2017)	Saudi Authority for Data and Artificial Intelligence (SDAIA) (2019)	Ministry of Communications and IT – Artificial Intelligence Committee (2021)	Ministry of Transport, Communications and IT	Information & eGovernment Authority	Communication and Information Technology Regulatory Authority (CITRA) and Central Agency for Information Technology (CAIT)

Table 6. AI development and its regulation in the Gulf monarchies.
Source: compiled by the author based on open data, as well as the Global AI Regulation Tracker.[49]

49 Global AI Regulation Tracker // TechieRay. URL: https://www.techieray.com/GlobalAIRegulationTracker

1.4. Global semiconductor manufacturing supply chains

The UAE and KSA are the only countries in the Gulf, as well as in the entire Middle East, currently making active efforts to integrate into the global semiconductor manufacturing supply chains. Semiconductors are the foundation for AI development: the latest chip models are used to process massive amounts of data necessary for training large language models. Consequently, controlling semiconductor manufacturing chains essentially means controlling the development of AI technologies.

Although semiconductors are among the most globalized technologies, involving many countries in their creation, the key stages are controlled by a limited number of companies and states. For example, only two companies in the world, TSMC and Samsung, have mastered the production of advanced 3-nanometer chips; less complex chips are also produced by a narrow group of companies—TSMC, Samsung, Intel, SMIC, SK Hynix, and GlobalFoundries[50]. The machinery for producing advanced chip models is designed and assembled by just one company, the Dutch firm ASML; most companies involved in designing advanced chip models, including Nvidia, are headquartered in the United States. As a result, all the bottlenecks in the advanced semiconductor manufacturing chain are controlled by Washington or its closest allies, giving the United States an extremely effective tool of foreign policy pressure. This has been successfully tested on the UAE and Saudi Arabia, which were forced to abandon cooperation with Chinese companies in the AI sector.

Aware of their vulnerability, both monarchies are trying, in one way or another, to integrate into global manufacturing supply chains, but they have chosen different strategies. Saudi Arabia has preferred to develop its own technologies and does not aim to produce the most advanced semiconductor models. In a move to create national fabrication plants for mass production of simpler chip models, the company Alat was established in early 2024 under the auspices of the PIF fund in the kingdom. One of its executives stated: "We want to do humble beginnings. Once we have built a base, then we can talk [about something bigger]"[51]. KSA has established National Semiconductor Hub, an ecosystem aimed at attracting or creating 50 chip manufacturing companies in the kingdom by 2030[52]. Seeking to create demand for chips produced on its territory, KSA has begun attracting manufacturers of electronic devices and automobiles. For example, Lenovo and Dell (laptops), as well as Hyundai, Lucid, and potentially several Chinese car companies, have announced plans to open

50 The Generative World Order: AI, Geopolitics and Power // Goldman Sachs, 14.12.2023. URL: https://www.goldmansachs.com/insights/articles/the-generative-world-order-ai-geopolitics-and-power

51 Saudi Arabia's Chip Design Ambitions Take Shape With New Hub // Bloomberg, 05.06.2024. URL: https://www.bloomberg.com/news/articles/2024-06-05/saudi-arabia-s-chip-design-ambitions-take-shape-with-new-hub

52 Saudi Arabia's digital economy growth // Arab News, 05.06.2024. URL: https://www.arabnews.com/node/2524301/business-economy

factories in Saudi Arabia[53].

The UAE aims to play big and immediately acquire some of the most advanced technologies in the world. As a result, they also abandoned partnerships with Chinese companies in the AI sector, choosing to partner with Microsoft instead[54]. In 2024, it was reported that the sovereign wealth fund Mubadala held talks with the leadership of TSMC and Samsung regarding the prospects of building new fabrication plants producing the latest chip models on the territory of Abu Dhabi[55]. Meanwhile, this is not Mubadala's first attempt to become a significant player in the semiconductor industry: in 2009, the fund acquired a stake in the American chip manufacturer GlobalFoundries and later increased its share to 85%. However, the company lost out to TSMC and Samsung in the competition to produce the latest chip models. As a result, since 2024, Mubadala has been trying to sell its stake[56].

