



ERA PROGRESS REPORT 2016

COUNTRY SNAPSHOT

Austria

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COUNTRY SNAPSHOT

Progress of Austria towards ERA Roadmap

	Indicator	Performance					Growth				
		Name	Reference year	Score	Cluster	Lead/Gap (Δ %)	EU-28	Reference Period	CAGR	Trend (2005–2015)	Lead/Gap (Δ % pt)
Across Priorities	1 – Adjusted Research Excellence	2013	48.6	2	9	44.4	2010–2013	2.6%		-3.8	6.4%
	2A – GBARD to transnatl coop (EUR/researcher)	2014	6,958	1	178	2,507	2010–2014	3.4%		-4.3	7.8%
	2B – Roadmap for ESFRI projects	National roadmap implemented in 2014, ESFRI projects identified									
	3 – EURAXESS job ads per 1 000 researchers	2014	71.3	2	52	47.0	2012–2014	14.0%		6.2	7.8%
	4 – Share of women among Grade A HES	2014	21.5%	3	-8	23.5%	2007–2014	6.0%		2.6	3.4%
	5A – Research institute–private collaboration	2012	12.6%	2	73	7.3%	2008–2012	14.7%		11.2	3.5%
	5A – Higher education–private collaboration	2012	20.9%	1	74	12.0%	2008–2012	1.7%		0.4	1.3%
	5B – Share of papers in Open Access (Total)	2014	53.3%	3	2	52.2%	<i>Not computed</i>				
	6 – Collab papers w/non-ERA per 1 000 researchers	2014	57.7	2	14	50.7	2005–2014	2.9%		-1.2	4.1%
	Headline Composite	2016	56	2	12	50	<i>Not computed</i>				
Priority 1	Adjusted Research Excellence ^(c)	2013	48.6	2	9	44.4	2010–2013	2.6%		-3.8	6.4%
	GBARD as share of GDP ^(c)	2014	0.804%	2	20	0.671%	2008–2014	2.8%		3.3	-0.5%
	European Innovation Scoreboard	2015	0.591	2	13	0.521	2008–2015	0.2%		-0.5	0.7%
	GBARD as share of government expenditures	2014	1.53%	2	10	1.39%	2005–2014	2.2%		3.0	-0.8%
	R&D tax incentives as share of GBARD	2013	15.0%	2	32	11.4%	<i>Not computed</i>				
	Share of GBARD allocated on project basis	2014	28.2%	<i>Not computed</i>			2009–2014	0.3%		<i>Not computed</i>	
	Patent applications per 1 000 researchers	2013	36.8	1	24	29.8	2005–2013	-1.1%		0.2	-1.2%
	Researchers per 1 000 active population ^(c)	2014	9.59	2	30	7.40	2005–2014	3%		0.8	2.4%
	Publications per 1 000 researchers ^(c)	2014	567	2	18	481	2005–2014	-0.3%		-1.9	1.6%
	Priority 1 Composite	2016	62	2	24	50	<i>Not computed</i>				
Priority 2	A – GBARD to transnatl coop (EUR/researcher) ^(c)	2014	6,958	1	178	2,507	2010–2014	3.4%		-4.3	7.8%
	A – Collab papers w/ERA per 1 000 researchers ^(c)	2014	132.3	1	101	65.7	2005–2014	2.3%		-1.3	3.6%
	A – Public-to-public partnerships (EUR/researcher) ^(c)	2014	1,610	2	215	512	2012–2014	49.9%		7.8	42.1%
	A – Co-invention rate w/ERA partners ^(c)	2011–13 ^(R)	23.6%	2	81	13.0%	2007–2013 ^(R)	0.0%		0.5	-0.5%
	B – Roadmap for ESFRI projects	National roadmap implemented in 2014, ESFRI projects identified									
	B – Participation in developing ESFRI projects	2016	0.0%	3	-100	20.7%	<i>Not computed</i>				
	B – Participation in operational ESFRI landmarks ^(c)	2016	27.6%	2	-9	30.2%	<i>Not computed</i>				
Priority 2 Composite	2016	60	2	20	50	<i>Not computed</i>					

