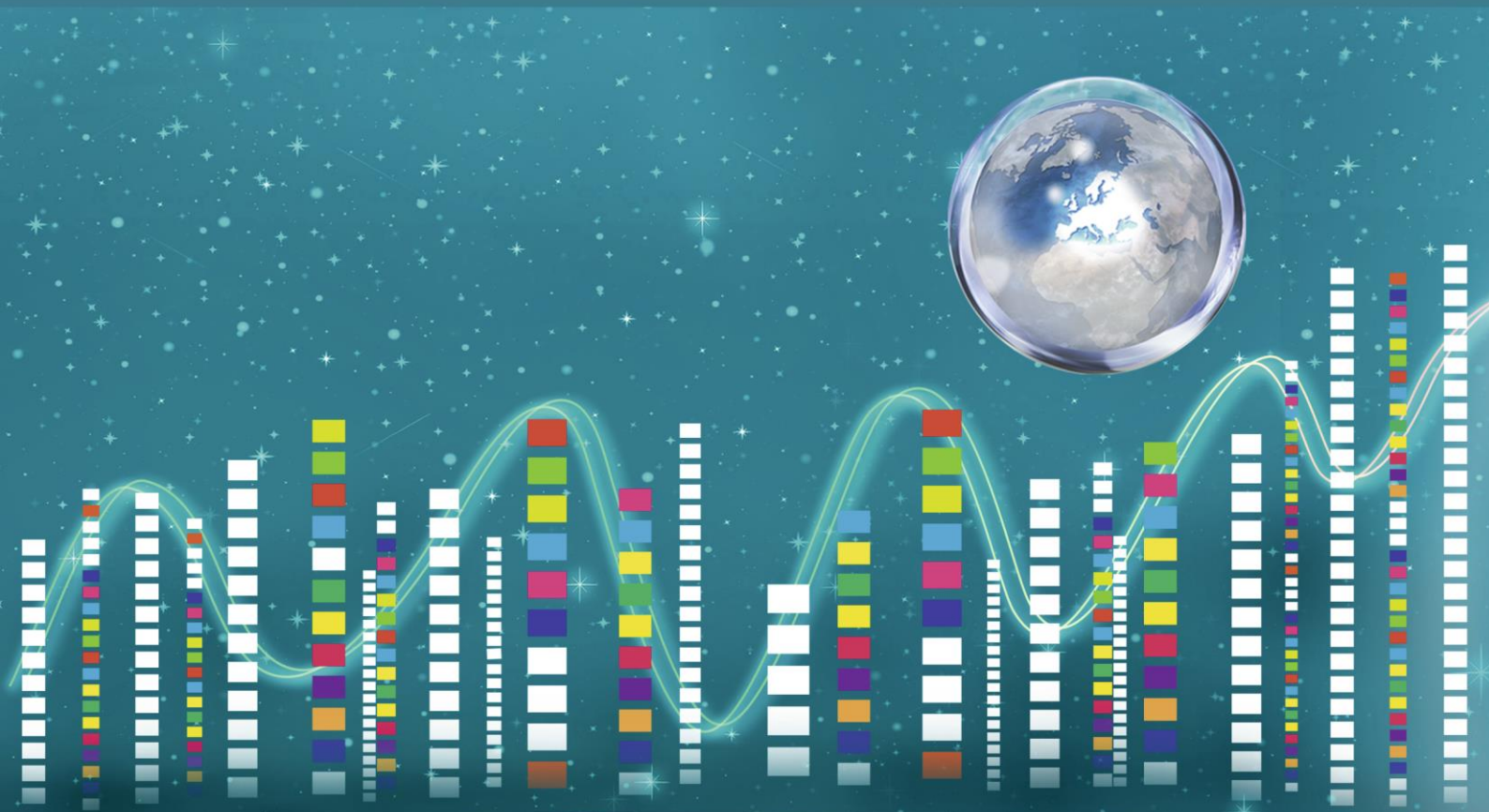




# European Research Area

## Progress Report 2018

Report from the Commission



Research and  
Innovation

## **ERA PROGRESS REPORT 2018**

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EUROPEAN COMMISSION

# **ERA PROGRESS REPORT 2018**

## **REPORT FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT**

*The European Research Area: advancing together the Europe of  
research and innovation*

