

**EURAXESS Korea
Quarterly
Newsletter
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Dear Readers,

Welcome to the second edition of the EURAXESS Korea quarterly newsletter! In this edition, we are excited to showcase two captivating research destinations for scholars and scientists: Turkije and Switzerland. These countries offer unique opportunities for researchers to explore new frontiers and collaborate with renowned institutions.

Turkije, with its rich cultural heritage and vibrant scientific community, offers an inspiring environment for researchers. The country's commitment to scientific advancement, coupled with its strategic location bridging Europe and Asia, provides unique opportunities for cross-disciplinary collaboration and cultural exchange.

On the other hand, Switzerland, renowned for its precision and excellence, continues to be a global hub for innovation and research. Its top-tier universities, cutting-edge facilities, and collaborative research culture attract scholars from around the world. Switzerland's emphasis on interdisciplinary research and its strong support for entrepreneurship make it an ideal destination for researchers looking to make an impact beyond academia.

We hope you find this edition of the EURAXESS Korea quarterly newsletter informative and inspiring. As always, we encourage you to explore the vast opportunities available to researchers and stay connected with the global R&I community. Let us continue to transform challenges into opportunities, advancing knowledge and driving positive change through research and innovation.

Happy reading!

I look forward to serving you throughout the rest of the year and beyond! Have questions, comments, feedback, or just want to say hi? [Send me an email](#) and share your thoughts!

Best regards,

Tomasz Wierzbowski

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EURAXESS members in focus: SWITZERLAND

Small in size, but big in reach

Switzerland is a small country of 8.8 million inhabitants in the middle of Europe, well known for its excellent chocolate and high-precision watches. But there is much more to Switzerland than this. With a quarter of the population holding a foreign passport, 66% of whom are EU citizens, Switzerland is one of the most international and multicultural countries in the world.

The Swiss also see themselves as pioneering innovators. In 2022, Switzerland topped the Global Innovation Index ranking for the twelfth time in succession. Perhaps related, the Swiss are also very proud of their higher education standing with a number of recognised institutions. Swiss universities score well in the Times Higher Education World University Ranking. The Swiss Federal Institute of Technology Zurich placed 11 on the 2023 list, making it the best-ranked continental European university. Meanwhile, six out of ten students in Switzerland are enrolled at one of the world's top 200 universities.

And a fun fact: Albert Einstein, a Swiss citizen since 1901, was awarded the **Nobel Prize** in Physics in 1921. He joins a venerable list of 25 scientists with Swiss citizenship who have received Nobel Prizes in the natural sciences to date. Measured against the size of the population, this is a world record.

Introduction to the national research landscape

Facts and figures

Switzerland has several types of **higher education institutions** (HEIs) tailored to meet the needs of their respective target groups. These include two federal institutes of technology (FIT) – ETH Zurich and EPFL in Lausanne – and ten universities of applied sciences and arts (UASAs). There are also 19 universities of teacher education (UTE), and four research institutes that belong to the ETH Domain: the Paul Scherrer Institute (PSI), the Swiss Federal Institute for Forest, Snow and Landscape Research (WSL), the Swiss Federal Laboratories for Materials Science and Technology (EMPA) and the Swiss Federal Institute of Aquatic Science and Technology (EAWAG).

Moreover, there are several other institutions active in higher education, such as the [Swiss Federal Institute of Sport Magglingen \(SFISM\)](#) and the Geneva Graduate Institute, which together offer a comprehensive and complementary range of studies. Most HEIs are state-funded and publicly accredited. The universities offer bachelor's, master's and PhD degrees, and focus on fundamental research. UASAs offer bachelor's and master's degrees more oriented towards scientific and professional education and carry out mostly applied research. UTEs offer practice-oriented training in various subject areas at primary and secondary levels; their research mostly touches on educational

EURAXESS – Researchers in Motion is an initiative of the European Research Area (ERA) that addresses barriers to the mobility of researchers and seeks to enhance their career development. This pan-European effort is currently supported by 43 countries, each of which will be profiled in our quarterly e-newsletters.

In this edition, we will zoom on Switzerland and Türkiye.

Facts and figures on Switzerland

Surface: 41 300 km²
Population 8.8 million
Life expectancy: 83.1
GDP: 77 240 US\$



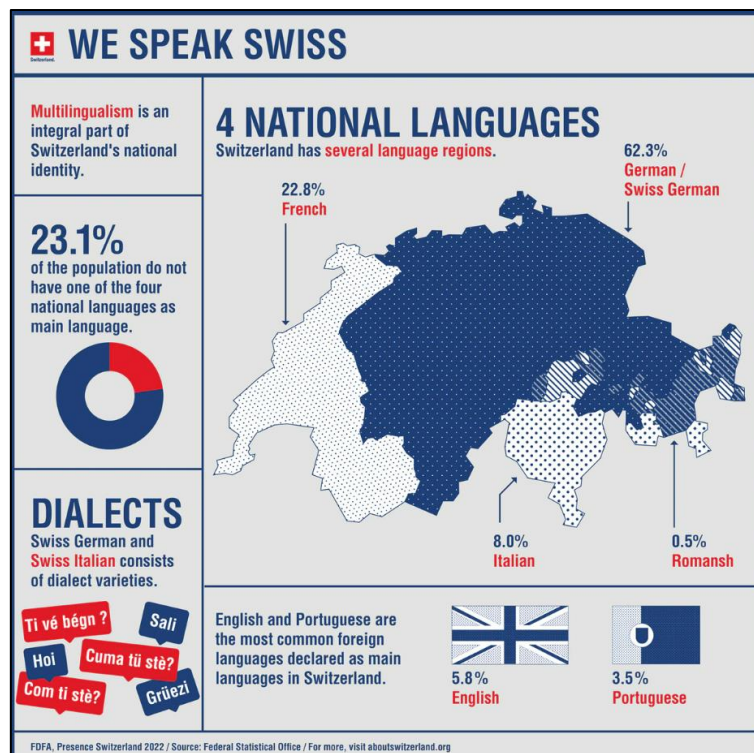
and learning processes and related subjects. All university types offer a wide range of courses in continuing education.

