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# Austrian ERA Roadmap Progress Report 2017



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# Foreword

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Economic success is based on innovative concepts and new ideas. The European Union plays a decisive role in this for Austria's research and innovation stakeholders. With their excellent ideas and concepts, Austrian scientists have already secured around €640 million for Austria from the EU's research framework programme HORIZON 2020. I congratulate them on this notable achievement, because each euro won in Europe's competitive research environment generates new knowledge, new networks and ultimately new products and services. All of us benefit significantly from that.

Austria's success in HORIZON 2020 is based on a national innovation system that is structured efficiently and effectively. It is, of course, essential that Austria as innovation location and its players develop constantly, as well as actively and boldly grasping new opportunities in order to excel in the competitive environment that exists between the EU-28 in the European Research Area (ERA).

The Federal Government laid the foundation for a good development last year with the "Austrian ERA Roadmap". Within the scope of this roadmap, numerous reform projects and packages of measures are intended to bring about a double dividend: The first comes about by making our innovation and research location even more capable; the second dividend – successfully implemented reforms – facilitates project applications from Austria of even better quality, which are then more likely to succeed in HORIZON 2020. Structural reforms in Austria and our success at European level are consequently two sides of the same coin.

This progress report on the "Austrian ERA Roadmap" shows that Austria has already implemented the first important reforms, which lays the foundation for Austria's ongoing success within the European Research Area.

Dr. Harald Mahrer  
Federal Minister of Science,  
Research and Economy



Foto: © Marek Knopp

# Introduction

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The first progress report on the implementation of the "Austrian ERA Roadmap" casts light on the reform activities undertaken since the Roadmap was adopted by the Austrian Council of Ministers on 26 April 2016.

The reform projects are grouped by priorities, with the progress report focusing on the initial success with the implementation of the measures. Most Member States and a number of associated countries have undertaken similar reform measures tailored to their individual needs. The EU has assigned each priority a set of indicators intended to help better estimate the need for action in the national innovation systems.

Austria bases its activities around the indicators that have been agreed across Europe, but supplements them with further indicators that are of special significance for Austria. So, after the first year, the "Austrian ERA Roadmap" shows that the implementation of each priority has commenced. This progress report does not look at all measures because it is too early to give a comprehensive picture of the status of implementation for every single reform project after just one year. Initial examples for the successful implementation of the "Austrian ERA Roadmap" can be found in all priorities:

- Austria subjects the country's performance in HORIZON 2020 and in the ERA to a comprehensive evaluation. Findings for further strengthening the interactions between the framework programme and the ERA are derived from this. Connected to this is the expectation that the excellence indicator in Priority 1 will continue to show Austria in a good position.
- The increasing importance of transnational research initiatives is supported by the indicators of Priority 2a. Austria has begun to improve the links between the national RTI players with regard to the major social challenges through networking platforms (Network Ageing, Personalised Medicine, Sustainable Water Systems) in order to put in place the prerequisites for further transnational cooperations at programme level.
- Austria has a national roadmap for research infrastructures with ESFRI projects, on the basis of which it collaborates successfully on specific projects (e.g. CTA project, EuroBioImaging project).
- The recruitment of researchers from EU and third countries at universities is highlighted in an indicator of Priority 3, which is responded to in the measures section by the reform of the "Red-White-Red" card. In future, it will be easier for a third-country citizen with a bachelor's degree to obtain a "Red-White-Red" card and work in Austria. The reform project additionally allows a longer deadline for university graduates to look for employment on the Austrian labour market. This reform will support the universities with the recruitment of specialists from third countries.

- A participative process was employed to initiate an action plan for a gender-sensitive change in culture, which amongst other things will contribute to a reduction in the discrimination of women in science in the 'glass ceiling' indicator (Priority 4).

- Austria is making further efforts to promote the efficient and rapid utilisation of academic research results by innovative companies, whether in science transfer centres, the CD laboratories or research centres. This will further boost Austria's already good position in the indicators of Priority 5, which measure the collaboration between science and economy.

- Priority 6 lists numerous joint programmes, calls and projects for Austria which have a bilateral or multilateral character and are being implemented in 2016/17. The relevant indicator must be further developed in this area in order to depict all of these activities.

The readers of this progress report can view the facts and figures in depth in a dashboard on the FFG website at: <https://eupm.ffg.at/>. This report should be seen as supplementing the monitoring carried out by the European Commission through the "ERA Progress Report 2016".

# Structure of the Report

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The priorities of the “Austrian ERA Roadmap” shown on the following pages present the initial 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 sub-indicators are presented in details.

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

The indicated trend (▲●▼) 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 sub-indicators 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 2016 Progress Report of the European Commission. Further information on the methodology and calculation of the individual priorities can be found in the manual (at <https://eupm.ffg.at/>).

The second component reports on specific measures and implementation success in each priority. The implementation progress is also visualised as a percentage. Even though there are very many initiatives in the individual areas of the priorities, only those measures and successes that can be quantified from today’s perspective have been included in this report due to the chosen form of presentation.

