Quarterly Newsletter Issue 1 2024

EURAXESS India Newsletter is a quarterly electronic publication. It provides information about conducting research in Europe or with European partners and gives insights for Indian and European researchers who are interested in the European research landscape.

Please email to india@euraxess.net for any comments on this newsletter, contributions you would like to make.

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1 EURAXESS Country in Focus: United Kingdom

Location: Western Europe

Population: 68,138,484 (2023 est.) (% of total population: England 84.3%, Scotland 8.2%, Wales 4.6%, Northern Ireland 2.8%)

Area: Total: 243,610 sq km (land: 241,930 sq km & water: 1,680 sq km) (% area breakdown: England 53%, Scotland 32%, Wales 9%, and Northern Ireland 6%)

Capital: London (also Belfast: N. Ireland, Edinburgh: Scotland, Cardiff: Wales)

Languages: English (other recognised regional languages: Scots, Scottish Gaelic, Welsh, Irish, Cornish)

Currency: Pound sterling (£/GBP)

GDP: 2.274 trillion GBP (world's 6th largest economy)

Unemployment rate: 3.9%

Industries: Machine tools, electric power equipment, automation equipment, railroad equipment, shipbuilding, aircraft, motor vehicles and parts, electronics and communications equipment, metals, chemicals, coal, petroleum, paper and paper products, food processing, textiles, clothing, other consumer goods.

The United Kingdom (UK) is made up of four countries: England, Northern Ireland, Scotland, and Wales. The iconic Union Jack flag is made up of the flags of England, Northern Ireland and Scotland. The UK government is based in Westminster, London. Northern Ireland, Scotland and Wales are devolved countries and each have their own parliament, which make many of the decisions for their own country. Each devolved country has its own science strategy, while also being part of the overall UK strategy.

The UK is home to some of the world's leading scientific research, taking place in numerous universities, institutions, and companies. The UK holds the fourth place in the Global Innovation Index 2023 rankings.

Universities

There are over 160 universities in the UK, two of which are in the top three of the 2024 worldwide university rankings, with four in the top ten. Some 17 are in the top 100 universities.

The UK is the second most popular destination for international students; 45.4% of all postgraduates came from abroad, according to Migration Observatory Oxford. There are several universities in London and Edinburgh, two of the world's top 100 cities.

Research in the higher education sector in the UK is funded primarily by the government, with additional support from charities, international sources, and the private sector. It is a dual funding system with two primary streams. The first stream is quality related (QR) funding, block grants which are based on universities' performance. The second stream is grant funding, where specific projects compete for grants. Public funding comes from a range of government departments with research budgets at their disposal, but much of it comes from the Department for Science, Innovation and Technology

(DSIT) through UK Research and Innovation (UKRI) (see more below). The devolved administrations also support equivalent funding bodies in other parts of the UK.

QR funding is linked to the Research Excellence Framework (REF) report. This report was published in 2022 by the four higher education funding bodies for England, Scotland, Wales, and Northern Ireland. Research Excellent Framework (REF) 2021 rated 41% of UK university research submitted as *world leading* and 47% as *internationally excellent*.

The UK is ranked fourth worldwide for published scientific research, with over 205,000 citable publications in 2022 alone. Many of the most cited journals internationally are based in the UK. Although it represents just 0.9% of the global population, the UK produces 13% of the world's most highly cited scientific research. The UK also excels in international research collaboration. Over 61% of the UK's publications were co-authored with at least one non-UK researcher, currently the highest among peer countries. The government has produced guidelines on Trusted Research to facilitate working with global partners in specific areas of research.

Big Ben. London, England, UK

UCL, University College London, England, UK

Wales Millennium Centre, Cardiff, Wales, UK

The University of Edinburgh, Scotland, UK

Source:
https://www.britishcouncil.be/

UK Strategy

The UK government has stated that its future success will depend on the ability to build on current strengths in science, technology, finance and innovation. It intends to make the UK a "science and technology superpower" by 2030, according to the UK Science and Technology Framework 2023.

The Framework focuses on: identifying critical technologies, signalling the UK's strengths and ambitions, investment in R&D, talent and skills, financing innovative science and technology companies, procurement, international opportunities, access to physical and digital infrastructure, regulation and standards, and promoting an innovative public sector.

