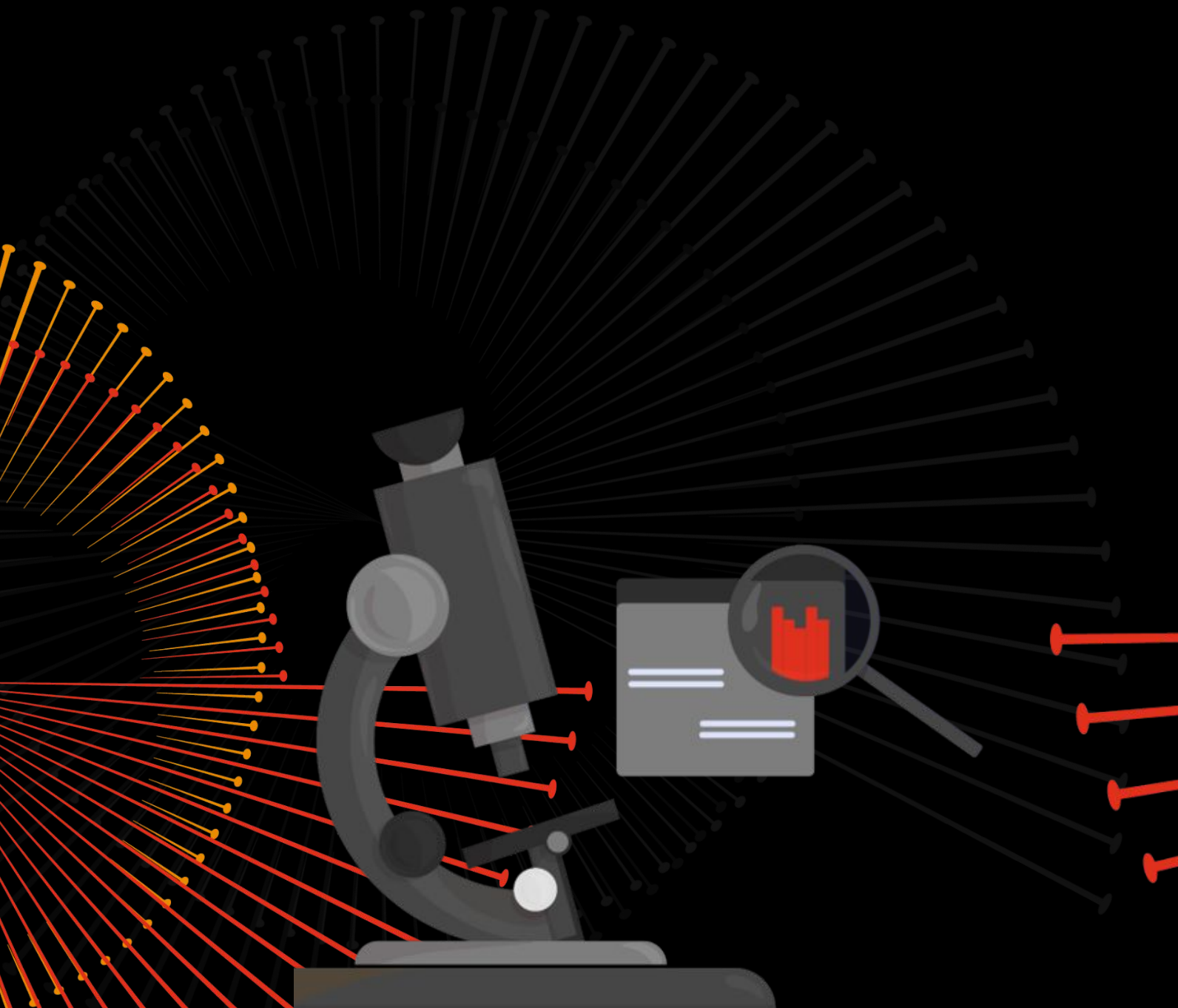




Building the future:
Advancing research and
innovation capabilities across
the GCC

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Setting the scene



Foreword

The transformation to a knowledge-based economy has been central to the GCC's economic diversification efforts. A key priority for the region's governments has been to develop globally competitive alternative industries.

Studies indicate that a 1% increase in Research and Development (R&D) spending can lead to an average economic growth of 0.6%¹. Thus, the successful transformation of the GCC hinges to a large extent on effective research and innovation.

In the region, governments have launched numerous initiatives, policies and programmes to drive innovation and foster collaboration among research entities, government and industry. In recent years, member states have revisited their innovation gaps and taken concrete steps to strengthen efforts. The UAE, for example, appointed a Minister of State for Advanced Sciences, who chairs the Council of Scientists in 2017, while in 2021, Saudi Arabia established the Research, Development and Innovation Authority with a national mandate to support innovation.

Academic research output has increased 16-fold over the past two decades in the United Arab Emirates (UAE)². While the focus has largely been on engineering, energy and environmental sciences, the country is expected to expand its research efforts in other areas in the coming years. To further strengthen the UAE's innovation ecosystem, the Ministry of Higher Education launched grant programmes aimed at building large-scale research teams. In Saudi Arabia, key players like King Abdullah University of Science and Technology (KAUST) and King Abdulaziz City for Science and Technology (KACST) serve as catalysts for innovation and economic development.

In terms of patents, we find that the GCC is still behind the global benchmark countries. Since 2015, however - as we set out in this report - the region has experienced a 25% surge in patent grants.

In the region, Khalifa University in the UAE has been a leader in high-quality research and deep tech innovation. With over 300 issued patents, the University leads in groundbreaking research in sectors like aerospace, biomedical sciences, energy, robotics and engineering and signifies the commitment of the UAE to foster a culture of high-quality research and deep tech innovation³. The Technology Innovation Institute (TII) further contributes to the region's innovation landscape, focusing on developing cutting-edge technologies to solve real-world problems.

Despite these advancements, there are still many opportunities for further growth. The GCC states are at different stages of implementing their national innovation strategies. Funding for research and development in the region can be strengthened, and countries have huge potential to scale the number of publications and patents.

This report suggests a structure and guidance for stakeholders to build a comprehensive Research, Development, and Innovation (RDI) ecosystem that not only boosts innovation but also generates sustainable economic growth.

Unlocking GCC innovation: A strategic framework for RDI growth

In this report, we assess the growth considerations and propose a strategic RDI framework to accelerate RDI growth by leveraging innovation, increased investment and stronger collaboration.

There is a strong innovation potential in the GCC, with a growing number of patents and presence in top-tier journals. With enhanced R&D investment and stronger collaboration, the region is poised for significant growth in research output.



Below average R&D expenditure. GCC countries spend approximately one third of the global average of 1.9% of GDP on R&D (figure 1).



Lower research output. In 2023, the research output in GCC countries was, on average, 56% lower than that of benchmarking countries, with 1,700 publications per 1 million people in the region (figure 2).



Patenting potential. With 4,145 patents granted, the GCC shows a strong innovation potential, but there is still room for growth when compared to the UK (10,578) and other benchmarked countries (figure 7).



Inadequate collaboration. In GCC countries, academia-industry collaboration remains limited, accounting for only 2.7% of research publications. This figure falls below the global benchmark range of 4-8% for similar collaborative publications (figure 6)⁴.



Relatively few top-tier publications. The US publishes 13% of its papers in the top 5% of journals by Source Normalised Impact per Paper (SNIP), while the UK has 14% in the top 5%. In contrast, GCC countries have 6% in the top 5%, although this number is growing (Figure 3).

In order to address the need for a comprehensive approach to the RDI ecosystem, we propose a framework, designed as a holistic guide for stakeholders to integrate all relevant elements. The framework consists of five main components:

- 01 Strategic enablers:** These provide the overall direction, rules, and standards for the RDI ecosystem, including strategy, policy, governance, performance management, and quality assurance.
- 02 Requisites:** Essential for research execution at any level, this category includes skilled personnel, adequate funding, and the necessary knowledge base.
- 03 Research and innovation execution:** This is where the magic happens, covering research (design, delivery, project management) and commercialisation (disclosure, evaluation, product development, marketing, and launch) activities.
- 04 Operational enablers:** These support the practical execution of RDI initiatives, consisting of collaboration and partnerships, infrastructure, tools, processes, and commercialisation support.
- 05 RDI outputs:** Tangible results, such as publications, inventions, products, and the licensing and sales of developed technologies and innovations.

In the next few sections, we define these key components and illustrate the common pitfalls and best practices for each, drawing from global experiences. This model offers actionable insights and tools to a wide audience involved in RDI policy and governance, including higher education institutions, research organisations, governments, and funding bodies across the GCC.

