



# European Research Area

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for knowledge and growth

## **ERA Progress Report 2018**

**Europa Forum Forschung (EFF)**

**Vienna**

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**22 February 2019**

# Content

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# History and background

- ERA Progress Report including EMM announced in 2012 ERA Communication and Council Conclusions
- First two editions in 2013 and 2014
- Shortcomings complicated ERA survey and administrative burden.
- ERAC Opinion and Council conclusions on EMM/Roadmap (2015):
  - Survey has its limits, use existing data;
  - Improve EMM in close cooperation with Member States, ERA related groups and Stakeholders Organisations;
  - Integrate ERA headline indicators with future monitoring of ERA Progress.
- Third edition 2016 and **today fourth edition 2018**



# ERA Progress Report 2018

Four elements:

- Main report based on eight headline and 16 complementary EMM indicators
- Technical Report by PPMi and Science-Matrix. Emphasis on last 2 years since previous report. Desk research and interviews with ERA stakeholders.
- Country Profiles including an analysis of the National Action Plans
- Monitoring handbook including definitions and description of indicators



# Monitoring Methodology (2016-2018)

Technical Report PPMi/Science-Metrix:

- 24 EMM-indicators (output, input, outcome)
- Desk research: NAP's, National Strategies, RIO & OECD reports, EU Sem Country Reports, EU Inno Scoreboard
- 73 interviews with RPO's and RFO's and Stakeholders Organisations Platform
- Qualitative data analysis



## **ERA progress report 2018: main report**

### Content:

- General introduction & key findings
- 6 paragraphs with scores and main findings of each priority
- Concluding remarks
- Overview table with scores on headline indicators



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Table 1. Overview of growth rates of ERA Headline Indicators

Country	Headline Indicators						
	JRC Res Excellence (2013-2016)	GBARD transnat (2014-2016)	EURAXESS job postings (2014-2016)	Women Grade A (2014-2016)	Innovative firms coop with univ. (2012-2014)	Innovative firms coop with res. inst. (2012-2014)	Non-ERA pubs per 1000 res (2014-2016)
EU-28	3.2%	3.9%	-5.0%	1.0%	0.7%	4.0%	4.4%
AT	8.1%	-0.6%	-4.0%	5.7%	2.1%	-2.5%	5.0%
BE	3.0%	-4.5%	21.2%	5.5%	-1.6%	2.4%	0.7%
BG	-0.1%	-19.5%	-61.4%	2.2%	-7.7%	-19.2%	2.8%
CH	-0.5%	:	:	6.6%	:	:	:
CY	3.2%	-2.6%	20.1%	-4.7%	13.3%	-4.5%	9.8%
CZ	3.2%	12.7%	-10.2%	2.2%	-8.4%	-0.5%	5.6%
DE	2.6%	6.3%	85.5%	4.1%	-0.6%	:	1.2%
DK	7.1%	-7.1%	13.3%	6.9%	1.9%	-21.2%	8.5%
EE	4.6%	17.4%	-18.0%	3.3%	15.9%	47.0%	6.3%
EL	-1.9%	-21.5%	-44.7%	2.9%	-27.8%	-35.9%	6.9%
ES	3.5%	9.2%	19.9%	0.7%	2.9%	13.7%	5.9%
FI	2.9%	2.0%	169.9%	2.6%	-6.2%	-11.6%	11.0%
FR	3.3%	:	8.7%	-4.6%	2.5%	2.2%	-0.3%
HR	7.1%	-22.6%	12.8%	2.3%	-26.2%	-34.3%	-0.7%
HU	3.6%	112.3%	31.9%	12.4%	-17.6%	-12.0%	3.8%
IE	7.0%	-16.6%	-35.6%	-10.0%	-4.7%	:	-13.2%
IS	0.0%	:	0.4%	:	:	:	1.2%
IT	3.6%	0.8%	21.9%	2.0%	12.3%	16.7%	3.4%
LT	4.4%	-5.4%	21.3%	9.7%	-35.0%	-33.0%	7.5%
LU	9.7%	9.6%	42.6%	:	25.3%	16.5%	-3.8%
LV	3.3%	-8.8%	65.7%	6.3%	-2.9%	-11.1%	35.5%
MT	17.3%	33.2%	:	-22.6%	-10.3%	31.3%	15.5%
NL	4.6%	-1.2%	4.3%	5.0%	14.7%	:	3.8%
NO	8.2%	-2.5%	6.1%	3.1%	5.5%	-0.5%	0.5%
PL	4.2%	:	1.7%	3.0%	0.2%	7.3%	2.4%
PT	6.0%	21.0%	-5.4%	1.3%	-1.5%	-12.8%	4.3%
RO	3.5%	24.3%	19.9%	22.3%	57.5%	4.0%	8.4%
RS	2.6%	:	-49.5%	:	138.8%	:	-1.0%
SE	4.8%	1.8%	-43.8%	4.2%	-6.7%	:	4.9%
SI	-0.1%	22.3%	-9.0%	7.6%	-11.5%	:	8.1%
SK	5.6%	125.8%	-9.3%	0.1%	0.2%	6.1%	9.0%
UK	1.0%	5.1%	-10.5%	:	-1.8%	7.8%	6.6%