COM(2019) 83



## **The European Research Area: advancing together the Europe of research and innovation.**

### **1. INTRODUCTION**

The 2018 ERA Progress Report assesses the current state of the European Research Area (ERA) and the progress made on ERA implementation in 2016-2018<sup>1</sup>. It is the second time in a row that progress has been measured at country level using the ERA monitoring mechanism — a set of 24 core indicators jointly defined by Member States, research stakeholders and the Commission that includes eight headline indicators<sup>2</sup>.

ERA implementation focuses on six priorities:

1. More effective national research systems
  2. Optimal transnational cooperation and competition, including ‘jointly addressing grand challenges’ and ‘research infrastructures’
  3. An open labour market for researchers
  4. Gender equality and gender mainstreaming in research
  5. Optimal circulation, access to and transfer of scientific knowledge, including ‘knowledge circulation’ and ‘open access’
  6. International cooperation.
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The 2016 ERA Progress Report showed that substantial progress had been made on ERA implementation over the last decade. At EU level, all headline indicators improved, although there were still large disparities between Member States in both performance levels and growth rates.

Based on the overall evolution of the headline indicators, progress on ERA implementation continues, albeit at a slower pace than before. The growth rate of some headline indicators (priorities 5 and 6) is stable, while for others (priorities 1, 2 and 4) it has slowed. One headline indicator (priority 3) even has a negative growth rate. However, this is of no immediate concern as this indicator is only a proxy and the complementary indicators for priority 3 are still improving.

The table at the end of the document presents the growth rates of the different headline indicators.

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<sup>1</sup> The Commission reports on a biennial basis on ERA progress. Policy developments have been described from mid-2016 (cut-off date for the 2016 ERA Progress Report) to mid-2018 (cut-off date for the 2018 ERA Progress Report). However, indicators are only available after some delay. As a result, most of the indicators in this report refer to previous years.

<sup>2</sup> Findings throughout this report refer to the Science-Metrix Report ‘Data gathering and information for 2018 ERA monitoring’, which also includes definitions of the headline indicators. Due to the availability of statistical data, the definition of a few indicators had to be adjusted.

In November 2018, the Council adopted conclusions on ERA governance<sup>3</sup>. It recalled its conclusions of May 2015, which formed the basis for the subsequent ERA National Action Plans (NAPs) and called for the monitoring of ERA roadmap implementation to be integrated into the ERA progress reports based on headline indicators proposed by the European Research Area and Innovation Committee<sup>4</sup>.

Midway through the 2015-2020 ERA Roadmap, 24 Member States and 4 Associated Countries have so far adopted NAPs for this period. These provide official information on ERA strategies and corresponding policy measures in these Member States and Associated Countries. They constitute an important source for charting the progress of ERA implementation. The majority of NAPs are structured according to the six ERA priorities — further evidence of systematic and shared efforts to plan national reforms in order to implement the ERA.

Overall, this report shows that progress on ERA implementation has been slowing and that major disparities still exist between countries, or are growing in part. These trends call for a renewed commitment to (i) further strengthening shared efforts at all levels; (ii) reforming national research and innovation systems; and (iii) realising a well-functioning ERA. The Commission has anticipated this need by proposing a number of programmes for the next financing period 2021-2027: these include regional funds, a European reform delivery tool and the EU's next research and innovation (R&I) framework programme — Horizon Europe. The latter includes a dedicated pillar to help strengthen the ERA.

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<sup>3</sup> Doc. 14516/18.

<sup>4</sup> Doc. 9351/15.

