

Quarterly
Newsletter
Issue 2
2023

EURAXESS North America

Dear Friends and Colleagues,

We hope summer is treating you well. We look forward to upcoming travel to get to know you at meetings and conferences, and are excited for missions to Canada next quarter. If you will be attending or presenting at annual events of mutual interest, please let us know so we can set aside time to connect with you.

We are also happy to announce the launch of EURAXESS North America country resource pages, which will catalogue nation-specific events and information we've provided in recent years. If you work closely with a particular country and want to ensure relevant content is included, please send us a message so we can continuously improve the pages. Get started by checking out our pages on [Ireland](#) and [Türkiye](#).

In the interest of serving researchers and everyone who supports them, our inboxes are remain open to you at NorthAmerica@euraxess.net – we can't wait to connect!

–Your EURAXESS North America Team

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This newsletter is also intended as a communication tool with you all, so please do not hesitate to contact us at NorthAmerica@euraxess.net for comments, corrections, or if you want to advertise a particular funding scheme or event.

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EURAXESS North America
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1 Country in Focus: Türkiye

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, of which we will profile Türkiye in this quarterly e-newsletter.



Türkiye, Quick Facts

Country Size

783,356 km²

Population

85,279,553

Language

Turkish

Capital

Ankara

Currency

Turkish Lira

To learn more about Türkiye please visit:

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



National Research Landscape

Türkiye is a dynamic ecosystem characterized 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 organizations.

The Turkish R&D landscape is further enriched by various public research organizations, technology parks, and private-sector R&D centers. 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 centers of excellence also contribute significantly to the Turkish R&D ecosystem.





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>

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, signaling 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.

STI Framework

[TÜBİTAK](#) funds research projects carried out in universities and other public and private organizations, 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, specialized 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 Prioritization 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, basic metal industry, ship-building industry, and the furniture 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 organizations adapt to green growth. Upon completion of the roadmap, additional topics will be added for the iron-steel, aluminum, cement, fertilizer, chemical, and plastic sectors.

In 2022, the Ministry of Environment, Urbanization, and Climate Change organized 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 Defense, 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 Programs

Türkiye's R&D Strategy and main STI programs are characterized 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 Program 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 programs such as the Research Focused Mission Differentiation and Specialization Program, KOSGEB (the Small and Medium Industry Development Organization) International Accelerator Program, and the TÜBİTAK Priority Research, Development, and Innovation Topics 2022-2023.

Another key program is the **National Research Program**, a broad initiative designed to support scientific research across a variety of disciplines. This program aims to advance knowledge, build research capacity, and contribute to the country's socio-economic development. It is joined by the **National Innovation Program**, which also encourages and supports private-sector engagement in R&D activities and fosters collaboration between industry and academia. The latter program also provides incentives for start-ups and small and medium-sized enterprises (SMEs) to engage in innovation activities, contributing to a vibrant and diverse innovation ecosystem.

Meanwhile, the **National Space Program** marks an ambitious step for Türkiye, reflecting the country's vision to become a significant player in space and satellite technologies. The program aims to advance Türkiye's capabilities in areas such as satellite communication, space exploration, and astronomical research. The initiative also includes efforts to develop a domestic satellite launch system, underscoring Türkiye's long-term goals in the space sector.

These main STI programs, among others, collectively contribute to Türkiye's aim of becoming a leading global player in scientific research and technological innovation.

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 Specialized 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 analyze 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 digitalization. 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' Program (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 Program helps SMEs develop and commercialize innovative products resulting from RDI activities as a means of boosting Turkish competitiveness and prosperity.

KOSGEB Advanced Entrepreneur Support Program 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 program.

TÜBİTAK directs its main private-sector support programs 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 Program** and **SME R&D Startup Support Program – 2023 Earthquake Zone Special Calls** – aim to increase R&D localization 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 Program – 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 Program**, 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 program supports mentoring to improve RDI capacities and SME commercialization activities via creating a pool of experts in relevant fields.

Türkiye is also a member of **Global Cleantech Innovation Program (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 Program (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-InvestR program 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 (centers 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 mobilizing 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.