Country profile: Austria

	Indicator	Performance				Growth					
		Name	Reference year	Score	Cluster	Lead/Gap (Δ %)	EU-28	Reference Period	CAGR	Trend (2005-2015)	Lead/Gap (Δ % pt)
Priority 3	EURAXESS job ads per 1 000 researchers ^(c)	2014	71.3	2	52	47.0	2012-2014	14.0%		6.2	7.8%
	Open, transparent, merit-based hiring process ^(c)	2012	38.2%	3	-22	49.0%			<i>Not computed</i>		
	Share of doctoral students from EU countries ^(c)	2013	19.6%	1	166	7.4%			<i>Not computed</i>		
	Priority 3 Composite	2016	67	2	6	63			<i>Not computed</i>		
Priority 4	Share of women among Grade A in HES ^(c)	2014	21.5%	3	-8	23.5%	2007-2014	6.0%		2.6	3.4%
	Gender dimension in research content ^(c)	2011-15 (R)	0.98	3	0	0.97	2005-2015 (R)	-1.6%		-1.1	-0.5%
	Share of women among heads of HES institutions ^(c)	2014	23.5%	2	17	20.1%			<i>Not computed</i>		
	Share of women researchers ^(c)	2013	29.6%	4	-11	33.2%	2005-2013	2.3%		1.5	0.8%
	Share of women among PhD graduates ^(c)	2012	41.8%	4	-12	47.3%	2005-2012	-0.6%		-1.9	1.2%
Priority 4 Composite	2016	40	3	-13	46			<i>Not computed</i>			
Priority 5	A - Research institute-private collaboration ^(c)	2012	12.6%	2	73	7.3%	2008-2012	14.7%		11.2	3.5%
	A - Higher education-private collaboration ^(c)	2012	20.9%	1	74	12.0%	2008-2012	1.7%		0.4	1.3%
	A - Share of public R&D funded privately ^(c)	2013	6.0%	3	-26	8.1%	2009-2013	-0.6%		-1.5	0.9%
	A - Public-private collab papers per capita ^(c)	2014	59.0	2	74	33.9	2008-2014	2.7%		2.9	-0.1%
	B - Share of papers in Open Access (Total) ^(c)	2014	53.3%	3	2	52.2%			<i>Not computed</i>		
	B - Share of papers in Open Access (Green)	2014	45.9%	2	3	44.7%			<i>Not computed</i>		
	B - Share of papers in Open Access (Gold)	2014	23.6%	2	13	21.0%			<i>Not computed</i>		
	B - National Open Access policies adopted	Yes, OA policies for research data [2012 (2)]; Yes, OA policies for scientific publications [2012 (2)]									
Priority 5 Composite	2016	48	3	17	41			<i>Not computed</i>			
Priority 6	Collab papers w/non-ERA per 1 000 researchers ^(c)	2014	57.7	2	14	50.7	2005-2014	2.9%		-1.2	4.1%
	Share of doctoral students from outside EU ^(c)	2012	9.0%	3	-65	25.5%	2005-2012	3.6%		0.1	3.5%
	Licence & patent rev. from abroad, share of GDP ^(c)	2013	0.25%	3	-61	0.64%	2006-2013	7%		-2.2	9.6%
	Co-invention rate w/non-ERA partners ^(c)	2011-13 (R)	6.9%	4	-30	9.8%	2007-2013 (R)	4.4%		2.1	2.3%
	Priority 6 Composite	2016	43	3	-22	55			<i>Not computed</i>		

COUNTRY NARRATIVE

Austria's performance towards achieving the European Research Area (ERA) is above average, falling into Cluster 2 on the headline composite indicator and leading the EU-28 average by 12 %. Note that this composite score relies on the core high level indicators that were selected as being the most relevant in monitoring progress in achieving the ERA by the European Research Area and Innovation Committee (ERAC Secretariat, 2015). As such, it provides only a partial view of all the relevant and complementary dimensions captured by the indicators listed in the above table. The reader should be careful in extracting conclusions on overall performance, acknowledging the presence of variability across all the dimensions within and between priorities.