# Priorities Of The Austrian ERA Roadmap

# Priority 1

## More Effective National Research Systems

| Indicators                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Tendency | Current | Last Value |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------|------------|
| <b>HL: Adjusted Research Excellence Indicator (REI)</b> <p><b>Definition of indicator</b><br/>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&amp;D (DG-RTD, Eurostat, OECD) and participation in Marie Skłodowska-Curie fellowships (DG-EAC). Dates refer to actual data years, except for Marie Skłodowska-Curie fellowships.</p> <p><b>Source of data</b><br/>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.</p>     | ▲        | 48,6    | 45,0       |
| <b>Assessment</b><br>The excellence indicator shows Austria on the southern periphery of the northern/western EU states with above-average performance of its research systems. Although the performance of the Austrian RTI system continues to improve, other EU states have stronger growth rates. In particular, this concerns leading countries such as UK, DK and NL. Austria's challenge is to keep pace with the lead group. The excellence indicator is largely determined by the performance in the EU framework programme HORIZON 2020 (ERC, Skłodowska-Curie). As part of the evaluation of its performance in HORIZON 2020, Austria will analyse possible areas in which to improve performance and derive measures for implementation. The citation indicator is indirectly influenced by the framework conditions in the science system, for which Austria wants to create even better conditions for top-level publications with institutional performance agreements and optimisation processes in the university system. |          |         |            |
| <b>Quality of project consortia in H2020</b> <p><b>Definition of indicator</b><br/>Share of projects with national coordinator scoring among the top 25 percent of evaluated applications (per call). The calculation of the top 25 percent 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.)</p> <p><b>Source of data</b><br/>E-Corda; This indicator was calculated using the Ecorda data versions 03/2015 and 02/2016.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                   | ●        | 30,8%   | 32,0%      |
| <b>Assessment</b><br>Austria's research players represent high-quality project applications. The actual position in the ranking of the Member States is less important. It is interesting to note that all countries of the EU-13 – with the exception of Estonia – are at the bottom of the ranking. Estonia, by contrast, comes at the top of the ranking. It is significant that Austria appears less frequently as a coordinator in HORIZON 2020 than it did in the 7th framework programme. Against the backdrop of Brexit and the large number of British-led consortia, there is an increased potential for Austria's RTI players to take over the role of project coordinator.                                                                                                                                                                                                                                                                                                                                                     |          |         |            |
| <b>European Innovation Scoreboard (EIS) Index</b> <p><b>Definition of indicator</b><br/>Formerly called the Innovation Union Scoreboard indicator, this composite indicator is produced every year by the European Commission to benchmark MS/AC, accounting for a wide spectrum of innovation indicators.</p> <p><b>Source of data</b><br/>DG Internal Market, Industry, Entrepreneurship and SMEs.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ●        | 10      | 11         |
| <b>Assessment</b><br>Austria belongs to the group of "Strong Innovators" in the EU. The fact that the country is in 10th place in the ranking is of lesser importance because the relative distances to the countries further up and down the ranking are small. Compared to the EU average, Austria's performance is good, even if the Austrian RTI system is somewhat closer to the EU average than the lead group. That must give cause for strategic considerations, especially in light of Austria's ambition to catch up with the group of leading innovation countries in the EU. The most positive finding for Austria by far is the high growth of international scientific co-publications, which is proof of the increasing global interrelationship of Austrian RTI players.                                                                                                                                                                                                                                                   |          |         |            |



## Measures AT ERA Roadmap

## Success in 2016–2017

## Implementation status

Information, advice and support of the Austrian RTI players for H2020 & ERA.

Establishment of an “Austrian Research, Technology and Innovation Hub” (ARTIH) in Brussels in order to boost information, communication and networking as well as to strengthen the shaping of the EU’s agenda by Austrian RTI players.

The appointment of the FFG to inform, advise and support Austrian RTI players for H2020 & ERA will be subjected to a comprehensive evaluation. The evaluation was put out to tender in April 2017. Results are expected in 2018.

Appointment of TECHNOPOLIS to carry out a feasibility study for a possible Austrian liaison office in Brussels (“Austrian Research, Technology and Innovation Hub”, ARTIH). The results of the study will be available in summer 2017.

 **20%**

Systematic evaluations at programme level: ex-ante, interim, ex-post and system evaluations

Possible initiation of an evaluation of the national RTI system by the OECD

The evaluation of the Austrian innovation system by the OECD was initiated, a working group of the Federal Government’s RTI task force was set up, and the terms of reference were defined. The evaluation will be carried out in 2017/18 and the results will be available by November 2018.

 **20%**

Implementation of the guiding concept for innovation-promoting public procurement (IÖB), which was adopted by the Council of Ministers on 25 September 2012; central measures include:

- Establishment and operation of a central IÖB service centre
- Nomination of IÖB competence centres and contact points at (already existing) institutions suitable for the purpose
- Establishment of a dialogue between consumers and providers
- Addition of a new procurement procedure “Innovation Partnership” to the Austrian Federal Procurement Act (BVergG)
- Establishment of a monitoring system

- Successful conclusion of the first performance period of the IÖB service centre and continuation of the operation of the IÖB service centre
- Establishment of the IÖB online platform [www.innovationspartnerschaft.at](http://www.innovationspartnerschaft.at) as a support tool for providers and consumers of innovative solutions; go-live (end of the beta phase) mid-2016
- Extension of the IÖB service network through the nomination of further IÖB contact points
- Development of a set of IÖB performance indicators
- Assistance with or support of numerous IÖB projects
- Extension of the collection of good practice examples about IÖB
- Conducting of training and qualification measures
- Development of an evaluation instrument for IÖB in the areas of buildings and renewable energy technologies
- Advancing international dialogue, including through participation in the Mutual Learning Exercise (MLE) of the EC on “Innovation Procurement”, inclusion of the IÖB initiatives in the OPSI database of the OECD

 **50%**

## Priority 2a

# Jointly Addressing Grand Challenges

| Indicators                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Tendency | Current Value | Last Value |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------|------------|
| <p><b>HL: GBARD allocated to transnational cooperation per researcher in the public sector</b></p> <p><b>Definition of indicator</b><br/>This indicator is the government budget allocations for R&amp;D (GBARD) allocated to transnational cooperation normalised by the number of researchers from the public sector. Transnational coordinated R&amp;D contains GBARD allocated to Europe-wide, bilateral or multilateral transnational public R&amp;D programmes and GBARD allocated to transnational public R&amp;D performers. However, for this indicator, only the GBARD allocated to Europe-wide transnational public R&amp;D programmes and the GBARD allocated to bilateral or multilateral public R&amp;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&amp;D performers) does not involve joint programming and therefore does not contribute to ERA sub-priority 2a (implementing joint research agendas).</p> <p><b>Source of data</b><br/>Eurostat</p>                                                                                                                                                                                                                                                                                                                                                           | ▲        | 7,0 K€        | 6,0 K€     |
| <p><b>Assessment</b><br/>Austria is right at the top of pack in the EU in terms of this indicator. The figure is now trending clearly upwards again after a period of stagnation between 2009 and 2013. 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.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |          |               |            |
| <p><b>Austrian public funding to transnationally coordinated R&amp;D in % of total GBARD</b></p> <p><b>Definition of indicator</b><br/>National public funding to transnationally coordinated R&amp;D is defined as the total budget funded by the government (state, federal, provincial), as measured by GBAORD directed to transnational public R&amp;D performers and transnational public R&amp;D programmes. This indicator comprises national contributions to three categories:</p> <ul style="list-style-type: none"> <li>• Transnational public R&amp;D performers are inter-governmental or European Commission bodies that carry out R&amp;D activity with own dedicated research facilities.</li> <li>• Europe-wide transnational public R&amp;D programmes, with and without cross-border flows of funds.</li> <li>• Bilateral or multilateral public R&amp;D programmes established between Member State governments (and with candidate countries and EFTA countries) include non-European Commission funded public R&amp;D programmes jointly undertaken by at least two MSs' governments, although other non-EU countries could also participate in them. (...)</li> </ul> <p>For more information about the categories please see the Manual at <a href="https://eupm.ffg.at/">https://eupm.ffg.at/</a>.</p> <p><b>Source of data</b><br/>Eurostat_GBARD; This Indicator was calculated using the latest available data as of June 2016.</p> | ▲        | 5,0%          | 4,5%       |
| <p><b>Assessment</b><br/>This indicator also shows that the trend for Austria is clearly upwards. Austria is also in the wider leading group in this area. The conclusions that can be drawn from this are the same as for the High Level Indicator.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |               |            |

