



European Research Area

Progress Report 2016

Country Snapshot
Latvia



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COUNTRY SNAPSHOT

Progress of Latvia 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	20.1	3	-55	44.4	2010–2013	4.1%		-2.3	6.4%
	2A – GBARD to transnatl coop (EUR/researcher)	2014	1,030	3	-59	2,507	2010–2014	47.1%		39.4	7.8%
	2B – Roadmap for ESFRI projects	No national roadmap in place									
	3 – EURAXESS job ads per 1 000 researchers	2014	2.7	3	-94	47.0	2012–2014	72.3%		64.5	7.8%
	4 – Share of women among Grade A HES	2014	34.4%	1	46	23.5%	2007–2014	2.8%		-0.5	3.4%
	5A – Research institute–private collaboration	2012	6.8%	3	-6	7.3%	2008–2012	0.1%		-3.4	3.5%
	5A – Higher education–private collaboration	2012	7.0%	3	-42	12.0%	2008–2012	-9.8%		-11.1	1.3%
	5B – Share of papers in Open Access (Total)	2014	50.0%	4	-4	52.2%	Not computed				
	6 – Collab papers w/non-ERA per 1 000 researchers	2014	8.1	4	-84	50.7	2005–2014	1.6%		-2.6	4.1%
	Headline Composite	2016	31	4	-38	50	Not computed				
Priority 1	Adjusted Research Excellence ^(c)	2013	20.1	3	-55	44.4	2010–2013	4.1%		-2.3	6.4%
	GBARD as share of GDP ^(c)	2014	0.162%	4	-76	0.671%	2008–2014	-8.5%		-8.0	-0.5%
	European Innovation Scoreboard	2015	0.281	4	-46	0.521	2008–2015	4.0%		3.2	0.7%
	GBARD as share of government expenditures	2014	0.43%	4	-69	1.39%	2005–2014	-2.4%		-1.7	-0.8%
	R&D tax incentives as share of GBARD	2013	:			11.4%	Not computed				
	Share of GBARD allocated on project basis	2014	:		Not computed			2009–2014	:	Not computed	
	Patent applications per 1 000 researchers	2013	9.6	3	-68	29.8	2005–2013	3.9%		5.1	-1.2%
	Researchers per 1 000 active population ^(c)	2014	3.88	3	-48	7.40	2005–2014	2%		0.1	2.4%
	Publications per 1 000 researchers ^(c)	2014	136	4	-72	481	2005–2014	7.7%		6.0	1.6%
Priority 1 Composite	2016	7	4	-86	50	Not computed					
Priority 2	A – GBARD to transnatl coop (EUR/researcher) ^(c)	2014	1,030	3	-59	2,507	2010–2014	47.1%		39.4	7.8%
	A – Collab papers w/ERA per 1 000 researchers ^(c)	2014	29.0	4	-56	65.7	2005–2014	5.3%		1.7	3.6%
	A – Public-to-public partnerships (EUR/researcher) ^(c)	2014	1,334	2	161	512	2012–2014	232.2%		190.1	42.1%
	A – Co-invention rate w/ERA partners ^(c)	2011–13 ^(R)	9.5%	3	-27	13.0%	2007–2013 ^(R)	-22.3%		-21.9	-0.5%
	B – Roadmap for ESFRI projects	No national roadmap in place									
	B – Participation in developing ESFRI projects	2016	0.0%	3	-100	20.7%	Not computed				
	B – Participation in operational ESFRI landmarks ^(c)	2016	0.0%	4	-100	30.2%	Not computed				
Priority 2 Composite	2016	43	3	-14	50	Not computed					