The case for change

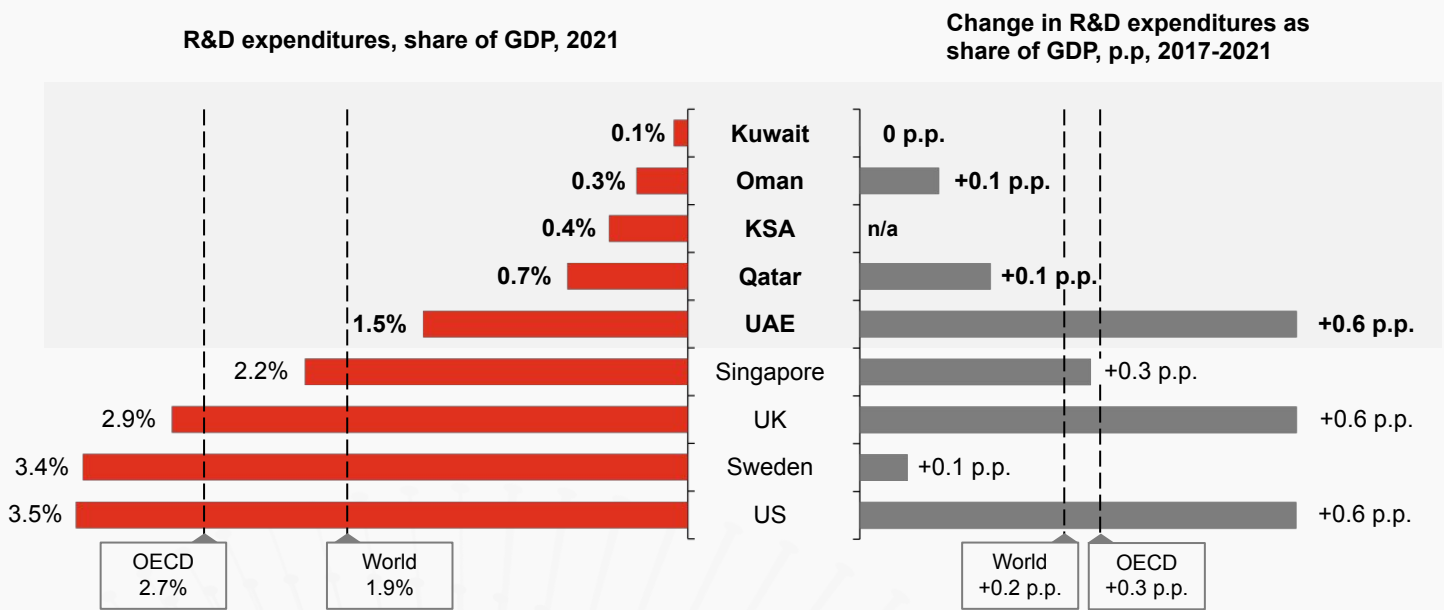


Government Expenditure on Research and Development (GERD)

Recent data (figure 1) indicates that global average R&D expenditure is 1.9% of GDP, while GCC countries spend approximately one third of this amount. In 2021 Saudi Arabia, Oman, Qatar, and Kuwait allocated less than 0.7% of their GDP to R&D. Between 2017-2021, the average increase in R&D spending in these countries was only 0.1% — half the global average growth rate.

The UAE, however, has made significant progress, increasing its R&D spending by 0.6% during the same period, an increase that matches that of the US. Despite this, the UAE's total expenditure on R&D — at 1.5% share of GDP — still falls short of the Organisation for Economic Co-operation and Development (OECD)'s average of 2.7%.

Figure 1: Global and GCC countries' R&D expenditures, share of GDP, 2017-2021



Source: UNESCO database, <http://data.uis.unesco.org/>

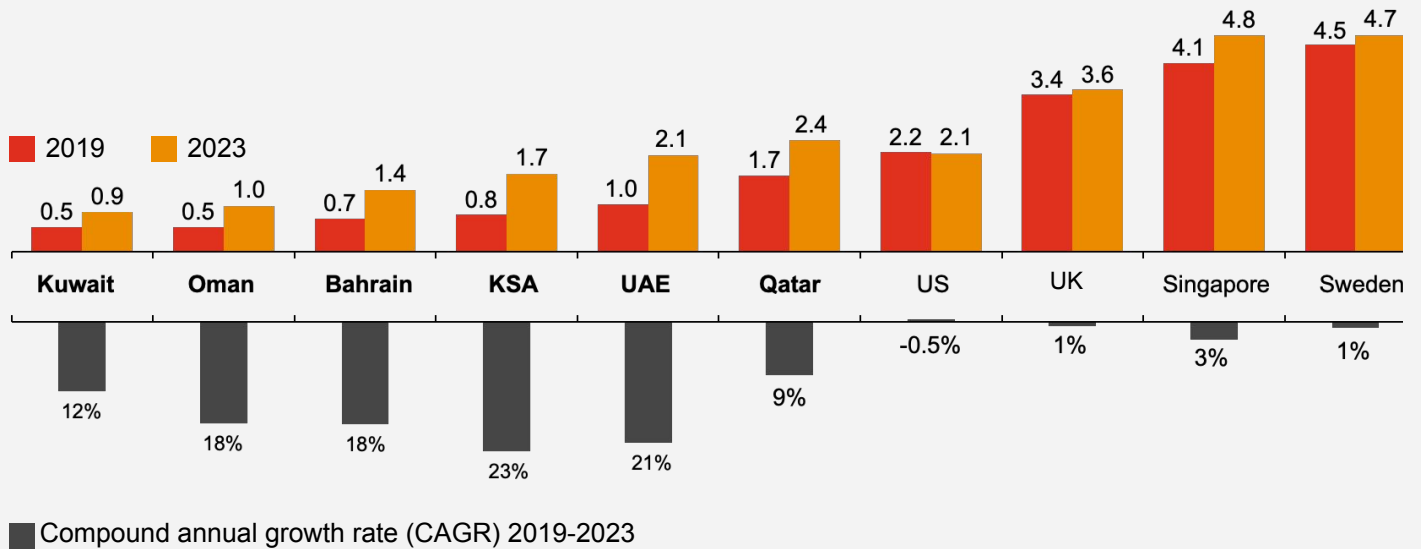
Since RDI is a high-risk, long-term endeavour, its sustainable development relies on continuous government support. To facilitate significant progress, governments should prioritise investments in research and endorse long-term outcomes. Without this, scientific activities may be reduced to short-term, low-impact endeavours.

To nurture growth in research and innovation, countries in the GCC must invest heavily in the RDI ecosystem. This implies not just aligning with leading R&D spenders, such as the UK or Singapore (who dedicate more than 2% of their GDP to this sector), but also setting higher targets to accelerate progress and establish a robust foundation for future innovation and scientific achievement.

Publications: A bedrock of research

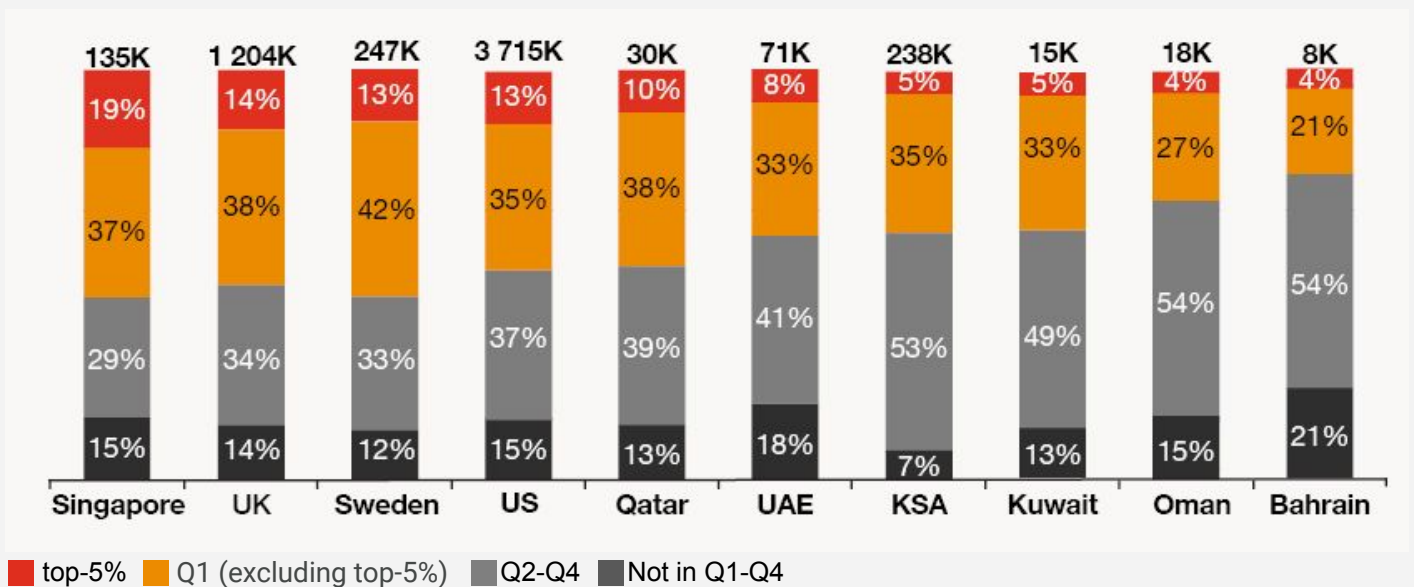
Publication activity indicates a country's knowledge production and intellectual output. A higher number of publications per person and their quality reflect a shift towards a knowledge-centric economy. Since 2019, countries in the region have increased their publication rate by 20% annually — outpacing other developed economies. Nearly 40% of GCC publications are in the top-tier Q1 journals⁵, demonstrating a developing RDI ecosystem.

