

European research area (ERA) – Regional and cross-border perspectives

SUMMARY

The ERA is a coordination system for national research infrastructures, and itself constitutes an infrastructure designed to create a single market for science. The main implementing instrument for the ERA is the European Union (EU) framework programme for research and innovation (R&I), currently Horizon 2020, alongside national roadmaps for implementing the common priorities.

While the ERA offers a way to improve joint programming for research and innovation activities, interaction between research infrastructures, the use of public-public partnerships between Member States, the application of smart specialisation strategies (S3) and the mobility of researchers, challenges still remain. The Horizon 2020 focus on excellence as the main criterion for receiving funding – a requirement designed to cement the EU's reputation in science and its global competitiveness – has led to a concentration of funding as well as R&I capacities in some countries and regions, while increasing the (innovation) gap between EU-15 and EU-13 countries. Other main challenges include the absence of a clear, shared definition of the ERA concept, the multiplication of instruments, and the non-use of binding legislation for ERA implementation.

One way to improve the ERA and to broaden participation and cohesion without undermining the criterion of excellence might be to enhance the interoperability between funding and programmes and to continue working on making the EU state aid rules more R&I-friendly.



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Introduction

According to several (political) economic theories, investing in research, research infrastructure, development and innovation is key to boosting economic growth, job creation, tax revenues and sustainable development.¹ About two-thirds of the European Union's [economic growth](#) over recent decades, for instance, has been driven by research and innovation (R&I). It has helped the Union to compete globally and preserve its social model in the face of global challenges deriving from the financial crisis, globalisation, industrial automation, digitalisation and decarbonisation.

Although the EU sets great store by R&I and effective research and innovation ecosystems, there are several [shortcomings](#) to deal with: the European research area (ERA) has not been yet completed; synergies between the EU's structural funds and its framework programme for R&I (Horizon 2020) are low; citizens often do not see the benefits of trans-European collaborative R&I projects (so-called European added value); and the innovation gap between the EU-15 (Member States pre-dating 2004) and the EU-13 (Member States joining the Union in 2004 and later)² and low participation rate at national and regional level of the latter needs to be addressed.

Prompted, inter alia, by the expected withdrawal of the United Kingdom from the EU and negotiations on the EU's next long term budget, for the 2021-2027 period, the [multiannual financial framework](#) (MFF), there is an ongoing debate on how to increase regions' participation and performance in the ERA without compromising the Union's excellence criterion.

How the ERA and the EU framework programmes for R&I have evolved

The ERA is a coordination tool for national research infrastructures and itself constitutes an infrastructure and coordination mechanism. The first ideas on formulating a European research policy (beyond the Euratom programme) date back to 1972-1973. The Commissioners for Research, Altiero Spinelli and Ralf Dahrendorf, called for the development of concerted or joint R&I programmes to be financed by the European Community, since it was facing increasing competition as a result of innovation in the United States and Japan. This common policy would be based on two dimensions: the coordination of national research policies and cooperation between Member States on tackling common objectives. Two key objectives of this common policy were: to increase researcher mobility, by limiting administrative and social barriers, and to rationalise investment in new large research infrastructures, promoting open access to existing infrastructures.³

The overall aim of coordinating national policies was to create an effective single area for European science by, for instance: doing away with the unnecessary duplication of work, sharing information, pooling resources, and harmonising procedures. There was, however, a key trade-off between the need for cooperation between Member States and the need to maintain competition between European universities, research centres, etc.⁴

The rigidity of this trade-off may be one of the reasons it took almost 30 years before the next important step was taken. In 2000, the European Commission published its communication [Towards a European research area](#). The main objectives of the ERA were to create an internal market for R&I, i.e. to promote the free circulation of researchers, scientific knowledge and technology, to improve the coordination of research activities at national and European level, to increase the worldwide attractiveness of European research, and to boost Europe's competitiveness.

