

Austrian Research and Technology Report 2020

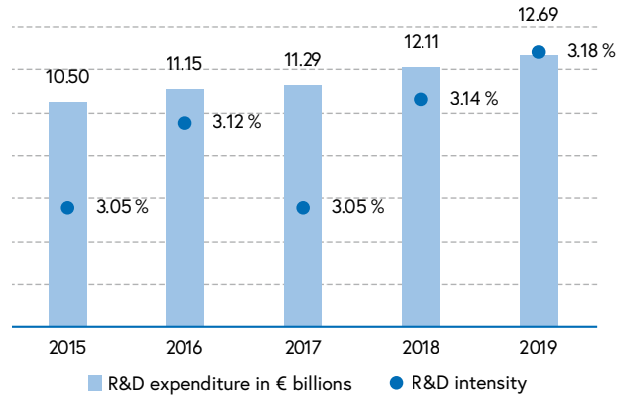
FACTSHEET

Current trends in Austria

R&D expenditure

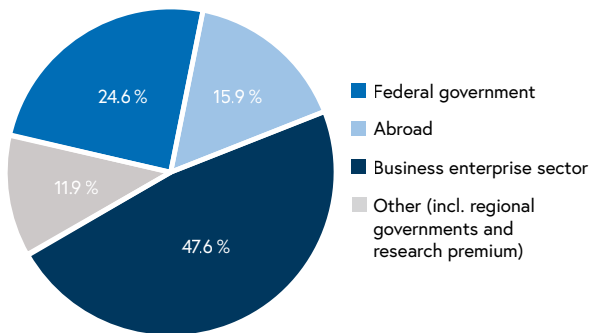
According to the revised global estimate by Statistics Austria, **expenditure on research and experimental development (R&D) amounted to €12.69 billion in 2019**, which is 4.8% higher than in 2018 (€12.11 billion).

Estimated **R&D intensity** (share of gross domestic expenditure on research and development relative to gross domestic product) amounted to **3.18%** for 2019, a slight increase on 2018 (3.14%). This means Austria **exceeded the European target value of 3% for the sixth consecutive year**.



Source: Statistics Austria, global estimate as at 28 April 2020.

Funding by sector



Source: Statistics Austria, global estimate as at 28 April 2020.

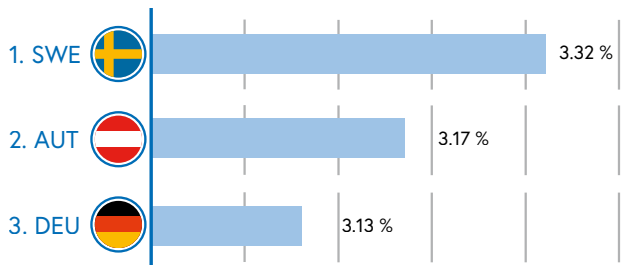
The **federal government** spent some **€3.12 billion** on R&D in 2019, funding around **a quarter (24.6%)** of all R&D carried out in Austria. The regional governments contributed **approximately €0.55 billion (4.3%)** of R&D funding in 2019. **Austrian companies** provided **€6.04 billion, or almost half (47.6%)** of all R&D funding. In addition, **€2.02 billion (15.9%)** were financed **from abroad**, comprised mainly of funding from foreign-based companies for R&D conducted in Austria, as well as return flows from the EU's research programmes. The **research premium** in 2019 made up for **€758.0 million**, which is about **6%** of R&D expenditure.

International ranking: Austria in the upper midfield in many categories

R&D intensity in 2018¹

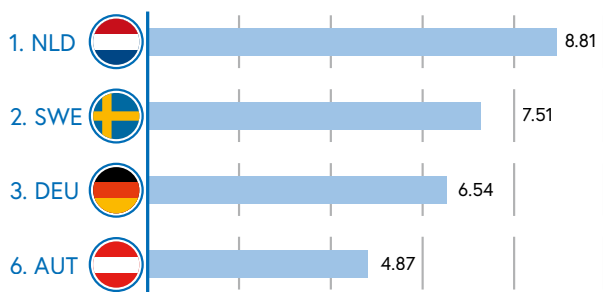
In terms of expenditure on research and development, Austria is one of the leading nations: the **R&D intensity of 3.17%** in 2018 puts Austria **second in the EU-28** behind Sweden.