Figure 2: Publications per 1K population and CAGR, 2019-2023



Source: SciVal, UN Department of Economic and Social Affairs Population Division

Figure 3: Structure of publications by SNIP⁶, 2019-2023

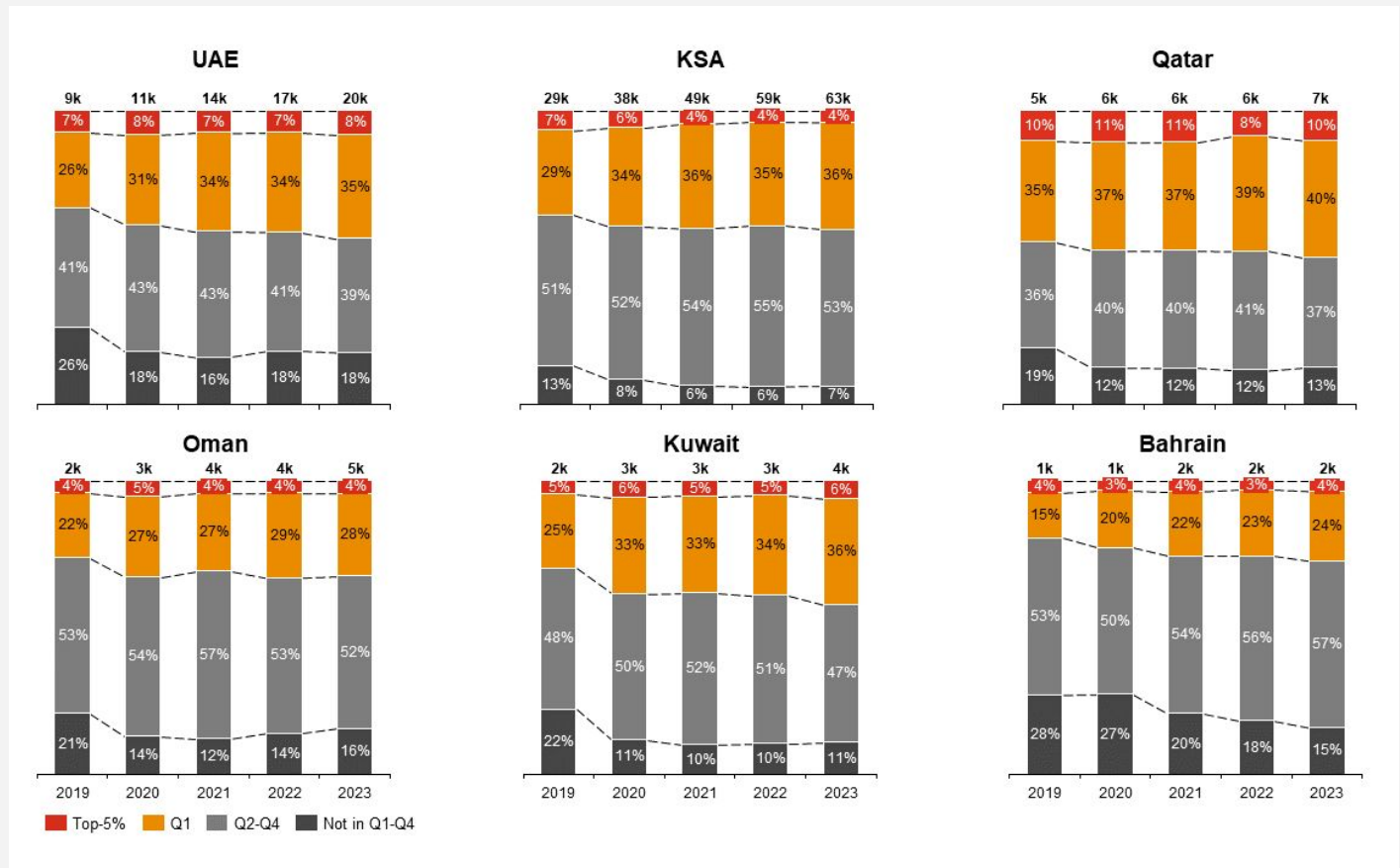


Source: SciVal, UN Department of Economic and Social Affairs Population Division

Despite an increase in the number of publications in the GCC, the overall quality remains relatively low. Research reveals that only 6% of regional publications fall within the top 5% category of journals, compared to 19% for Singapore and 14% for the UK (refer to figure 3). Regional examples of such publications have appeared in notable journals, such as the Journal of Molecular Biology and Evolution⁷, and the Journal of Epidemiology and Global Health⁸.

While the number of Q1 publications has slightly increased in the past five years across the GCC countries (figure 4), the percentage of those in the top 5% has remained unchanged.

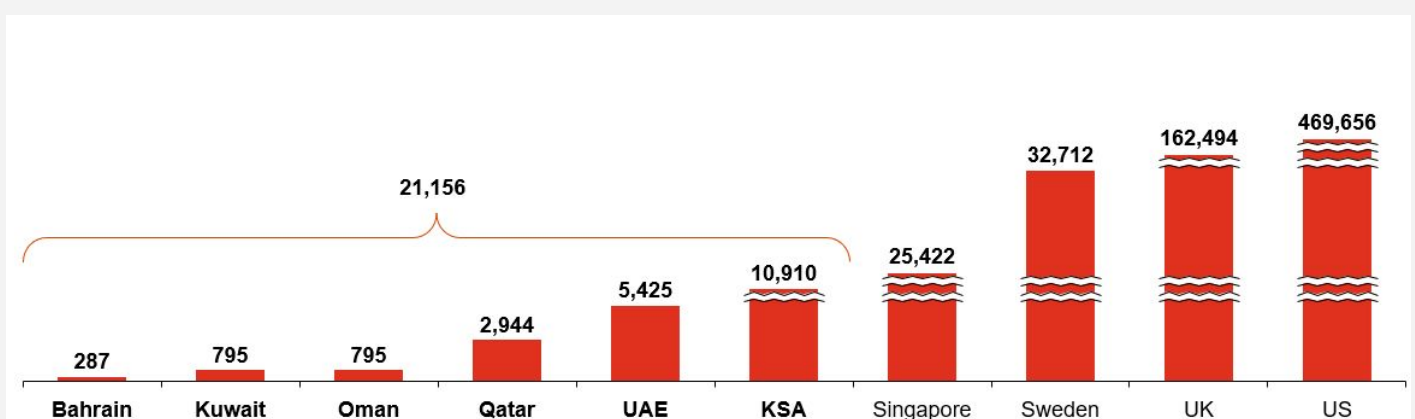
Figure 4: Structure of publications by SNIP per year, 2019-2023



Source: SciVal, UN Department of Economic and Social Affairs Population Division

The total volume of high-quality research publications is vital as it dictates the quality of scientific knowledge, influencing economic impact. Enhancing both the quantity and quality of research outputs could pave the way for increased innovation in the GCC over the next decade.

Figure 5: Number of research publications in top 5% journals, 2018-2023



Source: SciVal, UN Department of Economic and Social Affairs Population Division

Publication in partnerships: Bridging academic knowledge and practical applications

Strengthening industry partnerships is vital in accelerating the GCC's progress towards a sustainable innovation-driven ecosystem. This collaboration comes in three forms: joint research, corporate research fuelled by academic knowledge, and research outsourced to academia by the corporate sector.

In the GCC, research conducted through academia-corporate collaboration is relatively low, accounting for an average of 2.7% of total publications. Building trust and strengthening ties between these sectors is essential for mutual benefits, leading to:

01

The acceleration of knowledge transfer: Academic institutions conduct research, while corporations have the resources and infrastructure to turn these research findings into practical applications.

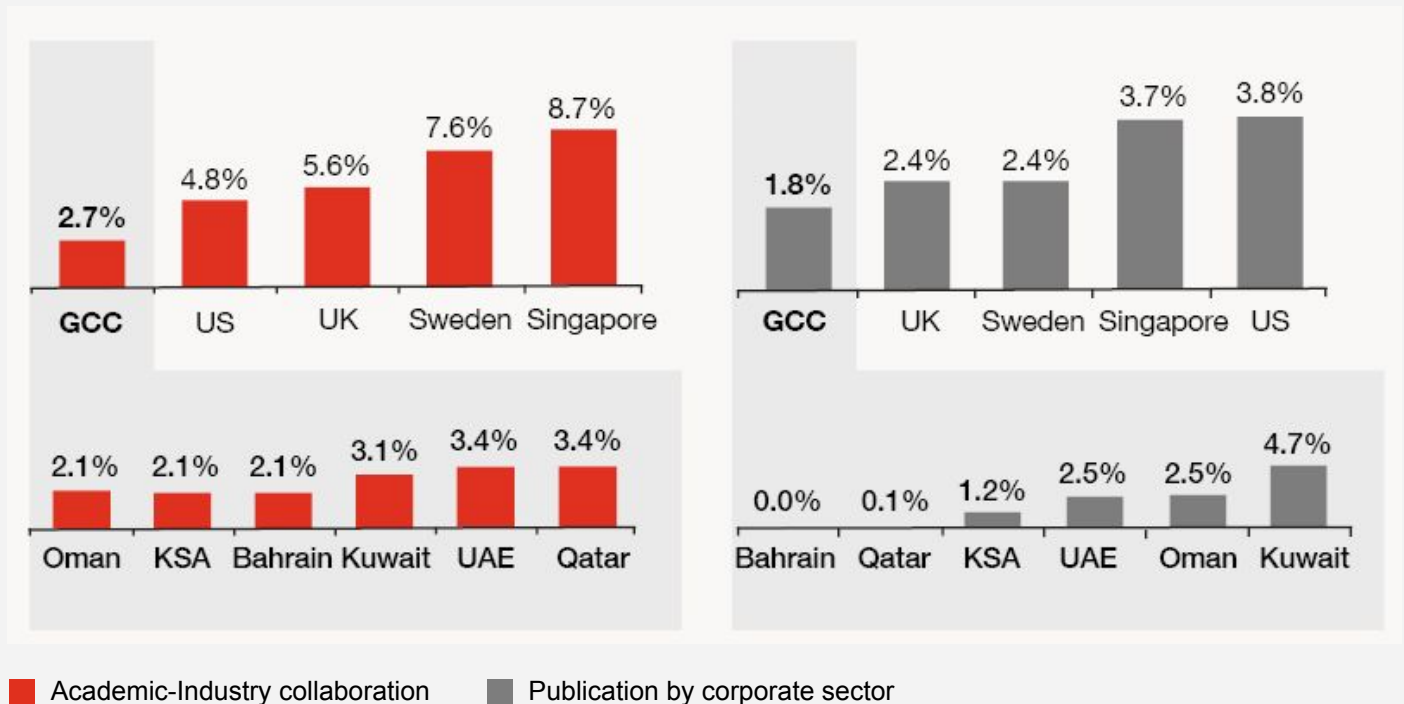
02

The facilitation of funding: The corporate sector provides funding for academic research projects and in return, it gains access to new ideas, technologies and IP.