Further impetus was gained when the Lisbon Treaty was signed in December 2007 and the Council took over the lead in May 2008 (the Ljubljana process). On the one hand, the Lisbon Treaty introduced the ERA as an objective for the Union ([Article 179 of the Treaty on the Functioning of the European Union \(TFEU\)](#)), clarified the competences of the European Union on research as a shared competence and, in a new paragraph in [Article 182 TFEU](#), provided for the possibility to adopt

legislation at EU level to enforce ERA implementation. On the other, the Council acknowledged the need to develop a common vision for the ERA and asked the Union to create a fifth freedom – the free movement of knowledge.⁵ The many postponements of the implementation of the ERA, however, represent substantial costs (of 'non-Europe').⁶

In May 2015, a new target was set by the Council: to achieve the implementation of the ERA by 2020. The Council [adopted](#) the ERA roadmap, which defines six priorities for the ERA. The Council invited Member States to produce their own national roadmaps and to take ownership regarding the implementation of the ERA. The [six priorities of the ERA](#) are: (1) more effective national research systems; (2) optimal transnational cooperation and competition, including optimal transnational cooperation and competition 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) and international cooperation. There are several platforms and instruments involved in the ERA (see Box 1). The Commission takes stock of progress made in implementing the ERA with its [annual reports](#).⁷

Alongside implementation efforts at Member State level, the EU's framework programmes for R&I are considered the most important instrument for the implementation of the ERA. Although the first research and innovation projects (outside the coal and nuclear sectors) began back in the 1970s, the first framework programme (FP1) was only adopted in 1983.

As the [framework programmes have evolved](#), their instruments, governance and scope have changed. Changes include introduction of the criteria of excellence and European added value; the [European Research Council \(ERC\)](#) and the [European Institute for Innovation and Technology \(EIT\)](#).

The current framework programme for research – Horizon 2020 or FP8 – was adopted in 2013. The programme's current budget is €74.8 billion, making it the fourth highest budget heading (after agriculture, regional development and external action) in the current [multiannual financial framework \(MFF\)](#). Horizon 2020 is based on three main pillars: 'excellent science' (32 % of the Horizon 2020 budget), 'industrial leadership' (22 %), and 'societal challenges' (39 %). Horizon 2020 provides grants for individual researchers and their mobility, funds cooperative research projects, supports and funds public-public and public-private partnerships, and provides specific instruments supporting R&I in small and medium-sized enterprises (SMEs).

Horizon 2020 provides funding through highly competitive procedures. There is no national or regional pre-allocation; the system is purely merit-based, i.e. based on the excellence criterion. The distribution of funding therefore depends on the number and success rate of applicants.

Box 1 – ESFRI and ERIC

The European Strategy Forum on Research Infrastructures (ESFRI) plays a key role in policy making on research infrastructures in Europe. It aims to support a coherent and strategy-led approach to policy making, facilitate multilateral initiatives leading to a better use and development of research infrastructure, and to implement the European research area (ERA). To date, 37 key research infrastructures ('landmarks'), are either in the process of being implemented or have been completed, representing an overall capital value of around €14.4 billion. Examples include [eLTER](#), a long-term infrastructure project integrating ecosystem research sites across Europe, and [EHRI](#), the European Holocaust Research Infrastructure.

The [European Research Infrastructure Consortium \(ERIC\)](#) aims to facilitate the establishment and operation of research infrastructure of European interest. It allows the establishment and operation of new or existing research infrastructure on a non-economic basis. This format involves a faster process than that required to set up an international organisation. In addition, there are exemptions from value added tax and excise duty. ERICs must be a European joint-venture and necessary to carry out research projects. Examples include the [Plate Observing System \(EPOS\)](#), a research infrastructure that aims to provide a better understanding of the physical processes behind earthquakes, volcanic eruptions, tsunamis and tectonic movements; and the [European Marine Biological Resource Centre \(EMBRC\)](#), which aims to provide a single access point to a comprehensive portfolio of services and research platforms, marine ecosystems and genetic material, biological resources.