¹ R&D intensity for 2018 is used here because an international comparison is not possible with more recent figures. Due to the different timeframes of the data, there is a slight variation in the R&D intensity figures for 2018 provided by Eurostat (3.17%) and the global estimate by Statistics Austria (3.14%).



Source: Eurostat (2020).

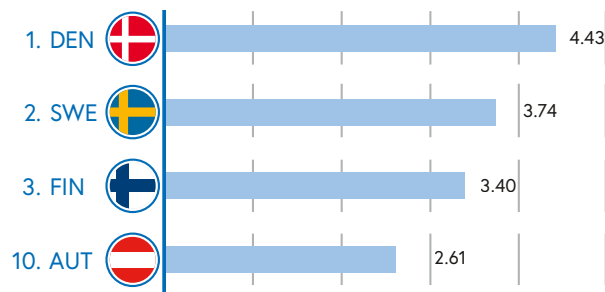
Patents per 1,000 R&D employees



Source: OECD (2019).

In 2017 Austria was in sixth position in the EU-28 with **4.87 patent applications per 1,000 R&D employees**. Patents reflect the technological and economic value of inventions, since patent applications are commonly regarded as an indicator of the potential use for inventions, thus allowing conclusions to be drawn about a country's innovation capability.

Scientific articles per 1,000 inhabitants



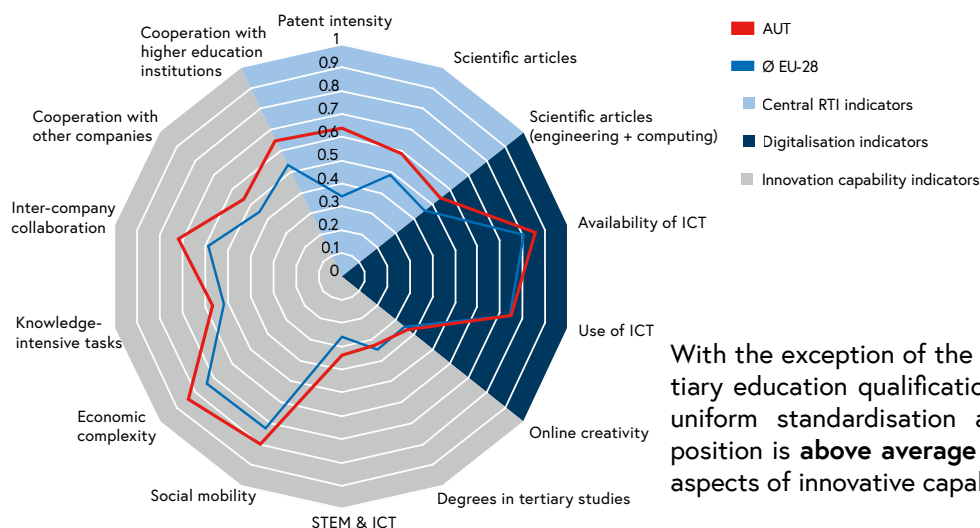
Source: Scimago Journal & Country Rank (2019).

Austria ranks 10th in the EU-28 with **2.61 citable published articles per 1,000 inhabitants**, placing it in the upper middle range. The number of research publications is an important indicator of a country's research performance. Research findings only become relevant when they are reported to the outside world and can be cited.

Technological and scientific performance and innovation capability

In global comparisons, Austria's **technological and scientific performance and innovation capability is in a good upper midfield position**. While Austria has not yet made the leap up into the top group of Innovation Leaders, nonetheless the country rates as a Strong Innovator, ranking significantly above the EU average according to the European Innovation Scoreboard 2019.