2) Catching up

Countries in this category include Qatar, Bahrain, and Oman. By some parameters, they are on par with Saudi Arabia and sometimes even surpass the UAE; however, due to relatively limited resources (in the case of Bahrain and Oman) and prioritization of other sectors, the development of advanced technologies has not been realized to the same extent as in the first two monarchies. Although, the progress achieved in this economic sector remains relatively limited to date, a fact further underscored by the lack of a dedicated governmental authority overseeing AI development and regulation. In all three countries, this technology falls under institutions overseeing information technology in general: the Ministry of IT and Communications in Qatar, the Ministry of Transport, Communications, and IT in Oman, and the Information and eGovernment Authority in Bahrain. Moreover, all three monarchies are much less active in AI regulation and make virtually no attempts to integrate into the global semiconductor manufacturing supply chains.

These countries also began investing resources in data processing

53 Chinese car makers in talks to start production in Saudi Arabia – report // Zawya, 10.09.2024. URL: https://www.zawya.com/en/business/transport-and-logistics/chinese-car-makers-in-talks-to-start-production-in-saudi-arabia-report-ixgfqm0o

54 Allen, G., Adamson, G., Heim, L. and Winter-Levy S. United Arab Emirates' AI Ambitions // CSIS, 24.01.2025. URL: https://www.csis.org/analysis/united-arab-emirates-ai-ambitions

55 Chip Giants TSMC and Samsung Discuss Building Middle Eastern Megafactories // The Wall Street Journal, 22.09.2024. URL: https://www.wsj.com/tech/ai/chip-giants-tsmc-and-samsung-discuss-building-middle-eastern-megafactories-65adc854

56 Mubadala offers to sell $950 million of GlobalFoundries shares // Bloomberg, 22.05.2024. URL: https://www.bloomberg.com/news/articles/2024-05-22/mubadala-offers-to-sell-950-million-of-globalfoundries-shares

infrastructure and AI development much later than their neighbors. For example, Qatar started significantly investing in advanced technologies at the turn of the 2010s and 2020s. In Qatar, less emphasis is placed on training local engineers; instead, the focus is made on importing foreign personnel and technologies and developing some local capacities based on them. In 2024, the Ministry of Communications and IT of Qatar announced the expansion of data centers as part of a partnership with Microsoft, intended to implement the company's AI services based on its cloud platforms across 143 government and semi-government agencies[57]. At the same time, the Abu Dhabi government, which in 2025 announced ambitious plans to implement AI across government institutions, aims to leverage in-house developments from the company G42.

Qatar is trying to develop its own AI technologies, but in terms of scale, its efforts currently lag behind those of the Emirates. For example, the large language model Fanar, developed at the Qatar Computing Research Institute (CRI) under Hamad Bin Khalifa University with funding from the Ministry of Communications and IT, has 7 billion parameters, while Fanar Prime has 8.87 billion. The goal of this project is to advance Arabic-language AI and strengthen its presence in the global digital future[58]. Thus, this project directly competes with Saudi Arabia's ambitions to promote its own Arabic-language AI initiatives based on SDAIA and the King Salman Academy of the Arabic Language. Another source of funding for AI technologies has been Qatar's state telecommunications monopoly, Ooredoo. The company signed an agreement with Nvidia to deploy AI technologies in the data centers of the Qatari operator across five countries in the Middle East. Therefore, while countries in the first category create specialized companies to develop AI, those in the second category prefer to invest in AI advancement through existing companies, primarily state telecom operators. For example, OmanTel is responsible for developing AI data centers in Oman, and in Bahrain, Batelco and the subsidiary of the Saudi telecom operator STC Bahrain take on this role.

Qatar is also less active in investing in foreign AI-specialized companies and does not claim a leading position in regulating new technologies. Nevertheless, the country has certain ambitions, which are reflected in the realm of international events: since 2023, the WebSummit, one of the main regional technology exhibitions and conferences, has been held annually in Doha. Additionally, in 2024, the World AI Summit took place in Qatar, gathering leading global experts in AI and its regulation.