1. More effective national research systems

Austria's overall performance in Priority 1 falls into Cluster 2 for the priority composite indicator, as well as across the majority of indicators. Of note is the fact that Austria's performance exceeds that of the EU-28 average by between 9 and 32 % in this priority.

Austria is performing particularly well in the number of patent applications per 1 000 researchers, leading the EU-28 by 24 % and falling into Cluster 1 relative to the ERA average. Over the 2005-2013 period, however, this indicator saw a mean annual decline of 1.1 %.

Their annual growth rate in the adjusted research excellence indicator fell behind the EU-28 average by 3.8 percentage points, which is likely to constitute evidence that other countries are catching up as opposed to signaling a decrease in Austria's performance, which still saw positive growth (a compound annual growth rate [CAGR] of 2.6 % over the 2010-2013 period).

Austria allocated 28.2 % of GBARD on a project basis in 2014. This high level of funding allocated directly to institutions is consistent with some general trends reported in previous studies, and the significant participation that higher education organisations take as recipients of public funding for research and innovation (R&I) -related activities (Claeys-Kulik & Estermann, 2015; Jonkers & Zacharewicz, 2016). However one has to consider the slow growing but consistent trend towards the adoption of performance-based criteria to decide on organisational funding, including the recent changes made to the governance and operations of some of the main research funding organisations, including the Austria Science Fund (FWF) and the Austrian Promotion Agency (FFG) (Claeys-Kulik & Estermann, 2015; Jonkers & Zacharewicz, 2016). Since 2011 performance agreements are also applicable to institutional funding granted to the Austrian Academy of Sciences (ÖAW) - the largest non-university research organisation in the country - and more recently (2015) to the Institute of Science and Technology (IST) Austria; these performance agreements include defined indicators to measure performance.

Austria is one of the ERA countries where public investments in education and research has increased in spite of a turbulent external economic environment and a general drive of European governments to adopt budget consolidation measures (Schuch & Gampfer, 2016). Public investments in research and development (R&D) were expected to grow in 2016, including competitive funding available to universities and the R&D tax incentive (Schuch & Gampfer, 2016). Austria's GBARD as a share of gross domestic product (GDP) and as a share of government expenditures both exceeded the annual growth rate in the EU-28 over the reference period, by 3.3 and 3.0 percentage points, respectively. Notwithstanding the positive dynamics in GBARD relative to GDP, the overall economic environment continues to affect the likelihood that Austria will reach its EU2020 target of an R&D intensity of 3.76 % relative to GDP (Eurostat, 2016; Schuch & Gampfer, 2016).

2. Optimal transnational co-operation and competition

Austria performs well in Priority 2 overall with their priority composite indicator score falling into Cluster 2 and exceeding the EU-28 average by 20 %. Austria's performance was particularly strong in the Sub-priority 2a and some weaknesses were found in Austria's performance in the Sub-priority 2b.

a. Jointly addressing grand challenges

Austria's performance in Sub-priority 2a was well above the EU-28 average, falling into Clusters 1 and 2. Their strongest performance was in participation in public-to-public partnerships, which led

the EU-28 average by 215 % in 2014 after having experienced strong growth from 2012-2014 (CAGR of 49.9 %). Austria systematically ranks among the top five countries in terms of EU-level initiative participation; this includes activities related to grand challenges, joint programming initiatives, ERA-NETs and others, often assuming leadership roles in terms of coordination and in the development of performance metrics for research (Niehoff, 2014; Schuch & Gampfer, 2016).

Despite this active participation in joint programming, Austria shows a general tendency to maintain a low proportion of R&D expenditures dedicated to R&D activities focused on societal challenges. In practice the agency that takes the largest responsibility in supporting this kind of R&D is the FFG. In 2013 and 2014, about 30 % of FFG's funding was allocated to thematic R&D programmes, including renewable energy as well as information and communications technologies (Schuch & Gampfer, 2016). It is worth noting that Austrian participation in pan-European R&I activities frequently involves the use of portable international grants building on the Lead Agency Model, which also aims to build mutual recognition of procedures and mechanisms to allocate public funding for research. This kind of collaboration is particularly strong with Germany and Switzerland (Schuch & Gampfer, 2016). In the near future, Austria's high level of participation in EU-level collaboration may face challenges due to financial constraints (Schuch & Gampfer, 2016).

