ERA OBSERVATORY
AUSTRIA

bmwfw
Federal Ministry of
Science, Research and Economy

Austrian ERA Roadmap

Vienna, April 2016

Accepted by the Council of Ministers of the Austrian government
Vienna, April 2016
Any inquiry concerning the Austrian ERA Roadmap should be directed to:
christian.naczinsky@bmwfw.gv.at

Legal framework and background

The "European Research Area Roadmap" was presented on 20 April 2015, within the framework of the "European Research and Innovation Area Committee" (ERAC).[1] This European ERA Roadmap enumerates seven action priorities for six priority areas which are considered to be essential for further developing the European Research Area. This should contribute to implementing the primary legislation requirements of the EU Treaties, where Article 179 (1) TFEU stipulates:

"The Union shall have the objective of strengthening its scientific and technological bases by achieving a European research area in which researchers, scientific knowledge and technology circulate freely (...)."

The European ERA Roadmap addresses the following priority areas:

Priority Area		Top Action Priority
Priority 1	EFFECTIVE NATIONAL **RESEARCH SYSTEMS**	Strengthening the evaluation of research and innovation policies and seeking complementarities between, and rationalisation of, instruments at EU and national levels.
Priority 2(a)	JOINTLY ADDRESSING **GRAND CHALLENGES**	Improving alignment within and across the Joint Programming Process and the resulting initiatives (e.g. Joint Programming Initiatives (JPIs)) and speeding up their implementation.
Priority 2(b)	MAKE OPTIMAL USE OF PUBLIC INVESTMENTS IN **RESEARCH INFRASTRUCTURES**	Making optimal use of public investments in RIs by setting national priorities compatible with the ESFRI priorities and criteria, taking full account of long term sustainability.
Priority 3	AN **OPEN LABOUR MARKET** FOR RESEARCHERS	Using open, transparent and merit based recruitment practices with regard to research positions.
Priority 4	**GENDER EQUALITY** AND GENDER MAINSTREAMING IN RESEARCH	Translating national equality legislation into effective action to address gender imbalances in research institutions and decision making bodies and integrating the gender dimension better into R&D policies, programmes and projects.
Priority 5	OPTIMAL CIRCULATION	Fully implementing knowledge

[1] ERAC Opinion on the European Research Area Roadmap 2015-2020, document ERAC 1208/15, 20 April 2015.

	AND **TRANSFER** OF SCIENTIFIC KNOWLEDGE	transfer policies at national level in order to maximise the dissemination, uptake and exploitation of scientific results. RPOs and RFOs should make knowledge transfer second nature by integrating it in their everyday work. Promoting Open Access to scientific publications
Priority 6	**INTERNATIONAL COOPERATION**	Develop and implement appropriate joint strategic approaches and actions for international STI cooperation on the basis of Member States' national priorities.

Notwithstanding their importance, the priority areas indicated always address only part of the national innovation system. The ERA Roadmap can therefore support the implementation of the Federal Government's RTI Strategy in these partial aspects. It should also provide momentum for initiating or promoting relevant structural reforms.

On 19 May 2015, the Council Competitiveness adopted Conclusions in connection with the European ERA Roadmap 2015–2020.[2] In these Conclusions, the Council called upon each Member State to provide for the national implementation of the European ERA Roadmap by means of national action plans or strategies.

"UNDERLINES the importance of the implementation of the ERA Roadmap at the national and the EU level and INVITES the Member States and the Commission to implement the ERA Roadmap through appropriate actions in their action plans or strategies."

With the "Austrian ERA Roadmap", Austria complies with the request by the research ministers of the European Union and follows the European ERA Roadmap, both with regard to structure and to content.

The Dutch EU Council Presidency is planning the presentation of the national implementation plans of the Member States at the Council Competitiveness at the end of May.

The "Austrian ERA Roadmap" is subject to the availability of funding. All measures proposed therein have to be agreed with the Federal Ministry of Finance within the framework of the budgetary agreement (*haushaltsrechtliche Einvernehmensherstellung*) in principle.

In addition to the RTI Strategy of the Federal Government, the "Austrian University Development Plan 2016-2021" is an important point of reference for

[2] Council conclusions on the European Research Area Roadmap 2015-2020, document 9351/15 RECH 181 COMPET 286 MI 354 TELECOM 133, 29 May 2015

many measures. Some of the system targets included in the University Development Plan and in the RTI Strategy (e.g. strengthening basic research; promoting young researchers' careers; expanding knowledge and innovation transfer and locational advantages; promoting a cultural change in favour of social inclusion, gender equality and diversity at the university) correspond to the measures of the "Austrian ERA Roadmap". The University Development Plan and the ERA Roadmap are mutually complementary planning documents.

Priority 1:

Effective National Research Systems

Current situation

(a) Reference material

- In its RTI Strategy 2011, the Austrian Federal Government agreed as an important objective to position Austria in the "European Knowledge Area", and in particular in the EU Research Framework Programme, in the best possible manner. In order to make this political target concrete, the "Austrian EU Action Plan" was drawn up in 2013. The objectives and measures of the "Austrian ERA Roadmap" are based on this Action Plan, in particular on measures 12, 30, and 69.

- In its RTI Strategy 2011, the Federal Government also agreed on targeted reinforcement of innovation funding by means of expanding R&E funding and stimulating innovation on the demand side, e.g. by means of measures in the field of procurement. For implementing these objectives, direct and indirect R&D funding measures have been implemented, and an interministerial initiative for innovation-friendly public procurement *(IÖB)* has been started.

- In addition, in accordance with the objectives of the ERA Roadmap, the National Reform Programme of the Federal Government in 2015 contributed to better evaluation of national RTI policies, namely by a comparative study between Austria, Denmark and Sweden.

(b) Success and challenges so far

- Austria's performance in HORIZON 2020 is above average, according to the Performance Report of the Austrian Research Promotion Agency (FFG) of April 2016.

	projects	approved participations	funding (in million €)	coordinations
all states	**8,201**	**34,029**	**13,943.2**	**8,201**
Austria	693	981	391.2	198
Austria's share in all states	8.5%	2.9%	2.8%	2.4%

Source: FFG, April 2015

- The most recent comparative study between Austria, Sweden and Demark highlights ERA as a competitive advantage of Austria. Participating successfully in ERA is more important for increasing the

effectiveness of the Austrian innovation system than for the Scandinavian "Innovation Leaders".[3]

- Programmes with competitive, open calls are carried out for R&D in the technology field bottom-up and top-down, such as e.g. in the R&D areas production, ICT, energy, mobility/transport and aeronautics, space, security, as well as long-term programmes on strengthening the cooperation between R&D and industry (COMET et al.). Projects are selected on the basis of assessments by panels of independent experts. The programmes are evaluated systematically.

(c) Benchmarking with other EU-28 countries

- Compared to Sweden and Denmark. Austria has a slightly higher success rate in HORIZON 2020 (AT: 15.5%, SE: 14.2%, DK: 14.5%, Source: FFG). Sweden has so far received far more funding commitments from HORIZON 2020 than Austria (SE: € 383 million, AT: € 320 million, source: FFG, 2015). Denmark, with its slightly smaller innovation system, stands at € 300 million (source: FFG, 2015).

Objectives for Austria

(a) Increasing AT performance in H2020 to € 1.5 billion by 2020, as well as taking suitable measures to ensure the best possible networking of Austrian innovation players in Brussels, at the different stages of the research and innovation chain, for future Framework Programmes.
(b) Optimising the evaluation culture in Austrian R&D.
(c) Stimulating innovation on the demand-side, in particular by means of innovation-friendly public procurement (*IÖB*).

