

EURAXESS Members in Focus: Austria – A Place for Research & Technology

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 40 countries including the central European Republic of Austria which is home to a thriving scientific and entrepreneurial community.

Numerous measures have been put in place in Austria with the main aim of promoting close cooperation between business and research. The objective is to move Austria forward into the group of Europe's most innovative countries. Companies and research institutes will benefit equally from this increased cooperation.

With **research and development accounting for 3,01 percent of the country's economic output (GDP)**, Austria is performing well above the EU and OECD average. But it needs more than just high levels of investment. Numerous structural reforms have paved the way to growth in the area of research expenditure: milestones have been reached with the establishment of the universities of applied sciences sector in the mid-1990s, the reform of the study system (Bologna Process) in the European Higher Education Area and the granting of full autonomy to universities. The system of research funding was reformed, and important new funding programmes and tax credits for research activities introduced. The non-university research

Austria has a top position in industrial technologies and high-tech materials. This includes above-average productivity growth, excellent growth and export performance of the manufacturing industry, a high level of research and development and the successful niche strategies of individual companies, especially in the manufacture of high-quality products in the



institutes were also reorganised, and means for funding application-based research (business-oriented research) were increased. Various measures were implemented to **significantly expand the collaboration between science and business**, competence centres were set up – such as within the framework of the research funding programme COMET – and research headquarters were established.

‘MATURE’, MODERN INNOVATION SYSTEM

The joint efforts of the two federal ministries responsible for the Austrian research and technology policy, the Ministry of Science, Research and Economy (BWF) and the Ministry for Transport, Innovation and Technology (BMVIT) are bearing fruit: today, Austria boasts **several universities and non-university institutes with an international reputation** and an excellent scientific output. The number of scientific publications has been significantly increased; **Austrian researchers are also very active internationally**, evidenced, for example, by their **highly successful participation in the EU research framework programme**.

The achievements of the active research policy are visible: for example, Austria’s patent activities since 2000 have seen above-average growth and are – in proportion to its number of inhabitants – clearly above EU average. **At 56 percent, the share of innovative companies is also far above the European average**. Small and medium-sized companies in particular have been set on the path of innovation through a custom-tailored funding programme.



SMART RESEARCH INCENTIVES

Austria’s economic policy has long since recognised the huge significance of entrepreneurial innovation and has constantly sought to promote innovative



entrepreneurial performance with the appropriate support tools. **The proportion of companies that enjoy innovation-specific funding is higher in Austria than in all other EU Member States.** The collaboration between science and business has been strongly expanded in recent years. There has also been a sharp rise both in the earnings from research and development work that the universities generated for clients and joint venture partners from the world of business, and in the number of spin-off foundations from universities.

In Austria, innovative companies can make use of a support system that is recognized as a global model. **The funding quota for company research projects ranks at the top end of the international scale.** With more than one third, the public sector, in international comparison, supports a high proportion of the total research and development expenditure. Similarly, in basic research and tertiary education, the federal government also makes huge contributions. Thus the public financing share of universities of around 90 percent is far above the EU average.

Particularly in recent years it has been possible to interest an increasing number of companies for R&D so that the innovative base in Austria continues to grow, which is also a result of the good framework conditions for business-oriented research in Austria. A refined system of research funding, support through regional business agencies and tax breaks, such as the research bonus which was raised to ten percent in 2010, form an excellent breeding ground and represent an important advantage for Austria as a business location.

Austria supports the entire innovation process from basic research to founding a company. Three agencies in particular are responsible:

With 723 companies active in the biotechnology, pharma or medical technology business, life sciences are an important part of Austria's economy.

The life science industry in Austria is fully diversified with companies large and small as well as a number of multinational companies headquartered in or with facilities here – though it is SMEs that dominate across a whole range of disciplines.

centres

- The Austrian **Science Fund (FWF)** provides almost EUR 200 million per year for basic research projects and thereby funds around 4000 mostly early stage researchers. One of the objectives of the FWF is to strengthen Austria's international performance and capability in science and research as well as the country's attractiveness for frontier research. This is achieved, by funding individuals and research teams and thus enhancing the competitiveness of Austria's innovation system and its research facilities.