Source: [European Commission](#).

One of the Horizon 2020 specific objectives, '[spreading excellence and widening participation](#)', aims to reduce the innovation gap between EU regions by 'teaming': associating leading research institutions with their counterparts in regions that perform less well in innovation, to create new centres of excellence in these regions; 'twinning': linking up research institutions to strengthen a research field in an emerging institution; and 'establishing ERA chairs': increasing the potential for research by attracting leading academics. Other actions provide for the improvement of the design, implementation, and evaluation of national and regional R&I initiatives, e.g. through expert advice from a [policy support facility](#) or the strengthening of [national contact point networks](#) to provide better support for participants interested or involved in Horizon 2020.

Regional participation: achievements and challenges

In addition to Horizon 2020, the largest EU programme specifically supporting R&I, there are (in addition to the sectoral programmes for nuclear energy, coal and steel) five other programmes connected with R&I activities: the [COSME programme](#) supporting small and medium-sized enterprises, the [Erasmus+](#) programme for education, the [Health programme](#), the [LIFE programme](#) for environment and climate action and the [Connecting Europe Facility](#) to support investments in energy, transport and digital infrastructure.⁸ All programmes together provide some €120 billion in support of research, development and innovation activities in the 2014 to 2020 period.

The overall implementation of the ERA, i.e. the connection of research infrastructures, the participation of regions and the distribution of R&I-related funding, shows an ambiguous picture. Regarding Horizon 2020 funding, the [R&I Regional Viewer](#) (last updated in August 2018) provides the following regional break-down.

Table 1 – Top 20 recipients of Horizon 2020 funding

Region	Country	NUTS ID	GDP € per capita (in 2015)	Total Horizon 2020 in € million
Ile de France	FR	FR10	54 600	1 392 776
West-Nederland	NL	NL3	44 500	1 239 113
Bayern	DE	DE2	43 100	1 158 141
London	UK	UKI	67 500	957 014
Nordrhein-Westfalen	DE	DEA	36 500	757 572
Baden-Wuerttemberg	DE	DE1	42 800	734 038
Cataluna	ES	ES51	27 600	667 041
Comunidad de Madrid	ES	ES30	31 700	652 357
Vlaams Gewest	BE	BE2	37 300	618 260
East of England	UK	UKH	37 100	521 867
South East (England)	UK	UKJ	43 100	491 616
Lombardia	IT	ITC4	35 700	453 799
Rhone-Alpes	FR	FR71	32 700	446 169
Scotland	UK	UKM	36 700	443 655
Region de Bruxelles-Capitale	BE	BE1	63 300	431 142
Hovedstaden	DK	DK01	61 600	411 374
Lazio	IT	ITI4	31 000	407 420
Helsinki-Uusimaa	FI	FI1B	50 200	394 442
Berlin	DE	DE3	35 600	392 593

Source: European Commission, Smart Specialisation Platform, [R&I Regional Viewer](#).

In addition, four European structural and investment funds (ESI funds) provide support for R&I: the European Regional Development Fund (ERDF), the European Social Fund (ESF), the European

Agricultural Fund for Rural Development (EAFRD) and the European Maritime and Fisheries Fund (EMFF). The implementation of these funds is delegated to a managing authority at the regional or local level, while [Regulation \(EU\) No 1303/2013](#) lays down the common provisions for the ESI funds. These are: strengthening R&I and technological development; enhancing access to and use of information and communication technologies; enhancing the competitiveness of SMEs; and supporting the shift towards a low-carbon economy in all sectors.

The [R&I Regional Viewer](#) also gives the following regional break-down of R&I-related investment under the ESI funds.