57 MCIT teams up with Microsoft to expand cloud data centers for AI innovation // Ministry of Communications and Information Technology, Qatar, 2024. URL: https://www.mcit.gov.qa/en/news/mcit-teams-up-with-microsoft-to-expand-cloud-data-centers-for-ai-innovation/

58 His Excellency the Prime Minister unveils Fanar, a breakthrough in Arabic AI // Government Communications Office, 11.12.2024. URL: https://www.gco.gov.qa/en/media-centre/top-news/his-excellency-the-prime-minister-unveils-fanar-a-breakthrough-in-arabic-ai/

As for Bahrain, it is best known in the technology sphere for its fintech ecosystem and progressive financial legislation. It is one of the first centers of the cryptocurrency and blockchain industry in the Middle East, having created attractive conditions for pioneering companies in this field. In particular, it was home to the first cryptocurrency exchanges in the Middle East, such as CoinMENA, Rain, BitOasis. The regional offices of major global exchanges such as Kraken were established there. Furthermore, the international leader in cryptocurrency trading, Binance, received its first license to provide crypto asset services in the Gulf countries precisely in Bahrain[59].

On the other hand, Bahrain lags significantly behind in developing data processing infrastructure, trailing behind the UAE, KSA, and Oman (see Figure 3), as well as AI technologies. However, Bahrain seeks to become a leader in strict AI regulation similar to the EU countries: in 2024, the country's parliament passed an AI law, but its implementation was blocked by the country's leadership[60]. Bahrain also proposed a regional initiative for regulating this technology at the GCC level, the AI Ethical Framework, which was approved by the GCC countries in April 2024.[61]

Lacking substantial free financial resources, Bahrain cannot invest in creating national champions in AI like the UAE and KSA. Currently, its efforts focus on developing human capital and identifying successful AI use cases to improve efficiency across various economic sectors in partnership with foreign companies. For example, in April 2025, the Bahrain Labour Fund announced a program to train 50,000 people in AI by 2030.[62] Acting in partnership with Microsoft and Bahrain Polytechnic University, the fund launched the Artificial Intelligence Academy, providing Bahraini citizens, students aged 15 to 27, as well as educators, with access to Microsoft's online AI courses[63].

Oman's technological development has never attracted much attention from the media and experts. Yet it has made significant progress in digitalizing its economy, advancing cutting-edge technologies, and training national talent. A vivid example of this is that Oman became the first Gulf country to have a locally founded startup in urban mobility, the ride-hailing platform

59 Binance gets its first Gulf crypto licence – Bahrain // Reuters, 15.03.2022. URL: https://www.reuters.com/business/finance/binance-gets-its-first-gulf-crypto-licence-bahrain-2022-03-15/

60 AI Regulation Bill Faces Pushback as Bahrain Eyes Practical Alternatives // News of Bahrain, 23.11.2024. URL: https://www.newsofbahrain.com/bahrain/105401.html

61 GCC Endorses Bahrain Ethical Framework for AI // News of Bahrain, 18.04.2024. URL: https://www.newsofbahrain.com/bahrain/98444.html#:~:text=The%20Public%20Representatives%20and%20Prosecutors,Dr.

62 Following Directives from HH Shaikh Isa bin Salman bin Hamad Al Khalifa Tamkeen Launches First-of-its-kind Program to Train 50,000 Bahrainis in Artificial Intelligence // Tamkeen, 09.04.2025. URL: https://www.tamkeen.bh/en/ai-training-bundles/

63 AI Academy // Bahrain Polytechnic. URL: https://ai.polytechnic.bh/

Otaxi (Careem, based in the UAE, was founded by foreigners). The project, developed by an Omani team, has achieved significant success in the local market, gaining public trust and managing to maintain its market share despite competition from the Middle Eastern aggregator Careem, owned by the American company Uber.

Overall, Oman takes a comprehensive approach to developing human capital and its own technologies. For example, one of the four key targets of the National Program for AI and Advanced Digital Technologies is to increase the number of scientific publications in AI by 20% annually[64].