| Measures AT ERA Roadmap                                                                                                                    | Success in 2016–2017                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Implementation status                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Initiative for the strategic collaboration/networking along the Grand Challenges in consideration/inclusion of existing network structures | The first platform entitled "Netzwerk Altern" (Network Ageing) was launched in May 2016, the second platform on the topic of "Personalised Medicine" in April 2017. The third platform on the topic of "Sustainable water systems" will probably commence work in summer 2017.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <br>20% |
| Impact-based link between science, social stakeholders, economy and politics                                                               | The pilot project "Demographic change" is currently ongoing. The results are expected in autumn 2017.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <br>20% |
| Alignment of the Austrian strategies/measures/programmes with the jointly elaborated strategies at European level                          | <p>A position paper on the Austrian objectives/strategies/measures for alignment was prepared by Joanneum Research under the auspices of the BMVIT (Austrian Federal Ministry for Transport, Innovation and Technology). Further implementation should take place within the scope of the RTI working group Alignment.</p> <p>In 2016-17, participation in transnational RTI activities took place on the basis of national RTI programmes. This aligned the respective programmes in Europe. Specifically, the following initiatives and national programmes are involved:</p> <ul style="list-style-type: none"> <li>• JU ECSEL: Programmes 'Production of the Future' and 'ICT of the Future'</li> <li>• Art 185 AAL: Programme 'ICT of the Future'</li> <li>• ERA-Net Cofund Smart Grids: Programme 'Energy of the Future'</li> <li>• Several ERA-Nets of JPI Urban Europe: Programmes 'City of the Future', 'Energy of the Future'</li> <li>• M-ERA.NET: Programmes in the area of materials research</li> <li>• ERA-NET Road: Programme 'Mobility of the Future'</li> <li>• Programme KIRAS (safety research): bilateral translational cooperations</li> <li>• Funding programme "Mission ERA" of the BMWFW (Federal Ministry of Science, Research and Economy) for mission-orientated research in the ERA.</li> </ul> | <br>40% |

## Priority 2b

# Make Optimal Use of Public Investments in Research Infrastructures

| Indicators                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Tendency | Current Value | Last Value |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------|------------|
| <b>HL: Availability of national roadmaps with identified ESFRI projects and corresponding investment needs</b><br><br><b>Definition of indicator</b><br>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.<br><br><b>Source of data</b><br>For national roadmaps: ESFRI website ( <a href="https://ec.europa.eu/research/infrastructures/index_en.cfm?pg=esfri-national-roadmaps">https://ec.europa.eu/research/infrastructures/index_en.cfm?pg=esfri-national-roadmaps</a> ) | ●        | 0             | N/A        |
| <b>Approved participation in European research infrastructures with a population of 1 million people each</b><br><br><b>Definition of indicator</b><br>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.<br><br><b>Source of data</b><br>E-Corda; OECD. This indicator was calculated using the Ecorda data versions 03/2015 and 02/2016.                                                                                                                                                                                           | ▲        | 2,4           | 2,0        |
| <b>Research Infrastructures – Number of researchers who have access to research infrastructures through support from Horizon 2020 per 1000 researchers</b><br><br><b>Definition of indicator</b><br>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.<br><br><b>Source of data</b><br>Horizon 2020 Indicators (5.1)                                                                                                                                                                                     | ●        | 40,5          | N/A        |

| Measures AT ERA Roadmap                                                                                                          | Success in 2016–2017                                                                       | Implementation status |
|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------|
| Implementation of participations in ES-FRI infrastructures, in accordance with the National Action Plan and the budget available | Successful membership in the ESFRI Project CTA                                             | 100%                  |
|                                                                                                                                  | Successful membership in the Interim Board of the ESFRI Project Euro-BioImaging            | 100%                  |
| Harmonised procurement and expansion of cooperations of research infrastructure projects                                         | Access to the BMWFW Database for Research Infrastructures extended for industry.           | 100%                  |
|                                                                                                                                  | Realisation of the Structural Funds for the Higher Education Area (HSRM) Call by the BMWFW | 100%                  |
|                                                                                                                                  | Realisation of the FFG Call for Research Infrastructure                                    | 100%                  |