## 2. KEY FINDINGS FROM THE ERA PROGRESS REPORT

### 2.1. More effective national research systems

**Objective:**

Effectively designed and efficiently functioning national research and innovation systems deriving maximal value from public money.

**Deliverables:**

Better alignment of national policies with shared European priorities, applying the core principles of international peer review to funding organisations, finding a satisfactory balance between competitive and institutional funding and investing in wider education and innovation systems.

Analysis of the headline indicator shows that research excellence increased at an annual growth rate of 3.2 % in 2013-2016 (EU-28 average)<sup>5</sup>. However, this growth rate has halved compared to 2010-2013.

In general, while public funding on R&D is a key driver of the strength and international competitiveness of domestic R&I systems, some countries are still cutting their spending on R&I (government budget allocations for research & development/GBARD as a percentage of GDP), and others made no substantial increases in 2014-2016<sup>6</sup>. However, countries with less developed national research systems also tend to rely on EU structural and investment funds to supplement domestic R&I budgets. A number of ERA countries<sup>7</sup> also use indirect fiscal measures to complement direct government funding.

Competitive funding — research funding allocated on a competitive basis and involving the participation of international experts in review panels — has become common practice among ERA countries. However, the balance between competitive funding and block funding still varies greatly between countries. In some countries with less developed R&I systems, less competitive research performing organisations rely mainly on block funding; this often affects their ability to attract the best talent and to develop and maintain research infrastructures. This warrants further reforms to their funding systems to achieve an appropriate balance.

The majority of NAPs are clearly structured according to ERA priorities. They demonstrate increasing policy alignment of national R&I policies in the ERA countries with EU-level objectives aimed at achieving the ERA. EU Member States are also trying to make their national research systems more efficient and competitive through implementing national and regional smart specialisation strategies.

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<sup>5</sup> Technical report, Table 4.

<sup>6</sup> Technical report, Table 5.

<sup>7</sup> 'ERA countries' include EU Member States and countries associated with the framework programme.

## **Conclusion**

Almost all countries have adopted or updated national strategies for research and innovation, which is expected to enhance research excellence. Despite progress made in recent years, analysis points to a need to better align various stakeholders' R&I strategies so that they cooperate in a more efficient way. The monitoring and evaluation of national R&I policies should be a central plank in improving the effectiveness of national R&I systems, reducing fragmentation and identifying areas for improvement, notably aligning national and EU instruments.

## **2.2. Optimal transnational cooperation and competition**

### *Jointly addressing grand challenges*

#### **Objective:**

Working together in a better way to address the grand challenges that face us all is central to Europe's ability to respond to a dynamic and changing world.

#### **Deliverables:**

Ensuring that ministries and research funding organisations work more closely together to achieve better alignment with the themes and priorities of the Joint Programme Initiatives, mutual recognition of evaluation procedures, common terminologies and procedures for implementing R&I programmes, better integration of calls and promoting a more international perspective.

The findings show that although this priority still has one of the highest growth rates among all ERA headline indicators with an annual growth rate of 3.9 % in 2014-2016, almost all countries have seen a slowdown in national GBARD allocated to EU-wide transnational public R&D<sup>8</sup>.

Pooling resources and research capacities to more effectively address common challenges remains one of the main perceived and actual benefits of EU-transnational cooperation. Active participation in public-public partnerships (P2Ps)<sup>9</sup> was one of the most frequently mentioned strategic goals in the NAPs.

Although steady progress has been made over the years, further achievements require (i) more systemic coordination between the priorities of P2Ps and national research agendas and programmes; and (ii) systematic monitoring and evaluation of the impact of participation in P2Ps, ensuring political commitment and the availability of funding<sup>10</sup>. These developments are supported by a new political ambition to increase the impact of the EU's R&I partnership

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<sup>8</sup> Technical report, page 46. Growth rates for individual countries could have significant fluctuations between years.