Table 2 – Top 20 European structural and investment fund recipients for R&I

Region	Country	NUTS ID	GDP € per capita (2015)	Total ESI fund contribution to R&I in € million
Norte	PT	PT11	14 600	1 860 240
Slaskie	PL	PL22	11 600	1 580 662
Andalucia	ES	ES61	17 100	1 538 649
Wielkopolskie	PL	PL41	12 200	1 218 445
Malopolskie	PL	PL21	10 100	1 210 148
Mazowieckie	PL	PL12	17 800	1 165 865
Lodzkie	PL	PL11	10 500	1 006 317
Centro	PT	PT16	15 000	999 981
Lietuva	LT	LT	12 900	996 720
Campania	IT	ITF3	17 200	981 319
Podkarpackie	PL	PL32	7 900	974 869
Eesti	EE	EE	15 400	927 751
Dolnoslaskie	PL	PL51	12 500	921 562
Sicilia	IT	ITG1	17 200	918 244
Lubelskie	PL	PL31	7 700	901 471
Hrvatska	HR	HR	10 400	851 392
Sachsen	DE	DED	27 700	850 013
Slovenija	SI	SI	18 700	791 135
Pomorskie	PL	PL63	10 700	781 282
Puglia	IT	ITF4	17 700	763 195

Source: European Commission, Smart Specialisation Platform, [R&I Regional Viewer](#).

When looking at the challenges, it can be stated that Member States from eastern and southern Europe are the largest recipients of R&I-related ESI fund support. On the other hand, the application of the criterion of excellence in Horizon 2020 – a requirement to ensure EU's reputation in science and also in global competitiveness – has led to a [concentration of funding](#) as well as of R&I capacities in some countries and regions (Table 1 reflects this trend). This problem has only increased since the EU enlargement rounds since 2004, with the effect that the EU-13 countries receive [less than 5 %](#) of the Horizon 2020 budget.

Other key challenges are:

- the [absence of clear, shared definitions](#) regarding the ERA concept and key framework programme concepts such as 'excellence', 'impact' and 'output' has had an impact on the implementation of both the ERA and the framework programme;
- the [multiplication of instruments](#) at EU level linked to the widening scope of Horizon 2020 has led to a new type of fragmentation in EU research funding. Implementation

- has become increasingly complex, i.e. it is managed by nine different directorates-general of the Commission and implemented by 22 different bodies;
- Horizon 2020 is highly competitive and the success rates are rather low. In its overview of the state of play of Horizon 2020 after three years of implementation, the Commission stated that a total of 115 235 eligible proposals had been submitted. The overall success rate was 12.6 %, despite half of the eligible proposals having been evaluated by independent experts as being of high quality;
 - in order to support applications that had been found 'excellent', but could not receive Horizon 2020 funding, in October 2015 the Commission introduced the [seal of excellence](#). This quality label aims to help projects find alternative funding from other European, national, or international programmes, without having the additional administrative burden of resubmitting proposals. According to a [special report](#) by the European Court of Auditors, however, the seal of excellence has not met with expectations. It is not universally recognised in the Member States, has not adequately reduced the burden on applicants, and only 15 % of applicants were able to find alternative funding.
 - in the case of the ERA, the EPRS study on the cost of non-Europe shows, inter alia, that many researchers perceive [recruitment procedures](#) as insufficiently open and transparent, characterised by protectionism, nepotism and a lack of human resources strategy. [RESAVER](#), which should offer researchers the possibility to preserve their supplementary pension benefits when they move to another country, is still restricted in its function. Furthermore, there is limited portability of and access to national research grants, creating barriers for the mobility of researchers between EU Member States;
 - the Council and Commission are still reluctant regarding the use of legislation for ERA implementation (something that has been demanded by the European Parliament on several occasions), despite this possibility being introduced with the Lisbon Treaty. They rather prefer soft approaches, such as the [open method of coordination](#).

When it comes to the [main achievements](#), it can be stated that – despite its flaws – joint programming (such as the [ERA networks](#) (ERA-NETs), and the use of public-public partnerships between Member States) and the mobility of researchers can be considered as a success. Furthermore, the interaction between research infrastructures at EU, national and regional level, as well as the introduction of smart specialisation strategies and transnational cooperation forums, such as the European groupings of territorial cooperation (EGTC), can also be seen as key achievements (see below).