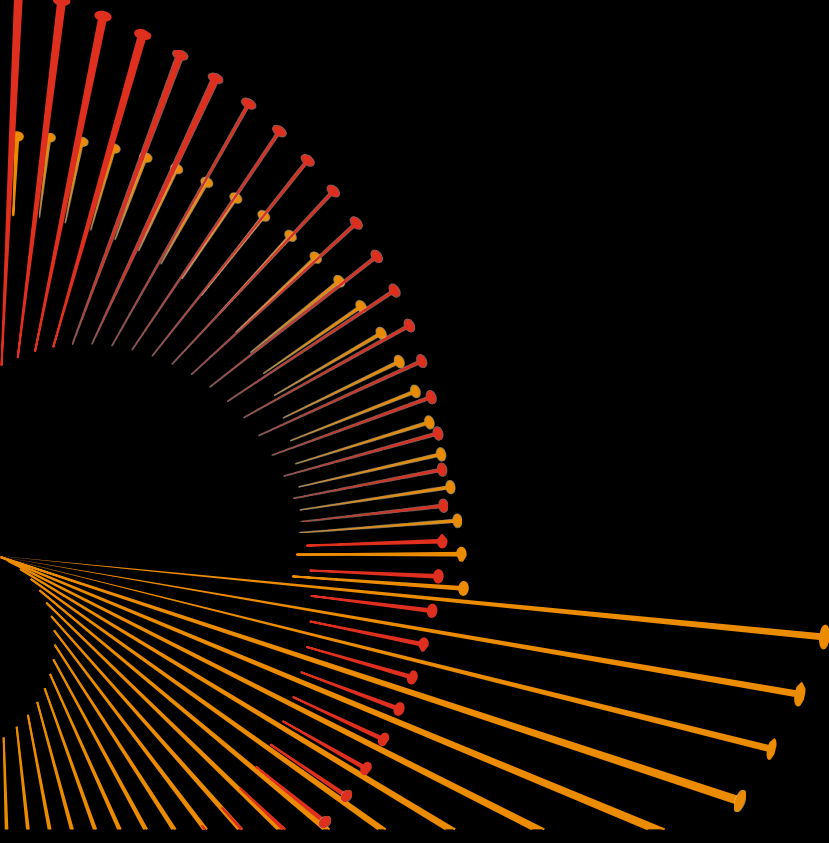
03

The strengthening of networks and partnerships: Collaboration with reputable academic institutions enhances a company's credibility and reputation, while academia may gain prospective partnerships.

Figure 6: Share of research publications made in collaboration with industry (a), produced by the corporate sector (b) in 2018-2023



Source: SciVal, UN Department of Economic and Social Affairs Population Division



Success in building a robust research, development and innovation ecosystem in the GCC is a key part of transitioning to a diversified knowledge-based economy. To achieve it, we must embrace strategic collaboration, provide clear direction and support, and build world class skills. By aligning our research and educational efforts with national goals, we can drive long-term sustainability and global competitiveness, creating a brighter future.



Roland Hancock

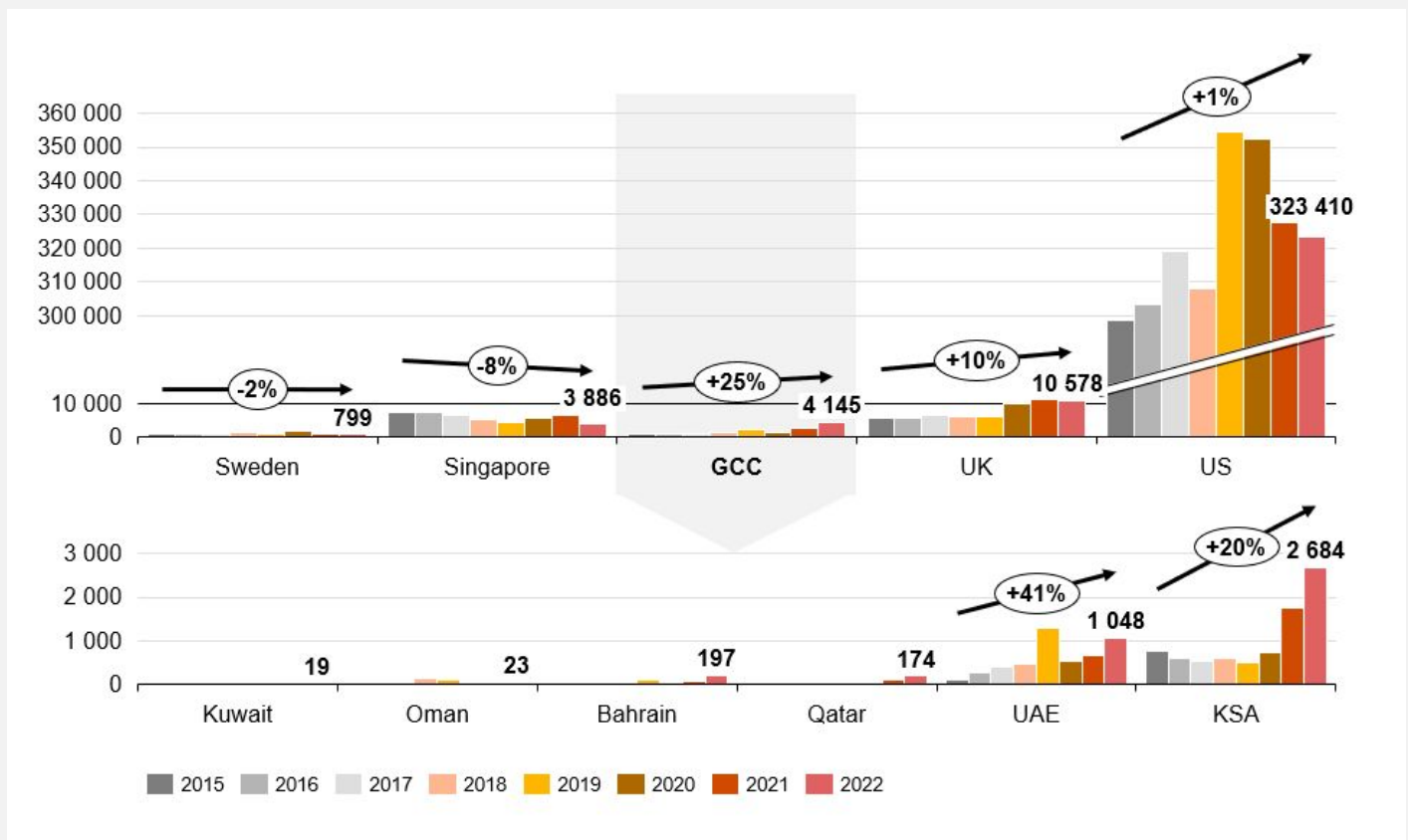
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Innovation: Tricky to create and trickier to measure

Patents play a crucial role in turning innovation into a profitable product. However, to achieve this, a supportive environment is imperative. In the GCC, the number of patents granted is lower than the global benchmark countries (figure 7). However, since 2015 there has been a growth surge of 25%. Saudi Arabia and UAE have made significant progress in closing this gap, with the number of Patent Cooperation Treaty (PCT) patent grants increasing at a CAGR of 20% and 41% respectively from 2015 to 2022.

To bolster the UAE's innovation ecosystem, the Dubai Future Foundation (DFF) was established in 2016. In 2019, there was a significant increase in the issuance of patents in the UAE, a trend largely attributed to a high rate of patent grants to non-citizens. The UAE Ministry of Higher Education also launched the Collaborative Research Program Grant in 2019, aimed at building research teams of scale⁹. In Saudi Arabia, notable stakeholders, who are catalysts for innovation and economic development, are King Abdullah University of Science and Technology (KAUST), and King Abdulaziz City for Science and Technology (KACST).