The government has set a series of ambitious targets in relation to this superpower goal, including a target to spend 2.4% of UK GDP on research and development (R&D) by 2027. DSIT was formed in February 2023 to support its strategy. DSIT brings together the five technologies of tomorrow under one department – quantum, AI, engineering biology, semiconductors, future telecoms, together with life sciences, space and green technologies.

University spin-out companies are very important for the UK economy, with investment increasing almost five-fold from 2014 to 2023. The government has recently committed to making the UK the best place in the world to start a spin-out company. As well as investing £500 million investment in artificial intelligence (AI), to make the UK the best place to begin an AI start-up.

The UK has the largest technology ecosystem in Europe, is home to the greatest number of quantum companies in Europe, and has the third-largest AI market in the world, according to Superpower Campaign.

The UK is also the eighth-largest manufacturing economy. In November 2023, the Business and Trade Secretary launched the UK's Advanced Manufacturing Plan backed by £4.5bn in the Autumn Statement on finance. Over £2bn has been allocated to the automotive industry, including batteries, and £975m for aerospace.

Catapult Centres act as a network for world-leading technology and innovation centres, helping businesses transform great ideas into valuable products and services. The network is comprised of nine Catapults with a national presence spanning over 50 locations. Sectors known to benefit under the scheme include:

- Cell and gene therapy
- Compound semiconductor applications
- Connected Places
- Digital
- Energy Systems
- High value manufacturing
- Medicines discovery
- Offshore renewable energy
- Satellite applications

"Catapults are physical centres with cutting-edge R&D infrastructures including hubs, laboratories, testbeds, factories and offices, as well as technical experts that prove and adopt breakthrough products, processes, services and technologies."(The Innovation Launchpad Network +)

Where to find funding

Since 1 January 2024, the UK is pleased to become an associated country under the EU's Horizon Europe research and innovation programme (see UKRI information on Horizon Europe or find your National Contact Point from the government website).

There are many different ways to obtain funding for your research in the UK, including specialised councils operating in the UK that offer grants and fellowships.

Research Councils – These are the main public investors in fundamental research in the UK, with interests ranging from arts and humanities to particle physics. The seven Research Councils work together through UKRI and funded by DSIT. They invest £8bn each year into research and innovation, in areas including biodiversity conservation, quantum computing, space telescopes, and innovative health care. UKRI activities include funding projects, developing researchers' skills, strengthening research infrastructure, supporting commercialisation of research, and engaging with the public on science.

UKRI has information about international funding opportunities (ranging from travel to long-term collaborative grants) from the Research Councils, plus Research England and Innovate UK:

- Arts & Humanities Research Council (AHRC)
- Biotechnology & Biological Sciences Research Council (BBSRC)
- Engineering & Physical Sciences Research Council (EPSRC)
- Economic & Social Research Council (ESRC
- Innovate UK

- Medical Research Council (MRC)
- Natural Environment Research Council (NERC)
- Research England
- Science and Technology Facilities Council (STFC)

UKRI also hosts the Gateway to Research, an extensive record of publicly funded research in the UK.

Other funding opportunities in the UK – Other research and science funding avenues include learned societies, charitable organisations, and professional bodies.

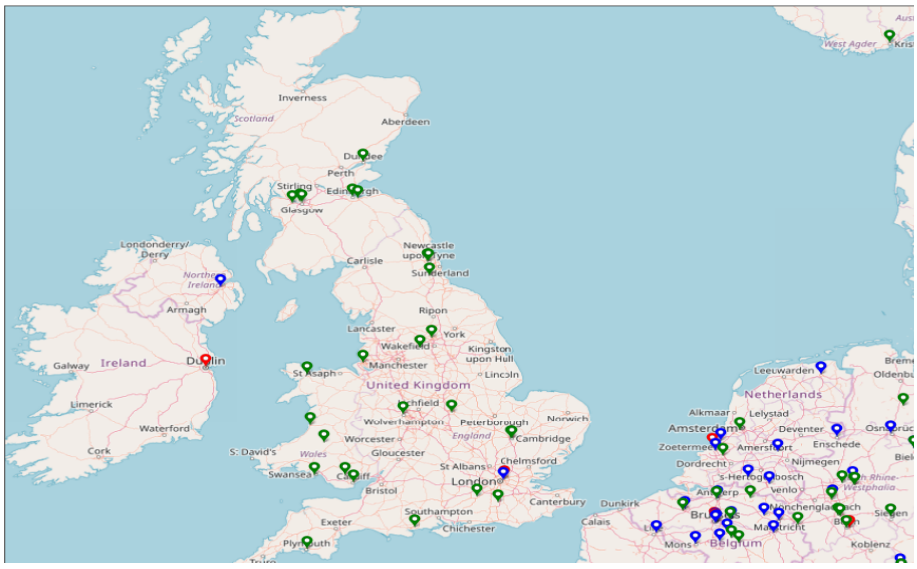
Learned Societies and Academies – These organisations promote research in specific subject areas through academic publications, funding opportunities, conferences, and membership. Some also act as professional bodies by offering accreditation (further information on Funding sources).

