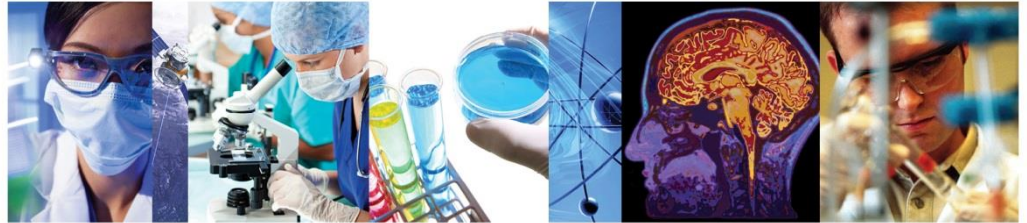




UK Science
& Innovation
Network



UK Science & Innovation Network Country Snapshot

Kingdom of Saudi Arabia

Science and Innovation Landscape in the Kingdom of Saudi Arabia (KSA)

(Global R&D and innovation rankings from GII 2021)

The Kingdom of Saudi Arabia (KSA) is the largest economy in the Arab world, accounting for 25% of the region's Gross Domestic Product (GDP). More than 65% of its total population (34.173m) is under 30 years of age, and with a per capita GDP of 55,704 US Dollars, KSA is the sixteenth largest economy in the world.

Saudi Arabia remains the world's largest oil producer and has recently chosen to direct a good share of its revenue to improving education and scientific research. As part of the [Saudi Vision \(SV\) 2030](#) under the patronage of H.E. King Salman bin Abdulaziz Al Saud, efforts are under-way to shift the country towards a knowledge-based economy, reducing the Kingdom's reliance on fossil fuels.

The Crown Prince of Saudi Arabia, as part of the Saudi Vision 2030's new RDI National Aspirations and Priorities program, recently announced the new ambition for the country to become a global leader in research, development and innovation with an annual investment equivalent to **2.5%** of GDP in **2040**. The Crown Prince noted that *"This will diversify and add 60 Billion Saudi Riyals (\$16 billion) to the economy in 2040 while creating high-value jobs in science and technology."*

The new Saudi RDIA (Research, Development, Innovation Authority)

The national scientific council equivalent, King Abdulaziz City for Science and Technology (KACST), has established the cross-ministerial governmental authority to regulate research and innovation in KSA, called the Research, Development, and Innovation Authority ([RDIA](#)). The RDIA assumed responsibility recently for encouraging and supporting the RDI sector, coordinating the activities of institutions and scientific research centres, proposing policies, legislation and regulation, and providing funding for the sector. The vision is to attract investment into high-tech universities and cutting-edge laboratories, making Saudi Arabia the Arab region's leader in scientific research output. The new RDI strategy will be closely linked with the industrial clusters under the National Industrial Development & Logistics Program ([NIDLP](#), valued at > \$1.3 Trillion) to support the industrial impetus for the fulfilment of Vision 2030's ambitious goals.

Saudi Arabia position in
Global Innovation Index:

66

UK position in Global
Innovation Index:

4



Sectoral Focus:

The new Saudi RDI strategy is being worked on and will be announced later this year however RDIA has announced the sectors of priority which aspire to solve global and national challenges, summarising below:

1. **Health and Wellness** (solving global challenges to human health, solutions to chronic and non-communicable diseases, disruptive digital healthcare, health equity, and leading bio-tech/pharmaceutical technologies)
2. **Sustainable Environment and Supply of Essential Needs** (water conservation and desalination, food security and forestation, and CCUS, etc.)
3. **Energy and Industrial Leadership** (competitive and sustainable mining, alternative energy technologies, high value manufacturing, and oil sustainability)
4. **Economies of the Future** (deep sea and space exploration, digital, 5G, AI and cyber technologies, attractive investment in innovation hubs like NEOM, Red Sea, etc.).

Global Research Council

As part of the 10th annual meeting of the Global Research Council (GRC) in Panama, Saudi Arabia's KACST was elected by the Governing Board of the GRC to represent KSA, while KACST's President, Dr. Munir bin Mahmoud El-Desouki, assumed the post of vice chair of the governing board to represent the Arab world. Dr. El-Desouki's appointment is the first for a representative of the MENA region, which highlights the rising status of Saudi Arabia, and its influential role the research, development and innovation sector.

