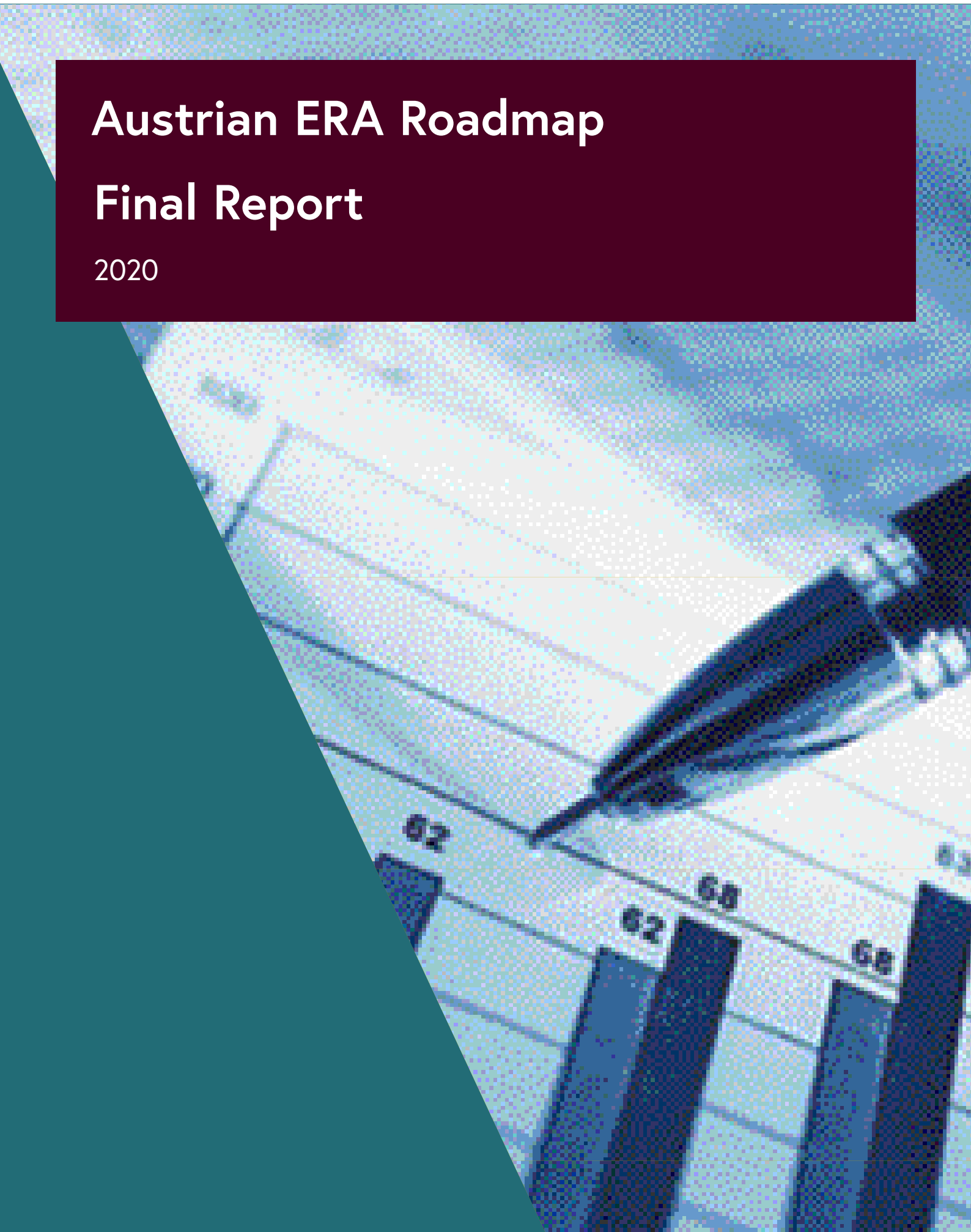


# Austrian ERA Roadmap

## Final Report

2020





# Preface

20 years ago, a common “European Research Area” (ERA) was established at the initiative of Philippe Busquin, who was EU Research Commissioner at the time. Massive brain drain from Europe towards the US as well as lack of investment in research and development characterised the research landscape at that time.

Key objectives then were strengthening the national research systems, reinforcing co-operation in research funding, increasing the mobility of researchers, as well as jointly investing in European research infrastructures. In the course of time, innovation policy became increasingly important. The Treaty of Lisbon, which established the ERA as an area of shared competence between the European Commission and the Member States, marked a paradigm shift, and the Framework Programmes support the implementation of the ERA.

For Austria’s research and innovation players, the European Union plays a decisive role. Austria’s success in HORIZON 2020 is based on a national innovation system that is structured efficiently and effectively. In order to be able to compete with other EU Member States, it is crucial for both the location for innovation and its players to continue to develop further.

Austria was one of the first countries to devise a national ERA Roadmap, following the European ERA Roadmap. The Austrian ERA Roadmap, which the Council of Ministers of the Austrian Federal Government adopted in April 2016, includes concrete objectives and measures along the six priorities in the field of research and innovation. Since then, the ministries responsible for RTI as well as the RTI stakeholders have been working permanently on implementing the jointly developed projects.

In June 2020, the European Commission will present a Communication on the ERA and will examine all options for its implementation provided in the Treaty. In future, the ERA should make an important contribution to the European Commission’s priorities, in particular the European Green Deal.

After the Austrian ERA Roadmap Progress Report of 2017, we take this transitional period as an opportunity to take stock in the context of the Austrian ERA Roadmap.

As the minister responsible, I am pleased to see that Austria’s performance along the priorities is consistently positive. We have succeeded in launching important reforms and implementing measures for achieving an “internal market of knowledge”, even



**Heinz Faßmann**

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though the dynamic in this field makes it necessary to adapt the national innovation system constantly.

Europe is facing challenging global competition for the brightest minds and the best ideas. Only joint efforts will enable us to succeed in making Europe as a research location suitably attractive for researchers, in order to be able to face the challenges of our time subsequently.

Both at national and at European level, Austria is making its contribution towards implementing, step by step, the vision of a unified European Research Area envisaged 20 years ago.

Prof. Dr. Heinz Faßmann

Federal Minister of Education, Science and Research





## Executive Summary

Four years after the adoption of the “Austrian ERA Roadmap 2016 – 2020” by the Austrian Council of Ministers, and only a few weeks before the European Commission is due to present its Communication on the future of the European Research Area, it is time to take stock of the measures and objectives that Austria had decided to undertake in 2016.

The intention of the “Austrian ERA Roadmap” was to modernise the Austrian research and innovation system by means of targeted structural reforms, and to make it more open towards other EU partners. The starting point for the Austrian Roadmap were seven European-wide priority areas that were considered essential for further developing the European Research Area. They were intended to contribute to implementing the primary legislation requirements of the EU Treaties, where Article 179 (1) TFEU stipulates: “The Union shall have the objective of strengthening its scientific and technological bases by achieving a European research area in which researchers, scientific knowledge and technology circulate freely (...)”

The European ERA Roadmap of ERAC addressed the following seven priority areas:

- Strengthening the evaluation of research and innovation policies and seeking complementarities between, and rationalisation of, instruments at EU and national levels.

- Improving alignment within and across the Joint Programming Process and the re-sulting initiatives (e.g. Joint Programming Initiatives [JPIs]) and speeding up their implementation.
- Making optimal use of public investments in RIs by setting national priorities compatible with the ESFRI priorities and criteria, taking full account of long-term sustainability.
- Using open, transparent and merit based recruitment practices with regard to re-search positions.
- Translating national equality legislation into effective action to address gender im-balances in research institutions and decision-making bodies and integrating the gender dimension better into R&D policies, programmes and projects.
- Fully implementing knowledge transfer policies at national level in order to maxim-ise the dissemination, uptake and exploitation of scientific results. RPOs and RFOs should make knowledge transfer second nature by integrating it in their everyday work. Promoting Open Access to scientific publications.
- Develop and implement appropriate joint strategic approaches and actions for international STI cooperation on the basis of Member States' national priorities.

In the areas of all the reform priorities listed above, Austria undertook to implement national measures, supplemented by qualitative and quantitative monitoring of the priorities, in consideration of European requirements. In addition to an evaluation of the indicators for all priorities, the final report on hand also takes stock of the measures and milestones agreed on in the “Austrian ERA Roadmap”.

The reform efforts of the past years are taking effect, as can be seen from individual indicators, but also from concrete outcomes:

### Reform Priority “Reform of the Austrian RTI System”

- Increase of return flow of funds from Horizon 2020 to more than € 1.5 billion to date.
- Improvement of RTI system by systematically establishing an evaluation culture, as well as implementing the respective outcomes.
- Pioneering achievements in the field of “innovation-friendly public procurement”.

### Reform Priority “Joint Programming”

- Pilot phase for networking platforms in the field of the Grand Challenges.
- Interministerial alignment with regard to strategies, measures and programmes.

### Reform Priority “European Research Infrastructures”

- Participation in 15 ESFRI Roadmap research infrastructures.
- Establishment of a research infrastructures database.
- Launch of two calls on research infrastructures for universities and digitalisation.

### Reform Priority “Labour Market for Researchers”

- 43 Austrian institutions sign the Charter & Code of “HR Excellence in Research”.
- Increase in number of research positions in Austria published on EURAXESS.
- Organisation of regular EURAXESS Austria network meetings.

### Reform Priority “Gender Equality”

- Preparation and implementation of manual for equality and diversity management at universities and universities of applied sciences.
- Increase in gender competence at higher education institutions and gender competence in research and teaching.
- FEMtech and w-ffORTE as success programmes for supporting women in the field of RTI.

### Reform Priority “Open Science and Innovation”

- Development of an Open Innovation Strategy.
- Successful establishment of “Knowledge Transfer Centres” for ensuring knowledge transfer between universities, non-university research organisations and the private sector.
- Improvement of strategies for protecting intellectual property within the framework of the Third Mission.

### Reform Priority “International Cooperation”

- Adoption of the “Strategy for International Cooperation”.
- Establishment of a Round Table for networking between Austrian stakeholders with regard to “Beyond Europe”.
- Successful start of the “Africa Initiative”.



In order to round off this final report, the document presents success stories from each reform area. Following the evaluation of the indicators and the presentation of the measures that have been implemented, the report includes a highlight from the respective thematic area.