## Example of table showing the presentation layout used to report the data for each indicator (prio 1)

**Table 5 GBARD as percentage of GDP (2009-2016)**

Country	Weight in GDP	Score (2017)	CAGR			Trendline
			Short-term (2014-17)	Lead/Gap to EU-28 CAGR	Long-term (2009-17)	
<b>EU-28</b>		<b>0.63%</b>	-1.7%	<b>N/A</b>	-2.0%	■■■■■■■■
Cluster 1	32.6%	0.87%	-0.8%	0.9	0.1%	
Cluster 2	29.0%	0.64%	-0.7%	0.9	-1.6%	
Cluster 3	36.7%	0.37%	-2.6%	-0.9	-3.3%	
Cluster 4	1.8%	0.14%	-2.0%	-0.4	-1.6%	
<b>Cluster 1</b>						
NO	2.1%	1.01%	5.5%	7.2	2.1%	■■■■■■■■
CH	3.5%	0.90%	:	:	3.3%	■■■■
DK	1.7%	0.89%	-3.8%	-2.1	-1.2%	■■■■■■■■
DE	19.1%	0.89%	0.6%	2.3	0.0%	■■■■■■■■
FI	1.3%	0.84%	-4.7%	-3.1	-2.9%	■■■■■■■■
SE	2.8%	0.80%	-1.3%	0.3	-0.9%	■■■■■■■■
AT	2.2%	0.77%	-1.0%	0.7	0.4%	■■■■■■■■
<b>Cluster 2</b>						
HR	0.3%	0.72%	0.8%	2.5	0.6%	■■■■■■■■
NL	4.3%	0.69%	-1.5%	0.1	-1.4%	■■■■■■■■
BE	2.6%	0.65%	-1.4%	0.3	-0.1%	■■■■■■■■
CZ	1.1%	0.65%	0.8%	2.4	1.3%	■■■■■■■■
FR	13.3%	0.64%	-2.3%	-0.6	-4.2%	■■■■■■■■
LU	0.3%	0.64%	0.0%	1.7	2.2%	■■■■■■■■
IS	0.1%	0.61%	5.1%	6.7	:	■■■■■■■■
EE	0.1%	0.61%	-5.0%	-3.3	-1.4%	■■■■■■■■
ES	6.8%	0.51%	-3.0%	-1.4	-5.6%	■■■■■■■■
<b>Cluster 3</b>						
IT	10.0%	0.50%	-1.5%	0.1	-2.8%	■■■■■■■■
UK	13.6%	0.49%	-4.0%	-2.4	-2.7%	■■■■■■■■
EL	1.0%	0.47%	2.5%	4.2	3.5%	■■■■■■■■
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# Austrian Country Profile