Measures and instruments for implementation

Objective	Measure(s)	Instrument(s)
(a) Increasing AT Performance in H2020 to € 1.5 billion by 2020, and facilitating best possible networking in Brussels	Information, advice and support of Austrian RTI players for H2020 & ERA Setting up an *"Austrian Research, Technology and Innovation Hub"* (ARTIH) in Brussels, in	Austrian Research Promotion Agency (FFG) contract by the Federal State and the Austrian Commercial Chamber 2014-2020

[3] Joanneum Research, *The Leverage Potential of the European Research Area for Austria's Ambition to become one the Innovation Leaders in Europe. A comparative study of Austria, Sweden and Denmark,* October 2015 https://era.gv.at/object/document/2234

	order to strengthen information, communication and networking as well as the active contribution of Austrian RTI players to the EU agenda.	Fact-finding mission by the Austrian Research Promotion Agency (FFG); feasibility study; implementation concept; decision and commissioning;
(b) Further developing the evaluation culture in Austrian R&D	Systematic evaluations at programme level: ex ante, interim, ex post, and systems evaluations	• Initiation and contracting of external independent evaluations, consideration of the outcome in the conception and implementation of funding measures • Transparency and quality rules for commissioning, using the relevant standards • Implementation of the outcome of evaluations • Collection, integrated view and availability of all publicly financed evaluations at one point (e.g. repository at Fteval)
	Possible initiation of evaluation of the national RTI system by the OECD	Implementation of the recommendation of the "ERA Council Forum Austria"[4] for a holistic evaluation of the effects of RTI on society
(c) Demand-side stimulation of innovation, in particular by means of innovation-friendly public procurement *(IÖB)*	Implementation of the Innovation-friendly Public Procurement Lead Concept, which was adopted by the Austrian Council of Ministers on 25 September 2012; core measures are amongst others: • Setting up and operation of a central *IÖB* service centre • Nomination of competence and contact points for innovation-friendly public procurement in suitable (already	• Qualification measures for consumers and procurers • Awareness raising for innovation-friendly public procurement through events and workshops • Initiation of innovation-friendly public procurement pilot projects, and formulation of strategic innovation-friendly public procurement plans respectively • Setting up an online platform for innovation-friendly public procurement (www.innovationspartnerschaft.at)

[4] ERA Council Forum Austria, Recommendations made at the *Europa-Tagung* (Europe Conference) 2015, Vienna, November 2015.

	existing) institutions • Establishing a dialogue between consumers and procurers • Including a new "Innovation Partnership as a new procurement procedure in the *Bundesvergabegesetz* (Federal Public Procurement Law, *BVergG*) • Establishing a monitoring system	• Additional instrument for innovation-friendly public procurement by including the choice of "Innovation Partnership" as a new procurement procedure in Austrian public procurement law • Pushing an innovation-friendly public procurement monitoring system at EU level

Milestones

Timescale	Measure(s)	How to recognise the success of the measure(s)
2016	*Austrian Research, Technology and Innovation Hub (ARTIH)*	Feasibility study
2016	Implementation of an innovation-friendly public procurement online platform (www.innovationspartnerschaft.at)	Innovation-friendly public procurement online platform goes live (end of beta phase) in mid-2016
2016	Implementation and operation of a central service point for innovation-friendly public procurement *(IÖB-Servicestelle)*	Extension of the *IÖB-Servicestelle* (service point for innovation-friendly public procurement)
2016	Including "Innovation Partnership" as a new procurement procedure in the *Bundesvergabegesetz* (Federal Public Procurement Law, *BVergG*)	Including the possibility to choose "Innovation Partnership" as a new procurement procedure under Austrian procurement law
2017	Evaluation of the *IÖB Initiative* (Innovation-friendly Public Procurement Initiative)	Outcome of the *IÖB* evaluation and implementation of the outcome
2018	*Austrian Research, Technology and Innovation Hub (ARTIH)*	ARTIH is launched during the 2nd half of 2018, as introduction to AT EU Presidency 2019
ongoing	Project evaluations and programme evaluations	Evaluations have been carried out, outcome of evaluations is implemented.

Resources and responsibilities

- ***Austrian Research, Technology and Innovation Hub (ARTIH):*** Responsible for the process: Federal Ministry of Science, Research and Economy (BMWFW) - administrative sector Science and Research; resources required: approx. € 750,000.- per year.
- **Further development of evaluation culture:** responsible for the process: Federal Ministry of Transport, Innovation and Technology (BMVIT) and Federal Ministry of Science, Research and Economy (BMWFW); resources required approx. € 200,000.- per year for optimising programme evaluations; approx. € 400,000.- for systemic OECD evaluation of the national RTI system.
- **Innovation-friendly public procurement *(IÖB)*:** responsible for the process: Federal Ministry of Science, Research and Economy (BMWFW) - administrative sector Economy, and Federal Ministry of Transport, Innovation and Technology (BMVIT); resources required: approx. € 900,000.- per year in total for both ministries (Federal Ministry of Science, Research and Economy (BMWFW) - administrative sector Economy, and Federal Ministry of Transport, Innovation and Technology (BMVIT)).

Indicators

High-level indicator

Indicator: Revised version of the Research Excellence indicator, a composite indicator published annually in the Innovation Union Progress report by the European Commission

Description of the indicator:

The modified version of the Research Excellence indicator has 4 components:

1. Highly cited publications (numerator: number of (top 10%) most highly-cited publications (Scopus data), denominator: total number of publications
2. PCT patents (numerator: PCT patents, denominator: population)
3. ERC grants (numerator: Value of ERC grants, denominator: GOVERD+HERD)
4. Number of Marie Curie (MSCA) grants (numerator: number of MSCA fellows by country of host organisation, denominator: number of national MSCA fellows).

- The indicator is normalised (min. score, max. score 100), equal weighting (depending on testing by JRC). For the indicator scores, higher is better (maximum score: 100, minimum score: 10)

Source: European Commission, DG RTD/Joint Research Centre calculations (annual), methodological notes are published by JRC.

Frequency: annually

Area of application: EU-28; other ERA countries, non-European countries, incl. US, JP and BRICS

Sub-indicator 1

Indicator: Quality of project consortia in H2020

Description of the indicator:

- 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.)
- Since success in FP funding is also determined by budgetary limitations, this indicator would highlight principal quality of projects applied.

Source: E-Corda

Frequency: annually

Area of application: EU-28

Sub-indicator 2

Indicator: Innovation Union Scoreboard (IUS) Index

Description of the indicator:

- The IUS Index is a composite index which measures the innovation performance of European and non-European countries by means of 25 individual indicators, and represents them by one figure. The European Commission publishes the IUS annually.
- The IUS indicator is one of the most noted indicators in innovation and technology policy. There is criticism as to the way the indicator is calculated, as well as with regard to the informative value of several individual indicators and the interaction between the entire set of indicators.
- The indicator reflects the ranking information.

Source: European Commission (authors: UNU-MERIT, NL)

Frequency: annually

Area of application: EU-28

Priority 2a:

Jointly Addressing Grand Challenges (GC)

Current situation

(a) Reference material

- The Austrian RTI Strategy (2011) requires the establishment of interministerial priority areas for Austrian research policy, as well as comprehensive cooperation of all ministries, agencies and stakeholders in the context of the GCs. The Austrian EU Action Plan (2013), which builds upon the RTI Strategy, pursues a comprehensive internationalisation of the Austrian R&D system, with the focus on ERA. The Austrian Action Plan for a Competitive Research Area (2015) provides that funding for national platforms for mission-oriented research topics be made available.

(b) Success and challenges so far

Success:

- Establishment of the Climate Change Centre Austria (CCCA)
- Establishment of participation in seven Joint Programming Initiatives, leading role in Urban Europe, essential contribution to setting up JPI "Climate", generally strong role and high visibility of Austria in the Joint Programming Process.
- Participation in 2nd and 3rd pillar of HORIZON 2020 above average.

Challenges:

- (National) Alignment in the context of the Grand Challenges: strategic approaches at national as well as institutional level; strengthening strategic cooperation/networking horizontally as well as vertically.

Objectives for Austria

The fundamental objective is increasing the contribution of science, research, technology and innovation to meeting the GCs. Specific objectives are the following:

(a) Effective and efficient use of the resources available in Austria in the fields of the GCs in science, research and technology, and their strategic further development

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

(c) Strengthening the European orientation of Austrian science, research and innovation, under particular consideration of the European Research Area.

Measures and instruments for implementation

Objective	Measure(s)	Instrument(s)
(a) Effective and efficient use of the resources available in Austria in the fields of the GCs in science, research and technology, and their strategic further development	Initiative for strategic cooperation/networking along the GCs, in consideration / by integration of existing network structures	10 networking platforms
(b) Improved integration of science and research in the demand and innovation cycles in society, the business sector and the political system	Outcome-oriented linkage between science, societal stakeholders, the business sector and the political sector	Systemic impact networks: pilot project "Demographic Change"
(c) Strengthening the European orientation of Austrian science, research and innovation, in special consideration of the European Research Area	Alignment of the Austrian strategies/measures/ programmes with jointly prepared strategies at European level	Austrian positioning on Alignment

Milestones

Timescale	Measure(s)	How to recognise the success of the measure(s)?
2016	"Strategic Networking Platforms" initiative: pilot projects	Approval of funding applications for the pilot projects (= high quality of networking concepts)
2016/2017	"Strategic Networking Platforms" initiative: call for further platforms	Number of funded platforms (only projects fulfilling all criteria are funded)
2018	"Strategic Networking Platforms" initiative: evaluation	Outcome of the evaluation

2018	Outcome-oriented linking between science, societal stakeholders, the business sector and politics: development of a pilot project by means of the networking platform "Demographic Change"	Outcome of the evaluation of the pilot project
2019	Outcome-oriented linking between science, societal stakeholders, the business sector and politics: further impact networks on the basis of other networking platforms	Decision on, and possible implementation of, further systemic impact networks
2016-2020 Annually	Alignment of Austrian strategies/measures/programmes with the jointly prepared strategies at European level	Share of Europe-wide bilateral or multilateral transnational public R&D programmes in national GBARD

Resources and responsibilities

- **Networking platforms:**
  Responsible for the process: Federal Ministry of Science, Research and Economy (BMWFW) - administrative sector Science and Research; Federal Ministry of Transport, Innovation and Technology (BMVIT)
  Resources: max. € 1 million per year
- **Systemic impact networks:**
  Responsible for the process: Federal Ministry of Science, Research and Economy (BMWFW) – administrative sector Science and Research
  Resources: approx. € 200,000.- for pilot project
- **Austrian positioning on Alignment:**
  Responsible for the process: Federal Ministry of Transport, Innovation and Technology (BMVIT)
  Resources: approx. € 100,000.- for the process, the volume of the funds referred to will have to be determined within the framework of the Alignment Strategy.