Moreover, the **Digital Innovation and Collaboration Platform** was created under the coordination of Digital Transformation Office (DTO) to bring together public institutions, industrial organizations, 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 realizing 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.





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"

[TÜBİTAK 2244 - Industrial Doctorate Fellowship Program](#)

Overall, the range of funding tools and opportunities available in Türkiye supports the country's research and innovation activities and contributes to its goal of becoming a global

TÜBİTAK also provides diverse support for different needs within the R&D ecosystem, based on co-created commercialization principles. These include TÜBİTAK's **Order-Based R&D Program**, 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 Program](#). With the [International Fellowship for Outstanding Researchers Program](#), 190 top researchers have been integrated into the Turkish ecosystem, including private R&D/design centers and techno-parks. TÜBİTAK also continues to support 82 researchers, carrying out pioneering research in Türkiye, under **TÜBİTAK's National Outstanding Researchers Program**.

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 programs, such as the **EU's Horizon Europe Research and Innovation Funding Program**. These programs 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 Programs](#) 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 Program](#)
- TÜBİTAK 2247-D: [National Early-Stage Researchers Program](#)
- 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 Program \(2232\)](#): Similar to Marie Skłodowska Curie Actions in Horizon Europe, the goal of the program is to attract outstanding researchers to conduct their research activities in Türkiye. The researchers are further encouraged to submit proposals to the EU Framework Programs.
- The allocation of Funds to the MSCA COFUND: TÜBİTAK promotes and supports higher education institutions' applications for the MSCA

COFUND program 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 program, 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 internationalizing 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 organizations. 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 programs, with the goal of producing highly skilled human resources for research and innovation. The CoHE 100/2000 Doctoral Scholarship program offers financial support to outstanding doctoral students, fostering the development of a new generation of researchers. TÜBİTAK programs, such as the Research Fellowship Program 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 Program 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, programs such as TÜBİTAK's Career Development Program and the Industrial Doctorate Fellowship Program 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 programs like the Barrier-Free University Awards, which recognize 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.

**Contact details and list of important links**

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

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

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Visuals:

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

2 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 epicenter 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.

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 Program. 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.

For more info, [download](#) the full ESIR Policy Brief No. 5 (February 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 of Ukraine.



3 Turkish researcher diaspora



To complement this quarter's country profile, EURAXESS North America held an interview with Dr. Zeliha Koçak Tufan, Education Counselor at the Turkish Embassy to the United States.

EURAXESS North America: *As the education attaché of the Turkish Embassy in the United States, can you explain the country's diplomatic presence in the country and give an overview of the Turkish communities?*

Turkish Embassy: There are many examples—allow me to share the examples in government, academia, and beyond.

Turkey's Education Offices in The United States

The United States and Türkiye have been close allies for many years. The partnership between two countries is based on common values such as democracy, human rights, diversity, tolerance, etc. Turkish-Americans are an important part of the U.S. population with their contributions to academia, science, and innovation, as well as culture, art, and business. Because of these close relations, in addition to the Turkish Embassy in Washington, DC, Türkiye has also Consulates in New York, Boston, Miami, Houston, Los Angeles. and Chicago.

The Turkish diaspora in the U.S. features well-educated individuals. The U.S. has been among the main destinations for Turkish students, academics, and researchers for the last century. Because of the interrelation and relationship, education offices were opened in the Embassy and Consulates by the Ministry of National Education of Türkiye (MoNE). Counselors and attachés are appointed to these offices every three years by The President. The Education Counselor is appointed to Washington, DC, and Education Attachés to New York, Boston, Los Angeles, Chicago, and Houston.

The Education offices in the Embassy and Consulates are the main bodies for recognition of the American K-12 transcripts and diplomas, announcements of scholarships and courses in Türkiye, undergrad and graduate Turkish students' recognition, Turkish and Turkish Culture lessons for Turkish American citizens, and of course main contact point for graduate/postgraduate scholarship program under the Law No. 1416 (MoNE, YLSY Scholarship Program) and Law No. 2647 (Council of Higher Education Scholarships). The missions do not have separate science counselors or science attachés, but education offices are also contact points for research and science networking, to which the scholarship holders' research ecosystem contributes a lot.