Country profile: Latvia

	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	2.7	3	-94	47.0	2012-2014	72.3%		64.5	7.8%
	Open, transparent, merit-based hiring process ^(c)	2012	53.8%	2	10	49.0%	Not computed				
	Share of doctoral students from EU countries ^(c)	2013	4.1%	3	-44	7.4%	Not computed				
	Priority 3 Composite	2016	45	3	-29	63	Not computed				
Priority 4	Share of women among Grade A in HES ^(c)	2014	34.4%	1	46	23.5%	2007-2014	2.8%		-0.5	3.4%
	Gender dimension in research content ^(c)	2011-15 (R)	0.65	3	-33	0.97	2005-2015 (R)	6.1%		6.6	-0.5%
	Share of women among heads of HES institutions ^(c)	2014	25.0%	2	24	20.1%	Not computed				
	Share of women researchers ^(c)	2013	52.0%	1	57	33.2%	2005-2013	0.1%		-0.7	0.8%
	Share of women among PhD graduates ^(c)	2012	59.9%	1	27	47.3%	2005-2012	0.3%		-1.0	1.2%
Priority 4 Composite	2016	69	1	50	46	Not computed					
Priority 5	A - Research institute-private collaboration ^(c)	2012	6.8%	3	-6	7.3%	2008-2012	0.1%		-3.4	3.5%
	A - Higher education-private collaboration ^(c)	2012	7.0%	3	-42	12.0%	2008-2012	-9.8%		-11.1	1.3%
	A - Share of public R&D funded privately ^(c)	2013	14.0%	1	72	8.1%	2009-2013	:			0.9%
	A - Public-private collab papers per capita ^(c)	2014	0.0	3	-100	33.9	2008-2014	-70.0%		-69.9	-0.1%
	B - Share of papers in Open Access (Total) ^(c)	2014	50.0%	4	-4	52.2%	Not computed				
	B - Share of papers in Open Access (Green)	2014	43.2%	3	-3	44.7%	Not computed				
	B - Share of papers in Open Access (Gold)	2014	16.7%	4	-20	21.0%	Not computed				
	B - National Open Access policies adopted	No OA policies for research data; No OA policies for scientific publications									
Priority 5 Composite	2016	28	4	-32	41	Not computed					
Priority 6	Collab papers w/ non-ERA per 1 000 researchers ^(c)	2014	8.1	4	-84	50.7	2005-2014	1.6%		-2.6	4.1%
	Share of doctoral students from outside EU ^(c)	2012	1.5%	3	-94	25.5%	2005-2012	32.0%		28.5	3.5%
	Licence & patent rev. from abroad, share of GDP ^(c)	2013	0.00%	3	-100	0.64%	2006-2013	0%		-9.6	9.6%
	Co-invention rate w/non-ERA partners ^(c)	2011-13 (R)	6.0%	4	-39	9.8%	2007-2013 (R)	-11.1%		-13.3	2.3%
Priority 6 Composite	2016	25	4	-55	55	Not computed					

COUNTRY NARRATIVE

Latvia's performance towards achieving the European Research Area (ERA) is lagging, falling into Cluster 4 relative to the other ERA countries and trailing the EU-28 by 38 % in the headline composite indicator. 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

Priority 1 is an area in need of improvement for Latvia, falling into Cluster 4 and trailing the EU-28 average by 86 % on the priority composite indicator.

Performance in the adjusted research excellence indicator trails behind the EU-28 average by 55 %. As a result of 2008 financial crisis, the government has reduced the share of structural funds allocated to R&D and increased project-based funding in order to make funding allocations more closely tied to needs (Kulikovskis, Petraityte, & Stamenov, 2016). Latvia's government budget appropriations or outlays for R&D (GBARD) as a share of gross domestic product (GDP) is quite low relative to EU standards, having trailed the EU-28 average by 76 % in 2014, indicating that national budget appropriations (i.e. not actual spending) are low. Latvia's GBARD as a share of government expenditures is also low relative to its ERA/EU-28 counterparts; in this case data for 2014 show a gap of 69 % relative to the EU-28 average.

For the period spanning from 2014-2017, the total state budget for research programmes amounts to EUR 25.7 million. A large share of public funds for R&D are awarded on a project basis (75 %) with the remainder going towards institutional grants (Jonkers & Zacharewicz, 2016). Competitive funding will continue to be the norm in Latvia at least until 2020 (Avotnis & Resele, 2015). However, evidence suggests that there is room to improve the processing of grant applications, particularly to reduce the bureaucratic burden and increase the transparency and consistency of evaluation processes, which should be conducted according to well-defined eligibility criteria (e.g. previous participation in a Horizon 2020 project). Similarly, there is room to improve on the work of peer-review committees (Kulikovskis et al., 2016). Currently, success rate of proposals is around 15 % with an average of EUR 4.3 million distributed annually (Avotnis & Resele, 2015).

The number of patent applications per 1000 researchers remains low for Latvia, trailing the EU-28 average by 68 %. The number of researchers per active population, as well as publications per 1000 researchers, place Latvia 48 % and 72 % behind the EU-28 respectively.

Asides from GBARD as a share of GDP and of government expenditures, which both experienced mean annual declines in recent years, Latvia's performance has been improving – often at a rate faster than the EU-28's. For example, the number of publications per 1 000 researchers increased by a mean annual rate of 7.7 % over the 2005-2014 period, which was 6.0 percentage points above the EU-28's annual growth rate.