Indicators

High-level indicator

Indicator: National GBARD allocated to Europe-wide, bilateral or multilateral transnational public R&D programmes

Description of the indicator:

- Numerator: GBARD allocated to transnationally coordinated research (Europe-wide transnational public R&D programmes and bilateral or multilateral public R&D programmes established between Member State governments (and with candidate countries and EFTA countries), expressed in €.

Denominator: Number of researchers in the public sector (government 'GOV' and higher education institutes 'HEI') measured in FTE's.

Source: Eurostat

Frequency: annually

Area of application: EU-28; the possibility of calculating this figure for associated countries has to be investigated with Eurostat (IS, NO are available). Numerical values are available over the period 2007-2013 (and partially 2014)

Sub-indicator:

Indicator: Austrian public funding to transnationally coordinated R&D in % of total GBARD

Description of the indicator:

- Transnationally coordinated public R&D programmes/schemes with no cross-border flows of funds involve the cross-border coordination of research agendas, objectives, and so on, but do not involve cross-border flows of funding. National authorities coordinate activities with other participating countries, but disburse funds from their own budgets to R&D performers on their own territory (i.e. each country funds its own research teams).
- Examples: ERA-NETs; ERA-NET+; bilateral public R&D programmes; European Fusion Development Agreement (EFDA); EUREKA; COST; EUROCORES; European Space Agency (ESA); European Molecular Biology Organisation (EMBO); European Molecular Biology Conference (EMBC); Article 185 initiatives: (Europe-Developing Countries Clinical Trials Platform, Eurostars and Ambient Assisted Living for the Elderly); Joint Technology Initiatives (public funding part: ENIAC (Embedded Computing Systems) and ARTEMIS (Nanoelectronics)).

Source: Eurostat GBARD

Frequency: annually

Area of application: EU-28

Priority 2b:

Make Optimal Use of Public Investments in Research Infrastructures

Current situation

(a) Reference material

Access to high-technology and modern research infrastructure is an essential foundation for excellent research and is indispensable for Austria's competitiveness and its further development as a research location. The RTI Strategy of the Austrian Federal Government[5] therefore has as its stated objectives the coordinated development of research infrastructures as a basis for excellent research as well as for positioning Austrian research internationally, and the profile development of the carrier institutions of research infrastructures for optimising areas of strength and synergies.

Based on the objectives defined by the RTI Strategy, the Austrian Research Infrastructure Action Plan 2014-2020[6] substantiates the implementation of the measures at national and international level. The focus of the Action Plan is on large-scale research infrastructure projects in basic research, and their efficient use. The Action Plan also deals prospectively with participation in (future) European and international infrastructures under the framework of the ESFRI Roadmap. In order to strengthen Austria as a location, and in particular in order to integrate research-active enterprises efficiently, cooperation between science and industry is essential, e.g. by using infrastructures synergetically.

(b) Success so far

- Austria is currently a member of 38 European and international research infrastructures or research organisations respectively (11 of which are projects of the so-called ESFRI Roadmap).
- Research in the humanities and social sciences is strengthened by means of participation in 5 ESFRI infrastructures.
- Austria is the country of establishment of the Biobanking and Biomolecular Resources Research Infrastructure (BBMRI-ERIC) of the ESFRI Roadmap.

[5] Strategy of the Austrian Federal Government for Research, Technology and Innovation: *"Potenziale ausschöpfen, Dynamik steigern, Zukunft schaffen – Der Weg zum Innovation Leader"* ("Becoming an Innovation Leader: Realising Potentials, Increasing Dynamics, Creating the Future"); 2011 - https://www.bka.gv.at/DocView.axd?CobId=53215

[6] Austrian Research Infrastructure Action Plan 2014-2020: http://www.bundeskanzleramt.at/DocView.axd?CobId=54964

- The national infrastructure database of the Federal Ministry of Science, Research and Economy (BMWFW) provides an exact overview of (large-scale) research infrastructures at universities, non-university research institutions, and research-active enterprises with their own research (and development) infrastructure.
- Development and implementation of innovative concepts of life science core facilities at the Campus Vienna Biocenter (Vienna Biocenter Vision 2020).
- Setting up the *VSC – Vienna Scientific Cluster* as a national centre for high-performance computers ("HPC").
- Inclusion of the Sonnblick and Conrad observatories in national and international networks for collecting the essential components of the atmosphere for climate change and space weather purposes.

(c) Challenges

- Solidification of the cultural change towards using infrastructures jointly with all stakeholders.

Objectives for Austria

(a) Expanding Austrian participation in ESFRI Roadmap research infrastructures.

(b) Ensuring complementarity between national infrastructures and synergistic use.

Measures and instruments for implementation

Objective	Measure(s)	Instrument(s)
(a) Expanding Austrian participation in ESFRI Roadmap research infrastructures	Implementation of participations in ESFRI infrastructures, in accordance with the National Action Plan and the budget available	– Budgetary planning – Performance agreements and, if appropriate, supplements to performance agreements – Targeted funding contracts
(b) Ensuring the complementarity of national infrastructures and synergistic	Harmonised procurement and expansion of cooperations of research infrastructure	– Infrastructure database of the Federal Ministry of Science, Research and Economy (BMWFW) – Structural funds for the higher

use	projects	education area ("Research Infrastructure" area) – FFG Call for research infrastructure – Performance agreements and, if appropriate, supplements to performance agreements

Milestones

Timescale	Measure(s)	How to recognise the success of the measure(s)?
2016	Harmonised procurement and expansion of joint cooperations for research infrastructure projects	- Participation of industry in the national publicly accessible RI database, synergetic use of research infrastructures in science and industry
2016-2018		- Cooperative procurement and use of RI within the framework of the structural funds for the higher education area (*HRSM*, Call and award by the Federal Ministry of Science, Research and Economy (BMWFW) in 2016: implementation of projects 2016-2018) - Implementation of the RI procurement and RI cooperation projects agreed in the performance agreements
2020	Participation in ESFRI infrastructures in accordance with the National Action Plan and the budget available	- Participation in European or international research infrastructures respectively, and extent of their use

Resources and responsibilities

Participation in ESFRI Infrastructures: responsible for the process: Federal Ministry of Science, Research and Economy (BMWFW) – administrative sector Science and Research;

Resources required for memberships of ESFRI Roadmap (without upgrades for CERN, ESO, ESRF, ILL) currently approx. € 2.1 million per year; implementing the ESFRI projects of the national Research Infrastructure Action Plan would add another approx. € 2.4 million per year.
National harmonisation and alignment: responsible for the process: Federal Ministry of Science, Research and Economy (BMWFW) - administrative sector Science and Research
Performance Agreements with universities: responsible for the process: Federal Ministry of Science, Research and Economy (BMWFW) – administrative sector Science and Research (DG IV).

Indicators

High-level indicator

Indicator: Availability of national roadmaps with identified ESFRI projects and corresponding investment needs.

Description of the indicator:

- Graphical presentation to visualise the degree of elaboration of the roadmaps

Source: ESFRI countries
Frequency: for ERA reporting, bi-annual reporting would be sufficient

Area of application: all ESFRI countries (EU and associated countries)

Sub-indicator 1:

Indicator: Approved participations in European research infrastructures

Description of the indicator:

- Numerator: Approved participations of a country in infrastructure projects
- Denominator: Sum total of approved participations in infrastructure projects

  The indicator measures the share of a country in approved participations in the Research Infrastructures programme (part of H2020).