Austria also led in the production of papers with ERA countries per 1 000 researchers, falling into Cluster 1 and exceeding the EU-28 average by 101 %. Despite the fact that Austria's performance in this indicator had increased over the 2005-2014 period (CAGR of 2.3 %), this was at a slower annual rate than in the EU-28 (CAGR of 3.6 %) suggesting that other countries are catching up to Austria's strong performance as opposed to Austria experiencing a decline in performance. This trend was also observed for the share of GBARD allocated to transnational cooperation.

b. Make optimal use of public investments in research infrastructures

Sub-priority 2b is among Austria's weaker performing areas, with performance scores falling into Clusters 2 and 3, and lagging behind the EU-28 average for both indicators. In 2014, however, Austria implemented their national roadmap and identified European Strategy Forum on Research Infrastructures (ESFRI) projects in which to participate, as well as some bottlenecks expected to limit long-term financial commitments related to EU-level research infrastructures. The country also has in place a Task Force responsible to guide the strategic development of research infrastructures, as mandated by the federal Strategy for Research, Technology and Innovation (Schuch & Gampfer, 2016). While Austria's score for ESFRI project participation fell into Cluster 3 (note that there is no fourth cluster for this indicator), the country participated in 27.6 % of landmark projects in 2016, earning them a corresponding Cluster 2 ranking.

3. An open labour market for researchers

Austria's performance in Priority 3 is above average, falling into Cluster 2 on the priority composite indicator and exceeding the EU-28 average by a small but positive margin of 6 %.

Austria's research organisations enjoy a high level of institutional autonomy in regard to human resource practices (Schray, Grther, Bertges, & Klee, 2014). Austria has a long tradition of adherence to the Scientific Visa Directives, while immigration laws are constantly being revised in order to enhance the country's attractiveness as base for a research career (Schuch & Gampfer, 2016).

Austria is particularly strong in the share of doctoral students coming from other ERA countries, ranking in Cluster 1 and exceeding the EU-28 average by 166 %. This positive performance can be explained, at least to some extent, by presence of specialised programmes to promote mobility and attract talent into Austrian organisations. At more advanced levels, the Austrian Programme for Advanced Research and Technology (APART) provided support to national and international students interested in conducting post-doctoral research for a period of up to three years (OAW, n.d.). In 2012 alone, some 30 % of the APART fellows conducted their research abroad; similarly, in 2010-2012, some 18 % of fellows were non-Austrian nationals (Deloitte, 2014). For the period 2015 and 2016, the program was suspended to allow for some review to its structure and may not continue in its current form (Personal communication from country representatives, September 2016).

Although Austrian universities are required by law to advertise for research positions internationally, these ads may not necessarily be in English language. Despite this fact, Austria is performing well in the number of EURAXESS job ads per 1 000 researchers, exceeding the EU-28 average and also exhibiting a higher rate of growth over the 2012-2014 period. Austria is actively combining a national portal and a network of EURAXESS service centres at different universities (Schuch & Gampfer, 2016). In addition to the wider dissemination of research positions via job portals such as EURAXESS, a series of connected services are also intended to enhance the attractiveness of Austria for researchers. For example, through 'dual career services' organised by several Austrian research organisations, the spouses or partners of newly appointed researchers can obtain individualised assistance to find employment opportunities in different regions, including the city of Vienna (Deloitte, 2014).

Performance was weaker in the area of open, transparent and merit-based hiring processes, which in 2012 fell 22 % below the EU-28 average and resulted in a Cluster 3 placement. Some concrete challenges remain particularly because of the lack of tenure track opportunities and weak career perspectives particularly for young researchers who are often faced with precarious contracting conditions (Schuch & Gampfer, 2016).

4. Gender equality and gender mainstreaming in research

Priority 4 is an area in which Austria has room for improvement, with a Cluster 3 classification on the priority composite indicator, two indicators falling into Cluster 4, and several indicators trailing behind the EU-28 average.