Swiss HEIs attract **researchers from all over the world**. Nearly 70% of PhDs and scientific collaborators registered at Swiss HEIs are international. At universities, 50% of professors come from abroad. Regarding the scientific outputs, 70% of publications are the result of international collaborations.

The **framework conditions for research and innovation** in Switzerland are considered to be very good. Political stability, security and quality of life are excellent by international standards. Other outstanding features are the well-developed, continuously modernised infrastructure, high quality of state institutions, high level of digital competitiveness, and flexible education system.

Around **3.2 % of GDP** is spent on research and development, with the private sector accounting for around two-thirds of this expenditure. In 2022, Switzerland filed a total of 9 008 patents with the European Patent Office, making the country the global leader for the number of patent applications per capita. In absolute terms, Switzerland ranks seventh worldwide.

Between 2016 and 2020, Switzerland ranked first with 8 015 **scientific publications** per year and per million inhabitants in relation to population size. In the same timeframe, the research areas most strongly represented in the publications in Switzerland were: clinical medicine (27% of the total), life sciences (23%), and physics, chemistry and earth sciences (22%, combined).





Centres of excellence

Swiss HEIs are renowned for conducting excellent research according to their profiles and the disciplines offered. Here, the [National Centres of Competence in Research](#) (NCCR) stand out as an example of excellence. NCCRs are a well-established federal funding instrument for long-term, strategically important research in Switzerland. They are internationally recognised for knowledge and technology transfer, promoting equal opportunities, and supporting the careers of young researchers. Funding is provided for research projects of the highest quality, with a particular emphasis on interdisciplinary and innovative approaches.

NCCRs receive federal government support to the tune of SFR 4-5 million per year, which is supplemented by contributions from the HEIs involved, competitive third-party funds raised by the research groups, and contributions from industry. Each NCCR runs for a maximum of 12 years.

The NCCR series that started 2020 are focused on the following topics:

- [NCCR AntiResist](#): New approaches to combat antibiotic-resistant bacteria
- [NCCR Dependable Ubiquitous Automation](#): New approaches to the control of complex automated systems
- [NCCR Evolving Language](#): The origins and future of language
- [NCCR Microbiomes](#): Microbial communities in health and environment
- [NCCR SPIN](#): Spin qubits in silicon
- [NCCR Suchcat](#): Sustainable chemical processes through catalysis

Swissnex

[Swissnex](#) is the global network connecting Switzerland and the world in education, research and innovation. Its mission is to support the outreach and active engagement of partners through the international exchange of knowledge, ideas, and talent. Partners can be researchers, entrepreneurs, artists, etc. from Switzerland and the respective country where Swissnex is located.

The network regularly holds [events](#) of interest to researchers.

Euresearch

[Euresearch](#) is the Swiss guide to European research and innovation, providing information and guidance on cooperation and funding opportunities offered by Horizon Europe – the current EU framework programme (FP) – and other initiatives.

Euresearch conducts [events](#) and activities, for example training in proposal or application writing, or introductory information on Horizon Europe.



Where can you get a research job or funding from?

In Switzerland, research funding is awarded on a competitive basis according to qualitative assessment criteria. The private sector is a crucial actor for both R&I jobs and as a source of funding.

Around two-thirds of research and development activities in Switzerland are financed and carried out by large corporations, such as Novartis or ABB, but also by SMEs and start-ups. Many of these companies are internationally active. Their work is primarily dedicated to applied research and development and to translating knowledge into marketable innovations. In doing so, they often work together with HEIs, especially universities of applied sciences.

Check out the jobs database on www.euraxess.com where a lot of Swiss companies put their open research positions.

Moreover, since 1987, participation in EU research framework programmes has been central for researchers in Switzerland. As a **non-associated third country**, this means applicants based in Switzerland can participate in most collaborative FP projects.

Learn more on Switzerland's opportunities, including the funding of transitional measures in [Horizon Europe and Euratom](#). Also read the [policy background on Switzerland's association](#) with EU R&I. information about

Switzerland is a member and partner of **research infrastructures, research infrastructure networks and initiatives of international R&I cooperation**. For example, it is member of the European Space Agency (ESA) as well as host state and member of the European Laboratory for Particle Physics CERN in Geneva. As a result, Swiss R&I actors have access to, among other things, cost-intensive research infrastructures for conducting experiments as well as scientific data and diverse knowledge.

Each year the Swiss Confederation awards [excellence scholarships](#) to promote international exchange and research cooperation between Switzerland and over 180 other countries. The scholarships are aimed at young researchers from abroad who have completed a master's degree or PhD and at foreign artists holding a bachelor's degree.



The federal government's [bilateral cooperation programmes](#) aim to intensify research and innovation cooperation with Europe and North America, and other countries that have a significant potential for scientific and technological development. These programmes consist of two complementary instruments: joint research projects with the BRICS countries as well as with Argentina, Japan, South Korea and Vietnam, and Leading House pilot activities with promising regions.

The Confederation is responsible for providing research funding through **two federal agencies**: the [Swiss National Science Foundation](#) (SNSF) which primarily funds research aimed at gaining general knowledge (basic research); and [Innosuisse](#), the Swiss Agency for Innovation Promotion, which supports science-based innovations, companies and organisations, as well as the transfer of knowledge and technology transfer (KTT) between research and industry.

An important role in KTT is also played by the [Swiss Innovation Park's](#) six centres located across the country. It facilitates collaboration among companies, start-ups, and HEIs looking to find solutions to some of the world's most pressing challenges.