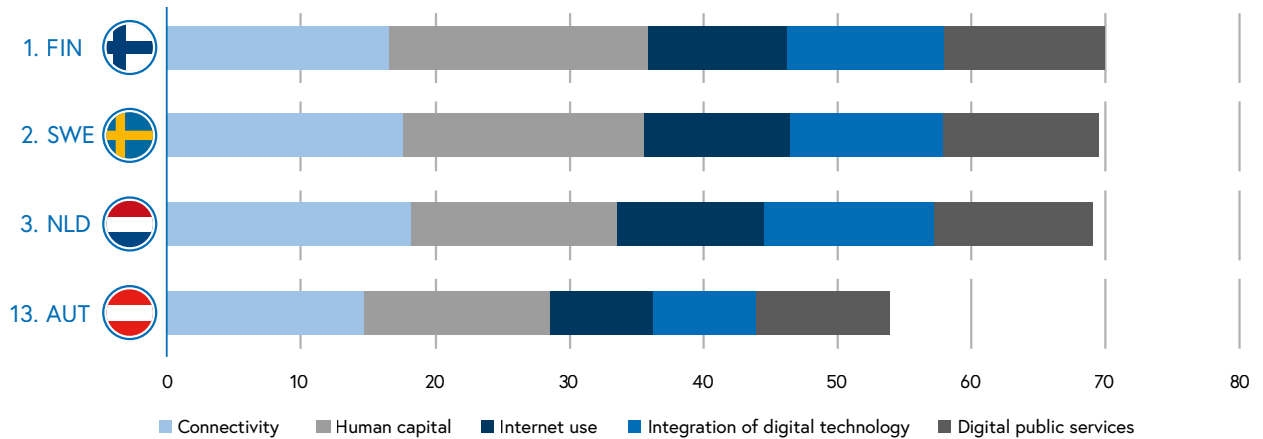
Global Competitiveness Index 2019 Ranked 21 of 141	Global Innovation Index 2019 Ranked 21 of 129
European Innovation Scoreboard 2019 Ranked 9 of 28	Innovation Indicator 2020 Ranked 9 of 35



Source: Graphic: iit.

With the exception of the number of completed tertiary education qualifications (for which there is no uniform standardisation across Europe), Austria's position is **above average in EU comparisons** in all aspects of innovative capability.

Digital economy and society index (DESI, 2019)



Source: European Commission (2019f).

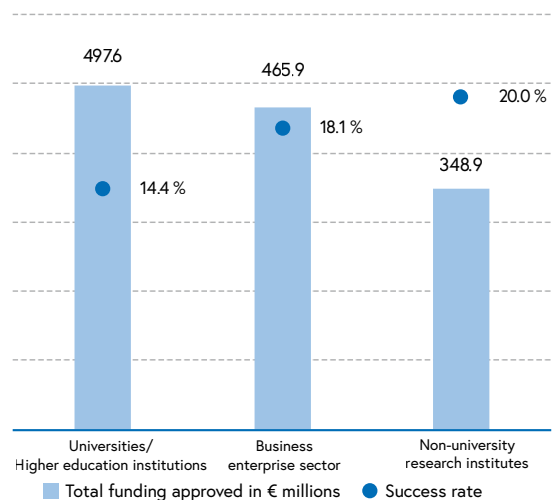
With regard to **digitalisation**, Austria's overall position is in the **midfield in Europe**. The digital skills of Austria's population are a particular strength. The availability of information and communication technologies is also relatively high by international standards. The EU Commission's E-Government Benchmark for 2019 puts Austria in **third place for e-government** in Europe, behind Malta and Estonia. Potential for improvement in international comparisons is mainly in the use of information and communication technologies by private households and in the use of big data and cloud services by Austrian companies.