Figure 7: Number of patents granted, 2015-2022

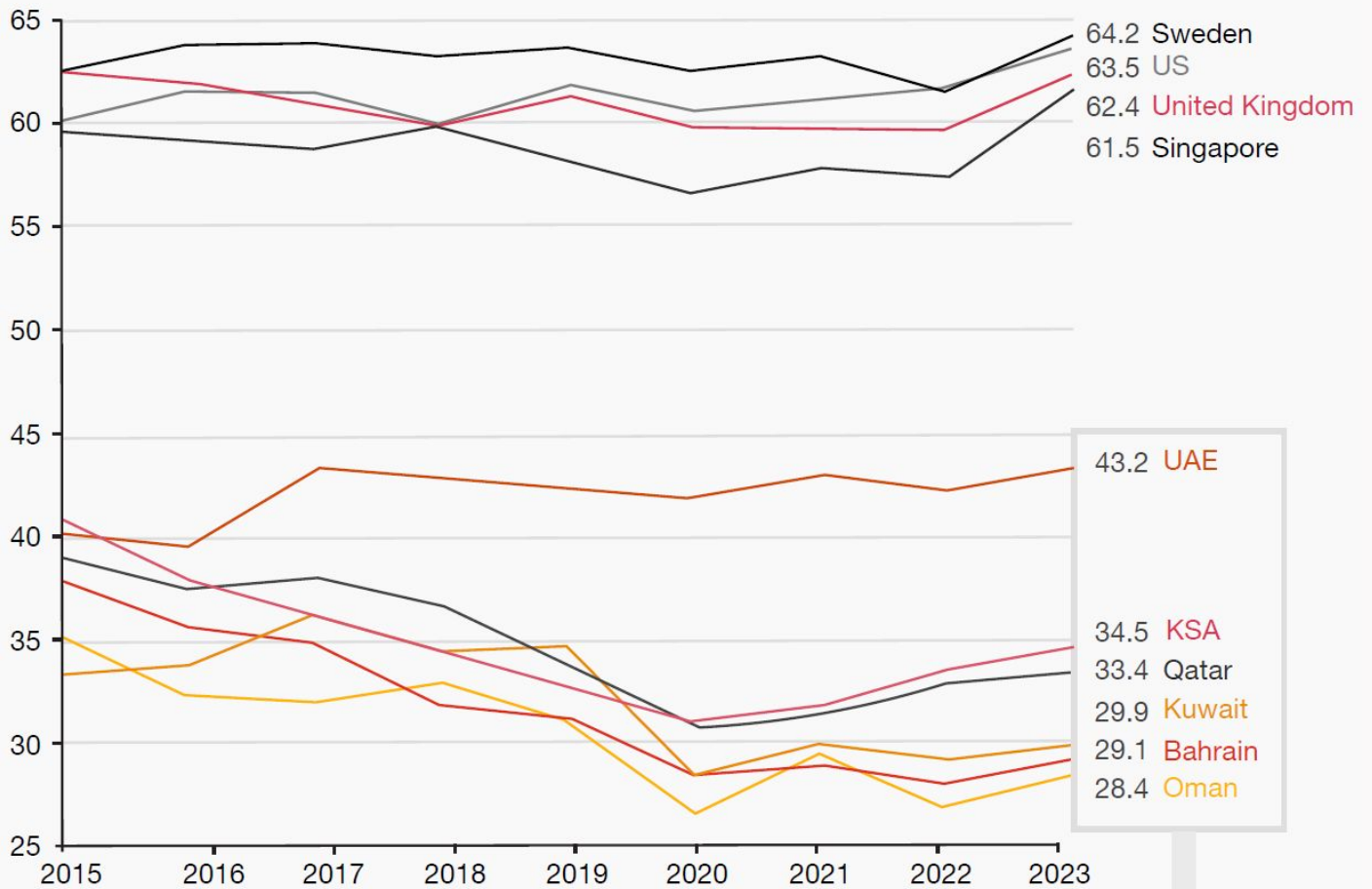


Source: World Intellectual Property Organisation statistics database, 2024

Countries in the GCC have the potential to enhance their innovative capabilities and create a culture of innovation¹⁰. In 2023, the UAE ranked 32th in the Global Innovation Index (GII), narrowing the gap with other benchmark countries on the index. There is considerable potential for improvement in the region, driven by both research and entrepreneurship.

Figure 8: Global Innovation Index, 2015-2023

Score dynamic



GII Ranking	2017	2020	2023
UAE	35	34	32
KSA	55	66	48
Qatar	49	70	50
Kuwait	56	78	64
Bahrain	66	79	67
Oman	77	84	69

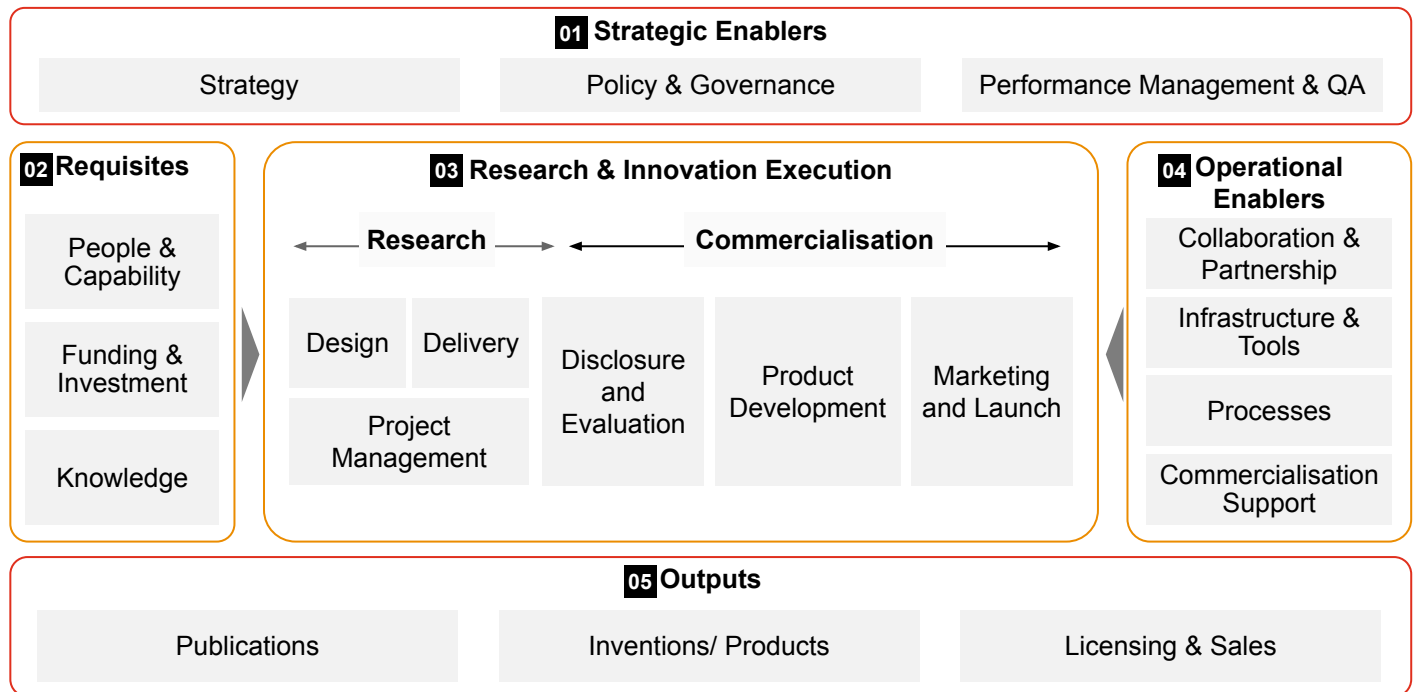
Source: Global Innovation Index, annual reports, <https://www.wipo.int/portal/en/>

From investment to payoff



To provide structure and guidance to stakeholders across the RDI ecosystem, here we offer a **wireframe** design as a holistic guide that covers the five main pillars of strategic enablers, requisites, research and innovation execution, operational enablers and RDI outputs. It represents the skeletal framework of the ecosystem, integrating all relevant elements and enablers, as well as covering the RDI ecosystem, serving as an agile tool for analysis and planning.

Figure 9: RDI Ecosystem Wireframe



In the next section, we set out the detail behind the five main pillars of strategic enablers.



1. Strategic enablers: Foundation of a successful RDI ecosystem

A clear **strategy** is essential for building a sustainable RDI ecosystem, with defined areas of focus and allocation of resources. Without it, the ecosystem risks falling apart into small operating activities.

GCC countries are adopting strategic approaches to RDI, aiming to transition from resource-based to knowledge-based economies.

The Saudi Vision 2030, for example, outlines the Kingdom's goal to diversify the oil economy and enhance public services by 2030, emphasising research and innovation as key components of this transformation. Since RDI is a high-risk and long-term endeavour, there needs to be continuous state backing for a sustainable model.

Governments in the region are, therefore, playing a critical role in establishing a robust and proactive RDI **strategy** to meet their vision goals.

Numerous public bodies and agencies in the region champion innovation and research. However, overlapping duties among these entities can lead to confusion on RDI projects. Ambiguities in decision-making, continuous change in strategic direction and multiple reporting hierarchies can create conflict of interests and slow progress.



Typical pitfalls: Lack of focus

Adopting a 'do-it-all' approach may lead to quick wins and certain results, but it will scatter superficial progress and delay the RDI system's reputational development.

Focusing on a smaller number of areas aligned with national priorities and global trends while investing in a limited number of promising greenfields will enable accelerated progress and recognition.

Key actions:

- 01 Define a clear RDI strategy, highlighting priority research areas and support initiatives, including academic mobility and memberships in international research associations.
- 02 Introduce a well-defined governance model to clarify key stakeholders, their roles, and responsibilities in advancing the RDI agenda.
- 03 Develop core policies around essential areas, such as funding, performance oversight, and infrastructure management to ensure effective and efficient execution of RDI strategy.



Performance management and Quality Assurance in RDI

Implementing RDI strategy requires **performance management** to track progress and guide decisions. It enables effective monitoring and evaluation, streamlining research activities, while offering a structured way to set targets, spot achievements, and select areas to improve. In turn, **quality assurance (QA)** ensures that processes and outputs of RDI activities meet the established standards, both in terms of intellectual value and research ethics.



Typical pitfalls: Overemphasis on numerical output KPIs such as publication count

While formal metrics have clear managerial value, they can complicate regulations and distort R&D priorities. Emphasising the wrong KPIs can lead to an imbalance, favouring quantity over quality; publishing for the sake of publishing or tampering with the data to achieve a desired result. The 1986 NASA Challenger tragedy demonstrated that challenging the results is more important than filing processes and filling reports.

GCC nations should consider key factors inspired by global best practices:

Key actions:

- 01 Establish carefully selected, clear, measurable, and non-redundant key performance indicators (KPIs) to track the performance of RDI sector initiatives focused on input and outcome, avoiding short term, output related measures. Develop a unified data collection process and identify the data owners of each KPI component.
- 02 Create a framework for measuring the socio-economic impact of RDI. Use indicators, such as the share of high value-added jobs, associated service sectors, attracted investments, and overall economic growth and tax income in the region. Additionally, consider societal effects, such as longevity and quality of life to measure impact.
- 03 Establish clear and transparent policies for reviewing research project compliance with funding requirements and outline consequences for non-compliance.



2. Requisites: The essence of research execution at any level

Attracting research talent

People who drive science and innovation are the most critical component of the RDI ecosystem. Attracting the right talent and developing their **capabilities** through high educational and research standards is a long-term investment that enables growth in research quality and knowledge sharing.

Despite several economic, legal, and social reforms to attract skilled workers and improve quality of life, health infrastructure, and education, attracting global researchers to new RDI centres remains a major challenge in the region.



Best practices:

Talent attraction and retention

Countries at the forefront of research and innovation prioritise bringing back their talented professionals from abroad. For example, Singapore has the 'Returning Singaporean Scientists Scheme' programme, which encourages outstanding native scientists overseas to return and take on leadership roles in the nation's universities and research institutions.

Shining the spotlight

Sharing success stories and highlighting role models can motivate researchers and entrepreneurs. Demonstrating tangible successes in RDI provides valuable learning opportunities and raises public awareness.