Where can you get more information?

Find [funding opportunities and calls](#) for innovation projects with international partners.

The Confederation also provides funding to the institutions and research institutes within the [ETH Domain](#), a close-knit network comprising ETH Zurich, ETH Lausanne (EPFL), and the four research institutes [EAWAG](#), [WSL](#), [EMPA](#), and [PSI](#).

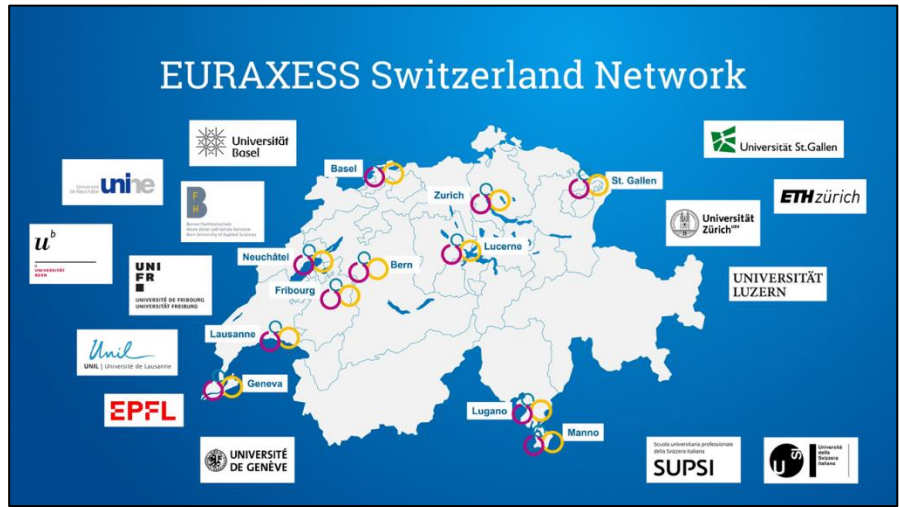
Information about the most important funding instruments, calls for joint research projects, and mobility programmes showcasing scientific and technological cooperation opportunities between Switzerland and the rest of the world can be found on the [Research Swiss](#) website.

The [My Science](#) portal for research and innovation provides news, information and includes relevant job offers.

A compact overview of funding opportunities can also be found on the [Swiss EURAXESS](#) portal. And more news and information about living, working, studying and the international research landscape in Switzerland can be found in the [information and assistance](#) section of EURAXESS.

Please watch this [video](#) and check out a typical [career story](#) as part of your preparations for carrying out research in Switzerland. They will help to explain the most important aspects when arriving.

You can find the **contact details of all the EURAXESS Centers in Switzerland** here: <https://www.euraxess.ch/switzerland/switzerland-network>





EURAXESS members in focus: TÜRKIYE

National Research Landscape

Türkiye is a dynamic ecosystem characterised by a diverse array of actors and a strong emphasis on technological innovation. The national landscape is shaped by public research institutions, universities, and private-sector companies, all contributing to the country's robust research and development (R&D) activities. The Turkish government plays a pivotal role in fostering this environment, providing extensive funding for research, development, and innovation (RDI) projects in line with national targets and priorities.

As a country at the crossroads of Europe and Asia, Türkiye hosts 208 universities, both public and private, which are home to a large number of researchers, including an increasingly international researcher community. In 2022, a total of 221,811 individuals worked as full-time equivalent (FTE) R&D personnel. Looking at the distribution by sector in 2022, 61.3% of this total were in financial and non-financial companies, 34.2% in higher education, and 4.5% in the general government sector, including non-profit organisations.

The Turkish R&D landscape is further enriched by various public research organisations, technology parks, and private-sector R&D centres. Notably, TÜBİTAK, the Scientific and Technological Research Council of Türkiye, plays a critical role in shaping and funding the national research agenda. Several other sector-specific research institutes and centres of excellence also contribute significantly to the Turkish R&D ecosystem.

The country has made a steadfast commitment to enhancing its research capabilities, with consistent growth in R&D spending as a percentage of GDP (GERD) in recent years, signalling Türkiye's strategic focus on bolstering innovative capacity.

The government's proactive approach to funding R&D projects – fostering innovation and creating an attractive environment for research – is clear evidence of its determination to strengthen Türkiye's position as a global player in research and innovation. Evidence of this can be seen in the total patents granted to Turkish researchers, which reached 10,335 in 2022 – 6,928 foreign patents and 3,407 domestic patents.



Türkiye, Quick Facts

Country Size783,356 km²**Population**

85,279,553

Language

Turkish

Capital

Ankara

Currency

Turkish Lira

To learn more about
Türkiye please visit:

<https://www.euraxess.org.tr/>





TÜBİTAK is the leading agency in research funding, supporting projects in universities and other organisations, and serving as the Bridgehead Organisation for EURAXESS.



<https://www.tubitak.gov.tr/en>

STI Framework

[TÜBİTAK](#) funds research projects carried out in universities and other public and private organisations, supporting researchers and students through scholarships, grants and fellowships. Other key players in research funding include the Turkish Energy, Nuclear and Mineral Research Agency, the Ministry of Health, the Ministry of Agriculture and Forestry, the Ministry of Transport and Infrastructure, and the Council of Higher Education, all of which provide funds for research related to their respective fields of action. The government's support for the public research system is not only financial but also strategic. The high-level advisory policy group affiliated to the President in science, technology, and innovation (STI) is called the Science, Technology and Innovation Policy Council (STIPC). Under the auspices of STIPC, technology roadmaps have been prepared (see later for details).

Academic System

Türkiye's academic system is vibrant and diverse, with 208 universities spread across the country. These range from large, research-intensive institutions to smaller, specialised ones, and include both public and private providers. Each plays a unique role in the broader research and education ecosystem. Turkish universities cover a wide range of academic disciplines, contributing significantly to the country's R&D outputs. Furthermore, 23 of these institutions have been designated as '[research universities](#)', highlighting their significant contribution to academic disciplines.