According to recent amendments to the Austrian Universities Act, universities should ensure that 50 % of governing bodies' members are women; universities are also required to develop plans for the promotion of women and gender equality, and have provisions for adequate work-family balance (Schuch & Gampfer, 2016). Together with Cyprus and Finland, Austria is one of the few ERA countries that has implemented policies to monitor and rectify gender pay gaps in research (Lipinsky, 2014). Indeed, Austria's Federal Government Equal Opportunity Act obliges all universities to provide an annual income report detailing any gender pay gaps at the institution; performance agreements have also been established between universities and the federal government that link progress in the promotion of gender equality and access to research funding (Lipinsky, 2014). At the level of funding organisations, including the FFG and FWF, gender and equal opportunity considerations are factored into funding competitions and into reporting mechanisms in a fashion consistent with the precepts of Horizon 2020 (BMWFW & BMVIT, 2015). Another progressive initiative to note is the Käthe Leichter awards for Women and Gender Studies and for Equality in the World of Work, which serve to reward outstanding achievements by women in the social sciences, humanities and cultural sciences for outstanding achievements in gender equality (Deloitte, 2014; Lipinsky, 2014).

Notwithstanding progress in this area, performance was weakest in the share of women researchers and among PhD graduates, both of which placed Austria in Cluster 4 relative to the ERA average. While the trend for the share of women researchers showed positive signs over the 2005-2013 period, exceeding the rate of improvement among the EU-28 by 1.5 percentage points, the share of women among PhD graduates experienced a mean annual decrease of 0.6 % over 2005-2012, while the EU-28 generally saw an increase in this area (CAGR of 1.2 %). In contrast to the findings presented here, there is evidence that the share of women scientists in non-university research increased from 20 % to 25 % between 2004 and 2013, with the strongest growth recorded in the younger age groups, lower-income groups, and lower functional levels (BMWFW & BMVIT, 2015; Schuch & Gampfer, 2016).

The FFG runs the FEMtech research projects funding aimed to support innovative projects that include consideration of the gender dimension in R&D (BMWFW & BMVIT, 2015). Austria is not, however, highly specialised in the inclusion of a gender dimension in research content, falling into Cluster 3 and tying the EU-28 average for this indicator.

5. Optimal circulation, access to and transfer of scientific knowledge including via digital ERA

Austria's overall performance in Priority 5 falls behind the ERA average (i.e. into Cluster 3) but exceeds the EU-28 average by 23 % on the priority composite indicator.

a. Knowledge transfer

Austria has set in place a national regulatory framework to govern issues related to knowledge and intellectual property rights (IPR) transfer, including provisions that oblige both research organisations and funding agencies to actively contribute to innovation and competitiveness (Schuch & Gampfer, 2016). In practice, most public universities have technology transfer offices as well as IPR exploitation strategies. Networking initiatives, support to science parks or clusters, vouchers and other technology transfer instruments are the main instruments used by Austrian organisations to underpin knowledge transfer; significant activity occurs through AplusB (Academia plus Business) centres, Competence Centres, Josef Ressel centres, Impuls Centres, as well as regional Knowledge Transfer and Exploitation of IPR Centres (Schuch & Gampfer, 2016). The Christian-Doppler laboratories and centres are a good example of efforts to improve the connection between universities and industry, including by supporting the establishment of temporary laboratories at universities to work on applied and fundamental research with the participation of industry partners; in 2014, the investment in these centres reached approximately EUR 25.7 million (Schuch & Gampfer, 2016). Similarly, the Ludwig Boltzmann Gesellschaft (LBG) is actively working on areas related to health research and open innovation (LBG, 2016).

Austria performs well in Sub-priority 5a overall, falling into Clusters 1 or 2 and exhibiting large leads over the EU-28 average performance scores for all but one indicator. In particular, collaboration between higher education and private sectors exceeded the EU-28 average by 74 % in 2012, and research institution collaboration with the private sector also exceeded the EU-28 average by a large margin (73 %). While both of these indicators also exhibited growth from 2008-2012, this was much higher for collaboration between research institutes and the private sector, which exhibited a mean annual growth rate of 14.7 % (exceeding the EU-28's mean annual growth rate by 11.2 percentage points).