Smart specialisation strategies (S3) and the EGTC

The European Commission states that [smart specialisation](#) is an innovative approach to boost economic growth and job creation, to involve regions more in R&I activities and to enhance cross-border cooperation, while taking a local and [regional place-based development](#) policy approach to cohesion policy, rather than employing a space-neutral or purely sectoral approach. Regions need first to identify their own needs, strengths and comparative assets ('smart'), then prioritise R&I investment in a competitive area ('specialised') and adopt a shared vision for regional innovation ('strategic'). S3 is based on regional partnerships and on a bottom-up approach. It has the potential to transform the triple helix of (local/regional/national) authorities, academia and industry into a quadruple helix by including civil society. S3 partnerships have been developed, for instance, in the fields of medical technology, smart grids, solar energy, 3D printing, sustainable buildings, the circular economy, tourism and high-tech farming.

Since 2011, the Commission has been providing authorities with advice on how to develop and implement their smart specialisation strategies via the [Smart Specialisation Platform](#). This platform aims to facilitate mutual learning, data gathering, analysis, and networking opportunities for around

170 EU regions and 18 national governments. In addition, the platform provides guidance material and examples of good practice, informs strategy formation and policy-making, facilitates peer-reviews and mutual learning, and trains policy-makers.

According to the [ERDF Regulation](#), smart specialisation strategies need to be in place ('ex-ante conditionality') before financial support is received. So far, over [120 smart specialisation strategies](#) have been developed. Over €67 billion has been allocated to support S3 projects through the ESF funds and national / regional funding. By 2020, the Commission expects to help 15 000 enterprises bring new products to market, support 140 000 new start-ups and generate 350 000 new jobs.

In the context of S3, the [European grouping of territorial cooperation \(EGTC\)](#) is an important legal instrument when it comes to facilitating and promoting cross-border, transnational and interregional cooperation, and not only with regard to R&I-related topics. There are currently 68 EGTCs in place. The EGTC is unique in the sense that it enables public authorities in Member States to team up and deliver joint services, without requiring a prior international agreement to be signed and ratified by national parliaments.⁹

S3 and EGTC: examples and best practice

Finland: [6 Aika](#) is a strategy for sustainable urban development bringing together the six largest cities: Helsinki, Espoo, Vantaa, Tampere, Turku and Oulu. The aim is to tackle the challenges of urbanisation and evolve towards ever smarter and inherently human-centric cities. The basis of the six-city strategy was developed in three large-scale spearhead projects: [Open Data and Interfaces](#), [Open Participation and Customerhip](#), and [Open Innovation Platforms](#).

Poland: the [Podkarpackie Voivodeship](#) is famous for its Aviation Valley, a cluster grouping most of Poland's aviation industry. To improve the link between the academic and education sectors to the regional industry, the Aviation Training Centre of the Rzeszow University of Technology was modernised and expanded with the help of EU funds.

Spain and Portugal: the main objectives of the [Eurocity of Chaves-Verín EGTC](#) are the introduction of a 'Euro-citizenship' card (that would allow users from both cities to access shared municipal services and facilities in e.g. sport, leisure, music, culture), the sustainable development of the territory, and the implementation of a cross-border economic dynamic.

Hungary and Slovakia: the Ister-Granum European Grouping of Territorial Co-operation Ltd ([Ister-Granum EGTC](#)) promotes cross-border projects, coordinates cross-border strategies and manages regional projects mainly for cross-border industrial zones, local products, tourism, infrastructure development and culture.