These universities host a considerable number of researchers, including academics and postgraduate students engaged in research. Türkiye's commitment to becoming an international hub for research and innovation is demonstrated by the growing number of foreign researchers in its university system.

The presence of foreign researchers not only contributes to the diversity of research perspectives but also helps strengthen international research collaborations. Universities and their research outputs are critical in driving innovation and contributing to Türkiye's global standing in research.

To date, nine universities from Türkiye (Boğaziçi University, Dokuz Eylül University, Hacettepe University, İzmir Institute of Technology, Koç University, Middle East Technical University, Nevşehir Hacı Bektaş Veli University, Yaşar University, Yıldız Technical University) have informed the European Commission that they endorse the 40 principles of the **European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers**. Three of these universities ([Middle East Technical University](#), [İzmir Institute of Technology](#) and [Koç University](#)) have been awarded the HR Excellence in Research status, allowing them to display the associated logo.



Research Priorities

Türkiye's research priorities are diverse and closely aligned with the country's strategic goals for socio-economic development. The **11th Development Plan of Türkiye** outlines the nation's research priorities and critical technologies. The main objective is to enhance the ability to develop and adapt technology in critical areas that are expected to generate high value-added in the future, ensuring technological transformation and increasing competitiveness in priority sectors.

To achieve this, the Science, Technology and Innovation Policies Board (BTYPK) of the Turkish Presidency, in partnership with the Ministry of Industry and Technology and with the technical assistance of TÜBİTAK, developed a series of technology roadmaps in areas such as Artificial Intelligence, Advanced Materials, Big Data and Cloud Computing, Engine Technologies, Cybersecurity, and Biotechnological Drugs. These technology sectors were chosen based on their high potential impact, as further identified in the BTYPK Technology Prioritisation Study, and the 2023 Industry and Technology Strategy.

The Development Plan also includes measures to increase human resource capacity in these areas, strengthen research infrastructures, and improve the capacity of the private sector in critical technologies. Moreover, it outlines priority sectors including the chemical industry, pharmaceuticals and medical devices, electronics, machinery and electrical equipment, automotive, rail system vehicles, and other manufacturing industries such as textiles-clothing-leatherwear, non-metallic mineral products industry.



Activities have been ongoing since 2021 to

determine RDI strategies for the European Green Deal and climate change adaptation, in collaboration with relevant Turkish ministries. Türkiye announced its 2053 Net Zero Emission Target in September 2021, marking a significant step towards green transformation and growth. The Ministry of Industry and Technology and TÜBİTAK are working on a **Green Growth Technology Roadmap**. This initiative aims to design R&D, innovation, and investment projects to help Turkish private-sector organisations adapt to green growth. Upon completion of the roadmap, additional topics will be added for the iron-steel, aluminium, cement, fertiliser, chemical, and plastic sectors.



In 2022, the Ministry of Environment, Urbanisation and Climate Change organised a Climate Council. Under TÜBİTAK's coordination, efforts were made to develop innovative solutions in five main areas: Climate Change, Environment and Biodiversity; Clean and Circular Economy; Clean Accessible and Secure Energy Supply; Green and Sustainable Agriculture; and Sustainable Smart Transportation. With an interdisciplinary approach, 33 priority RDI topics were identified, which are among TÜBİTAK's priorities for 2022-2023. These topics include ground-breaking technologies that will increase efficiency through energy efficiency and the use of green technologies in production processes.

Moreover, some strategic topics include Earthquake Research, Chemical and Biological Defence, Production of Valuable Chemicals from Plant Sources, Monitoring of National Biological Diversity, Biomedical Equipment Technologies, and Epidemiological Studies.

Special Features of R&D Strategy

Main STI Programmes

Türkiye's R&D Strategy and main STI programmes are characterised by a number of key policy initiatives. The **2023 Industry and Technology Strategy** is a significant roadmap to transform Türkiye into a country that delivers high-tech added value in an increasingly digital world.

The strategy is composed of five main components: High Technology and Innovation, Digital Transformation and Industrial Leap, Entrepreneurship, Human Capital, and Infrastructure.

The National Artificial Intelligence Strategy is another crucial initiative that guides the country's efforts in the field of AI, with the National Artificial Intelligence Steering Committee overseeing its implementation. Türkiye's commitment to digital transformation is also evident in its association with the Digital Europe Programme and the development of the Digital Government Strategy.

The country's response to climate change is guided by the **Climate Change Strategy** and the work of the Climate Change and Adaptation Coordination Board.

The **Global Innovation Index Türkiye Action Plan and Strategy** is a key policy initiative that aims to enhance the country's innovation capabilities. Turkish STI efforts are also supported by various other programmes such as the Research Focused Mission Differentiation and Specialisation Programme, KOSGEB (the Small and Medium Industry Development Organisation) International Accelerator Programme, and the TÜBİTAK Priority Research, Development and Innovation Topics 2022-2023.



Looking forward, the **12th Development Plan of Türkiye (2024-2028)** currently being prepared will lay the groundwork for long-term sustainable development targets and serve as the strategic framework for the steps to be taken to make Türkiye a global player in accordance with its **2053 Vision**.

A Specialised Commission on **Strengthening the R&D and Innovation Ecosystem**, which has been established as one of the 60 issues-based commissions within the 12th Development Plan preparations, aims to analyse the current national RDI ecosystem and develop policy actions to increase its efficiency, taking into account global trends.