Performance was weaker in the share of public R&D funded by private sources, for which Austria's performance score resulted in a Cluster 3 placement (although their performance was only slightly below the EU-28 average). While there was modest growth for this indicator in the EU-28 over 2009-2013, Austria experienced a mean annual decrease of 0.6 %.

b. Open access

Austria's performance in Sub-priority 5b is close to average, with a Cluster 3 placement on the total share of papers in open access (OA) in 2014 but a 2 % lead over the EU-28 average. Performance is also above the EU-28 average for the share of papers in gold open access. The below-average performance relative to the ERA but above-average performance relative to the EU-28 in the total share of papers in OA is due to the fact that many Associated Countries (i.e. non-Member States) are performing very well in this indicator, pulling up the ERA average relative to the EU-28's.

A number of Austrian research performing and research funding organisations are signatories of the Berlin Declaration on OA to Knowledge in the Sciences and Humanities. While significant progress has been made in the adoption of open access to publications, the process has been more gradual in the case of open access to data (Schuch & Gampfer, 2016). The FWF is perceived as a leading agency in terms of the promotion of OA in Austria. The agency has had provisions around OA since 2008, although monitoring of compliance was not strict; however, starting from January 2016, the acceptance of final reports on FWF projects will be on the condition that all peer-reviewed publications resulting from those projects are reported as OA publications (Schuch & Gampfer, 2016). Additional initiatives implemented by Austrian funding organisations include the financing of publications in gold, green or hybrid open access outlets (subject to certain limits in the pricing of these publications), participation in open access repositories (e.g. PubMed Central), and even the adoption of calls to support the establishment of open access journals, mainly in the social sciences and humanities (Schuch & Gampfer, 2016).

6. International cooperation

Asides from the headline indicator of papers produced in collaboration with non-ERA partners per 1 000 researchers, which falls into Cluster 2 and was 14 % above the EU-28 average in 2014, Austria's performance is below average for Priority 6. In addition to a Cluster 3 placement for the priority composite indicator and a corresponding deficit of 22 % to the EU-28 average, Austria's

performance falls into Cluster 3 and trails behind the EU-28's for the share of doctoral students from outside the EU, licence and patent revenue from abroad as a share of GDP, and co-invention rate with non-ERA partners.

Research partnerships beyond Europe are expected to receive a significant push from the December 2015 adoption of the 'Beyond Europe' programme by the Federal Ministry of Science, Research and Economy (Schuch & Gampfer, 2016). With a mandate to link Austrian companies and research institutions with their peers abroad, initial investment in this programme is on the order of EUR 4.6 million. The Beyond Europe programme identifies three different categories of countries according to the priority that Austria grants to their partnerships; the first group includes China, India, the United States and Russia; the second group includes Australia, Brazil, Canada, Japan, Malaysia, Singapore, South Africa, Sub-Saharan Africa, and South Korea; finally, there is the group of partners in Latin America, other African countries, some Gulf countries and some East Asian countries (NRTIS-TF, 2015; Schuch & Gampfer, 2016). A diversity of multilateral cooperation agreements in the area of R&I are also in place with Argentina, China, India, Japan, Russia, Singapore, South Korea, Taiwan and other countries; many of these are handled by different instances of the Austrian grant making organisations (Schuch & Gampfer, 2016).

Summary

Austria is making progress towards the achievement of the ERA and performs well in most of the priority areas. Most of the headline indicators fall into Cluster 2, although Austria falls into Cluster 3 for the share of women among Grade A positions in the higher education sector (Priority 4) as well as the total share of papers in open access (Sub-priority 5b). Austria is a leader within the ERA in the collaboration between the higher education sector and private firms (Sub-priority 5a), which falls into Cluster 1. Despite relatively strong performance on the headline indicator in Priority 6, the other indicators in this area would suggest that it is an area for improvement for Austria.