Turkish Graduate Students in U.S. & Scholarship Programs

Turkish students have been sent abroad for postgraduate education within the framework of Law No. 1416 of 1929 (MoNE, YLSY Scholarships) and Law No. 2547 of 1981 (CoHE Scholarships). These students then work at universities and various institutions, organizations, and research centers in Türkiye. Once the main destinations were in Europe, especially France and Germany, during the Ottoman Empire time and in the first years of the Turkish Republic. But then America, as a rising state, attracted the attention of Turkish students and researchers. In the 21st century, America and the United Kingdom became among the most preferred countries.

While students came to the U.S. to study and research especially in the fields of economics, banking, petroleum, and mining engineering at 1930s and on, today they prefer fields such as innovative agricultural practices, cyber security, vaccine studies, epidemiology, biotechnology, energy policies, sustainable energy, air and space technologies, international law etc. "Artificial Intelligence," "Big Data and Cloud Computing," "Cybersecurity," "Advanced Materials," "Motor Technologies," and "Biotechnological Pharmaceuticals" are also trend topics, because they are among the priority areas of the Scientific and Technological Research Council of Türkiye (TÜBİTAK), the Council of Higher Education (YÖK), and other different institutions.

From U.S. to Türkiye

After their graduate/postgraduate studies, the scholarship holders return to Türkiye. And in addition to Turkish Universities, they may also work or continue their research in various important public and research bodies such as the Turkish Petroleum Corporation (TPAO), Pipelines and Petroleum Transport Corporation (BOTAŞ), General Directorate of Agricultural Research and Policies (TAGEM), General Directorate of Forestry (OGM), General Directorate of Combating Desertification and Erosion (ÇEM), General Directorate of Water Management (SYGM), State Railways (TCDD), Scientific and Technological Research Council of Türkiye (TÜBİTAK), Central Bank, et cetera.

The scholarship holders make significant contributions to the research ecosystem during their master's and PhD studies in the U.S. And after completing their studies, they were appointed to important positions both in Türkiye and U.S, making enormous contributions to their fields. Past Ankara and Middle East Technical University Rector and Head of Turkish Standards Institute Prof. Tarık Somer (Bachelor: Rensselaer Polytechnic Institute, M.Sc: MIT, Ph.D.: Maryland University), former Finance Minister Mr. Adnan Kahveci (M.Sc and Ph.D. from Purdue and Missouri Universities); former Minister of National Education and President of CoHE, Prof. Mehmet Sağlam, (M.Sc and Ph.D. from New York University);



and former Vice President of Türkiye, Fuat Oktay (M.Sc and Ph.D. from Wayne State University) are among the well-known names who continued their education in U.S. with Turkish Government Scholarships and served Türkiye in important positions.

Turkish Researchers in the U.S.

According to the US Foreign Affairs reports, approximately 8,500 Turkish students at undergraduate and graduate level are studying in the U.S. Some of the scholarship holders and other researchers who come to the U.S. may prefer staying longer and continue their studies in the U.S. instead of turning back to Türkiye. Although they have stayed in line with their individual preferences, these researchers can be a hub and represent an important potential for bilateral cooperation between the United States and Türkiye in academic studies and research, and can be a point of contact for fruitful future collaborations.

America has been seen as an important education & research destination for years, so beside Nobel Laureate Prof. Dr. Aziz Sancar, there are Turkish academics & researchers who do important studies on several subjects from history to information technologies or cinema and art, at universities such as Harvard, Stanford, Johns Hopkins, UNC, Penn State, etc. Among well-known names are Prof. Kemal Karpaz (Princeton, Harvard, Columbia, Washington, Johns Hopkins Universities), Prof. Cemal Kafadar (Harvard), Prof. Cemil Aydın (Harvard and UNC), Prof. Mahmud Taylan Kandemir (Penn State), Prof. Aykut Üren (Georgetown), Prof. Selim Ünlü (Boston), Prof. Mihri Özkan (California), Prof. Ahmet Gürakar (Johns Hopkins), and Prof. Ebru Oral (Harvard), among others. Hundreds and thousands of others are continuing to contribute to the research and academic ecosystem of the States.