The readers of this final report can view the facts and figures in depth in a dashboard on the [FFG website](#). This report should be seen as supplementing the monitoring carried out by the European Commission through the “ERA Progress Report 2018”.

This final report on the implementation of the “Austrian ERA Roadmap 2016-2020” should provide valuable experience for the consultations on the reform agenda of the ERA after 2020. In addition, the report underlines the importance of continuous reforms in the national research and innovation system for a united Europe that benefits all RTI players.

# Structure of the Report

In 2015, a working group („ERA Reporting Board“) was set up to show the impact of ERA in Austria. The indicators shown in this report are the result of the coordination process with relevant stakeholders. The defined indicators for each priority, together with the indicators for measuring direct and indirect impacts, form the basis for the Austrian „ERA dashboard“.

This report was prepared in cooperation with the Austrian Research Promotion Agency (EU-Performance Monitoring). The priorities of the Austrian ERA Roadmap shown on the following pages present the implementation success as well as the direct and indirect effects of managing the ERA in Austria. For each of the 6 priorities, the high-level indicator and the one to two subindicators are presented in details.

Each priority has two components. The first component examines the indicators of the priority and contains information on the assessment of the indicators from the perspective of those experts responsible for the ERA in Austria, on the definition and source of the indicators and the development trend over the years with the current and last available value.

The progress bar concerning the objectives is based not only on the figures shown but also contextualises the indicators against the backdrop of current and future developments. Indicators and their figures depict only a part of the reality. That is why it is important to assess the indicators, because it allows the figures to be placed in the context of research policy.

Some of the figures shown have been rounded. In order to increase the policy-relevant significance of individual indicators, an adjustment (scaling in respect of Austria's relative population size) was performed for „ERC funds raised per country“ and for subindicators 1 and 2 of Priority 2b in consultation with the Austrian Institute of Economic Research and the Austrian Research Promotion Agency. Some of the data therefore differ from those in the 2018 Progress Report of the European Commission. Further information on the methodology and calculation of the individual priorities can be found in the [manual](#).

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## Imprint

Owner and Publisher:  
Federal Ministry of Education, Science and Research

Minoritenplatz 5, 1010 Vienna, Austria  
+43 1 123 45-0  
bmbwf.gv.at

Please address editorial changes or suggestions to Research Policy Unit

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Vienna, June 2020



A satellite night view of Europe, showing the continent's outline and the dense network of city lights across its landmass. The surrounding oceans are dark, and the sky is filled with stars.

# Priorities of the Austrian ERA Roadmap

# 1 Priority 1 - More Effective National Research Systems

## Indicators

### Current Value

54,9

### Last Value

43,5

### High Level: Adjusted Research Excellence Indicator (REI)

**Assessment:** The increase of the Research Excellence Indicator is a good sign of the general development of research excellence in Austria. Even if comparable countries show similar positive developments, a slight improvement can also be seen in an international comparison.

**Definition:** This indicator defines the research excellence of a country through a composite indicator integrating four components: share of top 10% most highly cited publications per total publications (data source: CWTS); PCT patent applications per population (OECD); European Research Council (ERC) grants per public R&D (DG-RTD, Eurostat, OECD) and participation in Marie Skłodowska-Curie fellowships (DG-EAC).

**Source of data:** Calculations by European Commission, DG Joint Research Centre, Competence Centre on Composite Indicators and Scoreboards (JRC-COIN). Dates refer to actual data years, except for MSC fellowships. It was calculated using the latest available data as of April 2016 (i.e. 2013), taking into consideration the presence of a citation window for the highly cited publications indicator.

### Current Value

51,6%

### Last Value

57,1%

### Quality of project consortia in H2020

**Assessment:** Despite a decrease in the value of the indicator compared to 2017, Austria is in first place in an international comparison. However, the indicator shows strong fluctuations over the years and should therefore be seen in this context. In any case, Austria's leading position confirms the fact that Austria's above-average success rate shows that the average quality of Austrian submissions is very high.

**Definition:** Share of projects with national coordinator scoring among the top 25% of evaluated applications (per call). The calculation of the top 25% applications is based on the evaluation scores. (Projects without evaluation scores are omitted. Moreover, the first pillar "Excellent Science" is omitted due to the single project nature of the ERC and MSCA programmes.)

**Source of data:** eCORDA; this indicator was calculated using the eCORDA data versions 07/2019.

European Innovation Scoreboard (EIS) Index

**Assessment:** Austria remains 9th in the EIS in a 2-year comparison and is therefore in the category of »Innovation Followers«. So far it has not been possible to get closer to the goal of becoming an innovation leader.

**Definition:** Formerly called the Innovation Union Scoreboard indicator, this composite indicator is produced every year by the European Commission to benchmark Member States/Associated Countries, accounting for a wide spectrum of innovation indicators.

**Source of data:** DG Internal Market, Industry, Entrepreneurship and SMEs.

|               |
|---------------|
| Current Value |
| 9.            |
| Last Value    |
| 9.            |

## Priority 1



Overall progress: 90%

## Assessment of Austrian reform agenda

**Objective:** (a) Increasing AT Performance in H2020 to € 1.5 billion by 2020, and facilitating best possible networking in Brussels

**Conclusion:** The improvement in Austria's performance in the framework programme was achieved 100%. It is already certain that the target of € 1.5 billion will be exceeded significantly. The current estimate is € 1.85 billion. With regard to the measure „Establishment of the ARTIH“, all planned surveys were carried out and all decision-making bases were created. The decision at the political level whether the ARTIH will be realized is still pending.

**Measure:** Information, advice and support of Austrian RTI players for H2020 & ERA | Setting up an “Austrian Research, Technology and Innovation Hub” (ARTIH) in Brussels, in order to strengthen information, communication and networking as well as the active contribution of Austrian RTI players to the EU agenda.

**Instruments:** Austrian Research Promotion Agency (FFG) contract by the Federal State and the Austrian Commercial Chamber 2014-2020 | Fact-finding mission by the Austrian Research Promotion Agency (FFG); feasibility study; implementation concept; decision and commissioning



**Objective:** (b) Further developing the evaluation culture in Austrian R&D

Overall progress: 100%

**Conclusion:** A number of evaluations of various sizes were carried out:

- Evaluation of the implementation of the guiding concept for innovation-promoting public procurement in Austria 2017/18
- OECD Review of Austrian Innovation Policy 2018
- Evaluation of the implementation of HORIZON 2020, EUREKA, COSME, EEN and ERA in Austria 2017/18
- Evaluation of the pilot path of initiatives for networking platforms in selected areas in the context of societal challenges 2019/20

The evaluations carried out show that a distinctive evaluation culture has been developed. The present results provide a comprehensive basis for evidence-based reform measures and strategy development.

**Measures:** Systematic evaluations at programme level: ex ante, interim, ex post, and systems evaluations | Possible initiation of evaluation of the national RTI system by the OECD

**Instruments:** Initiation and contracting of external independent evaluations, consideration of the outcome in the conception and implementation of funding measures | Transparency and quality rules for commissioning, using the relevant standards | Implementation of the outcome of evaluations | Collection, integrated view and availability of all publicly financed evaluations at one point (e.g. repository at Fteval) | Implementation of the recommendation of the “ERA Council Forum Austria” for a holistic evaluation of the effects of RTI on society

# Priority 1



Overall progress: 80%

**Objective:** (c) Demand-side stimulation of innovation, in particular by means of innovation-friendly public procurement (IÖB)

**Conclusion:** The following key aspects result from the evaluation of the lead concept, which was completed in April 2018:

- With the IÖB guiding concept and the implementation of the measures contained therein Austria is one of the international pioneers in the field of innovation-promoting become public procurement.
- With the establishment of the service point, a one-stop shop has been created, within the framework of the mandate granted and the resources made available not only acts very actively and creatively, but also essential effects for the IÖB or the preparation of the more systematic use of IÖB especially with regard to awareness raising, information and knowledge transfer, Qualification and networking achieved.
- The IÖB monitoring activities are already very extensive and well differentiated and capture the activities and mobilization of actors very well.
- A network of competence and contact points has been set up benefalls.
- With the Federal Law on Public Procurement 2018, the „Innovation Partnership“ was introduced as a new award procedure.
- Despite the extensive progress made, the effect of the concept with regard to actually carried out innovative procurement processes still leaves room for improvement.

**Measures:** Implementation of the Innovation-friendly Public Procurement Lead Concept, which was adopted by the Austrian Council of Ministers on 25 September 2012 | core measures are amongst others: Setting up and operation of a central IÖB service centre | Nomination of competence and contact points for innovation-friendly public procurement in suitable (already existing) institutions | Establishing a dialogue between consumers and procurers | Including a new »Innovation Partnership« as a new procurement procedure in the Federal Public Procurement Law (Bundesvergabegesetz, BVergG) | Establishing a monitoring system

**Instruments:** Qualification measures for consumers and procurers | Awareness raising for innovation-friendly public procurement through events and workshops | Initiation of innovation-friendly public procurement pilot projects and formulation of strategic innovation-friendly public procurement plans respectively | Setting up an online platform for innovation-friendly public procurement | Additional instrument for innovation-friendly public procurement by including the choice of »Innovation Partnership« as a new procurement procedure in Austrian public procurement law Pushing an innovation-friendly public procurement monitoring system at EU level

„Based on current trends, it is estimated that Austrian participants would receive EUR 1.85 billion in EU contribution by the end of Horizon 2020, a 55% increase compared to FP7 (EUR 1.19 billion).“ *European Commission, „HORIZON 2020 Key achievements and impacts-Austria, January 2020*



Austria continued the positive development of the increase in monetary return in Horizon 2020. The target of EUR 1.5 billion in returns from Horizon 2020 will be significantly exceeded. Current forecasts estimate the total value at EUR 1.85 billion. This is a confirmation of the well-functioning Austrian support system, the lessons from the evaluation of the support structures and the high quality of research in Austria.



# Priority 2a - Jointly Addressing Grand Challenges

## Indicators

### Current Value

6,7

### Last Value

6,1

**High Level:** GBARD allocated to transnational cooperation per researcher in the public sector

**Assessment:** Austria is within the top group in the EU in terms of this indicator. Austria is ranking third, only Belgium and Sweden are ranking higher. The figure is quite stable at a high level. From this, it can be discerned that Austria is active and investing well above average in the area of bilateral and multilateral collaboration. However, it cannot be concluded that further efforts for increasing the scope of bilateral and multilateral collaboration (alignment) are no longer needed. The indicator is not specific enough to enable an objective evaluation of the situation. It does, however, provide pointers about trend and the international comparison.