Investments in Research and Innovation

Promoting innovative entrepreneurship and technological/innovation-driven research is a priority STI policy. The Turkish government has been providing extensive funding for RDI projects in line with national targets and priorities. According to a 2021 Research and Development Activities Survey, which was revised in March 2023 by the Turkish Statistical Institute (TURKSTAT), gross domestic expenditure on R&D reached 36.6 billion PPP\$ in 2021 – a 16% increase compared to the previous year. The share of GERD increased to 1.40% in 2021; private-sector (business enterprises) contributions exceeded 61%.

The targets for industry and technology have been determined within the scope of the 2023 **Industry and Technology Strategy** and its so-called 'National Technology Robust Industry' (National Technology Move) targets focusing on High Technology and Innovation, Digital Transformation and Industry Move, Entrepreneurship, Human Resources, and Infrastructure.

The current Development Plan also references both the Strategy and the National Technology Move, leading to various roadmaps (AI and augmented reality, big data, internet of things, cybersecurity, energy storage, advanced material, robotics, micro/nano/optoelectronics, biotechnology, quantum, sensor technologies, additive manufacturing technologies, as well as the infrastructures and qualified human resources (including skills, training) needed in these areas. Accordingly, green and digital transformation has become one of the key elements of Türkiye's more recent economic development plans.

Innovation Aspects

The recent **Priority R&D and Innovation Areas Study** covering the years 2022-2023 by TÜBİTAK covers a total of 264 priority topics, half of which are within the scope of digitalisation. One in three of the digital topics is AI-related, while a quarter can be regarded as green technologies.

The combined green and digital technology priorities are grouped under three main pillars:

- 1) **The first pillar** – RDI Topics in Priority and Key Technologies – includes six new technology roadmaps on AI, advanced materials, big data and cloud computing, motor technologies, cybersecurity, and



biotechnological pharmaceuticals. These were prepared within the auspices of the Turkish Presidency's Science, Technology and Innovation Policies Council, in cooperation with the Ministry of Industry and Technology and with technical support from TÜBİTAK.

- 2) **The second pillar** focuses on RDI Topics for the Compliance to EU Green Deal and Adaptation to Climate Change.
- 3) **The third pillar** – Strategic and Needs-Oriented RDI Topics – is based on national priorities such as earthquake research, biodiversity, biomedical equipment, etc.

Business Enterprise Sector

A selection of prominent private-sector innovation and entrepreneurship initiatives are given below:

Technology Oriented Industrial Move integrates target-based, end-to-end approach in co-operation with the Ministry of Industry and Technology, TÜBİTAK and KOSGEB. The objectives of the initiative include global competitiveness, economic and technological sovereignty, high added-value production, and achieving a 'great leap' in previously mentioned critical technologies. Specific calls cover digital developments and the transformation of manufacturing, mobility, medical and chemical products.

National Techno-Entrepreneurship Strategy 'Turcorn 100' Programme (Turkish Unicorns) provides tailor-made support to future Turcorn candidates with global ambitions, to help them navigate the Turkish technology entrepreneurship ecosystem.

Ministry of Industry and Technology, Women Entrepreneurship Initiative is a new scheme scheduled for launch in 2023. As part of the Startup Council, the Initiative will help keep the issue of equal opportunities for women on the agenda and promote women-focused activities.

KOSGEB SME Technological Product Investment Support Programme helps SMEs develop and commercialise innovative products resulting from RDI activities as a means of boosting Turkish competitiveness and prosperity.

KOSGEB Advanced Entrepreneur Support Programme provides financial support to newly-established businesses in the field of manufacturing and informatics. Entrepreneurs who have completed the Traditional and Advanced Entrepreneur training can apply to the programme.

TÜBİTAK directs its main private-sector support programmes towards SME development, while encouraging big firms to participate in more internationally funded activities.

Specific calls by TÜBİTAK on green growth and earthquake research – e.g. **Industrial R&D Projects Grant Programme** and **SME R&D Startup Support**





Programme – 2023 Earthquake Zone Special Calls – aim to increase R&D localisation in required technology fields, enhance technology and product development expertise, contribute to the economic growth of project outputs, and ensure the effective use of public resources in accordance with the country's needs and national objectives by enhancing the R&D capacity of SME-scale businesses.

Other TÜBİTAK calls, including the **Entrepreneurship Support Programme – BIGG Green Growth Call**, support activities from the idea stage to market readiness, so entrepreneurs can transform their technology and innovation-oriented business ideas into enterprises with high added value and the potential to create skilled employment. This, in turn, fosters startup companies that have internationally competitive power to develop innovative, high-tech products and services.

In addition, through the **Implementing Agency Call on Capacity Building for Innovation and Entrepreneurship Programme**, TÜBİTAK supports the agencies that will act as the main interface between entrepreneurs and itself. As a result of the latest call, 147 Implementing Agencies were selected through to 2026.

Also, two **BIGG+ SME Mentor Interface Calls** were announced, in 2019 and 2022. The programme supports mentoring to improve RDI capacities and SME commercialisation activities via creating a pool of experts in relevant fields.

Türkiye is also a member of **Global Cleantech Innovation Programme (GCIP)** and TÜBİTAK will be implementing GCIP Phase II in Türkiye to help SMEs and startups in the fields of renewable energy, energy efficiency, water efficiency, waste management, green buildings, smart transportation, and advanced materials.



Moreover, the **Venture Capital Support Programme (Tech-InvesTR)** was established as a collaboration between TÜBİTAK and the Ministry of Treasury and Finance to encourage the funds to invest in early-stage, technology-based companies that will boost the country's economy and improve the venture capital ecosystem. The five funds established within the framework of the Tech-

Co-creation through
High Technology
Platforms and Industrial
Innovation Networks

[Support Programme for Centres of
Excellence \(TÜBİTAK 1004\)](#)

[Industrial Innovation Networks
Mechanism \(SAYEM\)](#)

Mechanisms of
Development of
Qualified Human
Resources for the
Industry Based on the
Concept of "Co-
Creation"



InvesTR programme have already invested around TRY 674 million in 57 different startups, as of the end of February 2023.