Source: eCorda

Frequency: annually

Area of application: EU28

Sub-indicator 2:

Indicator: Research Infrastructures - number of researchers who have access to research infrastructures through support from Horizon 2020

Description of the indicator:

- Number of researchers who have physical or remote access to research infrastructures

Source: Horizon 2020 indicators (5.1)

Frequency: annually

Area of application: EU 28

Priority 3:

An Open Labour Market for Researchers

Current situation

(a) Reference material

- ERAC Opinion on the European Research Area Roadmap 2015-2020
- Strategy of the Federal Government for Research, Technology and Innovation – Becoming an Innovation Leader (RTI Strategy), 2011
- Reinforced European Research Area Partnership for Excellence and Growth (EC, 2012)
- Action Plan for a Competitive Research Area – Measures of the Federal Ministry of Science, Research and Economy (BMWFW) for enhancing the implementation of the RTI Strategy of the Federal Government in selected areas, 2015
- European Charter for Researchers and Code of Conduct for the Recruitment of Researchers
- European Framework for Research Careers, 2011
- Performance agreements with universities and non-university research institutions

(b) Success and challenges so far

- Charter & Code: Since 2005, 36 institutions in Austria have signed the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers (Charter & Code) by means of a "Letter of Endorsement". These "Letters of Endorsement" constitute the official confirmation and declaration of willingness of an institution to dedicate itself to the implementation of Charter & Code. So far, five Austrian institutions have already embarked upon the path which institutions take in order to implement Charter & Code in the best possible manner (acquisition of the logo "HR Excellence in Research").
- Open, Transparent and Merit-based Recruitment of Researchers (OTM-R):

Since 2009, Austrian law requires scientific positions at universities to be advertised internationally or EU-wide respectively (§107 article 1 Universities Act). The Europe-wide job database EURAXESS Jobs was recommended for open, transparent and merit-based recruitment of researchers. Since 2009, the number of Austrian jobs offered on EURAXESS Jobs has increased from 197 in 2009 to nearly 1,050 jobs in 2014.

Culture of welcome for researchers: A total of 27 Austrian organisations (higher education and research institutions as well as regional support centres) have signed the letter of commitment for the Europe-wide EURAXESS Services Network. The universities have already started initiatives for a culture of

welcome. Over the past few years, for instance, the Dual Career Service of the five Styrian universities and the Dual Career Service Vienna-Lower Austria-Upper Austria, as well as the Dual Career Service Support have been established. Nearly half of the scientific universities have a Welcome Centre or are planning to set one up. As an accompanying measure, the Federal Ministry of Science, Research and Economy (BMWFW) provides an assessment of foreign higher education diplomas, if required. This is done in accordance with the future *Anerkennungsgesetz* (Recognition Act).

- Career concepts for young scientists in consideration of gender equality: The Action Plan for a Competitive Research Area and the draft version of the National Austrian University Development Plan 2016 – 2021 provide a series of measures to increase the attractiveness of a scientific career at universities. The focus is amongst others on career models which should enable a "tenure track" towards professorship. In order to provide a legal basis for this, the current amendment of the Universities Act 2002 provides the possibility of a simplified appointment procedure for associate professors for obtaining the position of university professor. A further essential aspect of attractive career perspectives is to have an adequate number of tenure track positions. The qualitative and quantitative development of tenure track positions was therefore a core objective in the negotiations to conclude the performance agreements for the period of 2016-2018.
- The evaluations of career development and mobility programmes document sustainable improvements of the career paths of the scientists funded under these programmes.
- Intersectoral mobility – easier movement between private and public sector:

Improved mutual recognition of research performance in industry, science and research is supported by European and national funding programmes.

Objectives for Austria

(a) Charter & Code / HRS4R

- Increasing Charter & Code endorsement by higher education and research institutions. The implementation process towards being awarded the "HR Excellence in Research" logo should be aimed at.

(b) Open, Transparent and Merit-based Recruitment of Researchers (OTM-R)

- Increasing the number of research positions published on EURAXESS Jobs in the field of higher education and research institutions as well as enterprises.

(c) Culture of welcome for researchers

- Increasing the attractiveness of Austria as a research location, increasing the number of signed EURAXESS Declarations of Commitment on the part of higher education and research institutions for the Europe-wide EURAXESS Services Network.

(d) Career concepts for young scientists, in consideration of gender equality.

- Increasing attractiveness, perspectives and transparency of academic life for young scientists, in order to strengthen Austria as a science and research location.

  e) Intersectoral mobility – easier change between the private and public sectors

- In future, it should become easier for researchers to move between the private and the public sector, without their careers suffering any disadvantage as a result. Increased mutual recognition of research performance in the field of industry, science and research. Corresponding permeability between the private sector and the public sector should be ensured.

Measures and instruments for implementation

Objective	Measure(s)	Instrument(s)
(a) Increasing the number of Charter & Code Endorsements / increasing the number of "HR Excellence in Research" logos awarded	– Increased information activity and – Targeted project work	– Performance agreements 2016-2018 and performance agreements 2019-2021 with the universities – FFG (Austrian Research Promotion Agency) Academy – ERA Dialogue
(b) OTM-R – Increasing the number of openly and transparently advertised positions for researchers on EURAXESS Jobs	– Increased information activity and targeted project work	– Performance agreements 2016-2018 and performance agreements 2019-2021 with the universities – ERA Dialogue – EURAXESS Jobs – Job boards
(c)Culture of welcome for researchers	– Accession to EURAXESS Network – Expanding existing information services and embedding them within the framework of the EURAXESS initiative. – Implementation of the	– Performance agreements 2016-2018 and performance agreements 2019-2021 with the universities and research organisations – ERA Dialogue – EURAXESS Declarations of Commitment (DoCs)

	projects of the universities for a culture of welcome – Suggestions for improvement on the part of the Federal Ministry of Science, Research and Economy (BMWFW) as to the further development of the Red-White-Red Card	– EURAXESS TOP III Project – Using existing networks with higher education and research institutions and other ministries – Awareness-raising communication in an interministerial context
(d) Career concepts for young scientists, in consideration of gender equality	– Implementation of career models at non-university research institutions (in particular IST-Austria and Austrian Academy of Sciences) – Implementation of the new legal basis for facilitating a "tenure track" – Increasing the number of tenure track positions at universities	– Performance agreements with the Austrian Academy of Sciences and IST-Austria, career models – Development plans of the universities, statutes of the universities – Performance agreements 2016-2018 and performance agreements 2019-2021 with the universities
(e) Intersectoral Mobility – easier change between private and public sector	– Increased mutual recognition of research performance in industry and in science and research	– European and national funding programmes

Milestones

Timescale	Measure(s)	How to recognise the success of the measure(s)
2016 - 2019	Charter & Code /HRS4R Carrying out and implementing the outcome of the OECD project; setting up a national working group,	Increase of the number of Charter & Code Endorsements, and steps for their implementation at the institutions are visible

	Increased information activity	
	Awareness raising for EURAXESS Jobs, examination of possible automatic links with intra-organisational job boards to EURAXESS Jobs and export of jobs	Increase in the number of OTM-R advertised jobs on EURAXESS Jobs.
	Awareness raising for EURAXESS Services Network, new accessions to EURAXESS Network	Increase in the number of signed EURAXESS DoCs on the part of higher education and research institutions as well as research funding organisations. *OeAD* (Austrian agency for international mobility and cooperation in education, science and research) networking platform with a focus on accommodation, in order to improve communication at local level, goes online.
	Implementation of the new legal basis for enabling a "tenure track" by the universities, and amendment of the Education Documentation Regulation (*BiDokVO*) for a more differentiated collection of statistical data on professorships	The universities have dedicated corresponding positions in their Development Plans, and their statutes have been adapted accordingly; appointment procedures are carried out. An amendment of the Education Documentation Regulation (*BiDokVO*) has entered into force.
	Implementation of the projects of universities to increase the number of tenure track positions	The number of individuals on "tenure track positions" (indicator: individuals in corresponding employment, as of 31 Dec., according to the Education Documentation Regulation (*BiDokVO*)) has increased compared to the previous year.

	Intersectoral mobility Increased mutual recognition of research performance in the fields of business, science and research	Intersectoral mobility European and national funding programmes, increase in successful applications
2020	Charter & Code /HRS4R Conclusion of information activity	The majority of higher education and research institutions have signed the Endorsement for Charter & Code and are implementing it. The "HR Excellence in Research" logo has been established as a recognised label for excellence and transparency.
	OTM-R call for jobs for scientific staff (R1-R4)	The higher education and research organisations as well as the research funding organisations post their vacant positions for scientific staff on EURAXESS Jobs.
	EURAXESS Services Network, new accessions to the EURAXESS Network	The higher education and research institutions have set up Welcome Centres and have joined the Europe-wide EURAXESS Network by signing the DoC.
	Implementation of a "tenure track" and implementation of projects to increase the number of tenure track positions by the universities	The universities dedicate further positions, carry out appointment procedures. The number of individuals on "tenure track positions" (indicator: individuals in corresponding employment, as of 31 Dec., according to Education Documentation Regulation (*BiDokVO*) has increased compared to the previous year.
	Mutual recognition of research performance in industry and in science and research.	Intersectoral mobility European and national funding

programmes, increase in successful applications

Resources and responsibilities

All measures: responsible for the process: Federal Ministry of Science, Research and Economy (BMWFW) - administrative sector Science and Research

Resources:

Measures in connection with EURAXESS: approx. € 15,000.- until 2018 (funded via EURAXESS TOP III Project)

Carrying out and implementing the results of the OECD project: approx. € 9,000.-

Setting up a national working group: approx. € 10,000.-

FFG Academy measures on Charter & Code/HRS4R: no separate list of costs

Indicators

High-level indicator

Indicator: Open recruitment: Researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector per year

Description of the indicator:

- Numerator: Number of researcher posts advertised through the EURAXESS Jobs portal
- Denominator: thousand researchers in the public sector (FTE)

Source: European Commission: Euraxess Jobs portal.