**Definition:** This indicator is the government budget allocations for R&D (GBARD) allocated to transnational cooperation normalised by the number of researchers from the public sector. Transnational coordinated R&D contains GBARD allocated to Europe-wide, bilateral or multilateral transnational public R&D programmes and GBARD allocated to transnational public R&D performers. However, for this indicator, only the GBARD allocated to Europe-wide transnational public R&D programmes and the GBARD allocated to bilateral or multilateral public R&D programmes are taken into account. This is because these two address cooperation through programmes, while the third sub-category (GBARD allocated to transnational public R&D performers) does not involve joint programming and therefore does not contribute to ERA sub-priority 2a (implementing joint research agendas).

**Source of data:** Eurostat

### Current Value

4,7%

### Last Value

4,8%

**National public funding to transnationally coordinated R&D in % of total GBARD**

**Assessment:** This indicator shows a quite stable trend for Austria. The country ranking of the indicator shows that Austria was outperformed by some countries. The conclusions that can be drawn from this are the same as for the High Level Indicator.

**Definition:** 1) Transnational public R&D performers are intergovernmental or European Commission bodies that carry out R&D activity with own dedicated research facilities. This category includes national contributions only to the six largest European R&D

performing institutions: European Organization for Nuclear Research (CERN); Institute Laue-Langevin (ILL); European Synchrotron Radiation Facility (ESRF); European Molecular Biology Laboratory (EMBL); European Southern Observatory (ESO) and Joint Research Centre of the European Commission (JRC). These international institutions have as regular members EU Member States, although other European countries (as Switzerland and Norway in CERN) or non-European countries (as Israel in EMBL) might also be their members.

2) Europe-wide transnational public R&D programmes, with and without cross-border flows of funds. Transnationally co-funded public R&D programmes/schemes with cross-border flows of funds involve cross-border flows of funding by member countries usually into a common central budget. Such programmes disburse funding to research activities conducted at national level using national R&D facilities. However, they typically involve some form of transnational coordination (common objectives/research agenda, transnational project consortia, etc.). Transnationally coordinated public R&D programmes/schemes with no cross-border flows of funds involve the cross-border coordination of research agendas, objectives, and so on, but do not involve cross-border flows of funding. National authorities coordinate activities with other participating countries, but disburse funds from their own budgets to R&D performers on their own territory (i.e. each country funds its own research teams).

3) Bilateral or multilateral public R&D programmes established between Member State governments (and with candidate countries and EFTA countries) include non-European Commission funded public R&D programmes jointly undertaken by at least two MS governments, although other non-EU countries could also participate in them. They may or may not involve cross-border flows of funds.

**Source of data:** Eurostat\_GBARD; This Indicator was calculated using the latest available data as of October 2019.

## Priority 2a

## Assessment of Austrian reform agenda



Overall progress: 70%

**Objective:** (a) Effective and efficient use of the resources available in Austria in the fields of the Grand Challenges in science, research and technology, and their strategic further development

**Conclusion:** The Federal Ministry of Education, Science and Research (BMBWF) launched a pilot phase for networking platforms in 2016. The purpose of the platforms is to bring together actors in the area of a societal challenge on national level in order to create critical mass, to increase visibility and connectivity to European Initiatives, to combine complementary expertise and increase excellence. The BMBWF funds the costs for the networking activities with up to EUR 100.000 per year per platform. The Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK) launched a platform in the domain of Sustainable Cities. Altogether, currently 5 platforms are up and running. In 2019 an evaluation of the 4 platforms funded by BMBWF was carried out. On the basis of this evaluation ways forward for the concept are currently being evaluated. The pilot phase is now complete. However, not all 10 platforms were realized.

**Measures:** Initiative for strategic cooperation/networking along the Grand Challenges, in consideration/by integration of existing network structures

**Instruments:** 10 networking platforms



Overall progress: 20%

**Objective:** (b) Improved integration of science and research in the demand and innovation cycles in society, the business sector and the political system

**Conclusion:** The idea turned out to be way more time and resource consuming than expected and is currently on hold. The reports on the project »Demographic Change« as well as the active participation of Network partners conclude that there is a significant demand for a networking platform which connects different actors.

It requires a renewed effort in the context of a »whole-of-government« approach, e.g. for missions and R&I partnerships under Horizon Europe.



**Measure:** Outcome-oriented linkage between science, societal stakeholders, the business sector and the political sector

**Instrument:** Systemic impact networks: pilot project „Demographic Change“

**Objective:** (c) Strengthening the European orientation of Austrian science, research and innovation, in special consideration of the European Research Area



Overall progress: 50%

**Conclusion:** In the context of the preparations for new Austrian RTI Strategy 2030 a dedicated working group on »EU Missions and Partnerships« has been established in 2019. The task of the group is to prepare recommendations towards a more strategic approach for the Austrian participation and monitoring of EU Partnerships. Alignment is one of the key aspects of the group's work.

**Measure:** Alignment of the Austrian strategies/measures/programmes with jointly prepared strategies at European level

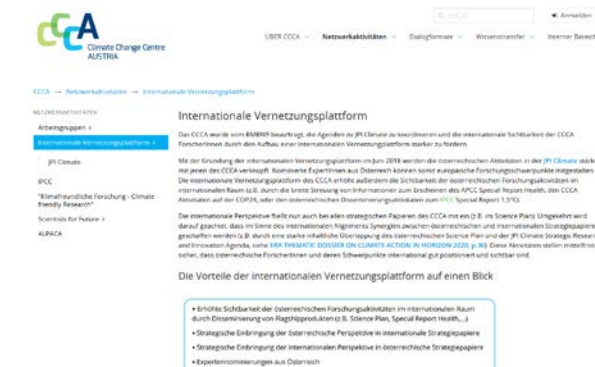
**Instrument:** Austrian positioning on Alignment

## Priority 2a

# Success Story

## Networking platforms

„Our analysis shows that the platforms have achieved a great deal: They have identified relevant players; implemented different exchange formats; created structures; established contact to important players beyond the platforms; developed public relations activities; and provided content.“ *Evaluation study by Technopolis Austria, February 2020*



In 2015 the BMBWF founded the initiative »Strategic Networking Platforms in the Context of the Grand Societal Challenges«. As part of this initiative, the BMBWF is funding four networking platforms starting in mid-2016:

- Network aging – »Ageing and demographic change as a challenge and an opportunity«
- National Networking Platform for »Personalized Medicine (PPM)«
- National networking platform for »Sustainable Water Systems«
- National networking platform for »European and international climate agendas«

The development of the concept for the national networking platforms is based on three hypotheses:

1. Mission-oriented research requires a combined top-down/bottom-up approach
2. Societal challenges require international cooperation
3. National strategic direction is a requirement for effective European cooperation

The results of the evaluation carried out by Technopolis Austria on behalf of the BMBWF 2019 confirm these hypotheses for the platform initiative.



Screenshots Webpages



# Priority 2b - Make Optimal Use of Public Investments in Research Infrastructures

## Indicators

Current Value

1

Last Value

0

**High Level:** Availability of national roadmaps with identified ESFRI projects and corresponding investment needs

**Assessment:** The Austrian strategy towards ESFRI memberships is laid down in a document called „Österreichischer Forschungsinfrastruktur-Aktionsplan 2014-2020“ which will be updated in the course of the ongoing update of the „Austrian Research & Innovation Strategy 2030“. The most relevant infrastructure projects for the Austrian Research Area are also included in the budget planning of the Federal Ministry of Education, Science and Research.

**Definition:** This indicator presents the availability of national roadmaps for research infrastructures for each Member State and assesses if the national roadmap contains identified ESFRI projects with corresponding investment needs.

**Source of data:** For national roadmaps: [ESFRI website](#)

Current Value

3,8

Last Value

1,6

**Approved participation in European research infrastructures with a population of 1 million people each**

**Assessment:** The indicator demonstrates the positive impact of the continuous and sustainable investments in research infrastructures.

**Definition:** The indicator measures the share of the country in approved participation in the research infrastructure programme (part of H2020) relative to the size of population.

**Source of data:** eCORDA; OECD. This indicator was calculated using the eCORDA data versions 09/2019.

**Research Infrastructures - Number of researchers who have access to research infrastructures through support from Horizon 2020**

**Assessment:** To demonstrate the impact of European and national efforts to make best use of public investments and existing and future research infrastructures, Austria strongly supports this access programme to be continued in Horizon Europe.

**Definition:** The indicator measures the number of researchers who gain access to research infrastructures with support of the framework programme compared to researchers in the public and university sectors.

**Source of data:** Horizon 2020 Indicators (5.1)

|               |
|---------------|
| Current Value |
| 10,3          |
| Last Value    |
| N/A           |

## Priority 2b

## Assessment of Austrian reform agenda



Overall progress: 75%

**Objective:** (a) Expanding Austrian participation in ESFRI Roadmap research infrastructures

**Conclusion:** Since publication of the Austrian ERA Roadmap Progress Report 2017 membership in ESFRI projects increased by 50% from 10 to 15.

**Measure:** Implementation of participations in ESFRI infrastructures, in accordance with the National Action Plan and the budget available

**Instruments:** Budgetary planning | Performance agreements and, if appropriate, supplements to performance agreements | Targeted funding contracts



Overall progress: 100%

**Objective:** (b) Ensuring the complementarity of national infrastructures and synergistic use

**Conclusion:** The [research infrastructure \(RI\) database](#) is in place and has been regularly updated. The database lists RIs which provide access to their services and are open for collaborations.

A call (EUR 50 Mio.) for research infrastructures for universities has been conducted in 2016, another call for digitalization including digital infrastructures in 2019 (EUR 50 Mio.). Requirements of the calls were a collaborative approach between different universities or research organisations. The FFG has so far launched 2 calls for research infrastructures (2016 and 2018, EUR 11.7 Mio. and EUR 11.16 Mio. respectively).