<sup>9</sup> ERA-NET Cofund, European Joint Programme Cofund, initiatives based on Article 185 of TFEU, joint programming initiatives.

<sup>10</sup> Technical report, page 46.



landscape, underpinned by the Council conclusions<sup>11</sup> and ERAC recommendations on partnerships.

### **Conclusion**

Most countries are making progress in enhancing their participation in P2Ps. However, efforts to better coordinate relevant national policies and resources in order to achieve agreed priorities will need to be increased if maximum advantage is to be taken from a simpler and more impact-oriented EU R&I partnership landscape. This requires clear national governance structures and a robust and comprehensive framework for evaluating and monitoring the impact of P2P networks at national level<sup>12</sup>.

### ***Research infrastructures***

#### **Objective:**

High-quality, accessible Research Infrastructures are at the heart of the knowledge triangle and key to Europe's ambition to lead the global movement towards Open Science. Member States have developed a collective approach through the European Strategy Forum on Research Infrastructures (ESFRI), Horizon 2020 and the European Research Infrastructure Consortium (ERIC) legal framework.

#### **Deliverables:**

Ensuring that the ESFRI roadmap and the national R&I roadmaps are compatible with each other, facilitating access to research infrastructures to Member States which are unable to invest in large infrastructures and careful examination of the planned financial contributions.

Findings show that despite heterogeneity among ERA countries, strategic priorities have been defined at national level. The ESFRI roadmaps have proved to be a valuable input into national decision-making processes, often leading to the alignment of national and ESFRI roadmaps.

While over half of the ERA countries, and 19 of the 28 EU Member States, had national roadmaps in place together with ESFRI research infrastructures, only a third of them had also identified their funding needs. Since the last monitoring exercise in 2016, eight countries have updated their roadmaps, with some of them identifying funding requirements for the first time. When considering both ESFRI projects and landmarks, data shows that participation of countries just below the ERA average is increasing faster than for countries just above the average (with growth rates doubling, respectively increasing by 40 % compared to 2016 values). This indicates a substantial trend of convergence among ERA countries.

Depending on the size of their economy and the complexity of their R&I system, decision-making processes vary across countries. Although open calls are the most frequent

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<sup>11</sup> Doc. 15320/17.

<sup>12</sup> Technical report, page 66.

mechanism used to allocate funding, instruments and procedures for funding research infrastructures differ considerably and are often used in different policy mixes.

To further increase the effectiveness of research infrastructures in Europe, there needs to be a better exchange of information on the actual infrastructure capacity, funding priorities, plans and strategies — both across countries/regions and between research organisations. Analysis shows that countries increasingly specialise in specific areas when allocating funding to national research infrastructures, responding to the need to rationalise overall rising costs.

### **Conclusion**

Compared to 2016, participation in both ESFRI projects and landmarks shows clear overall growth, with increasing pan-European inclusiveness and accessibility. As of 2018, over half of the ERA countries had roadmaps in place together with ESFRI research infrastructures, but only a third of them had also identified funding needs. However, more cooperation and synchronisation of national procedures (for setting priorities, monitoring and long-term funding) is needed to make the European research infrastructure ecosystem more robust and increase the effectiveness of public investments in this area.

### **2.3. An open labour market for researchers**

#### **Objective:**

A truly open and excellence-driven ERA in which highly skilled and qualified people can move seamlessly across borders to where their talents can be best employed.

#### **Deliverables:**

Governments and stakeholders should consider how the rules for national funding schemes could better support the principles of openness, transparency and merit-based recruitment and remove legal barriers to open recruitment of researchers in research performing organisations and define new ways to researcher career development.

The findings show that the number of research vacancies advertised on the EURAXESS job portal in 2015-2016 fell by 5 % on average for the whole country group. This reversed previous positive growth of 7.8 % in 2012-2014, and could be partly due to the alternative use of similar national portals.