Frequency: annually

Area of application: EU28; NO, IS, CH, MK and TR

Sub-indicator 1:

Indicator: number of appointments at universities from EU and third countries

Description of the indicator:

- Number: total number within the calendar year (1 January – 31 December)
- Appointment to the university: appointment (entry into service) of professorial chairs according to §§ 98 and 99 Universities Act (*UG*)
- sex: female / male

- university of origin / previous employer: own university, other university of origin / employer national, university of origin / employer Germany, university of origin / employer EU other, university of origin / employer Switzerland, university of origin / employer third countries
- type of appointment: appointment according to § 98 Universities Act (*UG*), appointment according to § 99 article 1 Universities Act (*UG*), appointment according to § 99 article 3 Universities Act (*UG*)

Source: unidata, intellectual capital report, indicator 1.A.3[7]

Frequency: annually

Area of application: AT

Sub-indicator 2:

Indicator: number of individual members of scientific / artistic staff with a period abroad

[per university]

Description of the indicator:

- Number: total number per study year (1 October – 30 September)
- Scientific / artistic staff: university staff members according to § 94 article 2 Universities Act (*UG*)
- Period abroad: period spent abroad for the purpose of teaching and/or research tasks / tasks in the field of the development and promotion of the arts in the area of responsibility of the respective individual (with the exception of participation in meetings and conferences)
- sex: female / male
- Duration of stay: less than 5 days; 5 days up to three months; more than three months.

Source: unidata, intellectual capital report indicator 1.B.1[8]

Frequency: annually

Area of application*:* AT

[7] Depending on the form in which this will be reflected in the *Wissensbilanz-Verordnung* 2016 (intellectual capital report decree 2016), which has not yet been passed.

[8] Depending on the form in which this will be reflected in the *Wissensbilanz-Verordnung* 2016 (intellectual capital report decree 2016), which has not yet been passed.

Priority 4

Gender Equality and "Gender Mainstreaming" in Research

Current situation

Austria's equality policy in science and research consists of a policy mix of strategies, instruments and measures based on a three-dimensional approach to equality, corresponding to the ERA objectives:

1. Gender balance in all areas and on all levels of hierarchy
2. Removal of structural barriers for women
3. Embedding the gender dimension in research and research-based teaching

(a) Reference material

- ✓ Communication of the European Commission of July 2012: Reinforced European Research Area Partnership for Excellence and Growth
- ✓ ERAC Opinion on the European Research Area Roadmap 2015-2020
- ✓ Universities Act, Equal Opportunities Act, performance agreements
- ✓ Outcome orientation of Federal Ministry of Science, Research and Economy (BMWFW)/Federal Ministry of Transport, Innovation and Technology (BMVIT): (**UG 31**[9] - gender balance in managing positions, in bodies and among young scientists/artists; **UG 33** – using the potential of specialists by increasing the share of women in science and research; **UG34** – increasing the number of employees by increasing the share of women in technology and innovation)

(b) Success and challenges so far

1. The existing policy mix is to be continued, and the effect of equality measures and measures to promote women is to be improved and to be monitored by means of key management indicators.
2. By means of drawing up a country-wide equality-oriented mission statement for higher education and research institutions for Austria, structural barriers for women should be removed, and a cultural change and a change of the institutions in favour of gender equality should be promoted. The Laura Bassi Centres are an example of good practice. The Federal Ministry of Transport, Innovation and Technology (BMVIT) has implemented FEMtech for enterprises in the RTI field to create fair framework conditions for women and men. The interested public needs to be made more aware of the societal and economic benefit of gender specific research (such as e.g. by the ACR Women Award).

(c) Benchmarking compared to other EU-28 countries

[9] UG = subdivision of the Federal Budget

"Implementation of Gender Equality Policies in Public Research", gesis/CEWS, Dr. Anke Lipinsky commissioned by the EC; She Figures; R&D Survey; ERA Progress Report;

Objectives for Austria

(a) Increasing the share of women in all areas and at all hierarchy levels where they are under-represented (vertical and horizontal segregation)

(b) Integration of the gender dimension into structures and policies in science and research (cultural change in science and research organisations)

(c) Embedding the gender dimension in research content and teaching

Measures and instruments for implementation

Objective	Measure(s)	Instrument(s)
(a) Increasing the shares of women in all areas and at all hierarchy levels where they are under-represented	- Support measures in order to reach a 50% quota of women for universities (amongst others, increase in tenure track positions and professorships, as well as measures in connection with Priority 3 – Measure d) - Support of a country-wide networking initiative of the universities of applied sciences in the fields of gender equality and diversity management in Austria - Further developing equality monitoring in the higher education and research area: Focus on universities of applied sciences and private universities; continuing the equality survey in non-university research; - awareness-raising and sensitisation of funding recipients in the field of RTI - Strengthening researchers and experts in the field of RTI, and differentiated assessment of projects in order to include women in research and to include the gender dimension in research content	Performance agreements of the universities Performance agreement of the Austrian Academy of Sciences (2015-2017) Universities Act 2002 Equal Opportunities Act (*B-GlBG*) Career advancement plan for women at universities Career advancement plan for women at the Austrian Academy of Sciences Equality standards at the Austrian Science Fund (FWF) and the Austrian Research Promotion Agency (FFG) Performance agreement of the Institute of Science and Technology Austria (IST Austria) 2015-2017 (personnel development plan and career promotion plan) Unidata ERA Dashboard indicators FEMtech Equality Survey
(b)	- Implementation of selected	Follow-up study on

Integrating the gender dimension into structures and policies in science and research	recommendations for action of the Cultural Change Study: development of a general framework which contains targets for the medium and long-term implementation of gender equality for all science and research institutions. - Highlighting examples of good practice -Awareness-raising and sensitisation of organisations in the field of RTI (gender competence)	cultural change Performance agreements (2016-2018) Diversity awards (Diversitas) at higher education and research institutions FEMtech Career Check for SMEs and FEMtech Career w-fFORTE (career trainings for women in research and technology)
(c) Considering the gender dimension in research content and teaching	- Implementing a networking platform between researchers and practitioners in order to exchange up-to-date gender-specific research findings and possibilities of their application - Awards in the field of gender research - Integration of gender content into projects in the field of RTI	Performance agreements of the universities 2016-2018 Gender Studies Association Austria (ÖGGF) annual meeting National Advisory Board of the Gender Equality in Higher Education (GEHE) Conference Gabriele Possanner Awards (2017, 2019) FEMtech research projects Gender and Innovation website

Milestones

Timescale	Measure(s)	How to recognise the success of the measure(s)
2016-2020	a. Monitoring the implementation of gender equality measures in performance agreements via accompanying talks to performance agreements (universities, Austrian Academy of Sciences, IST Austria) Timescale: 2016-2018 performance agreements of universities	2016-2018: implementation of the gender equality measures at universities, at the Austrian Academy of Sciences (career advancement plan, career model) and at IST Austria (personnel development plan and career advancement plan)

	2015-2017 performance agreements of Austrian Academy of Sciences, IST Austria	
	a. 2018: conception of the new performance agreements with the universities – further development of the requirements regarding gender equality and diversity for 2019-2021: implementation of gender equality and diversity measures in the performance agreements 2017: conception of the new performance agreement period for the Austrian Academy of Sciences, IST Austria 2018-2020	2018-2021: further development of the equality and diversity issue in the performance agreements; equality targets and projects are addressed by means of sustainable measures
	a. Support of a country-wide networking initiative for gender equality and diversity management for universities of applied sciences in Austria Timescale: 2016-2020	2016: commissioning a networking initiative at the universities of applied sciences 2017: implementation 2018: further development
	a. 2016: Gender monitoring for universities of applied sciences in Unidata, conception of a set of indicators and of the graphic representation 2017: implementation of gender monitoring of universities of applied sciences, and further development of equality monitoring Timescale: 2016-2020	2016: data has been included in Unidata 2017: effectively communicated publication of selected equality indicators 2018: indicators relevant to equality are checked continuously
	a. Awareness-raising and sensitisation of funding recipients in the field of RTI by means of FEMtech Timescale: 2016-2021 Continuous operation and further development	Consistent application of gender criteria at the Austrian Research Promotion Agency (FFG), increase of the influence of female researchers and technicians in the field of RTI by increasing the share of female project managers in funded projects, and by increasing the share of women on evaluation panels (jury).
	b. 2016: conception and	2016: call for tender and

	commissioning of a follow-up study on cultural change 2017: accompanying measures for communicating the cross-sectoral mission statement in science and research organisations 2018: implementation of the mission statement in science and research organisations	commissioning of the follow-up study 2017: presentation of the findings and transfer of the results 2018: the mission statement is taken up into strategy documents of the science and research institutions (e.g. internal equality plans, development plans, performance agreements (Austrian Academy of Sciences, IST-Austria 2018-2020 and universities 2019-2021)
	b. Continuation and further development of the FEMtech Career Check for SMEs and FEMtech Career Timescale: 2016-2021 continuous development	Awareness-raising and sensitisation of organisations in the field of RTI
	c. Implementation of a networking platform between researchers and practitioners for exchanging up-to-date gender-specific research findings and the possibilities for their application	2016: platform has been set up 2017-2020: regular networking meetings take place
	c. Continuation of the FEMtech research projects Timescale: 2017-2021 Continuous further development	Integration of gender content in the projects in the field of RTI by continuing the FEMtech research projects