While current performance results suggest that Priority 1 is an area in which Latvia could place an increased emphasis, trends in recent years show that they are making strides towards closing the gap with other countries.

2. Optimal transnational co-operation and competition

Overall, based on the Priority 2 composite indicator, Latvia falls into Cluster 3 and falls 14 % behind the EU-28 average.

a. Jointly addressing grand challenges

Sub-priority 2a is an area of mixed performance for Latvia, with performance scores falling into Clusters 2, 3 and 4, as well as a wide range of lead/gaps to the EU-28 average.

Latvia performs extremely well in public-to-public partnerships, such as ERA-NETs, with a lead of 161 % in 2014 relative to the EU-28 average. Indeed, between 2012 and 2014, the country's participation in public-to-public participation recorded a mean annual increase of 232.2 %. Latvia participates in Horizon 2020, Bonus Life and Erasmus+ Programmes to co-finance approved, transnational projects (Kulikovskis et al., 2016).

In 2014 Latvia's share of GBARD dedicated to transnational cooperation was 59 % below the EU-28 average, but it has experienced a mean annual increase of 47.1 % between 2010 and 2014, suggesting the country is catching up to the EU-28 average. This increased transnational cooperation is exemplified through programmes such as the Baltic BONUS which was established in 2013 and covers project costs of researchers from the Baltic region who participate in Horizon 2020 calls (Kulikovskis et al., 2016).

In contrast to the strong performance in the abovementioned indicators, Latvian researchers' co-publication rate with ERA partners is quite low, trailing the EU-28 average by 56 % and falling into Cluster 4. Performance was also below average for the co-invention rate with ERA partners, after having experienced a mean annual decline of 27 % in the 2007-2013 period.

b. Make optimal use of public investments in research infrastructures

Latvia's performance in Sub-priority 2b leaves much room for improvement as the country has no national research infrastructure roadmap in place, and in 2016 was not participating in any European Strategy Forum on Research Infrastructures (ESFRI) projects or landmarks. A roadmap for research infrastructure is expected in the near future, however, and some progress has been made to develop research infrastructure in the Baltics in collaboration with Estonia and Lithuania (Bennetot Pruvot, Claeys-Kulik, & Estermann, 2015).

3. An open labour market for researchers

Based on the composite indicator for Priority 3, Latvia falls 29 % behind the EU-28 average and into Cluster 3.

Based on the latest available data, Latvia's hiring processes were found to be more open, transparent, merit-based than the EU-28 average. In 2014, however, there were relatively few job ads per 1 000 researchers posted on Latvia's EURAXESS portal. However, between 2012 and 2014, the number of ads showed a positive trend with an average annual increase of 72.3 %. Research jobs are typically posted elsewhere, for example in the online newspaper, the Latvian Herald, since 2013 (Kulikovskis et al., 2016).

Foreigners can be employed as guest scientists, but it is difficult to obtain a full-time position, mainly because of the need to satisfy Latvian language skills. Furthermore, the low salary levels relative to other EU countries affect Latvia's attractiveness to researchers from abroad, making the wage gap a major barrier for recruitment (Kulikovskis et al., 2016). The country also has relatively few doctoral students from other EU countries, falling 44 % behind the EU-28 average in this regard.

4. Gender equality and gender mainstreaming in research

Latvia is a leading performer in Priority 4, with a priority composite indicator score exceeding that of the EU-28 by 50 %, and falling into Cluster 1 relative to the other ERA countries.

Latvia has a relatively high share of women in Grade A positions in the higher education sector, and also performs above average in the share of women among heads of higher education institutions. Similarly, the share of women researchers, as well as PhD graduates, places Latvia in Cluster 1. Gender equality and gender balance in research proposals is desirable, but there is no score attached to it during the evaluation phase (Kulikovskis et al., 2016).

The exception to Latvia's strong performance in this priority is in the inclusion of a gender dimension in research content, for which performance fell below the EU-28 average. However, the trend for this indicator suggests that Latvia's performance in this regard has been improving in recent years with a mean annual growth rate of 6.1 %. If this trend continues, Latvia may be able to close the performance gap with other countries and further strengthen their position as a leader in the area of gender equality and gender mainstreaming in research.

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

Based on the composite indicator, Latvia's overall performance in Priority 5 falls into Cluster 4 and lags behind the EU-28 by 28 %, suggesting there remains room for improvement in both knowledge transfer and open access initiatives.

a. Knowledge transfer

In Latvia, 11.5 % of structural funds are allocated to technology transfer and university-industry cooperation, and there are currently 8 technology transfer contact points and 4 science and technology parks which also offer business incubation services (Kulikovskis et al., 2016).