Again, collaboration between different institutions or sectors has been an important element of the calls. Harmonised procurement and expansion of cooperation of RIs has been also promoted by the performance agreements with the Austrian universities and the Academy of Sciences by various measures: e.g. specific collaborative RIs (Austrian high performance computing initiatives VSC and MACH, BBMRI.at, SHARE.at, ESS.at, AUSSDA, etc.) or the collaboration with the infrastructure database of the Federal Ministry of Education, Science and Research, or regional collaborations regarding synergistical use of research infrastructures, for instance in the frame of the Vienna Biocenter or BioTechMed in Graz.

**Measure:** Harmonised procurement and expansion of cooperations of research infrastructure projects

**Instruments:** Infrastructure database of the Federal Ministry of Education, Science and Research | Structural funds for the higher education area („Research Infrastructure” area) | FFG Call for research infrastructure | Performance agreements and, if appropriate, supplements to performance agreements

„The Long-Term Ecosystem, critical zone and socio-ecological Research Infrastructure (eLTER RI) was included in the ESFRI roadmap in 2018. For the lead country Germany, the Helmholtz Center for Environmental Research coordinated the application in close cooperation with the Austrian Federal Environment Agency. 19 countries support eLTER, 161 research institutions from 27 countries (including 19 in Austria) signed the scientific memorandum.“



Human necessities of life: sufficient water, recreational areas, biodiversity, clean air, fuels, food, etc.

With excellent ecosystem research sites, eLTER enables innovative research on the functioning of European ecosystems from the North Cape to the Mediterranean.

In a world of global change, multiple stress factors affect ecosystems simultaneously - often combined with significant loss of biodiversity and ecosystem services for human society. While short-term effects have been well investigated, little is known about long-term effects as well as overarching relationships and feedback between climate, water balance, vegetation, etc.

eLTER offers a unique systemic approach to observing and analyzing the environment in order to close these knowledge gaps and develop solution options. With around 200 excellently equipped research areas (about 10 in Austria), eLTER will cover terrestrial, freshwater and coastal systems across the European climate zones. Specific research at these individual locations is combined with cross-location issues of European relevance.





# Priority 3 - Open Labour Market for Researchers

## Indicators

### Current Value

63,8

### Last Value

77,9

**High Level:** Number of researcher postings advertised through the EURAXESS job portal per 1000 FTE researchers in the public sector (2012-2016)

**Assessment:** The international or EU-wide advertising of scientific posts at Austrian universities has been introduced by law in 2009 (§ 107 Article 1 Universities Act). However, universities decide which medium to use for advertising posts internationally. There has been a significant growth in number of posts advertised on EURAXESS Jobs in Austria since 2014, with a total of 1,043 posts in 2014, 1,195 in 2015, 1,405 in 2016, 1,611 in 2017, 1,777 in 2018 and a peak of 2,596 job-postings in 2019. According to the ERA Progress Report 2018 the number of research vacancies advertised on the EURAXESS job portal in 2015-2016 fell by 5% on average for a group of comparable countries. This reversed previous positive growth of 7.8% in 2012-2014, and partly due to the alternative use of similar national portals.

**Definition:** This indicator is the ratio of the number of researcher posts advertised through the EURAXESS job portal to the number of researchers in the public sector.

**Source of data:** Eurostat - Statistics on research and development

### Current Value

116

### Last Value

103

**Number of appointments at universities from EU and third countries**

**Assessment:** The number of appointments from EU and third countries at Austrian public universities has further increased, as well as the percentages (55% in 2018, 52% in 2017).

**Definition:** Appointments at public universities with home university/previous employer being in an EU or third country: home university/employer in Germany, home university/employer in the rest of EU, home university/employer in Switzerland, home university/employer in third countries

**Source of data:** Unidata, intellectual capital report, indicator 1.A.2

Number of individual members of scientific/artistic staff with a periode abroad (per University)

**Assessment:** The numbers of scientific/artistic staff (at public universities) having spent a period abroad has further increased. Most of them (2018/19 68,7%, 2016/17 68,2%) spent their period abroad in an EU country.

**Definition:** This key indicator captures persons among the scientific/artistic staff of public universities who spent at least one period abroad during the academic year concerned.

**Source of data:** Unidata, intellectual capital report, indicator 1.B.1

|               |
|---------------|
| Current Value |
| 9943          |
| Last Value    |
| 9456          |

## Priority 3

## Assessment of Austrian reform agenda



Overall progress: 100%

**Objective:** (a) Increasing the number of Charter & Code Endorsements / increasing the number of “HR Excellence in Research” logos awarded

**Conclusion:** In Austria 43 institutions including universities, funding organisations, an enterprise, research organisations, universities of applied sciences, a private university, umbrella organisations and the Federal Ministry of Education, Science and Research have signed the „Charter & Code“.

The Medical University of Graz, the Austrian Science Fund (FWF), the University of Natural Resources and Life Sciences, Vienna (BOKU), the University of Applied Sciences (Technikum Wien) and the University of Salzburg (pending) have received the HRS<sub>4</sub>R (Human Resources Strategy for Researchers) acknowledgement from the European Commission and the HR logo.

The EURAXESS Austria networking event in spring 2019 was focused on HR Excellence in Research Award (HRS<sub>4</sub>R): practical experience as well as an update on the new HRS<sub>4</sub>R e-tool on the EURAXESS Portal.

**Measures:** Increased information activity and Targeted project work

**Instruments:** Performance agreements 2016-2018 and performance agreements 2019-2021 with the universities | FFG (Austrian Research Promotion Agency) Academy | ERA Dialogue



Overall progress: 100%

**Objective:** (b) OTM-R – Increasing the number of openly and transparently advertised positions for researchers on EURAXESS Jobs

**Conclusion:** There has been a large increase in jobs posted in Austria on EURAXESS Jobs (2,596 postings in 2019) due to the increased awareness raising of EURAXESS Jobs (e.g. EURAXESS Austria Newsletter, 5-6 per year; about 600 subscribers)

**Measures:** Increased information activity and Targeted project work

**Instruments:** Performance agreements 2016-2018 and performance agreements 2019-2021 with the universities | ERA Dialogue | EURAXESS Jobs | Job boards

## Objective: (c) Culture of welcome for researchers

Overall progress: 90%

**Conclusion:** EURAXESS Austria network meetings have been organised annually since 2015. In 2017 the meeting was focused on Welcome Service.

Outcomes of the TOP III Project: The networking platform »EURAXESS Austria Meeting Point Vienna« was set up in autumn 2017. This platform offers tools to enable exchange and social integration for international PhD students, postdocs and researchers in the Vienna area.

EURAXESS Austria contributed to the report »An Analysis of Dual Career and Integration Services«. This report provides an overview of DCIS activities in Austria. In addition, it also contains a chapter about their impact, as well as challenges and recommendations for developing further steps in supporting DC couples/families.

The Researcher`s Guide to Austria has been updated on a regular basis. This guide supports researchers, scientists and their families to have a good start in Austria. It provides general information about Austria, but also covers topics such as the legal basis of entry and residence regulations, taxation and social security. [It is available for download.](#)

Further improvement has been achieved by reforms of the Red-White-Red Card in 2017 and 2018, implementing Directive (EU) 2016/801 on the conditions of entry and residence of third-country nationals for the purposes of research, studies etc.: third-country graduates of bachelor degrees, doctorates and PhDs are now included in the system of the Red-White-Red card, longer deadlines for university graduates to look for employment on the Austrian labour market have been introduced as well as residence permits for mobile researchers. Further advancements are necessary to counter skills shortage on the Austrian labour market: shorter duration of proceedings, less restrictive enforcement by authorities for researchers and students, digital application, adjustments of the salary threshold, no need for proof of a customary accommodation.

**Measures:** Accession to EURAXESS Network | Expanding existing information services and embedding them within the framework of the EURAXESS initiative | Implementation of the projects of the universities for a culture of welcome | Suggestions for improvement on the part of the Federal Ministry of Education, Science and Research as to the further development of the Red-White-Red Card

## Priority 3

**Instruments:** Performance agreements 2016-2018 and performance agreements 2019-2021 with the universities | FFG (Austrian Research Promotion Agency) Academy | ERA Dialogue | EURAXESS Declarations of Commitment (DoCs) | EURAXESS TOP III Project | Using existing networks with higher education and research institutions and other ministries | Awareness-raising communication in an interministerial context

**Objective:** (d) Career concepts for young scientists, in consideration of gender equality

Overall progress: 100%

**Conclusion:** According to the performance agreement, IST Austria has developed a „Personnel and Career Development Plan“.

According to the performance agreement, the Austrian Academy of Sciences has developed an Action Plan for the Promotion of Women.

The implementation of the new legal basis for facilitating a »tenure track« at public universities is completed - universities have implemented respective organisational structures and career models. Between the end of 2014 and the end of 2018, the number of tenure track positions has increased by 40% to 1,452 positions (2014: 1,038 positions). In the performance agreements for the period 2019-2021, there is a strong focus on further enhancing the number of tenure track positions offered by public universities. Having gained an increase in budget in order to enhance scientific staff, universities have committed themselves in the performance agreements to further increase the number of tenure track positions until 2021 (in total by 290-330 additional positions).

**Measure:** Implementation of career models at non-university research institutions (in particular IST-Austria and Austrian Academy of Sciences)

**Instruments:** Performance agreements with the Austrian Academy of Sciences and IST-Austria, career models | Development plans of the universities, statutes of the universities | Performance agreements 2016-2018 and performance agreements 2019-2021 with the universities

**Objective: (e) Intersectoral Mobility - easier change between private and public sector**

Overall progress: 100%

**Conclusion:** The Austrian Strategy for Research, Technology and Innovation 2020 includes a reference to improving intersectoral mobility and identifies a lack of scientific career options and the low proportion of women in industrial research as challenges to be tackled. The Austrian Research Promotion Agency (FFG) operates a couple of national intersectoral mobility schemes including an Industrial PhD Programme targeted at PhD students, a Young Experts programme targeted at students and young scientists (including post-docs) and a specific programme targeting female researchers (FEMtech Career Paths). The FFG also runs a set of »COMET competence centres« and »Laura Bassi Centres of Expertise« across the country involving temporary transfers of researchers between academia and industry with the latter focusing on supporting women. The »Laura Bassi Centres«, for instance, have been allocated EUR 25.5 Mio. over a 7-year period.