Can you share examples of the Turkish-U.S. relationship within academia?

Many Turkish universities have protocols and cooperation with American Universities such as Bogazici University with George Washington University, and Bezmi Alem University with Johns Hopkins University. Beside these, there are also several "International Dual Diploma Programs" between Turkish and American Universities:

- Marmara University- University of North Carolina; International Business Management
- Anadolu University- SUNY Cortland; Economics, English Language Teaching
- Anadolu University- SUNY Empire State College; Business Administration
- Çukurova University- Portland State University; Political Sciences and International Relations



- Çukurova University- University of Colorado Boulder; Electrical and Electronics Engineering
- Dokuz Eylül University-SUNY Albany; Economics, International Relations
- Firat University- Sam Houston State; Software Engineering
- Istanbul Technical University- SUNY Maritime College; Maritime Transportation and Management, Engineering
- Istanbul Technical University- New Jersey Institute of Technology; Electronics and Communication Engineering
- Istanbul Technical University-University of Buffalo; Faculty of Civil Engineering
- Istanbul Technical University- Montana State University; Bioengineering
- Istanbul Technical University-SUNY Binghamton; Information Systems Engineering
- Istanbul Technical University- Strathclyde; Naval Architecture and Marine Engineering
- Istanbul Technical University- SUNY Binghamton; Industrial Engineering
- Middle East Technical University- SUNY New Paltz; English Language Teaching, Business Administration
- METU- SUNY Albany; International Relations
- METU- SUNY Binghamton; Politics and International Relations
- Yeditepe University- Coe College; Physics
- Yeditepe University- North Carolina Wilmington University; Business Administration

Türkiye Scholarships: Presidency for Turks Abroad and Related Communities (YTB) also tries to strengthen connections by Türkiye Scholarships. "Türkiye Scholarships is considered to be among the most comprehensive scholarships in the world with the possibility of university and department placement, monthly scholarships, tuition fees, health insurance, accommodation, Turkish language course, flight tickets and free academic and cultural programs". The scholarships are given for undergraduate, master and also for PhD levels (<https://www.turkiyeburslari.gov.tr/>)

What makes Türkiye attractive to researchers, whether they are citizens considering going back, other citizens looking to move there, or international researchers open to new opportunities in the short term?

Türkiye is among the countries whose youth population is in the millions, which gives a huge potential for new investigations and innovations. Türkiye is the 5th among the preferred EU countries for international students. It also tries to increase its international faculty members and



CoHE signed MOUs with 54 countries to improve international relations. Among all international faculty members, American faculty members are in the 2nd row according to CoHE Reports Research and thesis scholarships are given by TÜBİTAK, TÜSEB and even by YTB. As stated before, key players in research funding also include the Turkish Energy, Nuclear and Mineral Research Agency, the Ministry of Health/TÜSEB, the Ministry of Agriculture and Forestry, the Ministry of Transport and Infrastructure, and the CoHE, all of which provide funds for research related to their respective fields of action.

Beside the multi-cultural, historical fabulous environment and welcoming ecosystem, the Turkish Government gives importance to internationalization and its institutions announce new opportunities to attract international academics and researchers as well as Turkish citizens abroad, both to work in and with Türkiye. Recent policy reports indicate the priority areas and goals in each area.

What research areas is Türkiye strongest in?

We can answer this from the TÜBİTAK report: The 11th Development Plan of Türkiye outlines the nation's research priorities and critical technologies. 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, has developed 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 identified in the BTYPK Technology Prioritization Study, the 2023 Industry and Technology Strategy, and the 11th Development Plan.

In 11th National Development Plan of Türkiye priority sectors that are determined are as follows: chemical industry, pharmaceuticals and medical devices, electronics, machine and electrical equipment, automotive and rail systems. Beyond sectors, artificial intelligence, internet of things, augmented reality, big data, cyber security, energy storage, advanced materials, robotics, micro-nano electromechanical systems (MEMS/NEMS), biotechnology, quantum technologies, sensors and additive manufacturing technologies are determined as the critical technologies where the human resources are to be further supported, infrastructures to be established and roadmaps to be developed. Developing internationally competitive and high value-added products and brands in the priority sectors and in critical technologies are given utmost importance within the Plan. Therefore, the Plan identifies critical technologies foreseen to generate the most value added in the coming period, in order to support technological transformation and boost



competitiveness in priority sectors. Additionally, the Plan emphasizes entrepreneurship and commercialization activities, transfer of knowledge and technology (enabling socio-economic impacts of R&D results).