Latvia's performance in Sub-priority 5a is variable, with performance scores falling into Clusters 1 and 3 with accordingly variable lead/gaps relative to the EU-28 average. Latvia reportedly did not produce any papers through collaboration between the public and private sectors in 2014 following a very steep declining trend in this indicator over the preceding years. Indeed, Latvia's mean annual decrease in this area was 70.0 %, which constitutes the country's biggest drop across all indicators measured in this monitoring exercise. Collaboration between private enterprises and higher education/research institutes was also found to be below average. By contrast, however, the share of public R&D funded through private investments places Latvia in Cluster 1, with a lead of 72 % over the EU-28 average.

Operational Programmes that ran between 2007 and 2013 were the main funding sources for the initiatives introduced by the Latvian government to strengthen cooperation and knowledge transfer between business and academia (Kulikovskis et al., 2016). Another programme aimed at strengthening knowledge transfer between these actors was the Market-Oriented Research Programme, which was started by the Ministry of Education and Science in 1993 and supported the implementation of market-oriented research projects by funding the collaboration between researchers and the private sector. The program was terminated in 2015, which suggests that performance in this priority may continue to decline. In addition, major challenges to improve the work of university-based technology transfer offices involve the need to enhance the incentives for universities to take patents on their inventions, as well as improving knowledge and skills around technology commercialisation, including for the completion of successful licensing agreements (Kulikovskis et al., 2016).

b. Open access

There was no evidence available on the existence of specific open access policies in Latvia, although many researchers choose to publish their articles in open access (Kulikovskis et al., 2016). Latvian initiatives are focused on implementing the green access model, although some researchers in the country have shown a preference towards publishing in gold open access (Kulikovskis et al., 2016). Latvia's performance in open access falls below the EU-28 and ERA averages across all of the open access indicators, however. Performance is weakest in the share of papers in gold open access, which fell into Cluster 4 and trailed the EU-28 by 20 %.

6. International cooperation

Priority 6 is not one of Latvia's strengths. Based on the Priority 6 composite indicator, Latvia's participation in international cooperation lags behind the EU-28 average by 55 % and falls into Cluster 4. Some attempts at international cooperation have been made, for example through programs with Belarus and Russia, which are aimed at strengthening the cross-border cooperation between these nations (Kulikovskis et al., 2016).

Still, data for 2014 show that Latvia's performance in terms of papers published in collaboration with partners outside of ERA countries is quite low, placing it in Cluster 4 and trailing the EU-28 by 84 %. Latvia also reported no licence or patent revenues from abroad (as a share of GDP) in 2013, and its co-invention rate with non-ERA countries trailed the EU-28 average by 39 %. This follows a downward trend in growth over the preceding years, at a mean annual rate 13.3 percentage points greater than the EU-28's.

The share of doctoral students from third countries is also quite low, with a gap of 94 % relative to the EU-28 average for the year 2012. However, for the period 2005-2012, Latvia has shown

impressive growth in attracting students from outside of the ERA, with a mean annual increase of 32.0 %.

Taken together, these results suggest that Priority 6 is an area in need of improvement for Latvia.

Summary

While Latvia is performing well in certain indicators, such as in public-to-public partnerships and the share of public R&D funded through private sources, it generally lags behind the average performance of other European countries across the priorities.

One of the areas in which Latvia has the most room for improvement is in Priority 1. Due to the financial crisis of 2008, low levels of the national budget are allocated to public research, which hinders the country's overall growth in research excellence. However, Latvia performs very well in priority 4, surpassing many countries in providing equal opportunities for women and men in the research sector. Positive growth trends also emerged in recent years for many indicators, suggesting that Latvia is making strides towards closing performance gaps with other countries.

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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									
	European Innovation Scoreboard	Available									
	<i>GBARD as share of government expenditures</i>	Available									
	<i>R&D tax incentives as share of GBARD</i>	Unavailable									
	<i>Share of GBARD allocated on project basis</i>	Unavailable									
	<i>Patent applications per 1 000 researchers</i>	Available									
	Researchers per 1 000 active population	Available								2014	
Publications per 1 000 researchers	Available								2014		
Priority 2	A - GBARD to transnatl coop (EUR/researcher)	Available			2012						
	A - Collab papers w/ERA per 1 000 researchers	Available								2014	
	A - Public-to-public partnerships (EUR/researcher)	Available								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								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	2007-2013							
	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										
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						No CAGR			
	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								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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