## COUNTRY SNAPSHOT

	Indicator	Performance					Progress since ERA monitoring 2016					
		Name	Reference year	Score	Cluster	Lead/Gap (Δ %)	EU-28	Reference Period	CAGR	Lead/Gap (Δ % pt)	EU-28	Trend (2007-18)
Priority 1	<b>Adjusted Research Excellence Indicator (AREI)</b>	2016	54.9	2	22	45.0	2013-16	8.1%	4.9	3.2%		
	GBARD as share of GDP	2017	0.77%	1	23	0.63%	2014-17	-1.0%	0.7	-1.7%		
	EIS Summary Innovation Index (SII)	2017	0.579	2	15	0.504	2015-17	2.0%	0.1	1.9%		
Priority 2	<b>A - GBARD to transnatl coop (EUR/researcher)</b>	2016	6,674	1	78	3,739	2014-16	-0.6%	-4.5	3.9%		
	A - Collab papers w/ERA per 1 000 researchers	2016	138	1	96	71	2014-16	3.4%	0.1	3.3%		
	A - Public-to-public partnerships (EUR/researcher)	2016	1,824	1	227	558	2014-16	2.5%	1.9	0.7%		
	<b>B - Roadmap for ESFRI projects</b>											
	<b>National roadmap implemented in 2014, ESFRI projects identified</b>											
	B - Participation in ESFRI Projects and Landmarks (combined)	2018	33%	2	-6	35%	2016-18	43.0%	28.0	15.0%		
	B - Participation in developing ESFRI Projects	2018	28%	2	-5	29%	2016-18	:	:	18.6%		
	B - Participation in operational ESFRI Landmarks	2018	35%	2	-6	37%	2016-18	12.9%	1.6	11.3%		
Priority 3	<b>EURAXESS job ads per 1 000 researchers</b>	2016	63.8	2	52	42.1	2014-16	-4.0%	1.0	-5.0%		
	Open, transparent, merit-based hiring process	2016	71%	2	8	65%	2012-16	16.6%	9.1	7.5%		
	Share of doctoral students from EU countries	2016	17.7%	1	148	7.1%	2013-16	1.8%	-2.1	3.9%		
Priority 4	<b>Share of women among Grade A in HES</b>	2016	23%	3	-4	24%	2014-16	5.7%	4.7	1.0%		
	Gender dimension in research content	2014-17 <sup>(1)</sup>	1.02	3	-3	1.05	2011-14 to 2014-17 <sup>(1)</sup>	1.3%	-1.2	2.5%		
	Share of female PhD graduates	2016	42%	4	-12	48%	2013-16	-1.1%	-1.5	0.4%		
Priority 5	<b>A - Firms coop with univ, gov, res inst</b>	2014	24.6%	1	64	15.0%	Not computed					
	A - Firms coop with univ	2014	Not computed					2012-14	2.1%	1.4	0.7%	
	A - Firms coop with gov, res inst	2014	Not computed					2012-14	-2.5%	-6.6	4.0%	
	A - Share of public R&D funded privately	2015	6.4%	3	-9	7.0%	2013-15	2.6%	3.8	-1.2%		
	A - Public-private collab papers per capita	2017	82.3	2	101	40.9	2014-17	3.1%	2.7	0.4%		
	<b>B - Share of papers in Open Access (Total)</b>	2016	51.8%	2	5	49.3%	Not computed					
	B - Share of papers in Open Access (Gold)	2016	34.9%	1	15	30.2%	Not computed					
	B - Share of papers in Open Access (Green)	2016	29.0%	2	-11	32.5%	Not computed					
	B - Share life science papers with OA dataset(s)	2017	2.8%	2	11	2.6%	2013-17	2.7%	0.1	2.6%		
Priority 6	<b>Collab papers w/ non-ERA per 1 000 researchers</b>	2016	62	2	14	54	2014-16	5.0%	0.6	4.4%		
	Share of doctoral students from outside EU	2016	10.6%	3	-24	13.9%	2013-16	-1.2%	-5.0	3.8%		
	Share med & high tech product export	2017	58%	2	2	57%	2015-17	0.4%	0.0	0.4%		
	Share Knowledge intensive service export	2016	43%	3	-38	69%	2014-16	-1.6%	-2.2	0.6%		



## Main findings and policy messages

- Progress since 2016 continues but at a slower pace.
- 24 Member States and 4 Associated Countries have adopted NAPs for the period 2015-2020.
- The majority of NAPs are structured according to the six ERA priorities
- Overall, progress in implementing ERA has recently been slowing down and disparities between countries remain
- Horizon Europe includes a dedicated pillar in support of strengthening the ERA.



## **ERA Prio 1: More effective national research systems**

- Almost all countries have national strategies for research and innovation
- Despite progress, analysis points to a need to better align various stakeholders' R&I strategies
- Monitoring and evaluation should be central in improving the effectiveness of national R&I systems, notably aligning national and EU instruments.



# Austria Country Profile prio 1

- EMM scores cluster 2-1-2
- Strengths include the attractive research system and sufficient human resources
- Acknowledges the need to strengthen basic research and its institutions and to increase it to the level of leading research nations by 2020
- All federal states and an increasing number of regions have R&I strategies that are prepared according to smart specialisation model
- Progress in enhancing demand-side stimulation of innovation



## **ERA Prio 2: Optimal transnational cooperation and competition -2a transnational cooperation**

- Most countries making progress in enhancing their participation in P2Ps.
- Efforts to better coordinate relevant national policies and resources to achieve agreed priorities need to be increased if maximum advantage is to be taken from a simpler and more impact-oriented EU R&I partnership landscape.
- Requires clear national governance structures and a robust and comprehensive framework for evaluating and monitoring the impact of P2P networks at national level.



## Austria Country Profile prio 2a

- **Prio 2a, transnat. coop.** :EMM scores cl. 1-1-1
- Overall high scores: P2P partnerships Austrian score three times score EU-28
- Growth scores keeping pace with EU-28 excl. GBARD
- investment into transnational cooperation has not increased significantly, but remains high. Austria is an active participant



## **ERA Prio 2: Optimal transnational cooperation and competition -2b ESFRI**

- Participation in both ESFRI projects and landmarks shows clear overall growth, with increasing pan-European inclusiveness and accessibility.
- Over half of the ERA countries had roadmaps in place together with ESFRI research infrastructures, only a third had also identified funding needs.
- More cooperation and synchronization of national procedures is needed to make the European research infrastructure ecosystem more robust and increase the effectiveness of public investments in this area.