More Reasons to Choose the UK

Gender equality is an important feature of the UK R&I landscape with notable improvements according to the latest UK and European data (Gender Statistics Database, EIGE, 2023). For example, women are well represented (48.4%) in national academies of science. For EU countries as a whole, the equivalent female representation in these high-level academies is 27.9% (numbers vary greatly between countries). For research funding organisations (presidents and members of the highest decision-making body) 46.2% are female, while the equivalent in Europe is 43.1% female.

International talent plays an important role in UK universities. Among academic staff with known nationality, 37,585 or 16% are EU nationals, and 40,195 or 17% have a non-EU nationality (HESA). The subject areas with the highest proportion of international academic staff are engineering and technology (47.9%) and biological, mathematical and physical sciences (39.8%) (Universities UK)

Teams at the 28 EURAXESS Service Centres in the UK can provide advice and tips on moving to the UK for work or study, as well as offer information about their region, and the local area.



Some testimonies and notable quotes about the UK from international researchers highlighted in the 'Meet the Researchers' series from EURAXESS UK:

"The UK offers a modern, multicultural environment. People here welcome new and different ideas, show mutual respect, and maintain a friendly atmosphere." (Dr Minh Ngoc Nguyen, Research Fellow at Aston University)

"[Moving to the UK allowed me to leverage] the advanced research facilities and collaborative opportunities available in the UK." (Dr Temitope Odedeyi, Royal Academy of Engineering Research Fellow at University College London)

"The University of Liverpool has amazing staff and students, and the potential is enormous." (Professor Sonia Rocha, Executive Dean at the Institute of Systems, Molecular and Integrative Biology at the University of Liverpool)

2 HOT TOPIC: Research implications on Europe's Economic Security Package update

With increased uncertainty surrounding global trade and foreign investment, and calls for more clarity from industry and research sectors on terms like "strategic autonomy" and "dual use", a key update to the European Economic Security Package has been proposed just six months after the original document was agreed by the European Parliament and Council.

As one of its first outputs to start the new year, the European Commission has issued the update to "strengthen the EU's economic security at a time of growing geopolitical tensions and profound technological shifts".

The new package of five initiatives seeks to: (1) tighten inbound investment screening rules, (2) advance export control conformity throughout the European Union, (3) contemplate the establishment of an outbound investment screening mechanism, (4) scale up dual-use and advanced technology research, and (5) protect research and advanced technology from leaking to strategic competitors.

The revision to the Strategy thus adds a wider geopolitical dimension to what was a largely "economic growth" focused policy goal laid out in the June 2023 agenda. The new Commission proposals are considered integral to the EU's comprehensive approach to economic security as characterised by three key pillars: fostering competitiveness, mitigating risks, and forging partnerships with countries where economic security interests are aligned.

This tacitly reinforces the EU's Global Approach to research and innovation in a changing world, elements of the main pillars of the Horizon Europe flagship R&I funding programme, as well as efforts to widen and strengthen the European Research Area.

Open and outward-looking, mutually beneficial relationships with like-minded partners are the centre point of Europe's Global Approach to international R&I cooperation, launched in May 2021, while at the same time safeguarding strategically important sectors.

What sort of risks does the Strategy deal with?