Resources and responsibilities

- Performance agreements, equality monitoring in higher education, cultural change / development of a mission statement for equality, networking initiatives;
  Responsible for the process: Federal Ministry of Science, Research and Economy (BMWFW)
  Estimated resources: The measures of the Federal Ministry of Science, Research and Economy (BMWFW) included in the Austrian ERA Roadmap are part of the Federal Financial Framework Act (*Bundesfinanzrahmengesetz*) 2016-2019 (w-fFORTE approx.. € 100,000.- per year; all other measures approx. € 300,000.- per year). Equality measures of the performance agreements are included in the global budget of the universities, the Austrian Academy of Sciences and IST Austria.

- FEMtech, awareness-raising and sensitisation measures, equality monitoring in the non-university research field;
  Responsible for the process: Federal Ministry of Transport, Innovation and Technology (BMVIT)
  Estimated resources: The measures of the Federal Ministry of Transport, Innovation and Technology (BMVIT) included in the Austrian ERA Roadmap are part of the Federal Financial Framework Act (*Bundesfinanzrahmengesetz*) 2016-2019 (approx. € 2.5 million per year).

Indicators

High-level indicator

Indicator: Proportion of women grade A in Higher Education Sector (HES)

Description of the indicator:

- Numerator: Number of women grade A in HES
- Denominator: Sum of number of men and women grade A in HES

Source: She Figures Study (managed by DG RTD)

Frequency: every two years

Area of application: EU-28; CH, IS, NO, TR, (depending on contributions sent by the Helsinki Group Statistical Correspondents).

Sub-indicator 1:

Indicator: Share of female researchers in all sectors of performance

Description of the indicator:

- Percentage share of female researchers in total number of researchers.

Source: Eurostat (on the basis of the R&D survey)

Frequency: every two years

Area of application: EU28

Sub-indicator 2:

Indicator: Glass Ceiling Index (SHE Figures)

Description of the indicator:

- The GCI measures the relative chance for women, as compared with men, of reaching a top position.
- The GCI compares the proportion of women in grade A positions (equivalent to Full Professors in most countries) to the proportion of women in academia (grade A, B, and C), indicating the opportunity, or lack of it, for women to move up the hierarchical ladder in their profession.

- A GCI of 1 indicates that there is no difference between women and men being promoted. A score of less than 1 means that women are over-represented at grade A level and a GCI score of more than 1 points towards a Glass Ceiling Effect, meaning that women are underrepresented in grade A positions.
- In other words, the interpretation of the GCI is that the higher the value, the thicker the Glass Ceiling and the more difficult it is for women to move into a higher position

Source: European Commission

Frequency: every two years

Area of application: EU28

Priority 5:

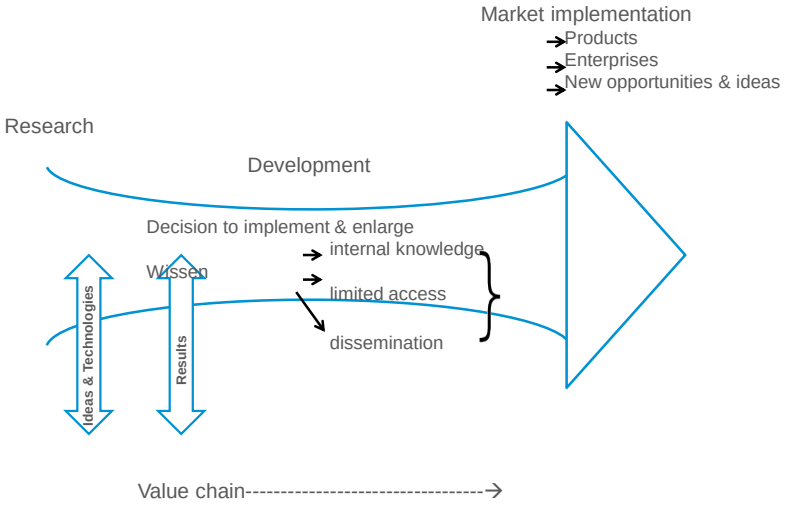
Circulation of Knowledge

Current situation

(a) Reference material

- In the RTI Strategy of the Federal Government, Austria has set itself the target of advancing towards the top group of the most innovative countries in Europe. Innovation Leaders are those countries which not only facilitate gaining excellent scientific results from basic research and applied research and development, but also exploiting these results socially and economically as quickly as possible. Active cooperation and targeted strategic aggregation and exploitation of knowledge as a basic resource of innovation are therefore essential success factors.
- The Open Innovation concept, or open innovation respectively, refer to the opening-up of the innovation process of organisations, and thus the active strategic use of the outside world for enlarging the innovation potential (Chesbrough, H.W., 2003). In order to achieve this maximisation, it is important, from the beginning to the end of the value chain, to pay attention to supporting and promoting the added value of a sensible and targeted opening up of systems. In this context, Austria has set itself the target of preparing a clear strategy for dealing with Open Innovation by 2016.
- 56 universities and research institutions have joined together, coordinated by the Austrian Science Fund (FWF), to form the "Open Access Network Austria" (OANA).
- The "Cooperation E-Media Austria" (*KEMÖ*) is funded by 55 partner organisations and negotiates consortia for access to scientific information. The Open Access component plays a decisive role in this context. This can be seen, amongst others, from the fact that KEMÖ, in close cooperation with the Austrian Science Fund (FWF), Universities Austria (UNIKO) and the Federal Ministry of Science, Research and Economy, has concluded the world's first Open Access contracts with several publishers. A qualitative and quantitative study of the PASTEUROA EU network has recently attested that the Austrian Science Fund (FWF) has one of the most effective Open Access policies of a funding organisation world-wide. The universities, finally, create a landscape of repositories through the "E-Infrastructure" project.
- Intangible assets (IP) are an important factor for innovation, productivity and growth. In Austria, targeted measures have been taken, particularly at the universities, to improve science and technology transfer, including IP exploitation in recent years. There is still need for improvement with regard to the strategic use of IP and its efficient exploitation.

– When disseminating results in applied research, special attention has to be paid to the worry of enterprises with regard to the protection of innovations or competitive advantage. Integrating industry (and co-funding by industry) in applied research is often only successful if this results in clear advantages for the participants, in terms of a competitive edge in innovation and technology and protection compared to enterprises which do not participate.

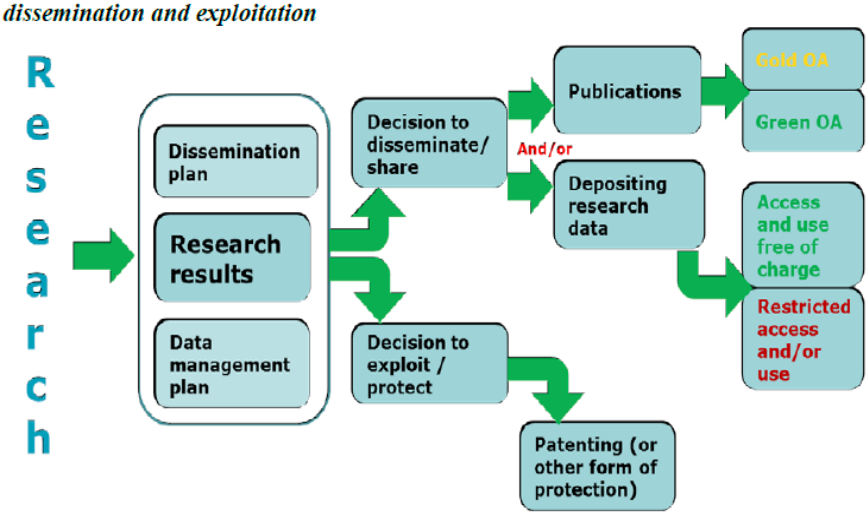


- In addition to the exploitation rights, the discussion around openness and publishing of research results and research data also is an important cornerstone for realising a European Research Area, and for achieving an innovative value chain:
  (1) Before publishing, scientists should pay attention to, and be supported in, examining possible exploitation rights in their intellectual property, and, if appropriate, securing them. The implementation of the exploitation rights of research results has to be designed in such a way as not to provide any obstacles for prompt publication.
  (2) If the research results are published in the form of quality-tested (peer-reviewed) scientific publications or research data (Open Access), unimpeded access on the internet, with further utilisation rights that are as open as possible for all, has to be aimed at.
- It is only through the strategic combination of both elements that scientific findings will unfold their full potential for all areas of life. In Austria, specific strategies (on IPR, Open Innovation and Open Access) are currently being prepared. These consider both aspects of "Open Access to publications and data" and of "Intellectual Property".
- The Federal Government's IPR Strategy points out areas of activity which facilitate an improvement of the strategic use of intellectual property rights.