## **Austria Country Profile prio 2b**

- Prio 2b: ESFRI: EMM scores cluster 2-2-2
- Participation slightly below EU-28, just above ERA average (small country bias)
- Clear increases in rates of participation in ESFRI Projects and Landmarks for Austria for 2016 to 2018
- In 2016, the government adopted a package for 2017-2021 for further support. Universities encouraged to strengthen their collaboration, which would consolidate investments and ensure a wider use of RIs.



## **ERA Prio 3: Open labour market for researchers**

- Number of job vacancies on EURAXESS has recently decreased, although EU-researchers are more satisfied with level of OTR.
- Growing share of doctoral students with citizenship of another MS is positive sign of international mobility.
- However, large gaps still exist between MS in terms of career attractiveness for researchers.
- Governments can improve researchers' international mobility by refining the effectiveness of national/regional research ecosystems in terms of cutting-edge research.



## Austria Country Profile prio 3

- Prio 3: EMM scores: cluster 2-2-1
- Sharp increases on Austrian researchers' perception that academic hiring processes are open, transparent and merit-based.
- create a culture of welcome for researchers by further developing Red-White-Red card, which is expected to attract more top-level researchers
- the implementation of career model at non-university research institutions



## **ERA prio 4: Gender equality and gender mainstreaming in research**

- Majority of countries have made progress in setting up more comprehensive strategies for gender equality in R&I, although progress is slow and uneven across the ERA.
- Efforts to increase enrolment and retention of women, implement work-life balance, reduce the gender pay gap and remove obstacles to women's career progression as well as better integrate the gender dimension in R&I content are still needed in order to achieve gender equality and gender mainstreaming in the ERA.



## **Austria Country Profile prio 4**

- EMM scores cluster 3-3-4
- Austria is one of only a few countries where higher education institutions (universities), have to implement structured gender equality plans
- Another positive practice in Austrian RFO Austrian Science Fund (FWF) where internal training on gender mainstreaming is practiced
- One of main targets regarding Priority 4 was to increase the share of women in all areas and at all hierarchy levels where they are underrepresented. Lack of evidence of substantial progress achieved in this area.



## **ERA Prio 5: Optimal circulation, access to and transfer of scientific knowledge – 5a Knowledge transfer**

- Policies that support knowledge circulation and open innovation still differs across Europe.
- More initiatives and regulatory frameworks are being introduced across the ERA to enhance cooperation between public and private sectors.
- However, the transfer of research results to the market and closer collaboration between industry and academia still need to be promoted in many ERA countries



## **ERA Prio 5: Optimal circulation, access to and transfer of scientific knowledge – 5b Open Access**

- Swift progress has been made on open access to publications including legal measures.
- However, obstacles remain, including the varying degrees of rule enforcement.
- There is also an assortment of national approaches to open access to research data where progress has been much slower.



## **Austria Country Profile prio 5**

- Prio 5a Knowledge transfer: EMM-scores cl. 1-3-2
- new initiatives fostering collaboration between academia and business: new knowledge transfer centres, regional and thematic; entrepreneurship is highly supported.
- Prio 5b:Open Access EMM scores: cluster 2-1-2-2
- The Austrian Science Fund (FWF) published guidelines for open access for publicly funded research.
- Austrian universities participate in 'Austria Transition to Open Access', to support the transition from closed to open access



## **ERA Prio 6: International Cooperation**

- Extent of cooperation activities between ERA and non-ERA countries is on the rise.
- Countries with more developed R&I systems have more collaboration opportunities, and better equipped to new partnerships.
- Need to facilitate international brain circulation by creating a more diverse set of incentives.
- ERA countries need to attract the best international talent so they can overcome labour shortages, strengthen research capabilities, boost innovation and deal with grand challenges.



## **Austria Country Profile prio 6**

- Prio 6 EMM scores cluster 2-3-2-3
- Austrian Research Promotion Agency (FFG) is running a programme “Beyond Europe” to support internationalisation of R&I projects
- Despite the efforts to internationalise Austrian system of R&I, more attention is concentrated on European cooperation
- Austrian Strategy for International Cooperation, to stimulate networking within Austria and increase of activities with third countries



## Next steps

1. Implementation of the ERA Council Conclusions
2. EMM indicators should be reviewed and improved – next ERA Progress Report 2020
3. Development of a monitoring tool that would accommodate the different national roadmaps
4. Evaluation of National ERA roadmaps as ERA policy-making tool
5. Better articulate ERA National Action Plans with the European Semester