**Measure:** Increased mutual recognition of research performance in industry and in science and research

**Instruments:** European and national funding programmes

## Priority 3

## Success Story

## Meeting Point for Stakeholders

„EURAXESS Austria Meeting Point Vienna supports networking between local and international PhD students, postdocs and researchers – including their partners and families.“



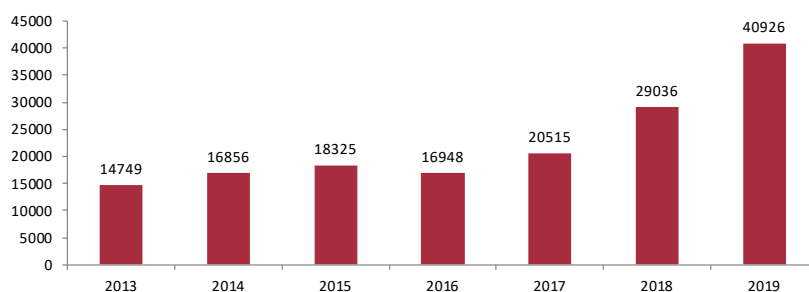
Screenshot EURAXESS Meeting Point Vienna homepage

The platform EURAXESS Meeting Point Vienna offers tools to enable exchange and social integration of international researchers in the Vienna area, and networking events that offer a channel to directly engage and connect with other researchers.



EURAXESS Meeting Point VIENNA has been organising networking events for researchers since November 2017. Many of these events took place in cooperation with other organisations – Viennese universities, the Knowledge Transfer Centre East (WTZ Ost), or the OeAD events4scholars.

A [Facebook Site](#) and a [newsletter](#) inform about activities in Vienna:



Number of visitors per year on [www.euraxess.at](http://www.euraxess.at)





# Priority 4 - Gender Equality and „Gender Mainstreaming“ in Research

## Indicators

### Current Value

22,7%

### Last Value

21,5%

**High Level:** Share of women in grade A positions in Higher Education Sector (HES)

**Assessment:** The proportion of women in grade A positions in Austria increased between 2013 and 2016. Nevertheless, the Austrian value is below the EU-average (EU-average: 2013: 22.1%, 2016: 23.7%) and furthermore the value grew more slowly than the average (Austria: 1.2%; EU-average: 1.6%). The share increased in every EU-country except Hungary and Spain. Compared to Romania, which has the best value, the share is less than half (RO: 2013: 48.4% 2016: 54.3%). In comparison, the proportion of grade A staff among all academic staff and a more precise picture of women's underrepresentation in grade A positions is given.

Only 4.8% of women are in a grade A position (men: 10.6%). There is a significant difference between individual fields of R&D: lowest in engineering and technology 9.6%, highest in humanities 36.0%, which is the only field above the average. In the performance agreement period 2019-2021, the Federal Ministry introduced a cascade-model with concrete goals for grade A positions and tenure track positions that universities should achieve within a three-year period.

**Definition:** This indicator presents the proportion of women occupying the highest-level research positions (Grade A) in HES to the total of Grade A positions.

**Source of data:** WiS-Women in Science database, ERA Progress Report 2018

### Current Value

23,2%

### Last Value

23,0%

**Share of women researchers**

**Assessment:** In all relevant sectors (higher education sector [HES], government sector [GOV], business enterprise sector [BES]) the number of female researchers increased faster than male. The Austrian value in HES and GOV is higher than the EU-average, except BES. Data analysis identifies age as a relevant category. In HES and GOV, female researchers are mainly represented in the following age groups: under 35 and 35-44 years. In the HES, the highest representation is in the age category under 35, for both sexes (57.5% female and 51.0% male). On average across the EU, the proportion of female researchers in GOV is higher than men in all age groups (except 55+). In

Austria, male researchers make up a higher share in the age category 45-54 and 55+ than the EU-average. Effective gender equality policies are needed in the corporate sector. Following these figures, the coordination of the gender equality goals (output-oriented budgeting) of the ministries responsible for research started. In order to strengthen the national research area in terms of gender equality, cooperation between HES, GOV and BES and the ministries responsible must be further intensified.

**Definition:** This indicator presents the proportion of female researchers, broken down by country, out of the researcher population in all sectors of the economy.

**Source of data:** Eurostat, She figures 2018

Glass Ceiling Index (GCI, SHE Figures)

**Assessment:** The GCI 2016 improved slightly compared to 2013 and is therefore above the EU average (2013: 1.68, 2016: 1.64). 9 countries have better values. Ireland (2.16), Israel (2.33) and Cyprus (2.60) achieved the highest GCI in 2016. In Austria, better values are expected in the near future because the BMBWF has introduced new measures (e.g. cascade model for the 2019-2021 period of performance agreements with public universities, linking the regulatory impact assessment's gender equality goal with the performance agreements, gender equality-projects and goals in the performance agreements with the public universities, regularly monitoring and analysis of the gender pay gap as a meaningful indicator of gender equality, implementing a culture of work-life-balance for students and employees, promotion of a gender-sensitive cultural change: the implementation of the 36 recommendations of the organisation „Universities Austria“ on „Broadening gender competence in university processes“ is central). In the performance agreement periods 2016-2018 and 2019-2021, measures to close the GCI were initiated at the universities. Further improvements are expected.

**Definition:** The Glass Ceiling Index (GCI) is a relative index comparing the proportion of women in academia (grades A, B, C) to the proportion of women in top academic positions (grade A positions; equivalent to full professorships in most countries), for a given year. The GCI can range from 0 to infinity. A GCI of 1 indicates that there is no difference between women and men in the chance of being promoted. A score of less than 1 means that women are over-represented at grade A level and a GCI score of more than 1 points towards a glass ceiling effect, meaning that women are under-represented in grade A positions. In other words, the interpretation of the GCI is that the higher the value, the stronger the glass ceiling effect and the more difficult it is for women to move into a higher position.

**Source of data:** SHE Figures Handbook 2018

| Current Value |
|---------------|
| 1,55          |
| Last Value    |
| 1,60          |

## Priority 4



Overall progress: 70%

## Assessment of Austrian reform agenda

**Objective:** (a) Increasing the shares of women in all areas and at all hierarchy levels where they are under-represented

**Conclusion:** Performance agreements with public universities: Implementation of a cascade model. Universities have agreed on potential-oriented goals to increase the proportion of women among career holders and professors. With a set of measures - developed by external consultants - the BMBWF supports the universities of applied sciences in their efforts to develop, establish and spread gender equality- and diversity-politics.

The main measure is the development of a manual which contains guidelines and basics for equality and diversity management at the universities of applied sciences. This handbook, which will be completed in 2020, is intended to serve as a guide for both university management and equal opportunities experts.

Main objective is the sustainable development and implementation of gender equality and diversity into the structures and processes of the universities of applied sciences. Result of this process is the establishment of a sustainable „institutional knowledge“ about gender equality and diversity. The share of women in non-university science and research has increased from 27% (2015) to 28% (2017), see equality survey, April 2019. The FEMtech initiative helps to make women visible with awards such as „FEMtech Expert of the Month“, and supports the careers of women.

Since more than ten years w-fORTE supports the vision of more equal opportunities in research & innovation in Austria. More than 4,500 researchers were interested in the w-fORTE career trainings and discussions. About 2,800 researchers participated in more than 150 events and rated the trainings as highly relevant for expanding their career skills.

**Measures:** Support measures in order to reach a 50% quota of women for universities (amongst others, increase in tenure track positions and professorships, as well as measures in connection with Priority 3, Measure d) | support of a country-wide networking initiative of the universities of applied sciences in the fields of gender equality and diversity management in Austria | further developing equality monitoring in the higher education and research area: Focus on universities of applied sciences and private universities | continuing the equality survey in non-university research | awareness-raising and sensitisation of funding recipients in the field of RTI | Strengthening researchers and experts in the field of RTI, and differentiated assessment of projects in order to include women in research and to include the gender dimension in research content

**Instruments:** Performance agreements of the public universities (2016-2018, 2019-2021) | Performance agreement of the Austrian Academy of Sciences (2015-2017, 2018-2020) | Universities Act 2002 | Equal Opportunities Act (B-GlBG) | Career advancement plan for women at universities | Career advancement plan for women at the Austrian Academy of Sciences | Equality standards at the Austrian Science Fund (FWF) and the Austrian Research Promotion Agency | Performance agreement of the Institute of Science and Technology Austria (IST Austria, 2015-2017 and 2018-2020), personnel development plan and career promotion plan | Unidata | ERA Dashboard indicators | FEMtech | Equality Survey

## **Objective:** (b) Integrating the gender dimension into structures and policies in science and research

**Conclusion:** One of the conclusions of the Follow-up study on cultural change was the proposal to focus on »fix the institutions« by strengthening the integration of the gender dimension into structures and policies in science and research. The Austrian Convention of Higher Education Institutions commissioned the responsible ministry to form a working group on the »development and broadening of gender competency in higher education processes«. The working group developed 36 action-oriented recommendations disseminated in 2019. The implementation phase at universities is now ongoing. The BMBWF supports this process.



Overall progress: 70%

The recommendation paper provides important input in the areas management, teaching and research. If the implementation succeeds, it can lead to a sustainable cultural change in favour of gender equality in the long term. This recommendation paper perfectly meets the previously mentioned conclusion of the Follow-up study and builds the framework for cultural change. The implementation of the recommendations is ongoing.

Through „FEMtech Career“, organisations continue to be sensitized and support the development of gender competence. The FEMtech Career Check for SMEs closed at the end of 2018.

The Diversity Management Award „Diversitas“ has been awarded every two years since 2016. The award intends to raise and promote public and organizational awareness of diversity management. The Diversitas-Awards 2016 and 2018 highlighted initiatives in the higher education sector and selected research institutions in terms of diversity management.

**Measure:** Implementation of selected recommendations for action of the Cultural Change Study: development of a general framework which contains targets for the medium and long-term implementation of gender equality for all science and research institutions | highlighting examples of good practice | awareness-raising and sensitisation of organisations in the field of RTI (gender competence)

## Priority 4

**Instruments:** Follow-up study on cultural change | Performance agreements (2016-2018 and 2019-2021) | Diversity awards (Diversitas) at higher education and research institutions | FEMtech Career Check for SMEs and FEMtech Career | w-fORTE (career trainings for women in research and technology)

**Objective:** (c) Considering the gender dimension in research content and teaching



Overall progress: 100%

**Conclusion:** The performance agreements are continuing 2019-2021. In the current period, measures have been implemented which focus on the gender dimension in teaching and research content.