Oman also prioritizes the development of data centers. According to DC Byte as of April 2024, it ranked third among Gulf monarchies in the number of data centers (see Figure 2). At the end of 2024, the sultanate announced the construction of the second biggest data center in the Middle East, located in the Dhofar province[65]. In 2025, Oman launched its National Program for AI and Advanced Digital Technologies, establishing a dedicated strategy for digital development. This built on earlier momentum from 2024, when the government enacted its National Artificial Intelligence Policy to create an independent regulatory framework for AI.[66]

Oman has started focusing on the development of the semiconductor industry, albeit on a smaller scale than in Saudi Arabia (KSA) and the UAE. In February 2025, the Ministry of Transport, Communications, and IT of Oman signed a memorandum of understanding with the Taiwanese company EONH Private Holdings to establish a semiconductor manufacturing plant in the Salalah area. The company plans to create high-performance memory solutions and AI chips.[67] Oman is also home to a division of GS Micro Electronics, which develops its own chips, including the Oman 1 and Oman 2 models[68]. Nevertheless, the size of both companies and the level of their technologies pale before the UAE and KSA ambitions.

Thus, compared to the leading countries, the catching up states prioritize AI development to a much lesser extent: less attention is given to workforce

64 National Program for Artificial Intelligence and Digital Advanced Technologies // Sultnate of Oman, Ministry of Transport, Communications and Information Technology, 2024. URL: https://www.mtcit.gov.om/ITAPortal//Data/SiteImgGallery/202412310846123/National%20Program%20for%20AI%20and%20Advanced%20Digital%20Technologies%20-%20Public%20Version.pdf

65 Omantel unveils new data center in Dhofar // Oman Observer, 17.08.2024. URL: https://www.omanobserver.om/article/1157782/business/economy/omantel-unveils-new-data-center-in-dhofar

66 National Artificial Intelligence Policy // Sultanate of Oman, Ministry of Transport, Communications and Information Technology. URL: https://www.ita.gov.om/itaportal/Data/SiteImgGallery/2024731125545486/National%20Artificial%20Intelligence%20Policy.pdf

67 Oman to develop AI chips, semiconductor industry in Salalah // Oman Observer, 17.02.2025. URL: https://www.omanobserver.om/article/1166435/business/oman-to-develop-ai-chips-semiconductor-industry-in-salalah

68 Oman: an ideal hub for semiconductor industry // Oman Observer, 10.07.2024. URL: https://www.omanobserver.om/article/1156149/business/oman-an-ideal-hub-for-semiconductor-industry

training, there are no special regulatory bodies or national champions of their own. Progress is mainly driven by local telecom operators.

3) Lagging behind

Kuwait can be counted among these countries in the Persian Gulf. It significantly lags behind its regional neighbors in key technological indicators (see tables 1, 2, and 4). Due to the peculiarities of its political system, which hinder economic reforms, Kuwait has long remained effectively on the sidelines of global technological development, preferring to import finished products and innovations. However, with new leadership coming to power in late 2023 and increasing recognition of the need for economic diversification given ongoing budget constraints, the country has begun making its play in the regional technology competition. Over the past few years, Kuwait has made significant strides in improving the country's connectivity by laying new submarine and land cables linking it to other Middle Eastern countries and Europe[69]. Later on, thanks to this, it was able to establish two major partnerships with American companies Google and Microsoft focused on the technological transformation of government agencies and companies, as well as the construction of new data centers. The agreement signed with Microsoft in March 2025 aims at the digitalization of government departments and the development of cloud services[70]. Kuwaiti government agencies are working with Google on building several data centers in the country and improving cloud services[71].

AI regulation in Kuwait remains at an early stage. It is worth noting that one of the projects within the country's National AI Development Strategy was drafted by Microsoft specifically for Kuwaiti regulators[72]. While neighboring Gulf states typically delegate advanced technology regulation to foreign firms (e.g., PwC, Accenture), Kuwait took a distinct approach by assigning the project to Microsoft, an invested stakeholder, which later confirmed a major government partnership.