(b) Success and challenges so far

- When implementing Priority 5, Austria has recognised the task areas early and has initiated measures (cf. biannual reporting IP Recommendation ((2008)1329 COMMISSION RECOMMENDATION) on the management of intellectual property in knowledge transfer activities and Code of Practice for universities and other public research organisations).
- The new knowledge transfer centres (three regional centres, and one thematic centre on Life Sciences) support professional exploitation management of academic research results and ensure rapid exploitation by enterprises. In this context, entrepreneurship is massively supported as a possible exploitation option.
- For Open Access to scientific publications, there are closely coordinated recommendations by an Expert Group of the Open Access Network Austria (OANA), see http://dx.doi.org/10.5281/zenodo.33178 in German, and http://dx.doi.org/10.5281/zenodo.34079 in English. There, 16 recommendations for implementing an Open Access Strategy for Austria are proposed, as to how the entire quality-tested (peer-reviewed) scientific publication activity in Austria can be converted to Open Access by 2025. The recommendations are closely harmonised with similar initiatives of the leading scientific institutions and countries such as the Netherlands, the United Kingdom, the European Union, the Max Planck Society, or the Wellcome Trust.

Graph: Open access to scientific publication and research data in the wider context of dissemination and exploitation



Source:
http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf

Objectives for Austria

(a) Numerous measures in the field of ERA – Priority 5 (see below)
(b) Retaining and further developing formal knowledge transfer top rankings for Austria (cf. amongst others the implementation report on the implementation of the IP Recommendation).
(c) Implementation and expansion of Open Access for easier accessibility of knowledge

Measures and instruments for implementation

Objective	Measure(s)	Instrument(s)
Further strengthening the cooperation between higher education institutions and research institutions as excellent sources of knowledge, with innovative enterprises	Strengthening the efficient and rapid exploitation of academic research findings by innovative enterprises	e.g. "Knowledge Transfer Centres and IPR Exploitation" funding programme ongoing programmes such as Competence Centres, CD Laboratories, or Research Centres
Further strengthening the cooperation between higher education institutions, research institutions as excellent sources of knowledge, with innovative enterprises	Making up-to-date sample contracts for knowledge and technology transfer available online, free of charge, in German and in English, with these sample contracts having been agreed between science and industry	Intellectual Property Agreement Guide IPAG (www.ipag.at) within the framework of the National Contact Point for Intellectual Property at the Federal Ministry of Science, Research and Economy (BMWFW)
Strengthening science and technology transfer as part of the Third Mission in the property rights and exploitation strategies	Further development of existing IP property rights and exploitation strategies, in accordance with the performance agreements with universities, the Austrian Academy of Sciences and IST-Austria	Performance agreements with universities and research institutions
Strengthening	In the course of	National Contact Point

knowledge and technology transfer as part of the Third Mission in the property rights and exploitation strategies	implementing the national RTI Strategy of the Federal Government, an interministerial Working Group on "Knowledge Transfer and Start-ups" has been set up.	for Intellectual Property at the Federal Ministry of Science, Research and Economy (BMWFW)
Implementation of Open Access and further development towards an Open Science Strategy	Drawing up a national Open Access Strategy, with concrete measures for implementing Open Access, according to the OANA recommendations (complete Open Access publishing by 2025)	Amongst others: Performance agreements with universities and research institutions (in particular for developing and implementing corresponding institutional OA policies); Continuation of the Open Research Date pilot programme (Austrian Science Fund *FWF*) and drafting of a consistent Open Science strategy
Drawing up a national Open Innovation Strategy	Concrete measures are formulated in the national Open Innovation Strategy	The strategy is currently subject to an open consultation process, with citizen participation
Open Data and Open RTI Data policy for business-oriented and applied research	Preparing an Open (RTI) Data Policy for dealing with research results from business-oriented and applied research	Drafting of a consistent strategy in the form of a living document, with concrete recommendations for action
Open Access for application-oriented and business-oriented research	Checking the Open Access policy for business-oriented and applied research	Drafting of a consistent strategy in the form of a living document, with concrete recommendations for action
Improving the strategic use of intellectual property rights	The IP Strategy of the Federal Government proposes areas of activity and concrete measures	Areas of activity and measures of the IPR Strategy have been drawn up, integrating stakeholders in different working groups and an international expert

	panel. The final version is currently undergoing a consultation process.

Milestones

Timescale	Contribution to indicator	Measure(s)	How to recognise the success of the measure(s)
2016	ERA indicators 5a and 5b	Preparing an Open Data policy Making recommendations for action clear	Open Data by Federal Ministry of Transport, Innovation and Technology (BMVIT) on www.data.gv.at Examination of expanding publication of research findings and data on a corresponding platform, inspired by www.nachhaltigwirtschaften.at and https://www.fwf.ac.at/en/research-funding/open-access-policy// respectively
By mid-2016	ERA indicators 5a and 5b	Preparing a national Open Innovation Strategy, in consideration of IP, OA, etc.	Increase in innovation activity in Austria Implementation of the measures of the Open Innovation Strategy
As of 2016	ERA indicator 5a	Preparing a national IP Strategy and implementing the measures proposed	Austria improves, amongst others with regard to the share of intangible assets, from being part of the European Innovation Followers (of currently 6% of GPD) to becoming part of the group of Innovation Leaders.
2017	ERA indicator 5b	Introducing Open Access Policy recommendations, Concluding assessment of the Open RTI Data Policy	OA Policies are available for all universities, research institutions and research funding institutions, implementation of OA measures (oana) Open research/RTI Data policies are available for relevant research institutions, universities and research funding institutions
2018	**firms**	Successful	Improved cooperation in

	collaborating (CIS indicator), ERA indicator 5a	implementation of the Knowledge Transfer Centre programme and of the other cooperation programmes	knowledge transfer between research institutions, and between research institutions and industry, as well as more efficient exploitation of research results
2020	ERA Indicator 5b	Implementation of measures proposed by OANA	80% Open Access publications
Continuously		Implementation of the IP Recommendation	Outcome of the 2-year steps for implementing the IP Recommendation

Resources and responsibilities

Responsible for the process: Federal Ministry of Science, Research and Economy (BMWFW) and Federal Ministry of Transport, Innovation and Technology (BMVIT)

Resources cannot be estimated

Indicators

High-level indicator

Indicator: Percentage product or process innovative firms collaborating with higher education institutions or with public research institutions for their innovation activities

Description of the indicator:

- Numerator: Number of business enterprises with product or process innovation activities that have collaborated with higher education institutions or public research institutions to implement these innovations.
- Denominator: Number of business enterprises with product or process innovation activities

Source: Eurostat

Frequency: every two years

Area of application: EU28; NO, RS, TR

Sub-indicator 1

Indicator: Public – private co-publications per million population

Description of the indicator:

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 authors affiliate address(es)

Denominator: Total population as defined in the European System of Accounts (ESA 1995).

Source: IUS

Frequency: annually

Area of application: EU-28

Sub-indicator 2

Indicator: licence contracts by universities

Description of the indicator:

- Number of contracts which concern the sale of certain rights of use in intangible assets (e.g. patents, copyrights). Only those licence contracts are recorded which concern existing service inventions and patents.

Source: unidata, intellectual capital report indicator 3.B.3[10]

Frequency: annually

Area of application: AT

[10] Depending on the form in which this will be reflected in the *Wissensbilanz-Verordnung* 2016 (intellectual capital report decree 2016), which has not yet been passed.

Priority 6:
International Cooperation

Status quo / Current situation

The field of "International Cooperation" is the youngest among the priorities in the European Research Area and has only been an independent area since the publication of the ERA Roadmap 2015-2020. This priority emphasises the importance of effective international cooperation with third countries, in order to be able to meet the societal challenges, to facilitate access to new growth markets, and to increase the attractiveness of ERA for talented minds and investors worldwide. At European level, an advisory and coordinating body has existed since 2008, the Strategic Forum for International Science and Technology Cooperation – SFIC. Its target is to further develop, implement, and monitor the international dimension of ERA. In Austria, a specific working group on "Internationalisation and RTI Foreign Policy" was set up to implement the RTI Strategy of the Federal Government of 2011 (WG 7a). In July 2013, the Working Group summarised its recommendations in the document "Beyond Europe – Austria's Internationalisation in Research, Technology and Innovation Beyond Europe".