Key actions:

- 01 Accumulate a critical mass of researchers to ensure enough capacity for producing tangible RDI output.
- 02 Facilitate the transfer of technologies to encourage the exchange of ideas, knowledge, and expertise, ultimately accelerating the emergence of new technologies and innovation.
- 03 Establish competitive and attractive working conditions to improve the wellbeing of researchers.
- 04 Popularise research careers by spreading success stories and engaging wider communities.
- 05 Empower young researchers by providing funding for high-risk projects and mentorship from senior RDI ecosystem players. This will also curb the "Matthew Effect"¹¹ – when top researchers attract more funds and recognition, widening the gap with less-established peers.



Funding and investment

One of the key challenges for **funding and investment** is to ensure coordination and stability among major research funders. They often allocate resources based on national and institutional priorities, leading to disparities and unbalanced support for various sectors and research areas. Additionally, while most investors focus on mature startups, there is a lack of support for early-stage research and innovation. According to MAGNiTT's (2023) MENA Venture Investment Summary, seed capital (0-1M\$) in the region dropped from 66% in 2020 to 40% in 2023, making it difficult for new ideas to get off the ground, and limiting the potential for breakthroughs¹².



Typical pitfalls: 'Short-termism' – looking for immediate results and targets to spend money within an annual cycle

RDI funding frequently poses challenges to academic autonomy due to its alignment with budget cycles, which may not correspond to the timelines of research endeavors. This misalignment leads to inefficient resource use and researchers aiming for "low hanging fruit" minimal results. To promote RDI growth, diverse and flexible funding programmes should be established.

Key actions:

- 01 Provide grants covering innovation which are accessible to various RDI players. These include academic institutions, small and medium-sized enterprises, non-profit organisations, and individual researchers, such as the US Small Business Innovation Research (SBIR) programme.
- 02 Introduce fast-issued grants for flexible funding to support high-risk and high-reward projects in emerging and rapidly changing fields.
- 03 Utilise smart government incentives, such as prizes, or purchase mandates. For example, NASA's Centennial Challenges, which offer incentive prizes to generate innovative solutions to problems of interest to NASA and the nation.
- 04 Engage venture capital and angel investors for substantial funding, expertise, networking opportunities, validation and risk-sharing. This accelerates time to market and stimulates economic growth.



Best practices: Bring in venture capital

Funding and supporting the flow-through from research at the pre-seed stage is important to progress through TRLs. "SGInnovate" Venture Building programme partners with technical founders to create venture-fundable businesses based on their research and intellectual property. It provides funding, product development, go-to-market strategy, talent, sales, and business development support. The US-based Sevin Rosen Funds "Early Stage Venture Fund" programme seeds pioneering technologies and supports young innovators in UC Berkeley through the SRF "Award for Innovation".



Knowledge sharing

Knowledge creation, accumulation, and sharing ensure the development of the RDI ecosystem. However, in the GCC, complex approval processes for accessing government data, lack of a centralised collaboration platform, and inconsistent data protection policies hinder knowledge exchange for research and innovation.

Key actions:

- 01 Ensure availability of high-quality, accessible data¹³ by investing in data infrastructure, relevant analytical tools and technologies, creating a culture of knowledge sharing and opening access to research output (except when related to national security)¹⁴.
- 02 Foster interdisciplinarity and encourage greater collaboration and knowledge sharing between researchers and across disciplines through funding mechanisms and incentive structures.
- 03 Encourage peer-to-peer knowledge sharing, where different perspectives are freely exchanged and dispersed among artists, entrepreneurs, researchers and investors.



Best practices: Foster interdisciplinarity through shared space

Encouraging teamwork and idea-sharing among researchers from various fields can be achieved in different ways, including through the introduction of shared work spaces. Coworking areas, which boost casual interaction and discussions can encourage an atmosphere of cooperation.



3. Research and innovation execution: Where the magic happens

Comparatively undersized scientific capacity and infrastructure hamper the ability to conduct extensive and high-quality research projects in the GCC countries.

High-quality research **design** and methodology and rigorous peer review processes are vital for producing credible research outcomes. Focusing on breakthroughs in areas with a strong scientific background, a critical mass of talent (people with strong research and entrepreneurship competencies) and developed research infrastructure¹⁵ can help achieve this.

The intricate nature of RDI projects, involving numerous stakeholders, multifaceted tasks, and inherent uncertainties, underscores the significance of robust **project management** methodologies. It brings coherence and efficiency to research projects, overcoming bureaucratic obstacles, like complex approval processes, that might deter researchers and businesses from innovation.

Enhancing research **delivery** nationally and internationally requires creating opportunities to present findings and receive feedback, essential for accelerating knowledge advancement.

Supporting platforms, such as conferences, symposiums, and workshops can facilitate idea exchange, and interdisciplinary collaboration.



Typical pitfalls: “Just doing research” not delivering results in the global market

Good research needs promotion, otherwise, it remains unnoticed. To stay up-to-date, findings need to be presented internationally through academic mobility and global research memberships. Research limited to national boundaries risks transforming into “Indigenous science”; insular and irrelevant.

Effective communication of scientific findings is as important as the findings themselves. Training researchers in communication improves their reputation, helps secure funding and builds collaborative relationships.



To emphasise research **commercialisation**, innovation, and technology transfer, tech parks in the GCC, such as Dubai Silicon Oasis, ilmi (Science Discovery and Innovation Center), UAE Hub71, KAUST Research & Technology Park (KRTP), and Qatar Science and Technology Park (QSTP), are fostering collaboration among start-ups, research spin-offs, and tech firms. These enable access to funding and market entry for innovative solutions. However, without proper RDI enablers in place, these facilities may lose their relevance.



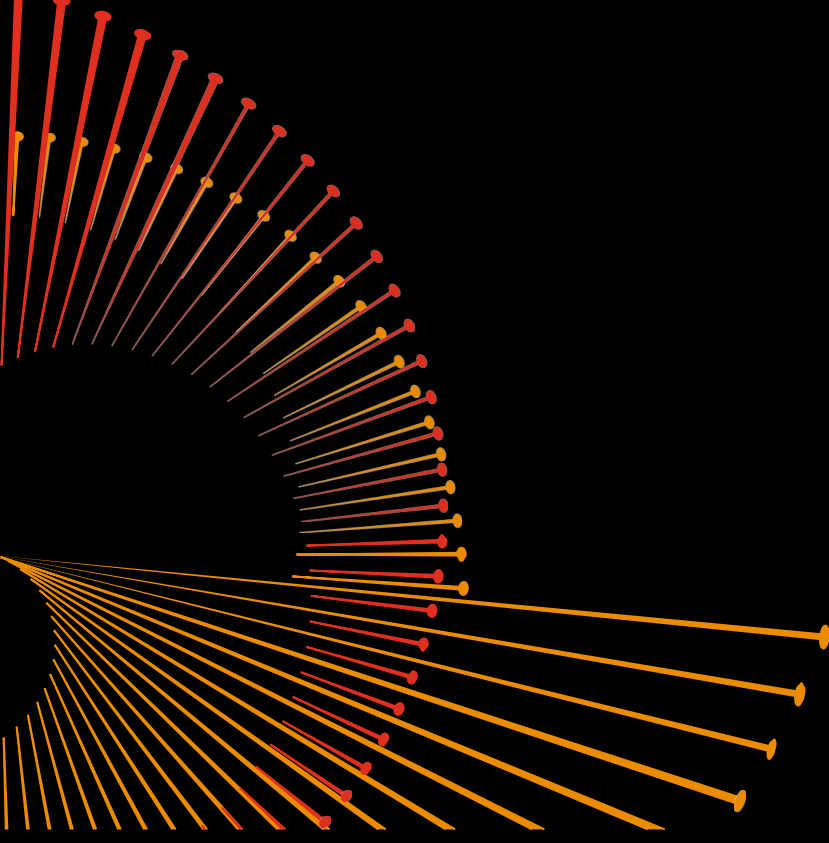
Typical pitfalls: Assuming scientists should commercialise their own research

It is unrealistic to expect researchers to excel as both academics and business developers. Professional commercialisation support through technology transfer offices, patent bureaus, and business incubators helps fill the skills gaps and supports vibrant R&I ecosystem growth.

Key actions:

- 01 Support technology transfer by engaging experts in **disclosure and evaluation** to assess the commercial potential of research and conduct regular market-fit reviews and foresee legal issues. Establish technology transfer offices (TTOs) at research institutions, akin to Stanford's Office of Technology Licensing (OTL), to focus on IP management, commercialisation, industry partnerships, and start-up incubation.
- 02 Foster a dynamic entrepreneurial sector to bridge market gaps and link tech advancements with economic growth. Entrepreneurs aid in **product development**, and fuel innovation.
- 03 Provide researchers with entrepreneurial training, including proposal writing and investor pitching, to help secure R&D funding.
- 04 Promote research findings to policymakers and industry leaders through effective marketing. This attracts funding and collaborators, enhances the reputation of researchers and institutions and stimulates further innovation and interdisciplinary partnerships.





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To thrive in the era of rapid technological advancement and climate change, we must prioritise continuous skill development and innovation within our educational systems. By investing in research skills, fostering collaboration between academia and industry, and developing our educators, we are not only preparing our cohorts for the future, but also ensuring that our region remains competitive on the global level.