Austria published a complete and detailed 2016 National Action Plan (also called an ERA national roadmap). This includes the main objectives, measures, instruments, milestones, and assessment tools to measure completion for all priorities. For instance, in regard to Priority 4 (in which Austria has more room for improvement), objectives outlined are as follows: '(a) Increasing the shares of women in all areas and at all hierarchy levels where they are under-represented; (b) Integrating the gender dimension into structures and policies in science and research; (c) Considering the gender dimension in research content and teaching' (BMWFW, 2016).

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ANNEX: METHODOLOGICAL NOTES

	Indicator	Data availability	Flag									
			Exception to ref. year	Exception to ref. period	Break in time series	Definition differs	Estimated	Provisional	Potential outlier	Revised	Eurostat estimate	
Priority 1	Adjusted Research Excellence	Available										
	GBARD as share of GDP	Available				2005-2014						
	European Innovation Scoreboard	Available										
	<i>GBARD as share of government expenditures</i>	Available				2005-2014						
	<i>R&D tax incentives as share of GBARD</i>	Available				2013						
	<i>Share of GBARD allocated on project basis</i>	Available		2011-2014		2009-2014						
	<i>Patent applications per 1 000 researchers</i>	Available					2005, 2008, 2010, 2012					
	Researchers per 1 000 active population	Available			2007		2005, 2008, 2010, 2012, 2014	2014				
Publications per 1 000 researchers	Available					2005, 2008, 2010, 2012, 2014	2014					
Priority 2	A - GBARD to transnatl coop (EUR/researcher)	Available						2008, 2010, 2012, 2014	2014			
	A - Collab papers w/ERA per 1 000 researchers	Available						2005, 2008, 2010, 2012, 2014	2014			
	A - Public-to-public partnerships (EUR/researcher)	Available						2012, 2014	2014			
	A - Co-invention rate w/ERA partners	Available										
	B - Roadmap for ESFRI projects	Available										
	B - Participation in developing ESFRI projects	Available										
B - Participation in operational ESFRI landmarks	Available											
Priority 3	EURAXESS job ads per 1 000 researchers	Available						2012, 2014	2014			
	Open, transparent, merit-based hiring process	Available										
	Share of doctoral students from EU countries	Available										
Priority 4	Share of women among Grade A HES	Available	2013	2006-2013								
	Gender dimension in research content	Available										
	Share of women among PhD graduates	Available										
	Share of women among heads of HEI	Available										
	Share of women researchers	Available		2006-2013								
Priority 5	A - Research institute-private collaboration	Available					2012					2012
	A - Higher education-private collaboration	Available										
	A - Share of public R&D funded privately	Available										
	A - Public-private collab papers per capita	Available						2009-2013				
	B - Share of papers in Open Access (Total)	Available										
	B - Share of papers in Open Access (Green)	Available										
	B - Share of papers in Open Access (Gold)	Available										
B - National Open Access policies adopted	Available											
Priority 6	Collab papers w/non-ERA per 1 000 researchers	Available						2005, 2008, 2010, 2012, 2014	2014			
	Share of doctoral students from outside EU	Available										
	Licence & patent rev. from abroad, share of GDP	Available								2013		
	Co-invention rate w/non-ERA partners	Available										

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The European Research Area (ERA) Progress Report 2016 shows the state of play in ERA. A lot has happened in the European research landscape since the last edition in 2014. The ERA Roadmap at EU level was endorsed by the Council in early 2015. This called for top action priorities that will have the biggest impact on Europe's science and innovation systems. Member States were invited to draw up national action plans based on this approach. Last year almost all Member States and a number of Associated Countries have published their National Action Plans on ERA showing clear political ownership of ERA.

This analysis carried out in 2016 shows strong progress in all ERA priorities across the EU. This was possible because of a true partnership among the Member States and Associated Countries, the Commission and research stakeholder organisations. But we cannot be complacent. European strength in the field of Research and Innovation is needed more than ever to reinforce competitiveness but is also increasingly challenged to deliver on impacts. The Commission's policy agenda on Open Science, Open Innovation and Open to the World will open up ERA to future challenges, like digitalisation and global networks. There are new barriers to break down to create more wealth and security for our citizens.

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