Current RDI ecosystem:

The aim of the new RDI strategy is not just expansion of the RDI ecosystem, but also brings together various research enablers currently operating in silos under a holistic structure for cohesive outcomes under SV2030. In the above listed key sectors, there are numerous research centers performing basic to applied research and funding bodies which form part of a broad mix of stakeholders, ranging from:

- **Government:** Government entities funding and catalysing RDI initiatives is primarily led by the new Research, Development and Innovation Authority ([RDIA](#)) and ministries including the Ministry of Education ([Deputyship for Research & Innovation - DRI](#)), Ministry of Energy, [Ministry of Industry and Mineral Resources](#), [Ministry of Investment](#), and Ministry of Economy and Planning, in addition to executive authorities such as the Saudi Food and Drug Authority ([SFDA](#)).
- **National research centers:** These include King Abdulaziz City for Science & Technology ([KACST](#)), King Abdullah Petroleum Studies and Research Center ([KAPSARC](#)), King Fahd Specialist Hospital and Research Center ([KFSHRC](#)) and King Abdullah International Medical research Centre ([KAIMRC](#)).
- **Research Centers at universities:** There are 68 degree-awarding higher-education institutions in Saudi Arabia, including 29 public and 14 private universities. Within these, five research universities are currently at the vanguard of Saudi Arabia's growing research landscape; [King Abdulaziz University](#), [King Saud University](#), [Umm Al Qura University](#), King Fahd University of Petroleum & Minerals ([KFUPM](#)), and King Abdullah University of Science and Technology ([KAUST](#)).
- **Public and private conglomerates:** R&D centers are embedded within the large parastatal corporations that drive the Saudi economy: [Saudi Aramco](#), which has a monopoly on upstream oil development and controls 98% of the country's oil reserves, and Saudi Basic Industries Corporation ([SABIC](#)), the world's 7th-largest petrochemical producer and the largest non-oil company in the Middle East. Other firms conducting R&D include Saudi Telecom Company ([STC](#)), [Ma'aden](#), and Saudi Technology Development and Investment Company ([TAQNIYA](#)).



- **Technology transfer centers:** There are four active technology transfer offices located at KACST, KFUPM, KAUST and [RPD Innovations](#).
- **Scientific and technology parks alongside universities:** There are six technology parks across three different regions; the Central Region - home to [Riyadh Valley Company](#), the Eastern Province - home to [Dhahran Techno- Valley](#), and the Western Province - home to [Wadi Makkah Company](#), Wadi Jeddah Company, [Wadi Taibah](#) and Taif Techno Valley.
- **Incubators:** There are many incubators in various regions in the Kingdom, such as the Prince Mohammed bin Salman Incubator for Digital Information, [TAQADAM](#) at KAUST, King Salman Youth Center (KSYC) and [BADIR](#) program for technology incubators, [MiSK](#), and SME Authority (or 'Monsha'at').
- **Joint international technology owners:** Saudi Arabia has collaborative investment and/or mutual ownership of research IPs and patents with leading International universities such as MIT, Stanford University, Harvard University, University of Cambridge and University of Oxford, and with major international companies such as Google, Apple, Amazon, Huawei, Babylon, Boeing, and Lockheed Martin.
- **Technology-centric Venture Capital (VC) Investments:** Technology based VC investments are expected to grow ten-fold over the next 5 years, with VC injections to potentially reach \$2 Billion by 2025. Saudi Technology Ventures ([STV](#)) is the Middle East's largest VC fund established to bridge the gap between supply and demand in the region's digital start-up space.
- **Exceptionally innovative Vision 2030 smart giga-projects:** The giga-projects are backed by the country's sovereign wealth fund; the Public Investment Fund ([PIF](#)) and involve significant R&D potential. [NEOM](#) giga-city project (the size of Belgium) aims to create from scratch the most advanced, fully automated and Ai-enabled human habitat on Earth. The city is designed using a futuristic model and will be serviced by humanoids, passenger drones, and equipped with fully automated onsite agri-tech, bio-tech, manufacturing and healthcare clusters. Other giga-projects presenting scope for marine and archaeology baseline research include [The Red Sea Project](#) (luxury islands), [Amaala](#) (exclusive wellness retreat), and [Qiddiya](#) (entertainment city the size of Gibraltar). The recently announced [THE LINE](#) project is a smart, innovative and sustainable city with invisible infrastructure and urban development. Ideally situated at the crossroads of the world, it's powered by 100% renewable energy.

UK Science and Innovation in KSA and success

The UK is well positioned in KSA and seen as a preferred partner of choice for knowledge-transfer based collaborations, after the US and China (Source: Nature). Over the past decade, more than 100,000 Saudis have studied in UK. There are currently >4000 Saudi students pursuing postgraduate research degrees (Source: HESA 2019). The petrochemical conglomerates including Aramco and SABIC have outsourced a lot of R&D to international research centres, including to UK (Oxford and Cambridge), with a significant amount of collaboration taking place in-country as well.