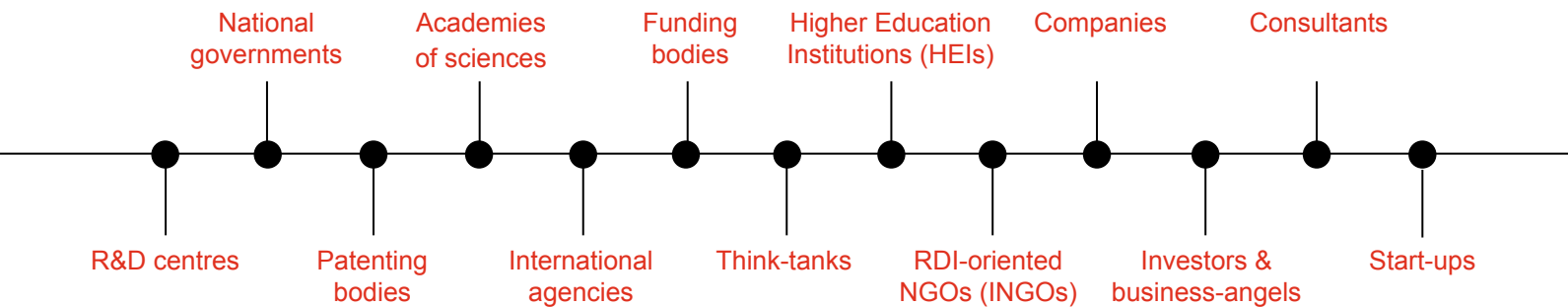


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4. Operational enablers: Supporting RDI ecosystems to achieve desired outcomes

The overall RDI ecosystem should be inclusive and not limited only to certain types of actors.

The diverse ecosystem can include:



With their activities being complimentary, rather than contradictory in nature, actors can foster interconnected networks that enhance collaboration and innovation. Individual elements can interact and amplify value:

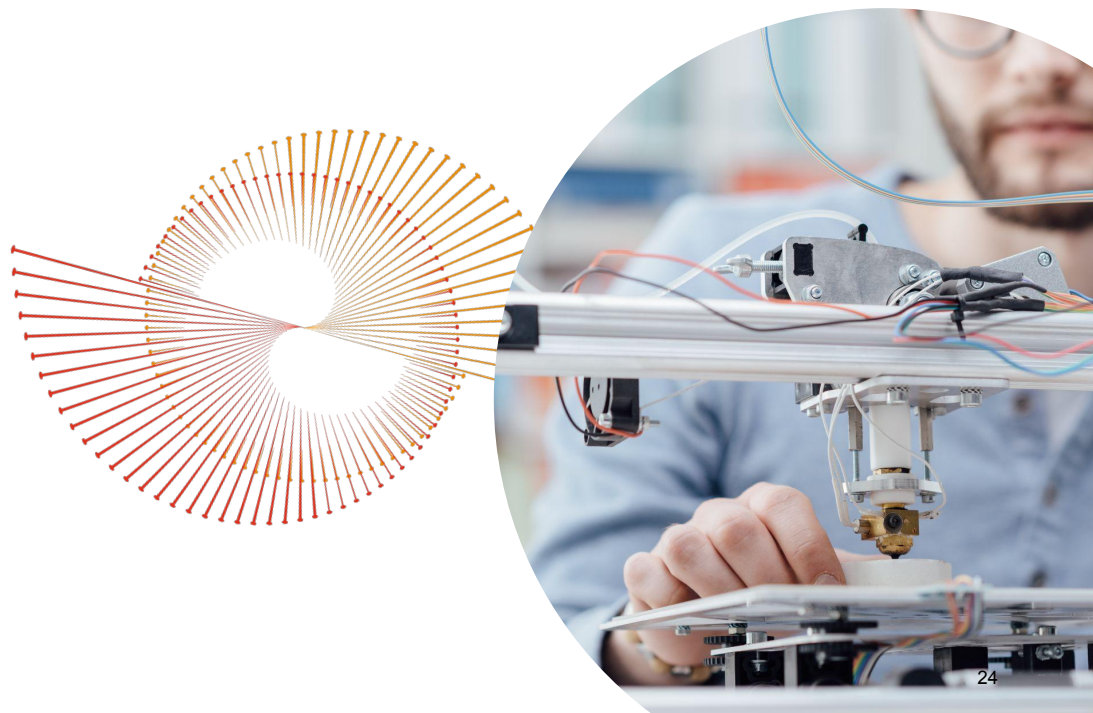
- Private sector can establish university-based R&D centres to ensure knowledge creation.
- Business-angels can flexibly support innovation by providing both funding and valuable connections.
- RDI-oriented NGOs can financially support small research entities or act as research network coordinators connecting different institutions.

Current **collaborations and partnerships** within the GCC RDI ecosystem face multiple challenges that reduce their potential impact. This includes misaligned research goals between industry and academia, limited awareness of existing capabilities, and isolated corporate R&D.

Administrative burdens, such as extensive regulations and paperwork, also hinder collaboration, making it less appealing for researchers due to increased workload and limited incentives.

Harnessing the power of international collaboration can help solve these challenges by:

- Bridging the gap between academia, industry, philanthropic groups, and other educational bodies,
- Reducing duplicated investments and capitalise on scale economies in RDI,
- Speeding up the commercialisation of innovation and smooth technology transfers,
- Offering industrial firms access to national research facilities, and
- Cultivating a shared technological vision to steer RDI and investments by both public and private sectors¹⁶.



The GCC region faces challenges in its research and innovation **infrastructure and tools**. For example, research facilities in higher education institutions and government labs are underused, often due to lack of awareness of available resources. There are also policy-imposed administrative barriers, and open innovation infrastructure is absent, limiting tech entrepreneurs from developing and prototyping their ideas.

Best practice is to set up material and legal infrastructure to reduce the cost of doing business for start-ups and ensuring infrastructure and tools accessibility in flexible formats such as subscriptions, residency, etc. It encourages entrepreneurship, attracts investment, promotes competition, and creates a favourable business environment.



Best practices: Provide access to equipment and resources

CERN, one of the world's leading research organisations, operates advanced infrastructure like the Large Hadron Collider (LHC) for groundbreaking particle physics discoveries. By providing access to cutting-edge facilities, it attracts top researchers and fosters global scientific collaboration.

Operational challenges in the GCC's **RDI processes** include regulatory restrictions for importing specialised equipment and materials. The hiring process for research centres is often plagued by difficulties in identifying specialised candidates and lengthy approval processes misaligned with project timelines. Bureaucracy often slows down research, making the disbursement of funds rigid and complex. Additionally, a lack of standardised legal framework for private sector funding makes participation in RDI efforts challenging.

Key actions:

- 01 Select and adopt best international practices for institutional procurement to create favourable conditions for RDI projects.
- 02 Develop an administration toolkit, tailored for research environments, detailing administrative policies and procedures in human resources (HR), finance, and Delegation of Authority (DoA) functions, including specifics like recruitment and expense policies.
- 03 Refine customs policies to simplify imports of research materials, such as reagents, biomedical samples and nuclear substances.



One of the major challenges in supporting commercialisation is the **lack of incentives** for local patent filing by private R&D organisations. This leads to many organisations choosing to file patents overseas. Additionally, there is a widespread lack of understanding about the commercialisation process, which results in inconsistent support and commercial evaluation of innovation. This inconsistency is particularly prevalent with immature technologies, and there is a strong need for the capacity to test and develop minimum viable products, especially in the health sector.

As seen in our latest [Net Zero Future50 - Middle East report](#), navigating the diverse legal requirements across jurisdictions, particularly in the region, poses a significant barrier for startups during the creation phase. There are minimal corporate start-up programmes, and policies for academic research commercialisation are inconsistent. The varying quality of technology transfer offices and a lack of integration with university R&D projects further complicate the process.

Key actions:

- 01 Establish a unit dedicated to managing the intellectual property (IP) lifecycle within RDI programmes, with clear guidelines on managing, processing, and protecting associated rights.
- 02 Tailor the IP management policies to encourage local patent applications. To incentivise this, GCC governments should develop programmes to build national awareness and capabilities in IP management, and provide support for patent applications.
- 03 Create open innovation labs for ideation, product development, and prototyping, accessible to all researchers and entrepreneurs.
- 04 Provide commercialisation training with a one-stop-shop approach for translation RDI into products/ services.
- 05 Adapt international trade programmes to ease the export of local RDI outputs to key markets.



5. RDI outputs: Getting results

To improve their RDI outputs - publications, inventions, products, and licensing and sales - GCC countries need to enhance their strategic and operational enablers, along with other key components of the RDI ecosystem, as observed in leading practice countries.

The payoff for the GCC would be the ability to unlock greater innovation, drive economic diversification, and solidify their position as global leaders in research and development.



Best practices: Foster collaborative research networks

Collaborative research networks boost scientific publications by enhancing global collaboration, data sharing, and research support. For example, the Consortium of Universities for the Advancement of Hydrologic Science (30 US universities and international partners) addresses water-related challenges by:

- Maintaining a comprehensive hydrologic data repository,
- Facilitating collaboration among various disciplines, including hydrology and environmental science,
- Conducting workshops and conferences for idea exchange and feedback,
- Offering training programmes and webinars on research techniques,
- Providing grants for innovative research, and
- Collaborating with international partners, thereby contributing to US universities

Key actions:

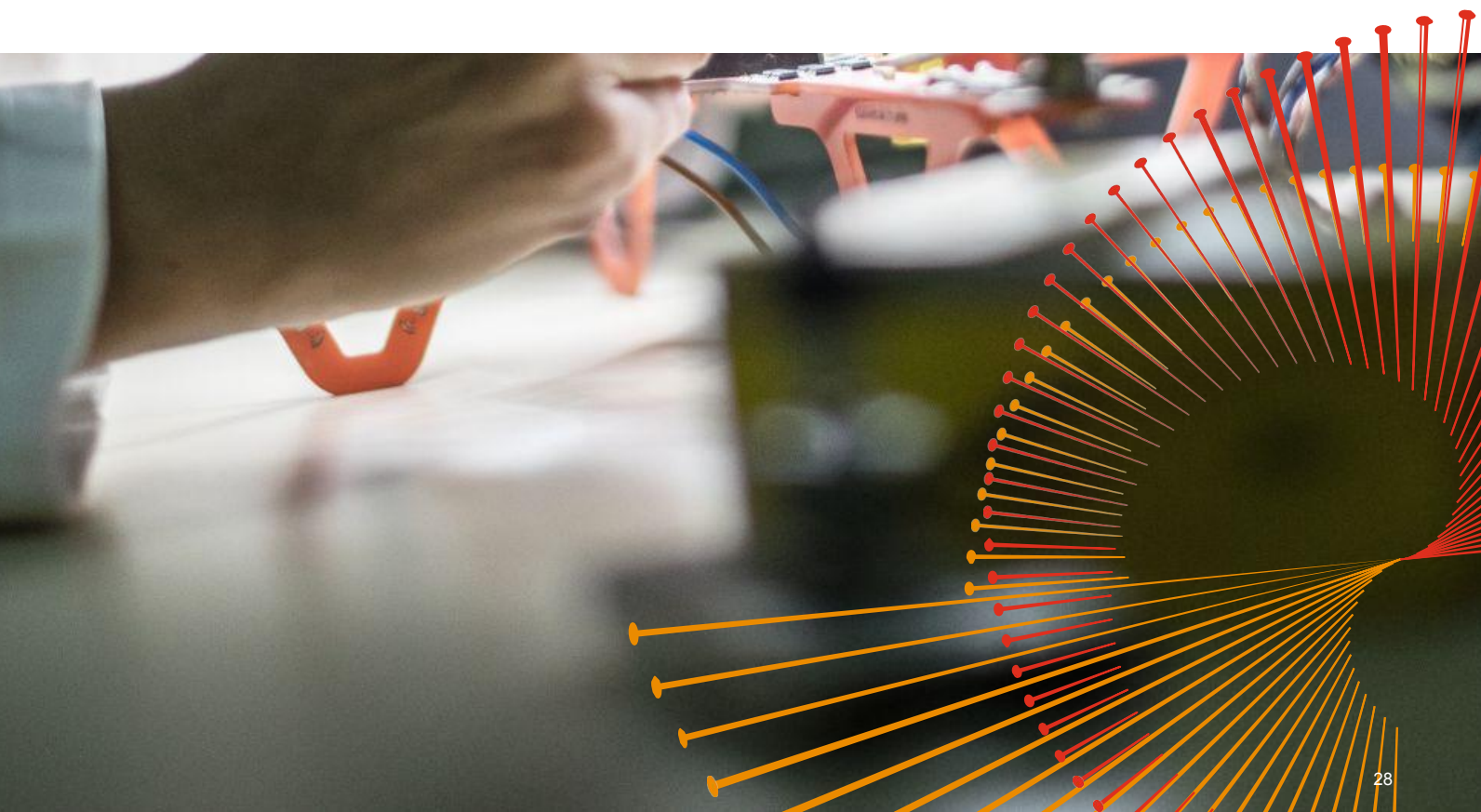
- 01 Invest in open-access¹⁷ publishing to relieve researchers of publishing costs and make findings widely known.
- 02 Redistribute ownership rights to researchers to motivate patent registration and spin-offs.
- 03 Foster international partnerships by offering incentives like low-interest loans, tax breaks, and support to boost global competitiveness and knowledge transfer.
- 04 Safeguard investors' rights and improve the investment climate to attract more backers, boosting innovation and RDI scaling.
- 05 Adopt a PCT¹⁸ application strategy for standardised, multi-country patent filings, benefitting investors and businesses.
- 06 Reduce market entry barriers, such as local content mandates and foreign ownership limits, to facilitate RDI product licensing and sales in the GCC region.



Way forward

As the GCC countries set their sights on an ambitious future driven by innovation and diversification, it is imperative to establish a robust and comprehensive research, development, and innovation (RDI) ecosystem. This is essential to shape a knowledge-based economy and propel the region towards a shared vision of growth and competitiveness.

To build this ecosystem, GCC governments must continue to prioritise research and innovation in the public sector and foster greater collaboration between academia and the private sector. With the existing political will and world-class infrastructure in the region, a stronger commitment to RDI will contribute to long-term stability and sustained growth. A focused approach will not only attract overseas researchers but also retain local academic talent, leading to improved performance outcomes and securing the region's position as a global leader in innovation.



Endnotes

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 - Content types included on Scopus are either serial publications that have an ISSN (International Standard Serial Number), such as journals, book series and conference series, or non-serial publications that have an ISBN (International Standard Book Number), such as monographs or one-off conference materials.
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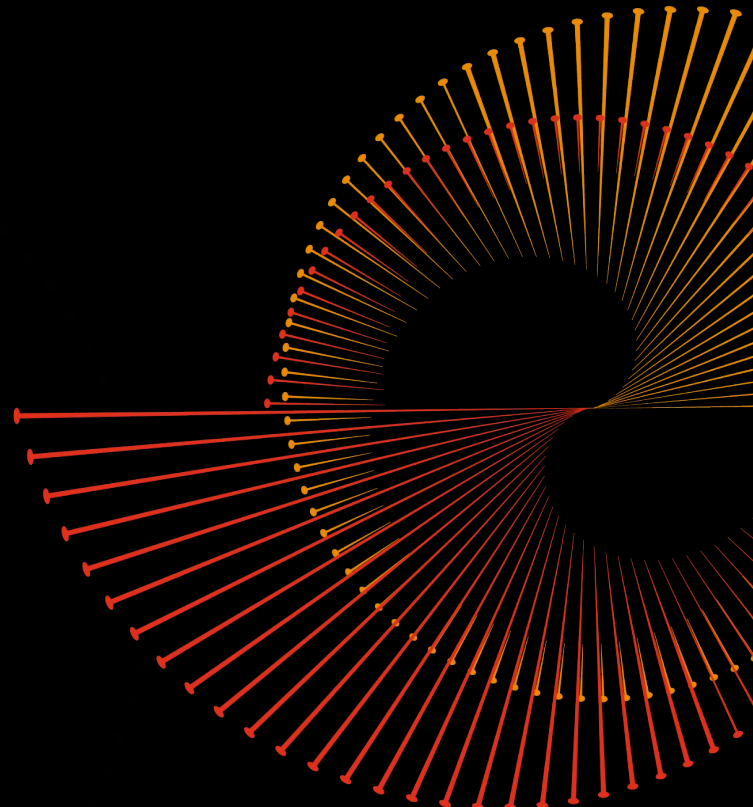
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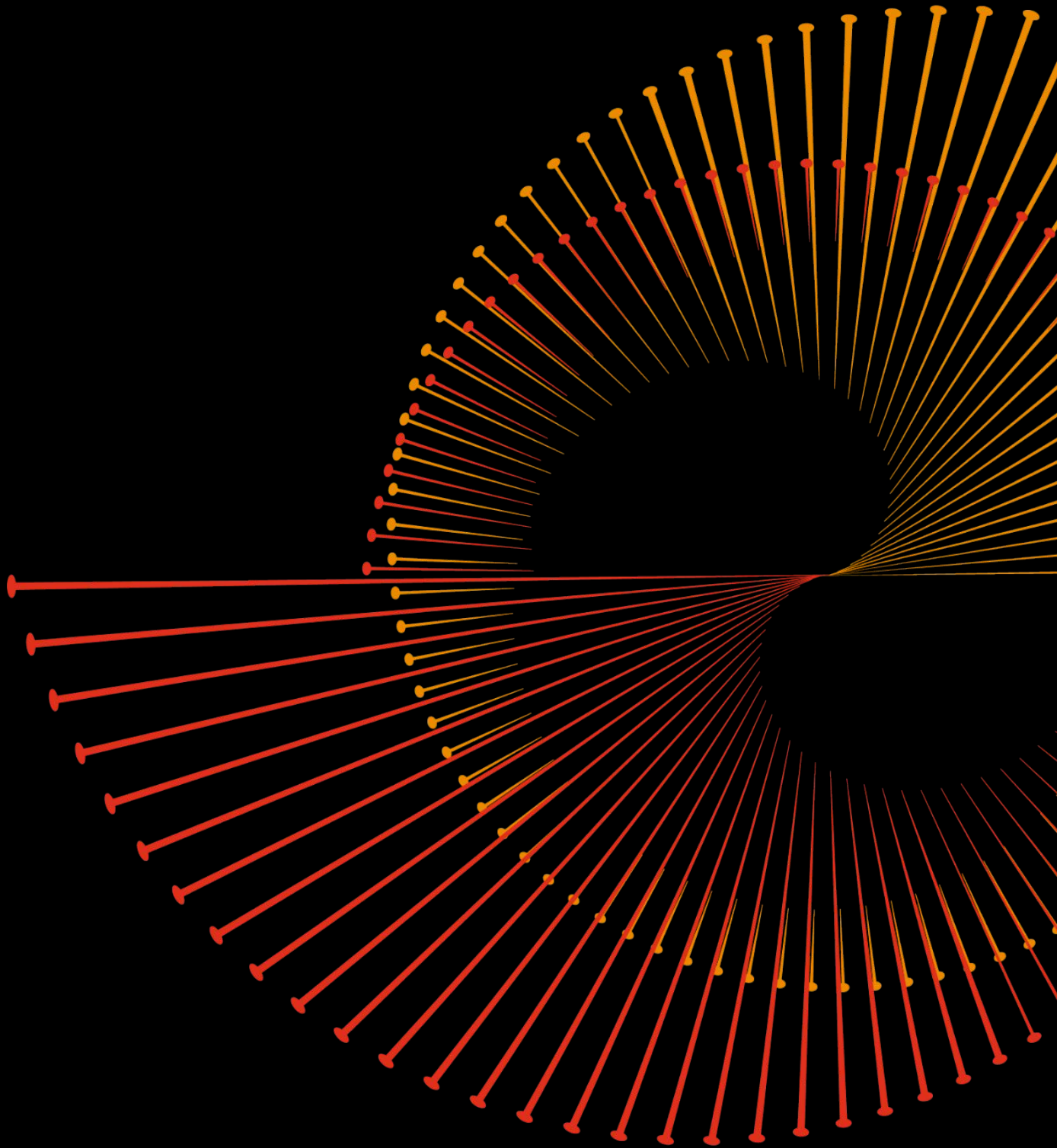
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