(a) Reference material

- Strategy document: "Beyond Europe – The Internationalisation of Austria in Research, Technology and Innovation Beyond Europe" – recommendations of Working Group 7a to the RTI Task Force of the Federal Government, July 2013

(b) Success and challenges so far

Success:

- Strategic development of bilateral agreements, both by the ministries and the funding organisations, with selected target countries (e.g. China, South Africa, South Korea, Taiwan, Japan, Russia, Singapore, Israel, Brazil)
- Joint Calls of the ministries and the funding organisations (Argentina, China, India, Japan, South Korea, Russia, Taiwan)
- Establishment of regular meetings of the relevant stakeholders at the "Beyond Europe Roundtable" (theme countries and regions so far: Russia, China, Danube region, South-east Asia), and setting up of an online information platform "Beyond Europe"
- Participation in SFIC and the SFIC working groups (China, Russia, Toolbox)
- OIIP "Transnational Lecture Series on Internationalisation of Science, Technology and Innovation" (Japan, India, Russia, Brazil, South Korea)

- Increased embedding of the international dimension in or by research and innovation funding programmes respectively (e.g. launch of the programmes ”Beyond Europe” and ”Global Incubator Network”)

Challenges:

- Coordination with other EU countries with regard to concrete activities with third countries which go beyond multilateral activities of Horizon 2020, the SFIC working groups, or participation in the macro-regional Strategy for the Danube Region
- Availability of funds for joint calls
- Sustainable design of joint activities with international partner organisations

Objectives for Austria

(a) Formulation of an Austrian Strategy for International Cooperation
(b) Stimulation of networking within Austria
(c) Increased activities with third countries

Measures and instruments for implementation

Objective	Measure(s)	Instrument(s)
(a) Formulation of a Strategy for International Cooperation		
Strategic framework "Beyond Europe" was published in 2013.	Annual work programmes, up to 2020, for implementation, in accordance with the budget available	Relevant instruments for intensifying international RTI cooperation (e.g. external representations, mobility programmes, joint calls, targeted use of EU measures and programmes, intensifying cooperation and coordination of Austrian RTI stakeholders)
(b) Stimulation of networking within Austria		
	Networking and information measures	• Continuing the Round Table "Beyond Europe" by including the different stakeholders • Expansion and operation of an online information platform of Austrian activities for supporting the Round Table

(c) Increased activities with third countries		
	Joint programmes/calls/ projects	• Carrying out joint calls, in accordance with the budget available and the interest of the international partners • Implementation and, if possible, conclusion of bilateral treaties and agreements with priority target regions • Participation in the international cooperation instruments in Horizon 2020 • If appropriate, participation in joint activities by EU-MS with EU third countries • EUREKA: joint calls with relevant target countries • ”Beyond Europe” programme of the Federal Ministry of Science, Research and Economy (BMWFW) – administrative sector Economy • International networking and match-making events • Increased use of synergies with EURAXESS
	International presentation and international presence	• Continuous improvement of the services provided by the RTI foreign offices OSTA • Development of a joint OSTA web portal (including information on core RTI players in Austria) • Intensifying cooperation with RTI foreign offices of the EU MS and of the EC • If possible, participation in joint awareness-raising measures of the EU MS and the EC (Destination Europe,

	Tour of China, etc.)

Milestones

Timescale	Measure(s)	How to recognise the success of the measure(s)
2016	Networking and information measures	• "Beyond Europe" Round Tables: are the most important stakeholder institutions represented there? • Development and operation of an online information platform on Austrian activities for supporting the Round Tables: launch of the platform; acceptance and use by stakeholders, platform is up-to-date and complete
2016-2020	Joint programmes/calls/projects	• Carrying out calls (e.g.: Joint Calls) with priority countries • Participation in projects with an international dimension in Horizon 2020 (number, role) • Carrying out calls under the "Beyond Europe Programme" • Participation in EUREKA Calls (Danube Region, Chile ...)
2016	International presentation	• Joint OSTA web portal; • Networking and matchmaking events (e.g.: Second Singaporean/Austrian Science and Business Day in Vienna in autumn 2016) • Checking the possibility of participating in the Horizon 2020 Call "Centres/ Networks of European research and innovation"

Resources and responsibilities

Responsibilities:

In general, joint coordination of activities via Working Group 7a of the RTI Task Force for implementing the RTI Strategy	
SFIC	Federal Ministry of Science, Research and Economy (BMWFW) – administrative sector Science and Research, Federal Ministry of Transport, Innovation and Technology (BMVIT)
RTI foreign offices OSTA	Federal Ministry of Science, Research and Economy (BMWFW) –

	administrative sector Economy, Federal Ministry of Science, Research and Economy (BMWFW) – administrative sector Science and Research, Federal Ministry of Transport, Innovation and Technology (BMVIT), Federal Ministry of Europe, Integration and Foreign Affairs (BMEIA)
Joint Calls via the Austrian Research Promotion Agency (FFG)	Federal Ministry of Transport, Innovation and Technology (BMVIT)
Joint Calls via the Austrian Science Fund (FWF)	Austrian Science Fund (FWF)
Beyond Europe Programme, EUREKA	Federal Ministry of Science, Research and Economy (BMWFW) – administrative sector Economy

Implementation according to the budget available for the purpose.

Indicators

High-level indicator

International scientific co-publications per thousand researchers (FTE) in the public sector

Description of the indicator:

- Numerator: Number of scientific publications with at least one co-author based outside of the EU/ERA-countries
- Denominator: Number of researchers (in thousands, FTE)

Source: This indicator is not published by Eurostat but can be produced through existing bibliometric databases. This will be covered by the same study as for 5b. Data will become available in 2016 and updated on a 6-monthly basis.

Frequency: Data will become available in 2016 and will be updated on a 6-monthly basis.

Area of application: EU28

Sub-indicator 1:

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

Description of the indicator:

- Numerator: Sum of EPO patent applications with national inventor and foreign applicant
- Denominator: Sum of EPO patent applications with national inventor
- This indicator measures the degree of internationalisation of Austrian enterprise R&D

Source: OECD

Frequency: annually

Area of application: EU28

Sub-indicator 2:

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

Description of the indicator:

- This indicator measures the degree of R&D cooperation possibilities with partners in Austria's Beyond Europe target countries

Source: ERA-Learn, Austrian Research Promotion Agency (*FFG*), Austrian Science Fund (*FWF*), *OeAD* (Austrian agency for international mobility and cooperation in education, science and research)

Frequency: annually

Area of application: Austria's Beyond Europe target countries

Annex to Priority 6:

a) Additional reference material

SFIC:

SFIC Work Programme 2015-2016; ERAC-SFIC 1353/15
http://data.consilium.europa.eu/doc/document/ST-1353-2015-INIT/en/pdf

Co-publication analyses:

"Co-publications and the co-patents in Danube Region Countries (DRC) and the Western Balkan countries (WBC) for the years of 2003-2013"
„Ko-publikationsanalyse Österreich-Lateinamerika 2003-2013" (Co-publication analysis Austria-Latin America 2003-2013)

Examples of innovation funding programmes:

- Beyond Europe Programme: https://www.ffg.at/beyond-europe/call1
- Global Incubator Network: https://www.ffg.at/presse/mitterlehner-mahrer-oesterreichs-nationalstiftung-foerdert-internationales-startup-programm-m

Examples of internationalisation strategies of universities:

- https://international.univie.ac.at/home/internationalisierungsstrategie/
- https://www.tuwien.ac.at/fileadmin/t/tuwien/docs/leitung/TU_international_global_strategy.pdf
- http://www.boku.ac.at/fileadmin/data/H01000/H10090/H10110/Rektorat/Strategy_for_Internationalization/boku_int_strat201506_04_1.pdf
- http://www.vetmeduni.ac.at/fileadmin/_migrated/content_uploads/Vetmeduni_Internationalization-Strategy_screen.pdf

b) Strategies of other target countries:

Strategy of the Federal Government on the European Research Area (ERA)	https://www.bmbf.de/files/Strategy_of_the_Federal_Government_on_the_European_Research_(ERA.pdf
International Cooperation – Action Plan of the Federal Ministry of Education and Research, Germany	http://www.kooperation-international.de/uploads/media/Aktionsplan_Internationale_Kooperation.pdf
Strategy of the Norwegian Research Council 2015-20: Research for Innovation and Sustainability	http://www.kooperation-international.de/uploads/media/Strategie_Norwegischer_Forschungsrat_2015-20.pdf

c) International studies

Indicators and Strategies for the Internationalisation of Research and Innovation – a multinational study	http://www.tillvaxtanalys.se/in-english/publications/direct-response/direct-response/2014-07-17-indicators-and-strategies-for-the-internationalization-of-research-and-innovation-----a-multinational-study.html