According to the June 2023 European Economic Security Package, the key economic security risks Europe faces include supply chain resilience concerns, energy security, and product scarcity – especially related to the green transition, and pharmaceuticals.

Physical and cyber-security risks are also cited, including disruption/sabotage to critical infrastructure and data in the EU. Technology security and "leakage risks" are also considered threats. This could include espionage or illicit leaking of critical knowledge, and ties into the need for tighter military/intelligence capabilities requiring "specific mitigation measures", especially for dual-use technologies like quantum, semiconductors, and artificial intelligence.

Further, the "weaponisation of economic dependencies" is explained in the Strategy as the risk of third countries targeting the EU, its Member States, and businesses through trade/investment-related measures directed at influencing policy.

The updated measures unveiled in January 2024 address new, emerging or evolving concerns and include:

- Enhancing EU security and public order by advocating for enhanced screening of foreign investments within the EU.
- Encouraging dialogue and coordinated action among European nations regarding export controls, while respecting existing multilateral frameworks and Member States' sovereignty.
- Engaging with Member States and stakeholders to identify potential risks associated with outbound investments in specific high-tech sectors.
- Facilitating discussions on how to better support research and development involving dual-use technologies.
- Proposing Council recommendations aimed at bolstering research security at both national and sectoral levels.

Some clarity on dual-use technology

Broadly defined, dual use can refer to an item or technology that serves more than one purpose, but in foreign affairs and the trade-policy domain dual-use items usually refer to goods, software and technology that can be used for both civilian and military applications. This means they can be subject to export controls which apply to "any natural or legal person, including researchers or partnerships, physically sending, electronically transmitting or personally carrying dual-use items", according to EU regulations, and affect "brokering, technical assistance, transit and transfer of dual-use items".

Various types of authorisation are required for a range of items deemed dual-use, including but not limited to nuclear materials, facilities and equipment; special materials and related equipment; materials processing; electronics; computers; telecommunications and information security; sensors and lasers; navigation and avionics; marine; aerospace and propulsion systems.

Other dual-use items intended entirely or partly for chemical, biological or nuclear weapons; military use in countries subject to an arms embargo; and components of military items already exported from an EU Member State without the necessary authorisation. What's more, authorisation is required for the export of cyber-surveillance items likely to be used for internal repression or serious violations of human rights and international humanitarian law; the transfer of dual-use items listed in the annex of the consolidated original 2021 list (Regulation (EU)2021/821), such as stealth technology and strategic control, from one Member State to another.

The 2023 Strategy notes that the Commission was tasked with proposing a updated list of dual-use technologies for risk assessment based on "narrowly defined and forward-looking criteria". These should factor in the "enabling and transformative nature of a technology, the risk of civil military fusion, and the risk of their misuse for human rights violations".

The Strategy calls for tighter export controls for certain dual-use items to protect the economy and integrity of European R&D. Decisions on such items, it notes, primarily lie with Member States within the framework of multilateral and EU regulations.

Better aligning economic, security and R&I interests

The historical approach under EU trade policy has aligned security objectives with efforts to foster an "environment conducive to research, innovation, and non-proliferation efforts". But recent challenges and global tensions have seen heightened military application of strategic fields, notes the Commission, prompting some EU Member States and third countries to intensify national controls on critical technology exports. Often leveraging or supplementing existing multilateral frameworks, these controls target emerging risks associated with advanced semiconductor chip manufacturing and quantum computing equipment.

Recognising the need for greater flexibility to adapt to rapidly changing events, in September last year the EU revisited its Regulation on Dual-Use Export Controls. This and prior revisions seek to further mitigate risks in the "evolving security, technology, and trade landscape, particularly concerning sensitive emerging technologies".

In October last year, the Commission responded by publishing a compilation of EU Member States' national export control lists, effectively allowing Member States to "impose authorisation requirements" on items already included on other Member States' control lists. This helps to streamline efforts and, according to a statement on the announcements, this "first list" includes Dutch controls on machines to make semiconductors, as well as

Spanish measures on quantum computing, additive manufacturing, and other emerging technologies. “The publication opens the door for other Member States to coordinate their actions on export controls at a time of increased awareness of essential security concerns,” it notes.