## Priority 3

# Open Labour Market for Researchers

| Indicators                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Tendency | Current Value | Last Value |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------|------------|
| <b>HL: Number of researcher postings advertised through the EURAXESS job portal, per 1000 researchers in the public sector (2012–2014)</b> <p><b>Definition of indicator</b><br/>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.</p> <p><b>Source of data</b><br/>The European Commission provided historical data from the EURAXESS portal; Eurostat – Statistics on research and development (online data code rd_p_persocc).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ●        | 71,3          | 72,3       |
| <p><b>Assessment</b><br/>The international or EU-wide advertising of scientific posts at Austrian universities has been prescribed in law since 1 October 2009. However, universities decide for themselves which medium they will choose to advertise the posts internationally. In 2014, a total of 1043 posts in Austria were advertised on EURAXESS Jobs. Croatia and Poland have made it a legal requirement to advertise posts at publicly financed research institutions (HR) or at university institutions (PL) on EURAXESS Jobs (see SG HRM WG Report on OTM-R 2015). The figures used here are those for 2014. The last ERA Progress Report 2016 gave Austria a good report and identified an upward trend.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |               |            |
| <b>Number of appointments at universities from EU and third countries</b> <p><b>Definition of indicator</b><br/>Home university/previous employer: own university, other home university/employer national, home university/employer Germany, home university/employer rest of EU, home university/employer Switzerland, home university/employer third countries</p> <p><b>Source of data</b><br/>Unidata, intellectual capital report, indicator 1.A.3</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ●        | 228           | 238        |
| <p><b>Assessment</b><br/>In the area of appointments to universities, the trend remains the same. The figures quoted also include recruitments within the university in question as well as national recruitments. To that extent, it is not possible to comment on the efforts made in the area of international recruitment and the ongoing process of opening up the universities to the outside world. The number of appointments depends on a variety of factors and can only be controlled to a limited extent as it falls within the autonomy of the universities.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |               |            |
| <b>Number of individual members of scientific / artistic staff with a period abroad</b> <p><b>Definition of indicator</b><br/>This key indicator captures all movements that took place in one academic year. In this sense, it is no longer heads that are counted but movements per se. This allows several movements by one person to be depicted. Furthermore, the stratification criterion "Host country category" was expanded by a number of states or a region in the categories "EU" and "Third countries". The region East Asia should cover the countries of Japan, South Korea and Taiwan and the region Southeast Asia the countries of Brunei, Indonesia, Cambodia, Laos, Malaysia, Myanmar, East Timor, the Philippines, Singapore, Thailand and Vietnam. The selection of these countries represents a mix of the most important cooperation countries, which were specified by the universities in the context of the "Beyond Europe" report, in the destination countries listed in the working group 7a report "Beyond Europe", and the countries that release the most publications around the world.</p> <p><b>Source of data</b><br/>Unidata, intellectual capital report, indicator 1.B.1</p> | ●        | 4102          | 4146       |
| <p><b>Assessment</b><br/>Stays abroad by departing scientific and artistic personnel are an important indicator for the international networking of an institution. A sustained trend of mobilities abroad is evident at Austrian universities. The number of people who make visits abroad for at least 5 days for study or research purposes has risen by around 11.3% to over 4,100 people since 2009/10. In total, the number of short-term stays exceeds that of longer-term visits. However, a slight increase in longer-term stays from 2013/14 to 2014/15 can be discerned. The following goal was set in the university mobility strategy (2016): at least 4,500 people should complete an activity-related stay abroad in this area by 2020.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |               |            |

| Measures AT ERA Roadmap                                                                                                                                                                                                                                                                                               | Success in 2016–2017                                                                                                                                                                                                                                                                                                                                                                                                                                | Implementation status                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Increased information activity and targeted project work                                                                                                                                                                                                                                                              | Measures were taken<br><br>OECD Knowledge Triangle project was completed                                                                                                                                                                                                                                                                                                                                                                            | <br><b>40%</b><br><br><b>100%</b>                                                                                                            |
| Increased information activity and targeted project work (e.g. performance agreements with universities 2016-2018, 2019-2021, ERA Dialog, EURAESS jobs, ...)                                                                                                                                                          | Measures were taken<br><br>Increase in the number of posts advertised on EURAXESS Jobs for scientific personnel<br>2016: 1405<br>2015: 1195                                                                                                                                                                                                                                                                                                         | <br><b>7%</b>                                                                                                                                                                                                                   |
| Improvements proposed by the BMWFW for enhancing the Red-White-Red card                                                                                                                                                                                                                                               | Further development of the Red-White-Red card has taken place.<br><br>• Graduates of bachelor degrees, doctorates and PhDs will be included in the system of the Red-White-Red card<br><br>• The period of time in which university graduates can look for a suitable job in Austria after completing their studies will be extended to 12 months.                                                                                                  | <br><b>100%</b><br><br><b>100%</b>                                                                                                         |
| <ul style="list-style-type: none"> <li>• Implementation of career models at non-university research institutions (especially IST Austria and ÖAW)</li> <li>• Implementation of the new statutory basis for enabling a "tenure track"</li> <li>• Increase in the number of career positions at universities</li> </ul> | <p>ÖAW: Career model exists, implementation has commenced</p> <p>IST Austria: Career model exists, career promotion plan was elaborated as per performance agreement 2016 and presented, implementation commencing</p> <p>In the service agreements for 2016-2018, projects and quantitative target values for increasing the career posts were agreed with the universities for implementation by the end of the performance agreement period.</p> | <br><b>70%</b><br><br><b>100%</b><br><br><b>50%</b> |

## Priority 4

| Indicators                                                                                                                                                                                                                                                                       | Tendency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Current Value | Last Value |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------|
| <b>HL: Share of women in grade A positions in Higher Education Sector (HES)</b>                                                                                                                                                                                                  | ▲                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 21,5%         | 20,3%      |
| <b>Definition of indicator</b><br>This indicator presents the proportion of women occupying the highest-level research positions (Grade A) in HES to the total of Grade A positions.                                                                                             | <b>Assessment</b><br>Austria is making long-term efforts for gender parity amongst women in Grade-A positions at universities. The universities should approach this ambitious goal in stages: Accordingly, the BMFWF agreed potential-based, binding targets with a number of universities for increasing the share of women in career posts (most important potential category for professorships) and professorships, such as in the performance agreement for the period 2016-18. The university statistics show the promising nature of these measures: For example, the share of women amongst university professors rose by a notable 1.1 percentage points from 22.6% to 23.7% in the winter semester of 2015.                                                                                                                                                                                                                                        |               |            |
| <b>Source of data</b><br>DG Research and Innovation – WiS – Women in Science database.                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |               |            |
| <b>Share of women researchers</b>                                                                                                                                                                                                                                                | ●                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 23,0%         | 22,8%      |
| <b>Definition of indicator</b><br>This indicator is the proportion of women researchers to the total number of researchers in all sectors of the economy. Some of the text below has been taken directly from the She Figures Handbook 2015 (DG Research and Innovation, 2016a). | <b>Assessment</b><br>The BMFWF can influence the share of female researchers in the university sector, which at 39.7% in 2013 was still well above – namely over 10 percentage points – the same figure for all sectors, which was at 29.6%. If headcounts (and not FTE) are used for the calculations of the researcher's share, Austria achieves significantly better values, especially since women are often employed part-time. The aim is to involve women more fully into the research, either full-time or with a higher number of hours per week. An important step in this direction was achieved with the University Act amendment, Federal Law Gazette I No. 21/2015 of 2015, which added the ability to reconcile studying or work with care responsibilities as a leading principle for public universities and standardised the obligatory anchoring of equality plans – which also regulate the area of compatibility – for the universities. |               |            |
| <b>Source of data</b><br>Eurostat – Statistics on research and development (online data code rd_p_persocc). The computation of this indicator is as specified in the She Figures Handbook 2015 (DG Research and Innovation, 2016a).                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |               |            |