Academy-Industry Relations

To facilitate and promote academy-industry collaboration, the government has introduced several initiatives and instruments (centres and tax incentives) for companies investing in RDI activities, in partnership with universities. These measures have significantly boosted academy-industry relations, contributing to the growth and dynamism of Türkiye's research and innovation ecosystem.

Co-creation is the joint production of knowledge and innovation between combinations of industry, research, government, end users and also civil society active in the R&D ecosystem. Türkiye uses co-creation as a tool for effective collaboration, especially addressing societal challenges and global risks.

TÜBİTAK focuses on mobilising RDI foundations and human resources within the scope of co-creation models. Platform-based RDI initiatives, such as the **High Technology Platforms** support and **Industry Innovation Networks Mechanism (SAYEM)**, are the main instrument to achieve it. TÜBİTAK formulated appropriate evaluation criteria, which highlights research team competence as a whole, as well as complementary individual research projects in high-tech platforms.

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Moreover, the **Digital Innovation and Collaboration Platform** was created under the coordination of Digital Transformation Office (DTO) to bring together public institutions, industrial organisations, R&D infrastructures, and university research bodies that carry out R&D implementation and dissemination activities in a range of fields. These include AI, data science, robotics and closely-related technology fields capable of creating economic, technological and societal value, and further realising multidisciplinary projects.

Türkiye Technohub Platform, which is also coordinated by DTO, has a registry of all stakeholders (as of April 2023, 3117 startups and scale-ups) including public institutions, private-sector companies and startups, technology development zones, technology transfer offices and universities operating in the field of technology entrepreneurship.

TÜBİTAK also provides diverse support for different needs within the R&D ecosystem, based on co-created commercialisation principles. These include TÜBİTAK's **Order-Based R&D Programme**, through which technology



developer SMEs transform their solutions into outputs with commercial value by collaborating with customer firms. With TÜBİTAK's **Patent-Based Technology Transfer Support**, patented technologies are helped to make the transition to market. Via this support, 50 technologies have been “transferred to the industry”, which are now protected by 58 national and 26 international patents with a total value of TRY 45 million.

To promote the R&D human resources based on co-creation, TÜBİTAK provides support to university-industry consortiums composed of 49 universities and 210 firms, helping to train 1162 PhD candidates under the [Industrial Doctorate Fellowship Programme](#). With the [International Fellowship for Outstanding Researchers Programme](#), 190 top researchers have been integrated into the Turkish ecosystem, including private R&D/design centres and techno-parks. TÜBİTAK also continues to support 82 researchers, carrying out pioneering research in Türkiye, under **TÜBİTAK's National Outstanding Researchers Programme**.

Funding Tools/Opportunities

As previously stated, TÜBİTAK is a major funding source in the country, providing grants, scholarships and awards for researchers at various stages of their careers, from undergraduate students to experienced scientists. These funding opportunities cover a wide range of fields and support both individual researchers and research teams.

Several other ministries and government agencies also provide funding for research and innovation activities. For example, the Ministry of Industry and Technology offers funding for industrial R&D projects, while the Ministry of Energy and Natural Resources provides funding for energy-related research. There are also numerous funds available for startups and SMEs engaged in innovative activities.

Furthermore, Türkiye has been increasing its participation in international funding programmes, such as the **EU's Horizon Europe Research and Innovation Funding Programme**. These programmes provide Turkish researchers more opportunities to collaborate with international partners and gain access to additional funding.

TÜBİTAK has the [National Coordination Office of EU Framework Programmes](#) and Türkiye is an Associated Country to Horizon Europe. This means all researchers can take advantage of various opportunities under Horizon Europe to carry out research in the Turkish Research Area.

- [Marie Skłodowska-Curie Actions \(MSCA\) Funding Opportunities](#)
- [European Research Council \(ERC\)](#)





National Schemes for Frontier Research Projects

- TÜBİTAK 2247-A: [National Outstanding Researchers Programme](#)
- TÜBİTAK 2247-D: [National Early-Stage Researchers Programme](#)
- TÜBİTAK 2247-B: Funds ERC applicants that received 'A' or 'B' scores from the second evaluation phase (but were not funded)
- [The International Fellowship for Outstanding Researchers Programme \(2232\)](#): Similar to Marie Skłodowska Curie Actions in Horizon Europe, the goal of the programme is to attract outstanding researchers to conduct their research activities in Türkiye. The researchers are further encouraged to submit proposals to the EU Framework Programmes.
- The allocation of Funds to the MSCA COFUND: TÜBİTAK promotes and supports higher education institutions' applications for the MSCA COFUND programme by undertaking beneficiary financial contributions. A specific budget was allocated by TÜBİTAK to co-finance research universities in Türkiye receiving funding from the MSCA COFUND 2020 call.

(Gazi University in 2021, İzmir High Technology University (IZTU) and Middle East Technical University (METU) in 2022 were all successful applicants. Within the scope of the programme, 22 researchers in the field of additive manufacturing technologies, 10 in biomedical research, and 20 in green and blue transformation research are receiving training.)

Reasons to Choose Türkiye

Türkiye offers numerous reasons for researchers choosing to carry out research there. Firstly, it is home to a dynamic and growing research community. Researchers have the opportunity to work in well-equipped research institutions, engage with highly qualified colleagues, and participate in cutting-edge research projects. Türkiye's geographical position and rich history also offer unique research opportunities, especially in fields such as archaeology, history, and environmental sciences.

Türkiye is committed to internationalising its research community. This commitment is evident in its policies to attract foreign researchers, such as providing attractive research funding, establishing international research partnerships, and creating an inclusive and welcoming environment for researchers from all over the world. Furthermore, the country's vibrant culture, warm hospitality, and high quality of life add to the appeal of conducting research in Türkiye.