69 Plan to upgrade internet connectivity in Kuwait // Zawya, 18.03.2024. URL: https://www.zawya.com/en/world/middle-east/plan-to-upgrade-internet-connectivity-in-kuwait-kcadwhid

70 Kuwait partners with Microsoft to drive AI and digital transformation // Kuwait Times, 06.03.2025. URL: https://kuwaittimes.com/article/25220/kuwait/other-news/kuwait-partners-with-microsoft-to-drive-ai-and-digital-transformation/

71 Kuwait's Google partnership: What's behind the headlines? // Kuwait Times, 10.01.2023. URL: https://kuwaittimes.com/kuwaits-google-partnership-whats-behind-the-headlines/

72 Kuwait's Digital Landscape Whitepaper // Microsoft, 2023. URL: https://wwps.microsoft.com/wp-content/uploads/2023/12/Kuwaits-Digital-Landscape-Whitepaper-Final.pdf

Conclusions and opportunities for Russia

The UAE and Saudi Arabia have the greatest potential for developing advanced technologies in the Gulf region. They lead in training national personnel, creating conditions for the growth of national companies specializing in AI, setting the agenda for regulation, and actively trying to integrate into global value chains. In this context, it can be assumed that these two countries have the potential to become "digital middle powers."

At the same time, it is unlikely that a regional technological hub similar to the EU will emerge within the Gulf Cooperation Council (GCC): cooperation between the states in the region in digital technologies is practically nonexistent — it is primarily linked to external players. Furthermore, there are no large-scale initiatives at the GCC level to regulate advanced technologies that could set global trends and become benchmarks, like some EU projects. Saudi Arabia and the UAE aim to advance regulatory principles independently, focusing mainly on their domestic markets.

Despite lagging behind in hardware and chip production, Russia competes quite successfully with global companies in software, including in AI and autonomous transport. It is private companies that may become leaders in technological cooperation with the Gulf region and lay the groundwork for growth in other sectors, including joint research.[73] Developing ties with countries in the region on a bilateral basis appears more promising than cooperation with the GCC bloc due to the weak level of technological interaction among the organization's member states.

The digital ecosystem of the countries in the region has historically been built on American technologies, with occasional appearances of Chinese solutions. In this context, the only viable option for Russian companies to improve productive cooperation in advanced technologies is to integrate into the existing digital ecosystem of the first- and second-tier countries in the region. As for Kuwait, Russian technology giants may still influence the development of its digital space in a manner similar to what American companies Microsoft and Google are attempting. However, Kuwait's pro-American stance in the current geopolitical environment could become an obstacle to large-scale partnership.

It is important to consider the increasing securitization of advanced

73 Deryugina, I. Science and technology policy in Eastern and African countries (Egypt, Iran, UAE, Saudi Arabia, Ethiopia). Moscow: MGIMO-University Press. 2025 - 32 pp. URL: https://mgimo.ru/library/publications/scientific-technological-policy-of-the-countries-of-the-east-and-africa/

technologies and the use of semiconductors as an instrument of foreign policy pressure by the United States. Due to global tensions in the AI sector, the Arab Gulf countries have been forced to largely pivot towards the US, which has effectively pressured them by withholding export licenses for advanced models of American chips.

Despite this, Chinese companies are trying to expand their presence in the Middle Eastern market and are finding niches not yet occupied by American tech giants. A notable example is autonomous transportation technologies, where leadership in the region belongs to the Chinese companies WeRide and Baidu. WeRide was the first to launch robotaxi services in the Middle East: this happened in Abu Dhabi in 2024 in partnership with the American company Uber[74]; Baidu[75] followed suit in 2025. Both companies also intend to deploy this technology in Dubai. Other Chinese giants such as Alibaba, Huawei, and Tencent are actively capturing the niche of cloud storage and data processing, primarily in Saudi Arabia and the UAE. For example, in 2016 Alibaba was the first to build a full-fledged data center in the UAE[76] and co-founded the company SCCC with STC, the leading Saudi telecom operator.

All this indicates that even amid geopolitical tensions and increasing pressure from the US, the Arab Gulf monarchies strive not to put all their eggs in one basket and allow representatives from various countries to develop business on their territory.