The „Gabriele Possanner Awards“ (state, appreciation and promotion prizes) are announced every two years. They promote the continuous presence of the gender perspective in fields of research and studies. Due to the continuous qualitative development, their endowment and their high status in the research landscape, they rank among the most attractive awards in the field of gender research. The 2017 and the 2019 award ceremonies were carried out successfully.

The most recent FEMtech research projects and the information event were in September 2018. 9 projects were funded. These projects ensure the integration of the gender dimension in research content.

**Measures:** Implementing a networking platform between researchers and practitioners in order to exchange up-to-date gender-specific research findings and possibilities of their application | Awards in the field of gender research | Integration of gender content into projects in the field of RTI

**Instruments:** Performance agreements of the public universities 2016-2018 | Gender Studies Association Austria (ÖGGF) annual meeting National Advisory Board of the Gender Equality in Higher Education (GEHE) Conference | Gabriele Possanner Awards (2017, 2019) | FEMtech research projects | Gender and Innovation website

# Success Story

## Increasing the share of women

**„Gender Equality within research and innovation makes us better in these areas.“** *Jean-Eric Paquet, DG RTD*

In the current period of performance agreements with public universities 2019-2021, a total of 360 new positions for professors and equivalents will be created. This is a »window of opportunity« to increase the proportion of women in professorships at public universities in an equality- and potential-oriented manner.

The proportion of women in the career level below is fundamental to the filling of these positions with women (proportion of women in academic middle class 2018: 47%; career positions 36%). For this reason, the Federal Ministry has introduced the so-called cascade model for the 2019-2021 period of performance agreements with public universities. The universities have agreed mandatory targets for increasing the proportion of women in professorships and career holders with the Federal Ministry.

The universities achieve these goals by filling all vacant or newly created positions with a proportion of women that corresponds to the potential in the career level below during the term of the performance agreement.

| Contribution to increasing the proportion of women in career-positions | Women | Men   | Total |
|--|-------|-------|-------|
| Career-positions 2017  | 499   | 926   | 1.425 |
| Additional Career-positions until 2020                                 | 98    | 135   | 233   |
| Career-Positions 2020, valued  | 597   | 1.061 | 1.658 |

Source: unidata and universities datareports (edited by BMBWF), own calculation; except Donauuniversität Krems

| Share of women in Career-positions in relation to the share of woman potential | 2016  | 2015  | 2014  | 2013  |
|--|-------|-------|-------|-------|
| Share of women - career-positions  | 35,3% | 33,8% | 32,9% | 33,4% |
| Share of women - potential   | 41,9% | 43,4% | 41,7% | 43,7% |
| Access-opportunity-Index   | 0,84  | 0,78  | 0,79  | 0,76  |

Source: unidata

# Priority 5 - Circulation of Knowledge

## Indicators

### Current Value

24,6%

### Last Value

N/A

**High Level:** Share of product and/or process innovative firms cooperating with higher education institutions or public/private research institutions

**Assessment:** Austria is leading the ranking. This can also be attributed to the well defined research funding landscape, that offers numerous possibilities for collaboration. Innovative firms in Austria are often SMEs and thus usually cannot afford their own R&D departments making collaboration an attractive solution. On the other hand large enterprises have a R&D department making collaborations meaningful for the extension of their know-how base. There is a long-lasting collaboration between these firms and their academic partners which characterises the Austrian research landscape.

**Definition:** (a) The indicator is the proportion of product and/or process innovative firms cooperating with government, public or private research institutes (PRIs) to the total number of product and/or process innovative firms. (b) The indicator is the proportion of product and/or process innovative firms cooperating with universities or higher education institutes (HEIs) to the total number of product and/or process innovative firms.

**Source of data:** ERA Progress Report 2018

### Current Value

200,5

### Last Value

211,2

**Public – private co-publications per million population**

**Assessment:** Scientific co-publications involving one company per 1,000 inhabitants are an indicator of the networking of the public sector with the corporate sector. Austria performs excellently here and is holding its position with 200 publications only behind the Innovation Leaders Denmark (268 publications) and Sweden (251 publications) in the top-three of EU countries. This shows that the linkage between public and private research is well developed compared to peer countries.

**Definition:** This indicator captures public-private research linkages and active collaboration activities between business sector researchers and public sector researchers resulting in academic publications. Public-private co-publications: change from Web of Science to Scopus.

**Source of data:** European Innovation Scoreboard 2019



## Licence contracts by universities

**Assessment:** Unfortunately, the number of cases is too small to allow the identification of real trends. Only a few universities are responsible for a large number of licence contracts, which can cause a certain variability over the years. Also, there is no data available for other countries. The situation seems to be stable.

**Definition:** Number of agreements concerning the sale of certain usage rights of the university to intellectual property (e.g. patents, copyright). Only those licence agreements concerning existing service inventions and patents are covered.

**Source of data:** Unidata, intellectual capital report, indicator 3.B.3

| Current Value |
|---------------|
| 315           |
| Last Value    |
| 324           |

## Priority 5

## Assessment of Austrian reform agenda



Overall progress: 90%

**Objective:** Further strengthening the cooperation between higher education institutions and research institutions as excellent sources of knowledge, with innovative enterprises (1/2)

**Conclusion:** Knowledge Transfer between universities, other research organisations and the private sector was promoted within three virtual regional Knowledge Transfer Centres and is laid down in the performance agreements with the universities. The funding programme „Knowledge Transfer Centres“ (2013-2018) was analysed and rendered very positive results. Further funding is currently provided by the Austrian National Foundation and it is granted for 3 years until 2021. The expansion of the knowledge transfer centers is also anchored in the current government programme 2020-2024. It is therefore planned to anchor the knowledge transfer centers in the performance agreements with the universities 2022-2024.

Spin-off Fellowships funding programme (2017-2021): Scientists and students with innovative ideas should be supported in their efforts to establish their own companies. The fellowship can ensure the financing of salary costs and access to the academic infrastructure. The fellowships will be granted within the context of a competition via the knowledge transfer centers. This measure is funded to the amount of EUR 5 Mio. per year.

**Measures:** Strengthening the efficient and rapid exploitation of academic research findings by innovative enterprises

**Instruments:** e.g. »Knowledge Transfer Centres and IPR Exploitation« funding programme

**Objective:** Further strengthening the cooperation between higher education institutions, research institutions as excellent sources of knowledge, with innovative enterprises (2/2)



Overall progress: 100%

**Conclusion:** A set of (online) model contracts is made available helping the most appropriate model contracts to be selected. The use of these contracts is voluntary. Since the start of IPAG in October 2013, there have been about 32,000 free downloads of model agreements from the [IPAG tool](#).

**Measure:** Making up-to-date sample contracts for knowledge and technology transfer available online, free of charge, in German and in English, with these sample contracts having been agreed between science and industry

**Instruments:** Intellectual Property Agreement Guide IPAG within the framework of the National Contact Point for Intellectual Property at the Federal Ministry of Education, Science and Research (BMBWF)

**Objective:** Strengthening science and technology transfer as part of the Third Mission in the property rights and exploitation strategies



Overall progress: 60%

**Conclusion:** Ongoing enhancement and improvement of IP- and Exploitation Strategies on the basis of the performance agreements with universities and public research institutions.

**Measure:** Further development of existing IP property rights and exploitation strategies, in accordance with the performance agreements with universities, the Austrian Academy of Sciences and IST-Austria

**Instruments:** Performance agreements with universities and research institutions

**Objective:** Strengthening knowledge and technology transfer as part of the Third Mission in the property rights and exploitation strategies



Overall progress: 100%

**Conclusion:** Strengthening academic transfer and structures for valorisation as laid down in the IP recommendation of the European Commission. The National Contact Point (NCP) has carried out over 50 events for science and business and finances the IPAG project (model contracts). NCP-IP is also drawing up a manual which summarises and, where necessary, further develops possible fair sharing and compensation models (e.g. for crowdwork). |

**Measure:** In the course of implementing the national RTI Strategy of the Federal Government, an interministerial Working Group on »Knowledge Transfer and Start-ups« has been set up.

**Instrument:** National Contact Point for Intellectual Property at the Federal Ministry of Education, Science and Research

## Priority 5

## Assessment of Austrian reform agenda



Overall progress: 80%

**Objective:** Implementation of Open Access and further development towards an Open Science Strategy

**Conclusion:** Every University should work on an institutional digitalisation strategy covering measures on Open Access and Open Science. A call for papers had been launched by the ministry on digital and social transformation. EUR 50 Mio. will be spent. Projects on OA, Open Educational Resources, the implementation of FAIR principles in Austria and PlanS are part of the projects. The new government agreed on the implementation of PlanS in Austria.

The FWF is a founding member of [cOAlition S](#) (9/2018), which implements „Plan S“ (100% open access for research articles) by 1.1.2021. The new government programme (1/2020) proclaims: „The federal government actively supports Plan S for the implementation of Open Access. Subsequently, the principles of the Plan S also must be implemented by all universities and non-university research institutions in Austria.“ Since 2019, the FWF has introduced a [mandatory Open Research Data Policy and a Data Management Plan](#) for all funded projects.

**Measure:** Drawing up a national Open Access Strategy, with concrete measures for implementing Open Access, according to the OANA recommendations (complete Open Access publishing by 2025)

**Instruments:** Amongst others: Performance agreements with universities and research institutions (in particular for developing and implementing corresponding institutional OA policies) | Continuation of the Open Research Data pilot programme (Austrian Science Fund FWF) and drafting of a consistent Open Science strategy

**Objective:** Drawing up a national Open Innovation Strategy



Overall progress: 100%

**Conclusion:** [Open Innovation Strategy for Austria](#) has been finalized in 2016 Implementation ongoing.

**Measure:** Concrete measures are formulated in the national Open Innovation Strategy

**Instrument:** The strategy is currently subject to an open consultation process, with citizen participation

**Objective:** Open Data and Open RTI Data policy for business-oriented and applied research

**Conclusion:** Finalizing the alert paper regarding the policy as a first step, recommendations expected by the end of the year.