How can researchers interested in the country find opportunities?

For certain announcements, grants and funds; CoHE (100/2000 Doctorate Project), TÜBİTAK (TÜBİTAK 2232-A International Fellowship for Outstanding Researchers, TÜBİTAK 3501 Career Development Program, TÜBİTAK 2244 Industrial Doctorate Fellowship Program, 2216 Research Fellowship Program for International Researchers and the 2232-B International Fellowship for Early Stage Researchers, <https://tubitak.gov.tr/tr/burslar/yabancilara-yonelik/egitim-burs-programlari>), TÜSEB (<https://www.tuseb.gov.tr/en>) and YTB (<https://ytb.gov.tr/duyurular> and <https://www.turkiyeburslari.gov.tr/>) are the main sources. Of course, the Ministries and research bodies are announcing their funding separately.

Turkish Universities can recruit adjunct professors and researchers for a certain time. One can also connect with a certain university and apply for that. From CoHE's Academic Platform (<https://akademik.yok.gov.tr/AkademikArama/>), many detailed information can be found such as whoever and which institutions are working in a certain area, and even what their networks are. So that international researchers can find their counterparts.

Certain web sites may attract researchers' interests such as: TÜBİTAK Marmara Research Center (<https://mam.tubitak.gov.tr/en>); İzmir Biomedicine and Genome Center (<https://www.ibg.edu.tr/>); or university research centers such as Erciyes Genom and Stem Cell Center (GenKök, <https://gevhernesibe.erciyes.edu.tr/>); Global Migration research Center (<https://gaum.asbu.edu.tr/en>) ; European Studies Research Center (<https://aybu.edu.tr/avar/en>); ODTÜ- Teknokent (<https://odtuteknokent.com.tr/en/>) or Atatürk University Research Centers (<https://daytam.atauni.edu.tr/en/home/>) and İstanbul Technical University Research Centers (<https://www.itu.edu.tr/en/research-centers>).

For more information visit the [website of the Embassy of the Republic of Türkiye to the United States](#).



4 In case you missed it...

Recent activities

While not a complete list, here are a few past virtual events of ours and close partners—watch the recordings on the event webpages below!

<u>Event</u>	<u>When</u>	<u>Where</u>	<u>Organized by</u>	<u>URL</u>
<i>MSCA Postdoctoral Fellowships and Doctoral Networks Information Session</i>	<i>May 4th, 2023</i>	<i>Virtual</i>	<i>STARS Network, EURAXESS North America, and Vinnova</i>	<u>Link</u>
<i>MSCA Postdoctoral Fellowships: Practical Advice Webinar</i>	<i>June 8th, 2023</i>	<i>Virtual</i>	<i>EURAXESS North America and the Irish Marie Skłodowska-Curie Office</i>	<u>Link</u>
<i>Horizon Europe Information Session for Researchers in Canada</i>	<i>June 15th, 2023</i>	<i>Virtual</i>	<i>The University of British Columbia and the EU Delegation to Canada</i>	<u>Link</u>
<i>Horizon Europe Pillar II info session for U.S. researchers</i>	<i>June 22nd, 2023</i>	<i>Virtual</i>	<i>EURAXESS North America and EURAXESS Worldwide</i>	<u>Link</u>



About EURAXESS North America

EURAXESS North America is a network of thousands of European and non-European researchers, scientists, and scholars throughout North America (USA and Canada). This multidisciplinary network includes members at all stages of their careers. It allows them to connect with each other and with Europe, ensuring that they are recognized as an important resource for European research, whether they remain in North America or return to Europe.

For further information about EURAXESS North America, please visit our homepage: <http://northamerica.euraxess.org>.

To sign up for free membership in our network, [subscribe here](#).

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Content in this quarterly newsletter includes pieces produced by EURAXESS Worldwide.