



European Research Area

An open space
for knowledge and growth

ERA Progress Report 2018

Europa Forum Forschung (EFF)

Vienna

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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)	
EU-28		0.63%	-1.7%	N/A	-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%	
Cluster 1						
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%	■■■■■■■■
Cluster 2						
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%	■■■■■■■■
Cluster 3						
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	Adjusted Research Excellence Indicator (AREI)	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	A - GBARD to transnatl coop (EUR/researcher)	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 - Roadmap for ESFRI projects											
	National roadmap implemented in 2014, ESFRI projects identified											
	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	EURAXESS job ads per 1 000 researchers	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	Share of women among Grade A in HES	2016	23%	3	-4	24%	2014-16	5.7%	4.7	1.0%		
	Gender dimension in research content	2014-17 ⁽¹⁾	1.02	3	-3	1.05	2011-14 to 2014-17 ⁽¹⁾	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	A - Firms coop with univ, gov, res inst	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 - Share of papers in Open Access (Total)	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	Collab papers w/ non-ERA per 1 000 researchers	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