Overall progress: 30%

**Measure:** Preparing an Open (RTI) Data Policy for dealing with research results from business-oriented and applied research

**Instrument:** Drafting of a consistent strategy in the form of a living document, with concrete recommendations for action

**Objective:** Open Access for application-oriented and business-oriented research

**Conclusion:** The strategic guidelines regarding Open Access were manifested in the Open4Innovation-platform, which was finalized April 2019. The Open4Innovation-platform is being continuously updated and expanded.



Overall progress: 80%

**Measure:** Checking the Open Access policy for business-oriented and applied research

**Instrument:** Drafting of a consistent strategy in the form of a living document, with concrete recommendations for action

**Objective:** Improving the strategic use of intellectual property rights

**Conclusion:** [Intellectual Property Strategy for Austria](#) has been finalized in 2017. Implementation ongoing.



Overall progress: 100%

**Measure:** The IP Strategy of the Federal Government proposes areas of activity and concrete measures

**Instruments:** Areas of activity and measures of the IPR Strategy have been drawn up, integrating stakeholders in different working groups and an international expert panel.

„Open innovation eliminates barriers in research, development and innovation and generates an innovation dynamic that cannot be achieved with traditional methods.“



Austria is one of the very first countries in the world to have developed a national Open Innovation Strategy. In an open participatory process, interested parties from a wide range of areas were therefore given the opportunity to actively shape the national Open Innovation Strategy. The aim of this strategy is to open up, expand and further develop the innovation system with the purpose of boosting its efficiency and output orientation. It pays special attention to the need for a focused expansion of knowledge and innovation processes in business, science and research, civil society and in politics and public administration. To master the increasingly complex challenges, the various stakeholders must engage in new forms of cooperation. These new forms of interaction and partnerships increase the innovative capability of the system, reduce the inherent risk of failure and create the possibility to generate new types of knowledge.



# Priority 6 - International Cooperation

## Indicators

### Current Value

62

### Last Value

59

**High Level:** International co-publications with non-ERA partners per 1,000 researchers in the public sector

**Assessment:** The number of co-publications with non-ERA partners per 1,000 researchers has continued its positive development. While from a long-term perspective (2007-2016) Austria's growth is 1% below the EU growth (3.2% versus 4.2%), this has changed in the recent period (2014-2016), where the growth of Austria with 5% was more pronounced than that on EU-average (4.4%). Austria has stayed with 62.0 publications per 1,000 researchers in Performance Cluster 2, together with UK, FI, BE, IS in front and NO, FR, IT, ES and DE behind AT in cluster 2 with between 69.5 and 51.4 publications per 1,000 researchers. However, the distance to the performance of the leading cluster remains substantial and no improvement can be perceived in this respect.

**Definition:** Using fractional counting (refer to Annex 2 of the ERA Progress Report 2018 Monitoring Handbook for a definition of fractional counting), this indicator measures the number of publications of an ERA country (or region within the ERA) involving at least another co-author from a non-ERA country. The number is presented relative to the given country's (or region's) researcher population size.

**Source of data:** Web of Science, Eurostat

### Current Value

32,1%

### Last Value

30,0%

**EPO-Patent Applications with national inventor(s) owned by foreign residents as percentage of total national EPO applications**

**Assessment:** With regard to the internationalisation of research and development in Austrian companies, no significant changes or clear trends can be observed on the basis of patent applications owned by foreign residents. The current share of foreign residents EPO-applications lies at 32.1%. Between 2011 and 2015 (last data available) the change was a mere 1.1% with some fluctuations in the following years, and the difference from 2014 to 2015 was +2.1%. The big drop that occurred between 2007 and 2009 (from 41.2% to 28.8%) has not reverted and it seems that this change in structure of the R&I landscape will perpetuate.

**Definition:** The technological activities of multinational firms are increasingly internationalised. In the search for new technological competences, better adaptation to markets and lower research and development costs, companies are moving research activities



overseas more intensively. Patent documents indicate the names of inventor(s) and applicant(s) - the owner(s) of the patent at the time of application - along with their address(es) and thus their country or countries of residence. In most cases, the applicant is an institution (generally a firm, university or public laboratory), but sometimes an individual. The internationalisation measures (of S&T activities) presented here relate to foreign ownership of domestic inventions and evaluates the extent to which foreign firms control domestic inventions.

**Source of data:** OECD 2019

Number of bilateral or multilateral joint calls with third countries (according to Austria's Beyond Europe target countries)

**Assessment:** This indicator shows a constant fluctuation with no clear trend over time. The figures, which are based on ERA-Learn, currently only include calls at EU level, which are dependent on various factors such as different call periods in the individual programmes, the budgets available for calls on a cut-off date, the setting of strategic priorities at national and EU level, available co-financing mechanisms in the partner countries, etc. Furthermore, successfully launched initiatives such as the “Beyond Europe”, the “Global Incubator Network” or the Development Cooperation Programme are not joint calls, which means they are not covered by this indicator. In future, the ERA-Learn data should therefore be supplemented with, for example, the figures for bilateral calls that Austria undertakes with third countries, in order to increase the validity of the indicator and to be able to sharpen the image of Austria's efforts towards increased internationalisation in the medium term.

**Definition:** With the RTI strategy for 2011 “The Way to Innovation Leader”, the Austrian Federal Government has set itself the goal of rising to become one of Europe's leading RTI nations by 2020. The international positioning, beyond Europe's borders, was identified as a key objective (Beyond Europe, The Internationalisation of Austria in Research, Technology and Innovation beyond Europe, page 4.). This indicator measures the R&D cooperations with partners in Beyond Europe destinations countries of Austria.

**Source of data:** ERA Learn

|               |
|---------------|
| Current Value |
| 23            |
| Last Value    |
| 25            |

## Priority 6

## Assessment of Austrian reform agenda



Overall progress: 100%

**Objective:** (a) Formulation of a Strategy for International Cooperation; Strategic framework »Beyond Europe« was published in 2013.

**Conclusion:** The strategy for international cooperation was decided. For 2020 launch of new national RTI strategy envisaged including a specific chapter on „internationalisation“.

**Measures:** Annual work programmes, up to 2019, for implementation, in accordance with the budget available

**Instruments:** Relevant instruments for intensifying international RTI cooperation (e.g. external representations, mobility programmes, joint calls, targeted use of EU measures and programmes, intensifying cooperation and coordination of Austrian RTI stakeholders)



Overall progress: 50%

**Objective:** (b) Stimulation of networking within Austria

**Conclusion:** The Round Table format has been well received by the Austrian stakeholders with 9 events organized since 2014.

However the online platform has not been used by the community as anticipated and especially the provision and update of information in a self-organized way has proven too complex. After an evaluation it has been decided to discontinue this activity.

**Measures:** Networking and information measures

**Instruments:** Continuing the Round Table „Beyond Europe“ by including the different stakeholders | Expansion and operation of an online information platform of Austrian activities for supporting the Round Table

## Objective: (c) Increased activities with third countries

**Measure:** Joint programmes/calls/projects



Overall progress: 60%

**Conclusion:** Activities in all responsible ministries are ongoing with partly shifting priority topics. However, since no additional budgets became available, the dynamic for expanding activities is low. Within the science/research field an increased focus on African countries could be perceived in the last 2 years.

**Instruments:** Carrying out joint calls, in accordance with the budget available and the interest of the international partners, e.g. calls with Chinese institutions in selected technology areas joint as targeted activities within national RTD programmes | Implementation and, if possible, conclusion of bilateral treaties and agreements with priority target regions | Participation in the international cooperation instruments in Horizon 2020 | if appropriate, participation in joint activities by EU-MS with EU third countries | EUREKA: joint calls with relevant target countries | "Beyond Europe" programme of the Federal Ministry of Digital and Economic Affairs | International networking and match-making events | Increased use of synergies with EURAXESS | Establishment of an AT-African university network for increased academic cooperation

**Measure:** International presentation and international presence



Overall progress: 25%

**Conclusion:** While on the one hand a certain dynamic can be perceived regarding the innovation topic (3 special attaches deployed) the coordinated approach and effort between ministries for jointly running RTI foreign offices has been reduced and one of the ministries has ended the cooperation agreement in this respect.

There is still no common portal or strong online platform for promoting Austria as an RTI location. Austria currently holds the chair of the Strategic Forum for International S&T cooperation (Advisory body of the EU) and will hold the EUREKA presidency starting from mid 2020, which could give additional visibility.

**Instruments:** Continuous improvement of the services provided by the RTI foreign offices OSTA | Development of a joint OSTA web portal (including information on core RTI players in Austria) | Intensifying cooperation with RTI foreign offices of the EU MS and of the EC | If possible, participation in joint awareness-raising measures of the EU MS and the EC (Destination Europe, Tour of China, etc.)

## Priority 6

## Success Story

## Cooperation with third countries

„The different programmes and joint efforts of the ministries in charge of STI have contributed to a broad and solid basis for cooperation with third countries. In addition there are numerous individual and institutional cooperation activities that the higher education sector, the research performing organisations as well as companies are undertaking on a continuous basis to promote scientific excellence, foster exchange and increase Austria's competitiveness in a global environment.“