| Indicators                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Tendency | Current Value | Last Value |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------|------------|
| <b>Glass Ceiling Index (SHE Figures)</b><br><br><b>Definition of indicator</b><br>The Glass Ceiling Index (GCI) is a relative index comparing the proportion of women in academia (grades A, B, and C) with the proportion of women in top academic positions (grade A positions; equivalent to full professors in most countries) in 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 terms of their chances of being promoted. A score of less than 1 means that women are more represented at the grade A level than in academia generally (grades A, B, and C) and a GCI score of more than 1 indicates the presence of a glass ceiling effect, meaning that women are less represented in grade A positions than in academia generally (grades A, B, and C). 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.<br><br><b>Source of data</b><br>She Figures Handbook 2015 | ▲        | 1,8           | 2,0        |
| <b>Assessment</b><br>In order to promote women in science and research, the BMWWF put a raft of measures in place in recent years to demolish the glass ceiling that still exists for female scientists. These measures encompass both new statutory provisions, specific programmes for promoting women, the further development of gender monitoring as well as sensitisation and awareness-raising activities. Between 2010 and 2013, Austria took appropriate measures that resulted in a significant reduction in the glass ceiling index from 2.04 to 1.76. This pleasing trend towards reducing the glass ceiling should also be continued in the coming years. The long-term goal is naturally to do away with the glass ceiling completely and thus offer more egalitarian career opportunities for women and men.                                                                                                                                                                                                                                                                       |          |               |            |

| Measures AT ERA Roadmap                                                                                                                                                                                  | Success in 2016–2017                                                                                                                                                                                                                                                                                                             | Implementation status                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| <b>Increase the representation of women</b>                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                  |                                                                                                          |
| Supporting measures for achieving the 50% quota of women for universities (including increasing the career posts and professorships as well as measures in connection with Priority 3 – measure d)       | <p>Agreement of binding targets and projects for increasing the quota of women for the performance agreement period 2016-18 with universities, ÖAW and IST Austria</p> <p>Knowledge balance indicator "Representation of women in the appointment process" has been transferred to the canon of knowledge balance indicators</p> |  <p><b>75%</b></p>    |
| Support of an Austria-wide networking initiative for universities of applied sciences in the areas of Gender Quality and Diversity Management                                                            | Overall process for developing a package of measures and implementation for strengthening equality and diversity policies at the universities of applied sciences                                                                                                                                                                |  <p><b>50%</b></p>    |
| Further development of equality monitoring in universities and the research sector                                                                                                                       | Implementation of the equality survey towards the end of 2016, final results will be available by mid-2017                                                                                                                                                                                                                       |  <p><b>80%</b></p>  |
| Awareness-raising and sensitisation of funding recipients in the area of RTI                                                                                                                             | Increase in the quota of female project leaders in the funded projects in the FFG                                                                                                                                                                                                                                                |  <p><b>100%</b></p> |
| Strengthening of female researchers and experts in the area of RTI and differentiated assessment of projects for the inclusion of women in research and of the gender dimension in the research contents | Award "FEMtech Experts of the Month"                                                                                                                                                                                                                                                                                             |  <p><b>100%</b></p> |
|                                                                                                                                                                                                          | Increase in the quota of women on the evaluation committees (jury) by raising the quota of women collaborating on the evaluation of RTI projects in the FFG                                                                                                                                                                      |  <p><b>80%</b></p>  |
|                                                                                                                                                                                                          | Increase in the share of women in leading positions on the programmes of 2009 processed by the FFG on behalf of the BMWFW (without LBC centres)<br>2016: total 13,4%                                                                                                                                                             |  <p><b>100%</b></p> |

| Measures AT ERA Roadmap                                                                                                                                                 | Success in 2016–2017                                                                                                                                                                        | Implementation status                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>Integrating the gender dimension into structures and policies in science and research</b>                                                                            |                                                                                                                                                                                             |                                                                                               |
| Development of a general framework containing objectives for the medium and long-term implementation of gender equality for all science and research institutions       | EU-wide call for tenders, commissioning and implementation of an investment process and elaboration of an action plan                                                                       | <br>70%    |
| Presentation of examples of good practice                                                                                                                               | Overall process of the diversity management prize Diversitas                                                                                                                                | <br>100%   |
| Awareness-raising and sensitisation of the organisations in the area of RTI (gender competence)                                                                         | Strengthening of the mobilisation measures in the FFG, in order to further publicise the funding formats FEMtech Career-Check for SMEs and FEMtech Careers in Organisations in the RTI area | <br>30%    |
| Awareness-raising, networking and training courses for women in RTI and management staff in cooperative research                                                        | 20 events held/594 interested participants (e.g. career training courses, workshop for top female researchers, management staff, ...)                                                       | <br>100% |
| <b>Considering the gender dimension in research content and teaching</b>                                                                                                |                                                                                                                                                                                             |                                                                                               |
| Establishment of a networking platform between researchers and practitioners on the exchange of current gender-specific research results and their possible application | Event <a href="mailto:genderequality@europe">genderequality@europe</a>                                                                                                                      | <br>80%  |
| Awards in the area of gender research                                                                                                                                   | Overall process of the Gabriele Possanner Prizes                                                                                                                                            | <br>70%  |
| Integration of gender contents into the projects in area of RTI                                                                                                         | Call of the FEMtech research projects and informational event in September 2017                                                                                                             | <br>70%  |

## Priority 5

# Circulation of Knowledge

| Indicators                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Tendency | Current Value | Last Value |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------|------------|
| <p><b>HL a: Share of product and/or process innovative firms cooperating with public or private research institutions</b></p> <p><b>Definition of indicator</b><br/>Due to the nature of the data source, this indicator was divided into two indicators: (a) Percentage of product or process innovative firms cooperating with public or private research institutes, and (b) Percentage of product or process innovative firms cooperating with universities or other higher education institutions. Because pre-aggregated data are provided separately for each of these two indicators (i.e. there is no pre-aggregated data combining both types of cooperation), and because the microdata are not available, it is impossible to determine how many firms are involved in both types of partnerships. In turn, summing the number of firms across these two types of partnerships would result in multiple double-ups of those companies collaborating with both public/private research institutes and with universities or other higher education institutions for their innovation activities.</p> <p>(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.</p> <p><b>Source of data</b><br/>Eurostat – Community innovation survey</p> | ▲        | 12,6%         | 9,2%       |
| <p><b>HL b: Share of product or process innovative firms collaborating with higher education institutions</b></p> <p><b>Definition of indicator</b><br/>Due to the nature of the data source, this indicator was divided into two indicators: (a) Percentage of product or process innovative firms cooperating with public or private research institutes, and (b) Percentage of product or process innovative firms cooperating with universities or other higher education institutions.</p> <p>(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.</p> <p><b>Source of data</b><br/>Eurostat – Community innovation survey</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ●        | 20,9%         | 21,7%      |

### Assessment

Austria is at the top of pack for this indicator in an international comparison. One in eight companies in Austria cooperates with research institutions. Innovative companies in Austria are often SMEs and therefore do not usually have their own research departments, which makes research collaborations an important option. In turn, large companies with their own research departments make strategic use of research collaborations to deliberately enlarge their knowledge base.