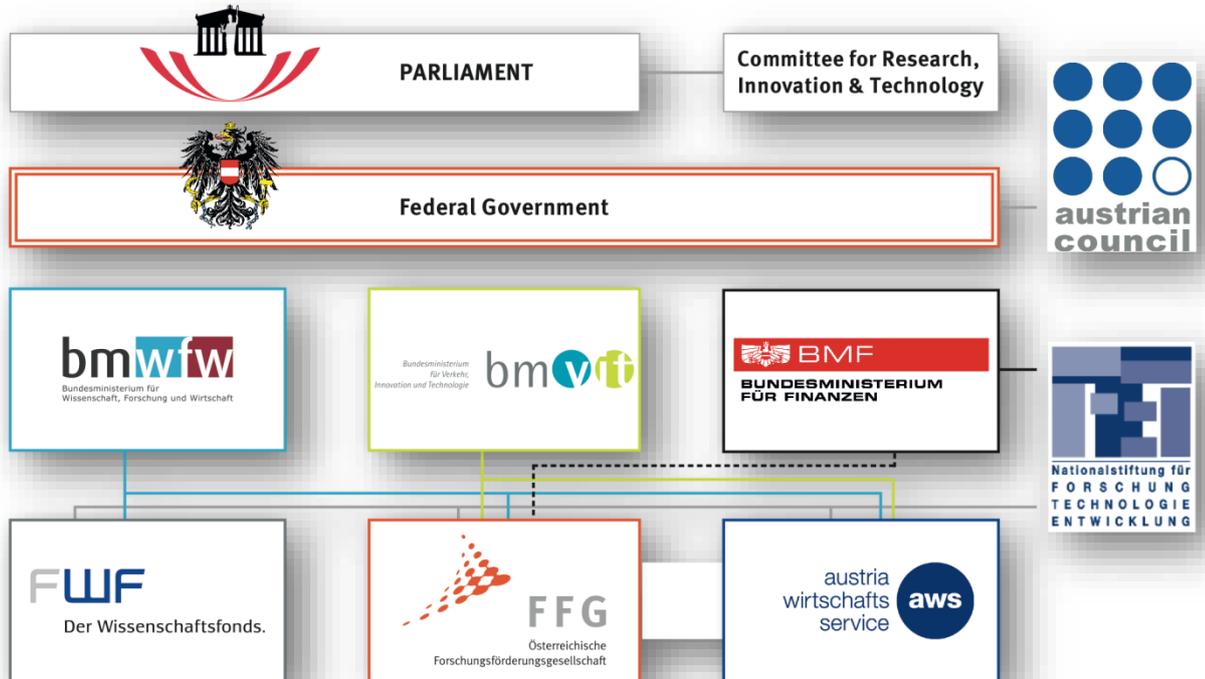
- The **Austrian Research Promotion Agency (FFG)** supports industry-oriented research with an extensive programme of grants and services. Over EUR 400 million are invested annually into application-oriented projects. The FFG offer ranges from 'Entry' programmes to the funding of large excellence and competence

- The **Austrian Business Service (aws)** is the development bank of the Republic of Austria. It offers low-interest loans, grants and guarantees to



companies. It also provides information, know-how, consultations and other services

Research Performers



There are currently 22 public universities in Austria (including six universities of the arts and three technical universities), 21 universities of applied sciences and 13 private universities - with a total of around **374,000 students** (2014). In terms of investment per pupil and university student across their entire educational career, **Austria ranks fourth in the OECD.**

Austrian scientists and researchers are amongst the world's elite in numerous areas, such as quantum physics, mathematics and medicine, as well as in humanities and

Austrian universities are also strongly advancing internationalisation in the field of research: this is impressively demonstrated by above-average participation in the EU funding framework programme, with **Austria ranking fifth in the success rate of the prestigious ERC grants.**

Furthermore public universities, as the backbone of basic research in Austria, have been increasingly expected to cooperate with companies and other partners from practice.

The oldest public research organization and learned society in Austria is the [Austrian Academy of Sciences \(ÖAW\)](#), with 1382 employees, whereby two thirds of the staff work scientifically. The OeAW operates complementary to Austrian universities and other research organizations . At the 28 OeAW institutes, scientists and researchers participate in (non-application-specific)



basic research that is on par with internationally recognized scientific standards. The goal is to gain new insights, even apart from current research trends.

The [Institute of Science and Technology \(IST Austria\)](#), established in 2006, is an internationally competitive frontier research institute which is located in Klosterneuburg on the outskirts of Vienna. The focus is currently on basic research and graduate education in the physical sciences, the formal sciences, and the life sciences. IST Austria fosters both theoretical and experimental research. It is committed to conducting world-class research. By 2026, up to 100 research groups will perform research in an international state-of-the-art environment.