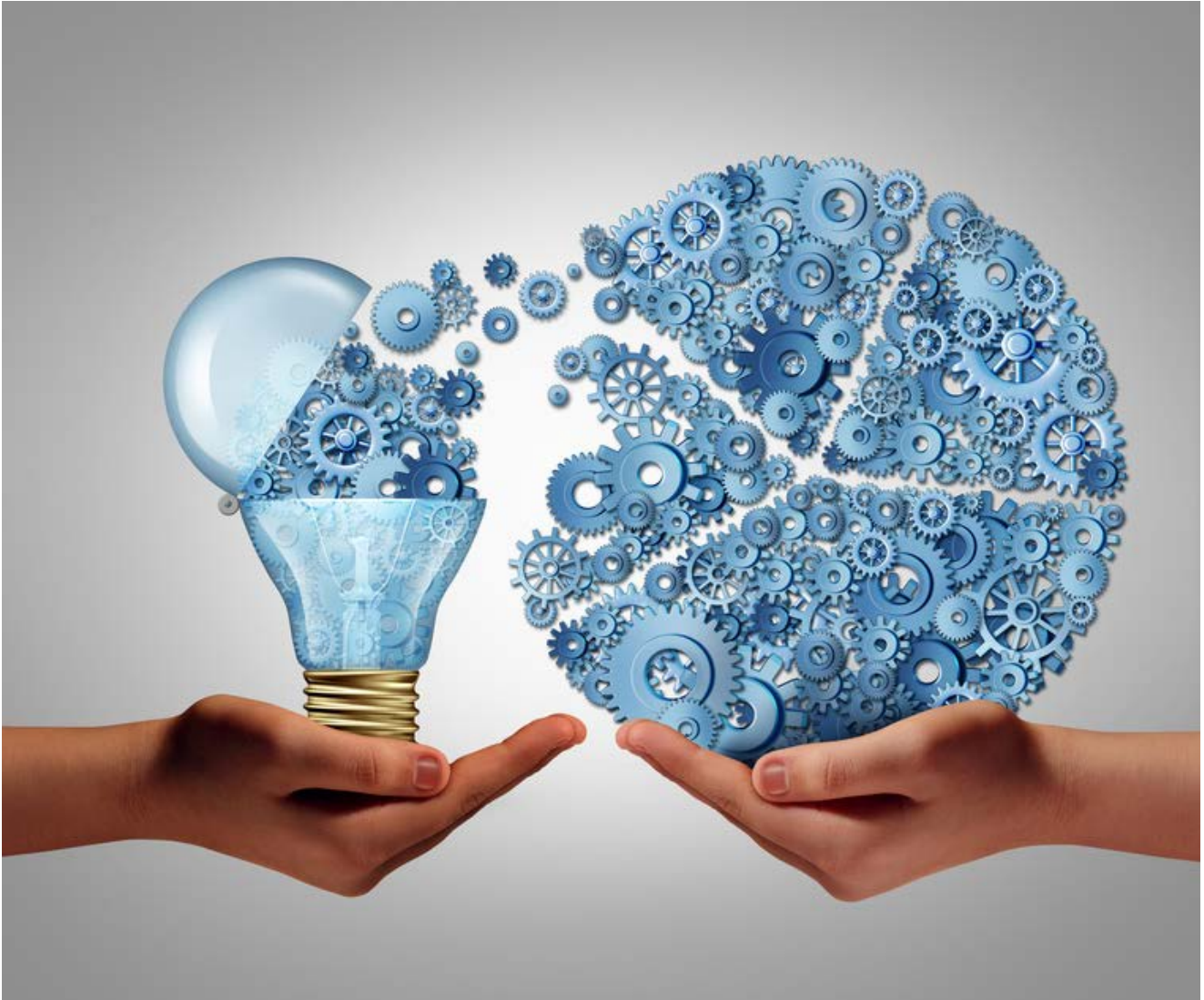


**Government funded STI activities with main third countries**  
(excluding technology transfer and development cooperation)

Examples for activities with

- China: Knowledge Transfer Centre, Joint Calls, Beyond Europe, OSTA, GIN
- South Africa: Knowledge Transfer Centre, EUREKA, Beyond Europe
- Brazil: Knowledge Transfer Centre (deployment), Beyond Europe
- Canada: EUREKA, Beyond Europe





## Monitoring the Impact of ERA in Austria

## Direct Impacts

### Secured ERC funding per inhabitant

**Assessment:** The calls of the prestigious European Research Council (ERC) are extremely competitive; the average ERC success rate in the current research framework programme Horizon 2020 is only around 11% (EU without Associated Countries).

Austrian universities and non-university research institutions currently show an above-average ERC-success rate of 16%, placing them among the “top 5” countries in this regard. Nevertheless, both the participation in the various ERC funding schemes (number of proposals submitted per call and year) and the respective success rate vary from call to call.

From the perspective of ERC funds raised related to population, Austria ranks 7th in the EU comparison, behind NL, DK, SE, FI, BE and LU. The „declining trend“ from 2016 onwards, as shown in the time series, should not be overestimated, as comparisons between individual years in the ERC-context do not seem to make much sense.

As reflected in the performance agreements, Austrian universities and research institutions are strongly involved in ERC mentoring activities with the aim of providing the best possible support to potential ERC applicants. In order to be able to compete in the international ERC competition and to attract top researchers to Austria, creating attractive conditions and support systems for researchers, e.g. through the support structures of the Austrian Research Promotion Agency (FFG) and the Austrian Science Fund (FWF), is key.

**Definition:** The competitive funding of the European Research Council (ERC) supports investigator-driven (=bottom-up) frontier research across all fields, on the basis of scientific excellence only. The indicator measures the approved ERC funding of a country relative to the size of its population.

**Source of data:** ERC data was calculated using the eCORDA contract data version 07/2019. Population data was calculated using the United Nations World Population Prospects 2019.

#### Current Value

€ 5,8

#### Last Value

€ 7,4

**Current Value**

4,7

**Last Value**

4,8

**PCT patent applications per billion GDP (in PPS euros)**

**Assessment:** PCT patent applications per billion GDP are at the lowest level since the beginning of the data in 2009. This is not because PCT patent applications have decreased: they were higher in 2016 than in 2009. However, Austria's GDP has grown even faster than patent applications, which led to a negative trend in the indicator. Despite a negative trend, Austria could hold its position in the ranking of EU member states, as well as its position above the average of the EU member states.

**Definition:** The capacity of firms to develop new products will determine their competitive advantage. One measure of the rate of new product innovation is the number of patents. This indicator measures the number of PCT patent applications.

Numerator: Number of patent applications filed under the PCT, at international phase, designating the European Patent Office (EPO). Patent counts are based on the priority date, the inventor's country of residence and fractional counts.

**Source of data:** Patens: OECD; GDP: Eurostat

**Current Value**

0,8

**Last Value**

N/A

**Patent applications per € 10 million in funding from the framework programme**

**Assessment:** This indicator is new, so comparisons over time are not available. However, we can say from the country comparison that Austria has a very favourable position related to the innovation leaders in this indicator. Austria is on par with Finland and ahead of Sweden, Denmark and the Netherlands. Austria also performs better than Germany which shows the strength of Austrian organisations to use EU funding to patent their inventions.

**Definition:** This indicator measures the number of patent applications of a country resulting from H2020 projects in relation to the funds received from the framework programme of that country. Full counting procedure was used for the calculation of the patents (numerator) i.e. each patent resulting from a H2020 project is assigned to each project participant once. Contractually secured funding was used for the calculation of the denominator. However, not all funds that form part of the framework programme budget are recorded here, but only those that are allocated via competitive calls.

**Source of data:** This indicator was calculated using the eCORDA data version 07/2019.



## Indirect Impacts

### Employment in fast-growing enterprises

**Assessment:** This indicator reflects a long-standing weakness of the Austrian RTI system, namely business dynamics in innovative industries. The most recent value is even lower than the preceding values. The reasons for the performance in employment of fast-growing enterprises and sales impacts are the Austrian economic structure and the mix of product market regulation and capital market regulation. Austria offers very good conditions for upgrading in traditional industries and for the modernization of existing companies, but less favorable conditions for the growth of young, innovation-intensive companies.

There is a lack of venture capital, which in turn is missing due to capital market problems, but we also lack great ideas that would come from a good science base (e.g. Silicon Valley, etc.). Improvements in higher education sector are therefore also necessary.

**Definition:** This indicator provides an indication of the dynamism of fast-growing firms in innovative sectors as compared to all fast-growing business activities. It captures the capacity of a country to rapidly transform its economy to respond to new needs and to take advantage of emerging demand.

**Source of data:** ERA Learn

| Current Value |
|---------------|
| 4,2%          |
| Last Value    |
| 3,9%          |

### Sales impacts

**Assessment:** This indicator is supposed to show economic effects of innovation. Austria shows a mixed performance in these indicators. While performance in medium and high technology product exports is quite high, knowledge intensive services exports are rather low; sales of new to market innovations are also rather low. All indicators have flaws which merit attention - e.g. knowledge intensity exports is not measured directly, but by classification (certain exports, such as computers, are classified as high tech, even when the actual component exported may not be that high tech). Knowledge-intensive services are distorted by Austria's high share of tourism; sales of new to market innovations come from the Community Innovation Survey, which studies show to not reliably identify the quality of innovations due to subjective assessment of innovation quality.

**Definition:** Sales impacts is a composite indicator published in the European Innovation Scoreboard (2019). The Sales impacts indicator has 3 components: Medium and high technology product exports (EIS 4.2.1); Knowledge-intensive services exports (EIS 4.2.2); Sales of new-to-market and new-to-firm innovations (EIS 4.2.3)

**Source of data:** European Innovation Scoreboard 2019

| Current Value |
|---------------|
| 0,5           |
| Last Value    |
| 0,5           |



|             |  |
|-------------|--|
| AC          | Associated Country   |
| AIT         | Austrian Institute of Technology   |
| AT          | Austria  |
| BE          | Belgium  |
| DE          | Germany  |
| DG EAC      | DG for Education and Culture   |
| DG RTD      | DG for Research and Innovation   |
| EC          | European Commission  |
| EPO         | European Patent Office   |
| ERA         | European Research Area   |
| ERAC        | European Research Area and Innovation Committee  |
| ERC         | European Research Council  |
| ES          | Spain  |
| ESFRI       | European Strategy Forum on Research and Infrastructures  |
| EURAXESS    | Platform for researchers, entrepreneurs, universities and businesses to interact with each other |
| FFG         | Austrian Research Promotion Agency   |
| FR          | France   |
| FWF         | Austrian Science Fund  |
| GBARD       | Government budget allocations for R&D  |
| GIN         | Global Incubator Network   |
| HES         | Higher Education Sector  |
| IÖB         | Innovation-promoting public procurement / Innovationsfördernde öffentliche Beschaffung           |
| IS          | Iceland  |
| IST-Austria | Institute of Science and Technology Austria  |
| JPI         | Joint programming initiatives  |
| MS          | Member State(s)  |
| NO          | Norway   |
| ÖAW         | Austrian Academy of Sciences   |
| OECD        | Organization for Economic Cooperation and Development  |
| OSTA        | Office of Science and Technology Austria   |
| PCT         | Patent cooperation treaty  |
| R&D         | Research and development   |
| R&I         | Research and Innovation  |
| REI         | Research Excellence Indicator  |
| RI          | Research Infrastructure  |
| RTI         | Research, Technology and Innovation  |
| SE          | Sweden   |
| UK          | United Kingdom   |
| WoS         | Web of Science database  |