Türkiye's strategic focus on innovation provides researchers with opportunities to see their research translated into practical applications. The strong academy-industry relations, combined with supportive government policies, create an environment conducive to innovation. This focus on innovation means that researchers can not only contribute to the advancement of knowledge but also make a tangible impact on society and the economy.

The main ongoing policy debates around the Turkish government's support for RDI human resources can be highlighted in two key areas: fostering talent and addressing brain drain, and enhancing the quality of research and innovation in Türkiye. In addition, target-oriented, co-creation-based models are clearly visible in two key areas.

First, the ongoing debate on attracting and retaining top talent in Türkiye's research and innovation ecosystem involves a diverse range of stakeholders, including government bodies, such as the Ministry of National Education and the Ministry of Industry and Technology; research institutions, such as the Council of Higher Education (CoHE) and TÜBİTAK, as well as private-sector actors, including businesses and non-government organisations. Several initiatives have been launched to strengthen the domestic talent pool. The 11th Development Plan (2019-2023) outlines strategies to improve the quality and relevance of education and training programmes, with the goal of producing highly skilled human resources for research and innovation. The CoHE 100/2000 Doctoral Scholarship programme offers financial support to outstanding doctoral students, fostering the development of a new generation of researchers. TÜBİTAK programmes, such as the Research Fellowship Programme for International Researchers and International Fellowship for Early-Stage Researchers, provide support for domestic and international researchers at various stages of their careers. In addition to these initiatives, the 5G and Beyond Joint Graduate Support Programme has been designed to attract international talent by offering joint graduate degrees in collaboration with renowned foreign universities, focusing on cutting-edge research areas such as 5G technology and beyond. The TÜBİTAK International Fellowship for Outstanding Researchers aims to attract top-level researchers from around the world by offering competitive funding packages and research support. Furthermore, there is a growing emphasis on supporting underrepresented groups in the research and innovation landscape. The Policy Principles for Increasing the Participation of Women Researchers in TÜBİTAK Processes is an example of an initiative that seeks to address gender imbalances by promoting equal opportunities for women researchers and ensuring that their perspectives are integrated into research and innovation activities. This focus on diversity and inclusivity is an essential part of Türkiye's



strategy to create a vibrant and dynamic research and innovation ecosystem.

Second, stakeholders including government bodies, research institutions, academia, and private-sector actors are actively discussing ways to enhance the quality of research and innovation in Türkiye by focusing on various dimensions, such as strategic sectoral improvements, educational reforms, academia-industry collaboration, inclusivity, and technology adoption. Initiatives such as the National



Science, Technology and Innovation Strategy and Action Plan (2019-2023) aim to bolster Türkiye's research and innovation ecosystem by identifying priority areas and setting specific targets in sectors like energy, transportation, agriculture, and health. This plan seeks to align research funding and infrastructure investments with national development goals, ensuring that resources are directed toward high-impact research and innovation activities. The **Türkiye Education Vision 2023** is another significant initiative that focuses on educational reforms to produce a highly skilled workforce capable of contributing to research and innovation. This vision encompasses a wide range of objectives, including curriculum development, teacher training, assessment and evaluation of student performance in STEM, as well as career guidance for students in both the public and private sector. To bridge the gap between academia and industry, programmes such as TÜBİTAK's Career Development Programme and the Industrial Doctorate Fellowship Programme have been introduced. These initiatives facilitate knowledge transfer, encourage researchers to work on industry-relevant projects, and foster collaborative research between academic institutions and businesses. Inclusivity and accessibility in education and research are also receiving attention through programmes like the Barrier-Free University Awards, which recognise universities that create accessible and inclusive environments for students with disabilities. These initiatives contribute to Türkiye's ongoing efforts to improve the quality of its research and innovation



ecosystem and strengthen its position as a global player in science, technology, and innovation.

These policy debates are shaping the direction of Türkiye's STI human resources system, with stakeholders exploring various options to create a more attractive research and innovation ecosystem. The outcomes of these discussions have the potential to transform Türkiye's approach to research and innovation, addressing talent attraction and retention, and improving research quality in the country.

This country report was contributed by the Scientific and Technological Research Council of Turkey. The opinions expressed are those of the author(s) and should not be considered as representative of the official position of EURAXESS WORLDWIDE or that of the European Institutions. EURAXESS and its representatives cannot be held responsible for the use that might be made of the information contained in this report.



Contact details and list of important links

TÜBİTAK is the coordinator of EURAXESS in Türkiye and the EURAXESS Bridgehead organisation. Please do not hesitate to contact euraxess@tubitak.gov.tr for further questions. Our contact points will be happy to provide further assistance.

<https://www.euraxess.org.tr>

<https://ufukavrupa.org.tr/en>

<https://www.tubitak.gov.tr/en>

<https://www.studyinturkiye.gov.tr/>

<https://goturkiye.com/>

Visuals:

Resources: <https://www.freepik.com/> and [shutterstock.com/tr](https://www.shutterstock.com/tr)

HOT TOPIC: Transformed by crisis, an R&I perspective

The world has faced down a wave of unprecedented crises – or what French President Macron coined *poly-crisis* – threatening to tear societies and economies apart. That they did not is a testament to global political leadership



underpinned by robust information and collective action across Europe, in particular.

The scientific community was at the epicentre of the global response to the gravest global health crisis in a century brought on by the spread of COVID-19. Rapid testing, digital solutions for tracking and tracing, new antivirals and treatments to reduce mortality, and ultimately, the development of effective vaccinations saved millions of lives, and mitigated the economic fallout.

The energy crisis, brought on by Russia's invasion of Ukraine, and the related security crisis and economic crunch that followed in Europe all draw to varying degrees on research and innovation for answers. Green energy innovations (capture, storage, smart monitoring) and renewable technologies are helping member states deal with an ongoing energy crisis – and meet their longer-term commitments to the UN's [Sustainable Development Goals](#) (SDGs), and the EU's [Green Deal](#), [2030 Goals](#), among other initiatives.