Horizon 2020 and beyond: broadening participation and cohesion without undermining excellence

During the stakeholder discussions on the successor framework programme to Horizon 2020, several Member States expressed views. The Czech Republic, for instance, proposed to increase the minimum number of partners in a consortium, an idea supported by Croatia, and to introduce bonuses for consortia with a certain number of underrepresented Member States. Slovakia and Hungary proposed to take the EU macro-regional strategy into account in the framework programme. The United Kingdom, Poland, Hungary, Slovakia and Lithuania requested a review of the rules on researchers' remunerations to tackle the brain drain from southern and eastern Europe to western, mid- and northern Europe.¹⁰

The European Parliament's Science and Technology Options Assessment (STOA) published the results of a [study](#) on overcoming the innovation gap in the EU. The experts suggest targeting the low participation of EU-13 countries in the framework programme by, for instance, creating and exploiting the existence of pockets of excellence, improving the governance of national R&I systems, strengthening the role and use of national contact points, and attributing more funding to spreading excellence and widening participation-specific objectives.

In its July 2017 [opinion](#) on the local and regional dimension of Horizon 2020 and its successor, the European Committee of the Regions (CoR) proposed, among other things, that the EU, the Member States, the regions and cities should share the following operational principles: coherence and shared governance; compatibility, i.e. pooling resources effectively; complementarity, by means of a clear distribution of roles; co-construction, through joint design and management; and a principle of ecosystems, recognising the role of local collective initiatives. With a look at the ESI funds, one of the CoR proposals was to introduce a 'development window', i.e. a [guarantee structure](#) designed for regions bearing higher risks.

In the context of the discussion on Horizon Europe, the successor to Horizon 2020, the CoR made several suggestions in its December 2018 [opinion](#). On the one hand, it proposed that the introduction of a formal definition of regional and innovation hubs was essential. It also supported the new European partnerships and co-financed actions, which could become the main funding tools for trans-regional cooperation and programmes run by consortia of regional ecosystem and innovation hubs (a process to connect territories). On the other hand, the CoR opposed the option of transferring a share of cohesion policy funds to the Horizon Europe framework programme. It argued that this option should be exercised by the relevant managing authority.

Furthermore, on 11 April 2019, the CoR invited stakeholders to discuss the future of the ERA. During the [meeting](#), stakeholders called, inter alia, for the integration of the EU roadmap on infrastructures into national roadmaps; a better information policy for SMEs about funding and facilities; better communication between innovation clusters and research; enhanced interoperability between funding and programmes; and coverage of the operational (i.e. running) costs of the Horizon framework programme projects through the ESI funds.

One potential way to improve the ERA and broaden participation and cohesion without undermining the criterion of excellence might be the further adaptation of the EU state aid rules, which are outlined in [Article 107 TFEU](#). Paragraph 1 of Article 107 actually forbids state aid granted by Member States as 'incompatible with the internal market' if it 'distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods so far as it affects trade between Member States'. There are, however, exceptions. Certain conditions in paragraphs 2 and 3 of Article 107 consider state aid to be compatible with the internal market: aid to promote the economic development of areas where the standard of living is abnormally low or where there is serious underemployment; aid to promote the execution of an important project of common European interest or to remedy a serious disturbance in the economy of a Member State; and aid to facilitate the development of certain economic activities or certain economic areas.

While [Article 108 TFEU](#) empowers the Commission to review state aid at national level and to take appropriate measures to avoid a malfunctioning of the single market, it also grants the Council an exceptional role in agreeing on national state aid. At the request of a Member State, the Council may, acting unanimously, decide that the granting of state aid should be considered compatible with the internal market (in derogation from the provisions of Article 107 TFEU) if such a decision is justified by exceptional circumstances (e.g. structural problems such as high unemployment).

Since stakeholders have criticised the administrative burden and cumbersome interaction of Horizon 2020 and the ESI funds with funds at national level, the Council and Commission are trying to simplify the state aid rules. In November 2018, for instance, the Council adopted [Regulation \(EU\) 2018/1911](#) on horizontal state aid. The new state aid regulation aims to simplify the national financing of projects (co-)financed by EU funds. To this end, Member States can allocate structural funds to R&I projects (e.g. that have the 'seal of excellence' but could not be funded by the Horizon framework programme) without having to prove that this support is not distorting competition in the single market. Furthermore, the new regulation will enable the Commission to make further targeted modifications to its [general block exemption regulation](#).