Austria has performed well in Horizon 2020

Horizon 2020 approved funding and success rates by sector

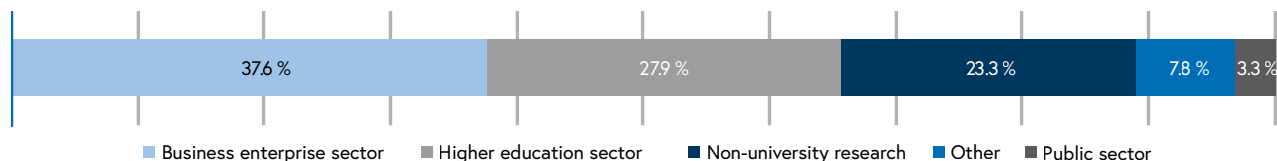
The **total amount of Horizon 2020 project funding allocated to Austria has now reached €1.46 billion**. Over the entire programme period, 2014–2020, Austria's success rate is 18.2%. This places Austria in **second position in the EU-28**, behind Belgium, and significantly above the EU average.

Austrian higher education institutions attracted €497.6 million in funding, while the business enterprise sector acquired €465.9 million and non-university research institutes €348.9 million. However, the latter recorded the highest success rate amongst Austrian research stakeholders, at 20.0%. The Austrian enterprises were **top in Europe** with a success rate of 18.1%. This illustrates the high-level performance of Austrian R&D, and is also an indication of a highly professional advice and support structure.



Source: European Commission/Austrian Research Promotion Agency (FFG) as of March 2020.

Horizon 2020 participations in Austria by sector



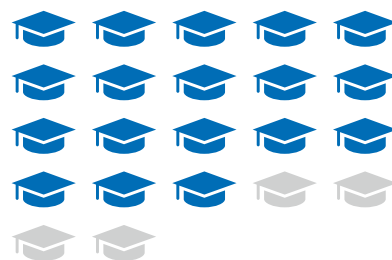
Source: European Commission/Austrian Research Promotion Agency (FFG) as of March 2020.

The majority of **Austrian participations under Horizon 2020** come from the **business enterprise sector (37.6% of the total number)**, of which almost two-thirds are small and medium-sized enterprises (SMEs). This is followed by the higher education sector (27.9%) and the non-university research sector (23.3%). Overall, these three sectors combined make up approximately 89% of Austrian participations in Horizon 2020 projects.

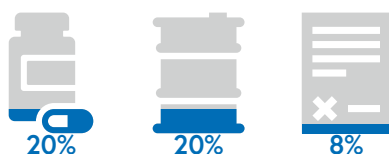
Austrian higher education institutions and companies active in AI

Artificial intelligence (AI) refers to artificial systems that demonstrate intelligent (= self-learning) behaviour and thus act with a certain degree of autonomy.

The most significant contributions to AI research are published at international level by universities. In recent years AI research activity has increased significantly at Austrian universities. **In the period 2016–2018, 18 of the 22 Austrian universities published articles on AI or participated in EU or Austrian Science Fund (FWF) projects focused on AI.** Austria's particular strengths are in application-oriented fields of research such as expert systems, robotics, machine learning and autonomous systems.



Source: Heller-Schuh et al. (2019).



Source: Prem & Ruhland (2019).

Overall, **around 600 companies** were identified in Austria that are **involved in AI-related research**. This is a relatively small proportion of all companies. The greatest concentration of AI companies can be found in the pharmaceutical manufacturing segment (20%), oil processing (20%) and insurance (8%). Austrian companies mainly use AI for automating and optimising processes and for increasing efficiency.

Evaluation culture and practice

Evaluations are an important instrument in RTI policy and governance, and they support **transparency, accountability and evidence-based decision-making**. Austria is **one of the top-ranking countries in Europe** when it comes to **the number of evaluations** in the RTI sector. Studies dealing with evaluations emphasise the generally high professionalism and quality of Austrian evaluations. Most organisations that commission and/or conduct evaluations are members of the Austrian Platform for Research and Technology Policy Evaluation (fteval) and follow the standards formulated by that association (https://www.fteval.at/content/home/standards/fteval_standards/index.jsp?langId=2).