What this state of “permacrisis” – voted Collins Dictionary ‘word of the year’ in 2022 – has shown the world is that business-as-usual is no longer an option. Calls have grown louder for new approaches to everything from urban planning, promoting more liveable and sustainable cities (i.e. [15-minute cities](#)), to the [circular economy](#) aimed at efficient zero-waste production, to reshoring value chains, to [resilient 'digital' societies](#) capable of withstanding even the toughest of challenges and boosting inclusion.

When steady going is not enough

The consensus is that small tweaks and even gradual transition may not be enough to deal with the next crisis (or crises) befalling Europe and the world. This has given rise to the idea of transformative change – a systemic rewiring that would have struggled to gain traction before 2019.

But global climate, health and security concerns have spurred radical action, paving the way for a new paradigm in political, economic and scientific thinking; one that considers all possible contingencies and scenarios in achieving a set of broadly framed goals based on concrete problems translated into problems to solve or missions.

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These ideas have been explored by expert group focused on the **Economic and Societal Impact of Research** ([ESIR](#), see box). In a recent Policy Brief, the ESIR



Group discusses the machinations of ‘Transformation in the poly-crisis age’, and the need to avoid “short-termism” in political and economic cycles.

The Brief advocates a “protect, prepare and transform” approach as a comprehensive strategy for resilience. Here, *protect* means swift and coordinated responses leaving no one behind in an emergency. *Prepare* means envisaging a broad set of future risks and coordinating appropriate responses.

And to *transform* the economy and society, the Group proposes “challenge-driven approaches to research and innovation, triggering change that addresses the root causes” and enables “true resilience to future shocks”.

The experts are under no illusions that such transformations are easy.

For its part, the EU is aware of the risks of short-term R&I policymaking. Its main research funding instrument, Horizon Europe, is already longer and larger than any previous Framework Programme. And the whole mission-oriented approach to R&I clearly targets global-scale societal challenges, such as beating cancer, adapting to climate change, and restoring oceans.

But the ESIR Group believes that many other new and emerging initiatives and priorities are looking at crises from the wrong direction, trying to mitigate the consequences when they should be focusing more on preventing them in the first place.

“The EU is very attentive to the ‘protect’ and increasingly wary of the ‘prepare’ phase, but insufficiently geared towards transformation,” the Group writes in its very readable 12-page briefing, conceding that this is a vast challenge when faced with ongoing or new emergencies and pressures.

They explain how notions of sustainable “positive peace” resonate with efforts to promote resilience in the poly-crisis age. And they illustrate what this means in terms the policies, governance and leadership needed to build not only transformative models for social cohesion, but also the right conditions to foster innovation, human-centric technologies and solutions capable of delivering on Europe’s twin ‘green and digital’ transition.

Rather poetically, the Group offers an analogy to help leaders navigate the rocky seas stirred up in the poly-crisis world of today where the realpolitik of war and energy struggles overshadow what can appear, for example, as loftier green goals:

“Many will suggest that Europe’s journey towards resilience and sustainability may well need to take a detour until the emergency is over. In our opinion, this is an illusion, and a very risky one, especially when the crisis is linked to finite and dwindling resources. The state of crisis, without systemic, adaptation-oriented transformation, will never be over.”

It is a sobering thought.

[More info](#)



[Download](#) the full ESIR Policy Brief No. 5 (Feb. 2023), 'Transformation in the poly-crisis age'.

What is the ESIR Group?

In the autumn of 2017, the European Commission created a high-level group dedicated to better understanding the *Economic and Societal Impact of Research*, or ESIR.

The ESIR Group's 16 experts provide independent advice on how EU research and innovation policy can best support economic and societal transformation in the context of [Europe's 2030 climate and energy goals](#) and achieving its twin 'green and digital' transition and a resilient economy.

This forward-looking "[European growth model](#)" was first articulated in March 2022, as Europe and the world were emerging out of the COVID-19 crisis.

The Group issues briefings, memos and strategic advice on how R&I policy can lead and support societal transitions towards the 2030 goals through solution-oriented initiatives that "address current grand challenges". The Group's remit is to experiment in finding "new and more impactful public policies", but also innovative "outreach activities to fully engage with relevant stakeholders".

Now in its third (2022-2023) term, and with a new composition and renewed mandate, ESIR is keen to explore sustainability issues from a variety of angles and involve all relevant networks, communities and stakeholders as part of a co-creation process. Here, EURAXESS WORLDWIDE would be encouraged to **forge closer ties with ESIR** and provide its unique international perspective and insights.

Mission: transformational solutions

As one of its first deliverables, ESIR issued a memo describing how the EU's mission-oriented R&I policy can help to frame societal challenges as "concrete problems" requiring major, **transformational solutions** capable of "rebalancing economies".

In this document, published December 2017, ESIR noted that Europe's over-reliance on certain sectors needs a rethink. This, they add, can be done by identifying and articulating missions that don't just "galvanise but also transform production, distribution, and consumption patterns across various sectors in new directions".

The memo, entitled '[Towards a mission-oriented research and innovation policy in the European Union](#)', introduced the challenges faced by the European Research Area, how a mission-oriented R&I agenda can help to tackle economic problems and societal challenges in tandem, making clear distinctions between *challenges*, *missions* and *instruments* under Horizon Europe – the EU's current Framework Programme for Research.



ESIR offered its “first reflections on how to implement a mission-oriented R&I policy” which presciently acknowledged the complexity of the task in times of rapid change. Indeed, within two years of releasing the memo “transformational solutions” would be called for with the onset of a global health crisis under the COVID-19 pandemic followed by an energy, security and economic crisis ushered in by Russia’s invasion on Ukraine.



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