Nonetheless, findings also show an EU-28 annual average growth of 3.9 % in the share of doctoral students with citizenship of another EU Member State and 7.5 % growth in the share of researchers expressing their satisfaction with how the recruitment process in their home research institution is open, transparent and merit-based. For the latter, there was growth for almost all Member States.

The analysis indicates that a large gap still exists between EU countries in terms of an open labour market and career development opportunities provided to researchers. This results in large differences in the attractiveness of research careers among different countries and regions in Europe. Such a gap is not just a result of different higher education systems and career structures, but also of differing economic development that influences public budgets

for research and with it the salaries of researchers and other conditions. The availability of opportunities for learning, research funding opportunities, financial security and shares of fixed-term contracts are key defining factors in the attractiveness of a region or country.

### **Conclusion**

The number of job vacancies advertised on the EURAXESS platform has recently decreased, although researchers across Europe are more satisfied with the level of open, merit-based and transparent recruitment procedures in their home institutions. The growing share of doctoral students with citizenship of another Member State is a positive sign of international mobility. However, large gaps still exist between Member States in terms of career attractiveness and development opportunities for researchers. Governments can improve researchers' international mobility by refining the effectiveness of national/regional research ecosystems in terms of cutting-edge research. In addition to the characteristics above, the availability of top-level infrastructures, provision of efficient interactions between public and private actors and a highly innovative business sector add to increased mobility and attractiveness.

## **2.4. Gender equality and gender mainstreaming in research**

### **Objective:**

To foster scientific excellence by fully utilising gender diversity and equality and avoiding an indefensible waste of talent.

### **Deliverables:**

Developing policies on gender equality, paying special attention to areas where women are underrepresented, promoting approaches to gender mainstreaming and incorporating gender perspectives in research.

The report shows that the share of women in the highest-level research positions (Grade A) in higher education increased by 1 % per year in 2014-2016 in the EU-28<sup>13</sup>, rising to 24 % in 2016. Although progress has been made in almost all Member States, the trend is still uneven.

Analysis shows that gender equality plans and related policies are being increasingly adopted at national or EU level to enact institutional change. More and more countries are engaged in improving transparency in recruitment and promotion, and include such initiatives in their NAPs. However, the analysis of NAPs points to a divide between various Member States in terms of the development of gender objectives<sup>14</sup>.

Significant efforts have been made to include a gender dimension in research at EU level and across ERA countries. This has resulted in a higher number of publications that incorporate a gender dimension, although the overall level of integration remains low.

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<sup>13</sup> Technical report, Table 15.

<sup>14</sup> Three objectives have been defined: 1. Remove barriers to the recruitment and career progression of female researchers; 2. Address gender imbalances in decision-making processes; and 3. Strengthen the gender dimension in research content.

While some progress has been made, gender inequality still exists in research and academia. A glass ceiling persists in most ERA countries. This is still the case despite policies and initiatives having been adopted at EU, national and institutional level to tackle issues such as an unconscious bias in evaluation, wage gaps<sup>15</sup> and equal career opportunities.

### **Conclusion**

The 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 the enrolment and retention of women in science, implement work-life balance policies, 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.

## **2.5. Optimal circulation, access to and transfer to scientific knowledge, including via digital ERA**

### *Knowledge transfer and open innovation*

#### **Objective:**

Removing barriers to the wider use of knowledge to increase growth and competitiveness for Europe by fully implementing knowledge transfer policies.

#### **Deliverables:**

Promoting effective knowledge transfer mechanisms, establishing policies and procedures for intellectual property management.

Since the last ERA Progress Report in 2016, more schemes and initiatives on open innovation and knowledge transfer have been adopted across the ERA, with a specific focus on joint activities between public research organisations and the private sector. However, different intellectual property rules are still applied at national level.

The study found that around 15 % of firms involved in product or process innovation in the EU-28 cooperate with universities, government, public or private research institutes<sup>16</sup>. In 2012-2014, private sector cooperation with universities and higher education institutions increased by 0.7 % on average per year and by 4 % with governmental and private research institutes.