### Assessment

Austria is right at the top internationally with regard to this indicator. Development is therefore highly stable, which can be explained by long-term cooperations between companies and their academic partners. These are characteristic of the Austrian system. In 2013, the BMWFW launched various programmes including "Knowledge transfer centres and IPR utilisation", which are intended to contribute to a further positive development.

| Indicators                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Tendency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Current Value | Last Value |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------|
| <b>Public – private co-publications per million population</b><br><br><b>Definition of indicator</b><br>Numerator: Number of public-private co-authored publications. The “public-private co-publications” are defined as all research-related papers (document types: ‘research articles’, ‘research reviews’, notes’ and ‘letters’) published in the Web of Science database. These co-publications have been allocated to one or more countries according to the geographical location of the business enterprise (or enterprises) that are listed in the authors affiliate address(es); as a result, the geographical location of the public sector research partner(s) in those addresses is not relevant. Each co-publication is counted as one publication for each country, irrespective of the number of co-authors and (parent) organisations listed in the author affiliate address(es). The definition of the “private” sector excludes the private medical and health sector.<br>Denominator: Total population<br><br><b>Source of data</b><br>EIS_European Innovation Scoreboard 2016 | ●                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 59,0          | 54,2       |
| <b>Licence contracts by universities</b><br><br><b>Definition of indicator</b><br>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.<br><br><b>Source of data</b><br>Unidata, intellectual capital report, indicator 3.B.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ▲                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 395           | 372        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Assessment</b><br>This is one of those indicators that numbers amongst Austria’s relative strengths. Austria has positioned itself in the upper midfield internationally and development is constant. One explanation for why the country has not reached a leading position in this area is that research cooperations in Austria tend to be in applied research and any publications tend to be written by university researchers, while researchers at companies are more actively involved in product development.                             |               |            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Assessment</b><br>The trend is clearly positive. It must however be noted that the high number of licence agreements, which is rapidly increasing, can be traced to the worldwide marketing of a software package at the University of Vienna. This software in the area of computerised material physics has since become well established on the global market. Of the 395 licences issued in 2015, 340 were acquired by the University of Vienna alone. This must be taken into consideration when interpreting this indicator and any changes. |               |            |

| Measures AT ERA Roadmap                                                                                                                                                                          | Success in 2016–2017                                                                                                                                                                                                                                                                                                                                                                                                                  | Implementation status                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Promoting the efficient and rapid utilisation of academic research results by innovative companies                                                                                               | Implementation and continuation of the planned focal aspects in the knowledge transfer centres. Expansion of the CD laboratory and research centres                                                                                                                                                                                                                                                                                   | <br><b>80%</b>    |
| Free online provision of current sample agreements for knowledge and technology transfer in German and English, which have been coordinated between science and economy                          | The following sample agreements were published on IPAG in 2016: "Transfer of biomaterials", "Letter of Intent (LOI)", "Option Agreement", "Spin-off (LOI)". A sample agreement for "Infrastructure" will be completed for use in 2017. Since the end of 2013, the database of sample agreements has received over 17,000 hits. ( <a href="http://www.ipag.at/home">http://www.ipag.at/home</a> )                                      | <br><b>100%</b>   |
| Further development of the existing IP protective rights and utilisation strategies in accordance with the service agreements in place with universities, ÖAW and IST Austria                    | Reporting by the universities for the first time on the basis of the guideline provided by the BMWFW                                                                                                                                                                                                                                                                                                                                  | <br><b>30%</b>    |
| In implementation of the national RTI strategy of the Federal Government, an inter-ministerial working group was set up on the topic of "Knowledge transfer and start-ups".                      | Implementation of the work programmes of the NCP; hosting of events of the aws, online brochure "Transferring European knowledge" of the FFG, and further development of IPAG (database of sample agreements)                                                                                                                                                                                                                         | <br><b>100%</b> |
| Creation of a national Open Access strategy with specific measures for the implementation of Open Access according to the recommendations of the OANA (Complete Open Access publication by 2025) | 91% Open Access for publications with peer review from FWF projects in 2016<br><br>In the course of the call involving higher education area funding, cooperation projects were awarded to universities on this topic. All universities in Austria participate in the project "Austria Transition to Open Access". The project "e-infrastructure Plus" serves as a continuation of the previously completed project of the same name. | <br><b>60%</b>  |

| Measures AT ERA Roadmap                                                                                                                               | Success in 2016–2017                                                                                                                                                                                           | Implementation status                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| <p>Implementation by the stakeholders and departments of the measures specifically mentioned in the strategy</p> <p>Monitoring the implementation</p> | <p>Implementation success including:</p> <p>Opening of the Research Centre for Open Innovation in Science of the Ludwig Boltzmann Society (LBG)</p> <p>Launch of the Open4Innovation platform of the BMVIT</p> |  <p><b>20%</b></p>  |
| <p>Elaboration of an open (RTI) data policy or dealing with the research results of business-orientated and applied research</p>                      | <p>Study: Open FTI Data Policy (GFF, ZSI, AIT), design of a data management plan for the thematic programmes</p>                                                                                               |  <p><b>10%</b></p>  |
| <p>Testing of the Open Access Policy for business-orientated and applied research</p>                                                                 | <p>open4innovation.at Portal under construction, with evidence of project results of the thematic programmes</p>                                                                                               |  <p><b>25%</b></p>  |
| <p>Action areas and specific measures are proposed in the IP strategy of the Federal Government</p>                                                   | <p>IP strategy was adopted by the Council of Ministers on 14 February 2017. Implementation of the measures is commencing.</p>                                                                                  |  <p><b>30%</b></p> |