In September 2018, McLaren racing and KAUST signed a five-year research and development agreement focusing on extreme performance technology. This partnership aims to advance research in areas of computational fluid dynamics, machine learning, fuel and lubricants, advanced mathematics and sensors and electronics. KAUST and McLaren are working together on Formula 1 cars and are a testing ground for technology, so the potential for translating scientific discoveries to real-world solutions is significant ([article](#)).

Saudi Arabia has ramped up its technology investments as part of its 2030 strategic plan to "lead the digital economy" and is already a major investor under PIF, making a \$550m investment in the NHS digital health start up [Babylon](#).



The [Abdul Latif Jameel Institute for Disease and Emergency Analytics](#) (J-IDEA) at Imperial College London was co-founded by Community Jameel and Imperial College in October 2019. Their mission is to combat the threat of disease worldwide. J-IDEA uses its expertise in data analytics, modelling and epidemiology to understand the causes of diseases and health crises affecting populations around the world, and to find workable solutions to address these, including responding to health emergencies like COVID-19.

There are strategic bilateral agreements between UK and Saudi Arabia following state visits in 2018 ([Joint communique](#)). It is estimated that together these opportunities are expected to amount up to \$100 billion over a 10-year period, from which PIF will aim to target direct investments amounting to \$30 billion. UK SIN network facilitates UK-KSA engagements including exchange of R&D, technical knowledge, advice, skills and expertise underpinning the health, clean energy and industry, and education bilateral agreements.

UK Science and Innovation Network (SIN) are working closely with the recently established Deputyship for Research and Innovation (DRI) under the Ministry of Education (MOE), specifically on technology transfer centers. In recognition of the importance of strengthening the R&D ecosystem in Saudi Arabia by supporting universities and collaborating with different stakeholders, a total budget of SAR 6 billion has been allocated to this initiative in DRI. SIN also collaborated with DRI to deliver the first ever [UK-KSA clean energy and AI research forum](#), attended by former BEIS Chief Scientific Advisor Prof. John Loughhead. DRI developed the R&D program to directly fund research via public universities. DRI has also awarded International Collaboration Grants to 26 UK Universities (> £10m) for joint research projects.



UK SIN network supported colleagues in Prosperity and DIT for a Renewable Energy Trade Mission in March 2019. As a result of the exposure during the mission, [UK based Solar Water Plc](#) was awarded by NEOM to build the first ever 'solar dome' desalination process in KSA. The solution is 100% carbon neutral and completely sustainable, utilising the concentrated power of the sun. Supported by Cranfield University, it is set to help reverse climate change by replacing traditional fossil fuel water treatment plants and also develop more carbon sinks.

The UK SIN network has also delivered and supported a variety of events in collaboration with local partners to promote collaboration in Science and Innovation between UK and KSA. These include the UK-KSA [Patient Safety Summit](#) in December 2019, the [Winter Enrichment Program](#) at KAUST in January 2020, as well as supporting 3 Trade Missions with partners such as DIT and the Saudi British Joint Business Council on Smart City technologies, leading to > £80M worth of confirmed bilateral projects.



Together with UK's Knowledge Transfer Network (KTN) and the Deputyship for Research and Innovation (DRI) at the Ministry of Education, SIN organised the UK-KSA senior leadership workshops on 22nd February 2021 and 8th March 2021. These landmark sessions helped reaffirm the value of scientific collaboration and brought together leading figures from UK and Saudi Arabia's research and innovation communities to help progress our mutual priorities. We will continue to build cooperation around the research-intensive higher education segment of Vision 2030 delivery by facilitating innovation-centric academic and industrial partnerships for a knowledge-based economy.

Connected Places Catapult (CPC) are working with Ministry of Energy to produce a report looking at the net zero resilience and adaptation of 5 major Saudi Cities – Riyadh, Jeddah, Dammam, Mecca and Medina. The ultimate purpose of the report is to identify opportunities for KSA-UK collaboration, both



commercial and across research/academia. CPC are also in the process of conducting a pre-feasibility study in KSA for Future of Flight programme with the National Industrial Cluster Program.

There is also an MoU between Aramco's Lab 7 and the Satellite Applications Catapult (SAC) to pursue collaborative projects. The partnership will open the door for joint product development of breakthrough ideas to commercialization, considered vital to meeting Net Zero commitments. Lab 7 is currently under construction with a targeted inauguration of Q4 2022.

SIN has supported the Saudi-British Joint Business Council (SBJBC) to establish a UK/KSA TechHub in 2021. A number of KSA partners have come on board including the Future Investment Initiative Institute (FII), while an MoU between SBJBC and MCIT has also now been agreed in principle.

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