The number of public-private co-publications per million of the population has been stable. However, in recent years there has been a decrease in funding provided by the private sector to universities and public research institutes.

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<sup>15</sup> EU, strategic engagement gender equality 2016-2019: [https://ec.europa.eu/anti-trafficking/eu-policy/strategic-engagement-gender-equality-2016-2019\\_en](https://ec.europa.eu/anti-trafficking/eu-policy/strategic-engagement-gender-equality-2016-2019_en).

<sup>16</sup> Technical report, page 76.

## **Conclusion**

The situation with regard to policies that support knowledge circulation and open innovation still differs across Europe. In general, more initiatives and regulatory frameworks are being introduced across the ERA to enhance research and innovation cooperation between the 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, for example using a combination of financial incentives and supportive regulatory frameworks. Ongoing challenges also include the implementation of effective measures to evaluate and monitor research and innovation policies.

## ***Open access to publications and data***

### **Objective:**

Open access to scientific publications promotes wider and faster circulation of scientific ideas, increasing the benefits to both science itself and to society as a whole. It is a key part of the wider move to Open Science.

### **Deliverables:**

Promoting Gold and/or Green Open Access in line with the Commission's 2012 Recommendation on access to and promotion of scientific information<sup>17</sup>, consider aligning and coordinating negotiations with scientific publishers to support a transition to new and more balanced business models.

In 2018, 31 ERA countries had policies and/or guidelines in place to support open access to publications (OA), Research Data Management (RDM) or open science. 19 of these countries have adopted legal measures in these three areas<sup>18</sup>. However, even in countries where legal measures have been adopted, their enforcement varies greatly. Only a few ERA countries have introduced measures to monitor the development of OA and RDM policies and their impact.

In recent years, open access to publications has evolved and progressed rapidly, with up to 50 % of all publications across ERA countries in 2016<sup>19</sup>. The disparity in the implementation of OA policies among countries is reflected in the diverse enforcement of policies and in the variety of OA types preferred. Some countries prefer gold OA, while others encourage the green route (self-archiving in repositories), and others a combination of both. In general, in recent years the share of gold OA scientific publications has increased compared to green OA publications.

On RDM, policies tend to have been introduced more recently. Greater coordination and harmonisation across countries is still needed. Financial and technical challenges relating to the storage and available data formats remain key challenges to the further development of open access to research data.

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<sup>17</sup> Revised in April 2018.

<sup>18</sup> Technical report, Table 18.

<sup>19</sup> Technical report, page 86.

While the transition to an open science environment has started, it is still hindered by a number of issues related to copyright, costs, data privacy, perception of lower quality of OA journals, insufficient training on OA and institutional policies that encourage publication in traditional journals.

### **Conclusion**

Swift progress has been made on open access to publications in recent years, which includes the introduction of 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, a domain in which progress has been much slower. A number of challenges remain, preventing a wholesale move to an open science environment.

## **2.6. International cooperation**

### **Objective:**

To ensure that Europe as a whole is able to take maximum advantage of the best research and innovation opportunities in a global setting.

### **Deliverables:**

Defining national strategies for internationalisation to foster stronger cooperation with key third countries, better coordination of objectives and activities of the EU, Member States and Associated Countries towards non-EU countries and international organisations, better uptake of the results of multilateral EU and intergovernmental projects and better use of bi- and multilateral agreements between EU Member States and international partner countries.

Since the 2016 ERA Progress Report, EU Member States have experienced small but steady increases in co-publications with non-ERA countries. Average annual growth rates in these countries were 4.4 % in 2014-2016 and 4.2 % from 2007 to 2016<sup>20</sup>.

ERA countries employ different tools to promote international cooperation. These range from establishing bilateral agreements and dedicated research and innovation centres to appointing R&I advisors and specialists in their consulates and embassies worldwide. A number of ERA countries have also adopted national strategies for science and technology internationalisation or emphasised international cooperation in their national R&I documents. In addition, both research performing organisations and research funding organisations are increasingly pursuing bilateral or multilateral cooperation opportunities with partner country organisations.