The “cooperative sector” i.e. non-university research is the fastest growing field in Austria’s research landscape, with R&D expenditures almost tripling over the past ten years. More than 7,000 people are employed at 57 non-university research facilities.

- The [Austrian Institute of Technology \(AIT\)](#) is the largest non-university research institute. AIT is jointly owned by the Republic of Austria (with a share of 50.5%) and by a consortium of companies. Its main task is to perform application-oriented R&D for / with companies
- [Austrian Cooperative Research \(ACR\)](#) supports Austrian SMEs in the innovation process in the form of 500 cooperative research projects each year
- [Joanneum Research](#), with its five research units in Materials, Health, Digital, Resources and Policies, Joanneum Research ranks as one of the largest non-university research institutions in Austria today
- More than 70 [Christian Doppler laboratories](#) at Austrian universities create an extremely productive bridgehead between science and business and give the business community effective access to application-oriented basic research. The temporary facilities operating for a period of seven years boast annual budgets of up to EUR 600,000, 50% of which are financed by public sector funding
- The [Ludwig Boltzmann Gesellschaft \(LBG\)](#) specializes in cooperative research and operates towards mission-oriented RTD Policy. The LBG initiates the highest quality research issues together with academic and corporate partners. One of the main defining features of the LBG is the incubator function of its research operations. The current call for proposals of the LBG has a strong focus on Health Science. By this means, the LBG also takes the grand challenges of Horizon 2020 into account.
- Other recognized research partners for industrial

Austria belongs to the leading nations in energy technologies. With 32.2% of the energy consumption being covered by renewable energy Austria is among the European top leaders. Renewable energy sources account for 65.3% of the electricity consumption. Generally the dominant power sources are solid wood fuels and hydropower. Austrian companies are among the world leaders in solar heating and cooling, bioenergy technologies and zero emission buildings.



companies include arsenal research in Vienna, [Salzburg Research](#), [Fraunhofer Research GmbH](#), [Upper Austrian Research](#), [V-Research](#) and [Carinthian Tech Research](#).

The **Centres of Excellence or Competence Centres** are a special case. Through the funding programmes [COMET](#), and the former K-plus and K-ind, more than 40 'Centres of Excellence' have been established since 1998, linking partners from science and industry in jointly defined long-term research programmes. More than 1,500 researchers both from science and business are working together on basis of jointly defined research programmes. The actual 'Centre of Excellence' is a legal entity (e.g. a limited company) and receives up to 60% of public funding. They have had a strong positive impact on the Austrian innovation system.

Business Enterprise Sector

3,326 companies conducted systematically R&D in Austria in 2013. This number has significantly grown compared to the 1,317 companies in 1998. Together, they employed in 2013 70% of all researchers in Austria, i.e. 46,411,8 fulltime equivalent employees, which more than doubled compared to 1998 (Source: Statistik Austria, latest available data).

3,326 companies reported R&D expenditures in 2013. 62% of these companies employed less than 50 people, however, these small companies accounted for only 10% of corporate R&D expenditures. 72% of R&D expenditures come from the 456 large companies with more than 250 employees, although they account for only 14% of all companies financing R&D.

Most Austrian companies active in R&D perform these activities in-house, however, some (large) companies have turned their R&D departments into dedicated research companies, for example the Research Institute of Molecular Pathology which is owned by the Boehringer Ingelheim Group, or the Novartis Institute for BioMedical Research, owned by Novartis.

Internationalization of S&T cooperation

In mid-2013, the government's Task Force on "STI" launched an official document outlining the current internationalization strategy as regards "internationalization of research, innovation and technology beyond Europe". The strategic recommendations for international cooperation with the following countries

USA, China, India, Russia, Canada, Brazil, Israel, South Africa (incl. Southern Africa), Japan, South Korea, Australia, Singapore/Malaysia are:

- Expanding the network of Offices of Science and Technology Austria/Science counselors
- Concluding bilateral agreements
- Implementing mobility programs
- Establishing European instruments (EUREKA, H2020, Erasmus +, COST etc.)
- Establishing Joint Labs
- Enhancing technology transfer



The Austrian agency for international mobility and cooperation in education, science and research (OeAD)

The OeAD is the central service point for European and international mobility and cooperation programmes in education, science and research. It supports strategic development, guides implementation measures, analyses international developments and works out appropriate recommendations and measures to be taken.

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