## Priority 6

# International Cooperation

| Indicators                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Tendency | Current Value | Last Value |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------|------------|
| <b>HL: International co-publications with non-ERA partners per 1 000 researchers in the public sector</b> <p><b>Definition of indicator</b><br/>Using fractional counting (refer to Annex 2 of the ERA Progress Report 2016 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.</p> <p><b>Source of data</b><br/>WoS (Thomson Reuters); Eurostat – Statistics on research and development.</p>                                                                                                                                                                                                                                                                                                                                                                                         | ▲        | <b>57,7</b>   | 55,8       |
| <p><b>Assessment</b><br/>The number of co-publications with non-ERA partners per 1000 researchers shows a positive trend in Austria. The dynamic of growth exhibited between 2009 and 2014 (2.9%) has however fallen short of the EU-average (4.1%). With 57.7 publications Austria is placed in the center of the second defined cluster of countries, behind Belgium and United Kingdom (62.8 each), France (59.7), Italy (51.4) and in front of Germany (49.6) and Luxemburg (44.7). The distance to the countries of the leading cluster Denmark (72.2), the Netherlands (87.1) and Switzerland (96.6) however is quite substantial.</p>                                                                                                                                                                                                                                                                                                                                                                                                                    |          |               |            |
| <b>EPO-Patent Applications with national inventor(s) owned by foreign residents as percentage of total national EPO applications</b> <p><b>Definition of indicator</b><br/>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&amp;T activities) presented here relate to foreign ownership of domestic inventions and evaluates the extent to which foreign firms control domestic inventions.</p> <p><b>Source of data</b><br/>OECD</p> | ●        | <b>30,4%</b>  | 29,9%      |
| <p><b>Assessment</b><br/>With regard to the internationalisation of research and development in Austrian companies, no significant improvement was recorded on the basis of patent applications, and the collapse in 2007-2009 has not yet been reversed (last available data from 2012). With 30.4%, Austria is also in the lower half of the EU-28 in an EU comparison. It is interesting to note that many of the most innovative and economically successful countries, such as Germany, the Netherlands, Sweden, Finland, etc, are still well behind Austria in terms of this indicator.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                               |          |               |            |



| Indicators                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Tendency | Current Value | Last Value |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------|------------|
| <p><b>Number of bilateral or multilateral joint calls with third countries (according to Austria's Beyond Europe target countries)</b></p> <p><b>Definition of indicator</b><br/>           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&amp;D cooperations with partners in Beyond Europe destinations countries of Austria.</p> <p><b>Source of data</b><br/>           ERA-Learn</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ●        | 15            | 21         |
| <p><b>Assessment</b><br/>           While increases in the number of calls were recorded between 2011 and 2014, there was a decline in 2015, although this has to be regarded in differentiated terms. The figures 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. Moreover, the number of calls is low, which additionally restricts the significance of the data and their fluctuations as well as missing information about the financial volume of the calls. Furthermore, recently launched successful initiatives such as the "Beyond Europe" programme or the "Global Incubator Network" are open to all countries and 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.</p> |          |               |            |

| Measures AT ERA Roadmap                                                                      | Success in 2016–2017                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Implementation status                                                                             |
|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Annual work programmes up to 2020 for implementation in accordance with the available budget | Overall strategy available; evaluation should take place during 2017 and an update of the 2018 strategy; relevance and continuation of the work of the inter-ministerial work group "Internationalisation and RTI foreign policy" was confirmed by the RTI task force of the Federal Government in 2017.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <br><b>70%</b> |
| Networking and information measures                                                          | Roundtable talks in 2016 on North America and Israel; on South Africa incl. southern Africa and South America planned in 2017. Launch of the online information platform ongoing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <br><b>60%</b> |
| Joint programmes/calls/projects                                                              | <p>2016:</p> <p>Calls: 1st call of the programme "Beyond Europe"</p> <p>EUREKA: 2nd call of the EUREKA Danube Region countries; "Globalstars" calls with Chile and Argentina</p> <p>Global Incubator Network: Incoming: goAustria 1st and 2nd rounds<br/>Outgoing: goTelAviv</p> <p>1st multilateral S&amp;T collaboration call for implementation of the EU Danube Region strategy with CZ, SK and RS; 1st call of an S&amp;T collaboration with South Africa; Further bilateral S&amp;T collaboration calls with Bulgaria, India, Macedonia, Montenegro, Czech Republic, Ukraine, Hungary; Joint call with the Chinese Academy of Science in the area of materials; Joint call with Shanghai University in the area of nanotechnologies</p> <p>H2020: Funding of Austrian participations in the EU-ERA.NET project "ERAfrica"; Launch of the Expand project of JPI Urban-Europe; ERA-NET Sustainable Urbanisation Global Initiative, joint call with third countries</p> <p>Synergies with Euraxess: Collaboration with Euraxess North America and science diasporas of the EU with a focus on establishing a "Joint Mentoring Initiative for European Researchers".</p> | <br><b>40%</b> |

| Measures AT ERA Roadmap                             | Success in 2016–2017                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Implementation status                                                                                   |
|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
|                                                     | <p>2017:</p> <p>Calls: 2nd call of the programme "Beyond Europe"</p> <p>EUREKA: Preparations from mid-2017 to include Chile as the fourth "associated EUREKA country" Autumn 2017: probable joint call with Canada</p> <p>Global Incubator Network: Outgoing: goTelAviv (May 2017) goHongkong (June/July 2017) Incoming: goAustria (June 2017, October 2017)</p> <p>Bilateral S&amp;T collaboration calls with Croatia, Slovenia, Slovakia, Czech Republic and Serbia planned; Enactment of the bilateral S&amp;T collaboration agreement with Bosnia-Herzegovina; Joint call with the Chinese Academy of Science in the area of ICT</p> <p>International networking: Austrian-Canadian Science and Innovation Days 2017 in Vienna being planned</p> |                                                                                                         |
| International appearance and international presence | <ul style="list-style-type: none"> <li>• Development of an alumni concept for Austrian researchers in China</li> <li>• Elaboration of a concept for the joint online presence of OSTA</li> <li>• Regular participation in the EU delegation's sessions in the area of RTI and in joint activities of the EU Member States in the USA and China</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                            |  <p><b>30%</b></p> |