Opportunities for Russian-Arab technological cooperation

1. Russian companies can find certain niches for themselves, for example, in cybersecurity or autonomous transport. According to some experts, cybersecurity is one of the most promising in terms of technological cooperation between Russia and the Gulf countries (alongside space technologies and the defense industry). For instance, the Russian leader in cybersecurity solutions, Kaspersky Labs, has been successfully developing its business in the region for over 10 years; the company also builds long-term partnerships with government agencies in the UAE.
2. Sovereign wealth funds of the Gulf monarchies can become investors in Russian technology companies. The capital surplus generated from hydrocarbon exports has so far been mainly directed to Western markets,

74 Uber and WeRide launch autonomous mobility service in Abu Dhabi // Uber, 2024. URL: https://investor.uber.com/news-events/news/press-release-details/2024/Uber-and-WeRide-Launch-Autonomous-Mobility-Service-in-Abu-Dhabi/default.aspx

75 Abu Dhabi expands autonomous robotaxi trials ahead of 2026 full launch // Arabian Business, 2024. URL: https://www.arabianbusiness.com/industries/transport/abu-dhabi-expands-autonomous-robotaxi-trials-ahead-of-2026-full-launch

76 Alibaba Cloud has launched Data Center in Dubai // Alibaba Cloud, 21.11.2016. URL: https://www.alibabacloud.com/en/startup/events/dubai-launch

including through partnerships with companies developing infrastructure for AI. A prominent example of this is the Stargate project. Since the mid-2010s, the UAE, Saudi Arabia, and Qatar have also shown active interest in investment projects in East Asia and Russia, leading to the creation of joint investment funds between Russia Direct Investment Fund on one side and Middle Eastern Mubadala, PIF and QIA on the other side. Recently, The joint fund of RDIF and QIA received an additional investment of €2 billion following agreements reached during the visit of the Emir of Qatar to Moscow in April 2025.[77] At the same time, Russian technology companies are in urgent need of financing: the high cost of capital in the domestic market (due to the Central Bank's key interest rate), combined with Western sanctions that have cut off borrowing channels in foreign markets, limits their opportunities for international expansion. Meanwhile, the domestic market is fairly developed but has limited growth potential. Given their active pursuit of tech investments, sovereign wealth funds from the Gulf, notably the UAE, Saudi Arabia, Qatar, and Oman, represent a particularly strategic opportunity for collaboration.

3. Russian companies can provide technologies to support AI infrastructure in the region; this applies not only to Russian tech giants capable of bringing their data processing technologies to the region but also to companies from more traditional sectors. One of the main constraints on the rapid expansion of data centers is the energy system. In this regard, the global tech community has revived the idea of developing nuclear energy[78], particularly small modular reactors (SMRs), which do not require decades of design and construction. Russia and China are the only countries that possess both the technological and manufacturing capabilities in this area. This meets the needs of the Gulf countries well: although they have significant hydrocarbon resources, the UAE and Saudi Arabia are actively diversifying their energy sources. The UAE has already launched the first nuclear power plant in the region and is exploring the possibility of building a second, while Saudi Arabia plans to begin construction of its first plant soon. Small modular reactors are also attracting interest in the region[79]. Deploying them as infrastructure for cutting-edge technologies offers significant potential for Russian-Arab strategic partnership.

77 RDIF CEO Dmitriev Reveals Details of Russia-Qatar Investment Agreement // Izvestia, April 17, 2025. URL: https://iz.ru/1872632/2025-04-17/glava-rfpi-dmitriev-soobshchil-podrobnosti-investsoglasheniia-mezhdu-rossiei-i-katarom

78 Big Tech wants nuclear power but doesn't see role as investor // Bloomberg, 17.06.2024. URL: https://www.bloomberg.com/news/articles/2024-06-17/big-tech-wants-nuclear-power-but-doesn-t-see-role-as-investor

79 Alotaiba, T. Analysis: Abu Dhabi goes nuclear for SMRs // Semafor, 14.11.2024. URL: https://www.semafor.com/article/11/14/2024/analysis-abu-dhabi-goes-nuclear-for-smrs-tareq-alotaiba

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