The international mobility of researchers is actively promoted at both EU and national level. At EU level, EURAXESS as well as the Marie Skłodowska-Curie actions are the key programmes. ERA countries, especially those with less developed R&I systems, promote incoming mobility more actively to address their lack of human resources.

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<sup>20</sup> Technical report, Table 28.

Despite many positive developments, several challenges remain across all ERA countries. These include a lack of financial and human resources dedicated to establishing and managing international partnerships.

## **Conclusion**

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

### **3. CONCLUSIONS**

Compared to the previous reporting period<sup>21</sup>, progress towards the ERA priorities has continued across the majority of the headline indicators albeit at a slower rate. In terms of EU-28 averages, most headline indicators still show progress over time, although large disparities persist between countries in terms of both performance levels<sup>22</sup> and growth rates (see Table 1).

The wide variation in national progress between countries indicates that there is considerable room for further progress on all priorities. ERA ‘top scores’ could be used as potential benchmarks for countries that are not performing as well.

The fact that 28 countries have developed and published ERA National Action Plans is proof of the joint political ownership and mobilisation on all ERA priorities. These plans show a high level of ambition to make further progress on ERA.

In general, the emerging picture is that the 2015-2020 ERA Roadmap continues to be an influential tool for helping Member States and Associated Countries define, align and implement the necessary ERA reforms at national level.

At the same time, the slowing of progress on ERA headline indicators calls for reflection on how to accelerate, strengthen and encourage implementation on all ERA priorities. This is the joint responsibility of all Member States, Associated Countries and the EU.

More systematic use of the jointly developed ERA monitoring mechanism could strengthen the impact and convergence of ERA National Action Plans. This could be supported by

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<sup>21</sup> For a comparison of the headline indicators’ growth rates with the previous reporting period, see ERA Progress Report 2016 at [http://ec.europa.eu/research/era/pdf/era\\_progress\\_report2016/era\\_progress\\_report\\_2016\\_com.pdf](http://ec.europa.eu/research/era/pdf/era_progress_report2016/era_progress_report_2016_com.pdf).

<sup>22</sup> See technical report.

mutual learning exercises like the Policy Support Facility<sup>23</sup> coupled with strategic debates in ERAC, and taking into account the European Semester.

As new challenges arise, European and national authorities need to coordinate and adapt their policy response to old obstacles and new opportunities. This implies that ERA priorities will evolve over time. There is clear added value for all in building a modern and agile ERA in close partnership with Member States, Associated Countries, the Commission and all ERA stakeholders. The proposed EU long-term budget is designed to provide incentives and support in order to jointly improve national R&I systems and advance the ERA.

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<sup>23</sup> <https://rio.jrc.ec.europa.eu/en/policy-support-facility>.



**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)
<b>EU-28</b>	<b>3.2 %</b>	<b>3.9 %</b>	<b>-5.0 %</b>	<b>1.0 %</b>	<b>0.7 %</b>	<b>4.0 %</b>	<b>4.4 %</b>
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 %

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The 2018 ERA Progress Report assesses the current state of the European Research Area (ERA) and the progress made on ERA implementation in 2016-2018. It is the second time in a row that progress has been measured at country level using the ERA monitoring mechanism.

Based on the overall evolution of the headline indicators, progress on ERA implementation continues, albeit at a slower pace than before. This trend calls for a renewed commitment to (i) further strengthening shared efforts at all levels; (ii) reforming national research and innovation systems; and (iii) realising a well-functioning ERA. The Commission has anticipated this need by proposing a number of programmes for the next financing period 2021-2027: these include regional funds, a European reform delivery tool, and the EU's next research and innovation framework programme — Horizon Europe, which includes a dedicated pillar to help strengthen the ERA.

*Studies and reports*