Bolstering national and sectoral research

Developing and keeping pace with new technologies is crucial for EU economic security, reducing dependencies and maintaining/bolstering technological advantages. The original Strategy is clear on the need to prevent technology and valuable innovation being leaked to economic competitors. As such, the Commission is given powers to exclude certain third country entities from participating in research and innovation projects, and limit the transfer of sensitive Horizon Europe results to non-associated third countries.

For critical technologies, it can propose measures to improve research security while attempting to preserve its commitments to openness in R&I, underpinned by the Global Approach. EURAXESS Worldwide tackled this subject in a story last year, called ‘Safeguarding European R&I, a delicate balancing act’, which pointed out that Europe is threading that needle by progressing in its efforts to promote international cooperation in R&I “while at the same time strengthening its leadership and safeguarding its strategic interests in the world” – the conclusion of a timely Global Approach Implementation Report.

To support its research security efforts at the national and sectoral level, in 2022 the EU came up with a Toolkit on Tackling Foreign R&I Interference. Upon its release, Mariya Gabriel, Commissioner for Innovation, Research, Culture, Education and Youth, said that the toolkit was designed to “help us protect our fundamental values, key research findings and intellectual assets”. She added: “Raising awareness and implementing preventive measures is key to tackle threats of foreign intrusion that target critical vulnerabilities and extend across all research activities, scientific domains, research outputs, researchers and innovators.”

Two years on, this is clearly playing out in the latest update to the Strategy, and in particular the new initiative proposing Council recommendations to enhance research security at national and sectoral levels. The presumption here is that strengthened research security is likely to further impact EU R&I as well as related international cooperation under Horizon Europe and especially third country participation in EU research projects and initiatives.

The resulting implications on international research cooperation will likely be revealed once the new initiatives are fleshed out and the Council makes its recommendations.

Unity for economic security

Ultimately, the goal of the Strategy and, no doubt, a key reason behind the recent update is to project greater unity and enhance understanding of the need for secure international trade and cooperation.

Here, the original Strategy clearly signals the sentiment behind Europe's changing stance on economic security, saying that today's "interconnected world" demands a greater resolve to ensure the proper functioning of the internal market, integrity of EU trade policy, and safeguarding of its wider security interests.

"Member States' economic and national security interests, vulnerabilities and responses can rarely be seen or identified in isolation from those of other Member States or those of the Union as a whole," the authors note.

Again drawing parallels with the Global Approach, they continue that an unwanted alternative to this "EU approach to economic security" is that partners end up picking and choosing alliances, "while less well-intentioned players will seek to divide and conquer".

Joint EU action across policies and through cooperation between the EU and Member States, is "essential for the Union's economic security [and the] key to success will be to act in unity", the Strategy concludes. How all this ultimately affects and is affected by the global R&I landscape is of course a major talking point, and EURAXESS Worldwide will keep abreast of these developments.

Economic Security Strategy backstory…

On 20 June 2023, the European Commission and the High Representative released a Joint Communication outlining the European Economic Security Strategy. This document set out to mitigate risks amid rising geopolitical tensions and rapid technological changes while maintaining economic openness and vitality in key areas including research and technological development. The Strategy establishes a working framework to both assess and then address identified risks to EU economic security, ensuring the EU remains attractive to business, investment and, from EURAXESS Worldwide's perspective, for international research mobility as well.

The original Strategy prioritised four risk categories: supply chains, critical infrastructure security (both physical and cyber), technology security and leakage, and economic coercion or dependencies. To tackle these risks, three pillars were raised:

1) Boost EU competitiveness and growth by strengthening the Single Market, supporting a resilient economy, and enhancing scientific, technological, and industrial capacities.

2) Safeguard EU economic security through various policies and tools, including the implementation of new instruments as necessary.

3) Enhance partnerships and cooperation with like-minded countries to address shared concerns and advance common economic security interests.

3 In case you missed it...

Find latest EU Research and Innovation News and open Calls on our EURAXES India website.

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EURAXESS India is a networking tool for European researchers active in India and for Indian and international researchers wishing to collaborate with and/or pursue a career in Europe. EURAXESS India provides information about research in Europe, European research policy, opportunities for research funding, for EU-India and international collaboration and for trans-national mobility. **Membership is free.**

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