# Monitoring the Impact of ERA in Austria

## Direct Impacts

| Indicators                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Tendency | Current Value | Last Value |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------|------------|
| <b>Secured ERC funding per country</b><br><br><b>Definition of indicator</b><br>Basic and pioneering research in Austria should be advanced through the non-restrictive funding of researchers who perform outstandingly well in the face of international competition within the context of the "European Research Council". The only criterion that should apply to this funding is that of excellence. The indicator measures the approved ERC funding of a country relative to the size of its population.<br><br><b>Source of data</b><br>E-Corda; This indicator was calculated using the Ecorda data versions 03/2015 and 02/2016. | ▲        | 5,8 €         | 3,1 €      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |               |            |
| <b>PCT patent applications in societal challenges per billion GDP (in PPP euros)</b><br><br><b>Definition of indicator</b><br>This indicator measures PCT applications in health technology and climate change mitigation. From a policy point of view the indicator on patent applications in societal challenges is highly relevant as increased number of patent applications in health technology and climate change mitigation will be necessary to meet the societal needs of an ageing European society and sustainable growth.<br><br><b>Source of data</b><br>Patents: OECD; GDP: Eurostat                                       | ●        | 1,1           | 1,2        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |               |            |
| <b>Patent applications per €10 million in funding from the framework programme</b><br><br><b>Definition of indicator</b><br>The indicator measures the patent applications of a country relative to the funding received from the framework programme. The funding statistics used from the framework programme refer to the actual disbursements that a country receives in a year. Not all funds that form part of the framework programme budget are recorded here, but only those that are allocated via competitive calls.<br><br><b>Source of data</b><br>OECD; European Commission                                                 | ▼        | 110,7         | 118,1      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |               |            |

# Indirect Impacts

| Indicators                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Tendency | Current Value | Last Value |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------|------------|
| <b>Employment in fast-growing enterprises (IUS 3.1.3)</b><br><br><b>Definition of indicator</b><br>This indicator provides an indication of the dynamism of fast-growing enterprises in innovative sectors as compared to all fast-growing business activities. It captures the capacity of a country to transform rapidly its economy to respond to new needs and to take advantage of emerging demand.<br><br><b>Source of data</b><br>Indicator calculated by Joint Research Centre using Eurostat data                                                                                                                                                                                                                                                                                                                                     | ▲        | 19,4%         | 17,2%      |
| <b>Economic Effects</b><br><br><b>Definition of indicator</b><br>Economic Effects is a composite indicator published annually in the European Innovation Scoreboard (EIS) (see, European Innovation Scoreboard 2016).<br>The Economic Effects indicator has 5 components: <ul style="list-style-type: none"> <li>• Employment in knowledge intensive activities (% of total employment) (IUS 3.2.1)</li> <li>• Contribution of medium and high-tech products exports to the trade balance (IUS 3.2.2)</li> <li>• Knowledge-intensive services exports as % of total services exports (IUS 3.2.3)</li> <li>• Sales of new-to-market and new-to-firm innovations as % of turnover (IUS 3.2.4)</li> <li>• License and patent revenues from abroad as % of GDP (IUS 3.2.5)</li> </ul> <b>Source of data</b><br>European Innovation Scoreboard 2016 | ●        | 0,5           | 0,5        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |               |            |

## Assessment

The growth in employment at fast-growing companies operating in sectors categorised as innovative is proceeding very positively in Austria. From only an average level compared to the EU-28, the country has succeeded in advancing to the upper midfield of the EU.

## Assessment

The economic effects of innovation are reflected by a group of EIS indicators such as the share of technology-intensive exports in total foreign trade, the share of knowledge-intensive industries in total employment and the income generated from licensing revenues. Austria has hardly developed at all in this indicator for years relative to the EU average and is in midfield, far away from the country's placing in expenditure on R&D, where Austria comes in second place. However, the indicator underestimates the effects of innovation in Austria, since Austria is specialised in industries of moderate technological intensity.

# Acronyms

|                 |                                                                                                  |
|-----------------|--------------------------------------------------------------------------------------------------|
| <b>AC</b>       | Associated Country                                                                               |
| <b>AIT</b>      | Austrian Institute Of Technology                                                                 |
| <b>BMVIT</b>    | Austrian Federal Ministry for Transport, Innovation and Technology                               |
| <b>EC</b>       | European Commission                                                                              |
| <b>ECSEL</b>    | Electronic Components and Systems for European Leadership                                        |
| <b>ERA</b>      | European Research Area                                                                           |
| <b>ERAC</b>     | European Research Area and Innovation Committee                                                  |
| <b>ERC</b>      | European Research Council                                                                        |
| <b>ESFRI</b>    | European Strategy Forum on Research Infrastructures                                              |
| <b>EURAXESS</b> | Platform for researchers, entrepreneurs, universities and businesses to interact with each other |
| <b>FFG</b>      | Austrian Research Promotion Agency                                                               |
| <b>FTE</b>      | Full-time equivalent                                                                             |
| <b>FWF</b>      | Austrian Science Fund                                                                            |
| <b>GBARD</b>    | Government budget allocations for R&D                                                            |
| <b>GDP</b>      | Gross domestic product                                                                           |
| <b>GFF</b>      | Society for the Promotion of Research / Gesellschaft zur Förderung der Forschung                 |
| <b>HEI</b>      | Higher education institution                                                                     |
| <b>HES</b>      | Higher education sector                                                                          |
| <b>IÖB</b>      | Innovation-promoting public procurement / Innovationsfördernde öffentliche Beschaffung           |
| <b>ISCED</b>    | International standard classification of education                                               |
| <b>ISTA</b>     | Institute of Science and Technology Austria                                                      |
| <b>JPI</b>      | Joint programming initiatives                                                                    |
| <b>MS</b>       | Member State                                                                                     |
| <b>ÖAW</b>      | Austrian Academy of Sciences                                                                     |
| <b>OECD</b>     | Organization for Economic Cooperation and Development                                            |
| <b>OPSI</b>     | Observatory of Public Sector Innovation                                                          |
| <b>PCT</b>      | Patent cooperation treaty                                                                        |
| <b>R&amp;D</b>  | Research and development                                                                         |
| <b>R&amp;I</b>  | Research and innovation                                                                          |
| <b>REI</b>      | Research excellence indicator                                                                    |
| <b>RI</b>       | Research infrastructure                                                                          |
| <b>RTI</b>      | Research, Technology and Innovation (Strategy)                                                   |
| <b>S&amp;T</b>  | Science and technology                                                                           |
| <b>WiS</b>      | Women in science                                                                                 |
| <b>WoSTM</b>    | Web of Science™ database (by Thomson Reuters)                                                    |
| <b>ZSI</b>      | Centre for Social Innovation                                                                     |