The de facto application of state aid in the Member States (beyond the scope of Horizon 2020 and the ESI funds) [differs](#) between regional, horizontal and sectoral aid and depends on economic and

social needs. Currently, several Member States apply state aid on an individual basis and/or create geographically limited and specially administered areas, referred to as [special economic zones \(SEZs\)](#), in order to attract national and foreign direct investment. The incentives used to attract investment can vary considerably from country to country and from zone to zone. In addition, SEZs can be administered by national, regional or local governments, by the private sector alone, or in public partnership.

The establishment of SEZs and investment incentives has to be in line with European Commission [Regulation \(EU\) No 651/2014](#) on declaring certain categories of aid compatible with the internal market. According to [experts](#), Article 13 of that regulation stipulates that the regional aid rules do not apply to beneficiaries that have closed down the same or a similar activity in the EU in the two years preceding their application for regional investment aid, in order to avoid a tax break 'competition' between Member States. Article 13(d) of the regulation applies to situations when an enterprise closes down its business in one Member State and opens it in another (and applies for state aid). However, closing down an establishment and opening another in the same Member State would not disqualify it from obtaining regional aid.

To this end, Member States with regions lagging behind might consider introducing SEZs, which can take the form of 'special R&I zones' or 'innovation districts'. Examples can be found in [Poland](#) and [Italy](#). In the case of Poland, a new regulation – the Act on Supporting New Investment – came into force in June 2018. It rewards projects that have could have a positive impact on the competitiveness and innovation and economic development of the region or country, including the transfer of knowledge, R&I activity and cluster development.¹¹

Outlook

The future of the European research area depends on the successful coordination of national R&I policies and the common implementation of the six ERA priorities, allowing for the creation of a fifth freedom for the single market, the free movement of knowledge.

The [distribution of funding](#) (through the framework programmes and the ESI funds) across the EU has become a crucial issue. The focus on the excellence criterion has led to a concentration of funding in some regions and deepened the innovation gap. In this regard, the balance between excellence, and the need to broaden and boost cohesion in R&I at EU level has to be addressed. The extent to which new EU state aid rules for R&I activities and the extension of SEZs to promote research and innovation can contribute sustainably to this goal, remains to be seen.

To this end, the [partial agreement](#) between the European Parliament and the Council on Horizon Europe might be good news. Although the agreement does not cover the programme's budget details for the 2021-2027 period, the European Parliament has demonstrated more ambition than the European Commission in its [proposal](#) by asking Council to increase the Horizon Europe budget to €120 billion – €20 billion above the level proposed by the Commission. However, Parliament has prioritised getting Member States with low performances in R&I to participate in the programme, in particular by reducing the existing remuneration gap between researchers across the EU and by increasing the budget dedicated to spreading excellence and strengthening the ERA. There will also be broader support for SMEs, including start-ups, and smart cities.

Since many R&I initiatives are implemented at regional level, the recognition of the territorial basis of science and innovation, as well as the contributions of regional ecosystems and innovation hubs, might soften the trade-off between the need for cooperation and the need for competition in R&I at all levels.

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ENDNOTES

- ¹ For an overview of the correlation between economic growth and innovation, see J. Courvisanos and S. Mackenzie, 'Innovation economics and the role of the innovative entrepreneur in economic theory', *Journal of Innovation Economics & Management*, 2014/2, No 14, pp. 41-61; and P. Aghion et al., Competition and Innovation: An Inverted U Relationship, Institute for Fiscal Studies (IFS), WP 02/04, February 2002.
- ² On EU-15 and EU-13, see the [glossary](#) of EU enlargement rounds.
- ³ V. Reillon, [The European Research Area – Evolving concept, implementation challenges](#), European Parliament, EPRS, March 2016, p. 4.
- ⁴ *Ibid.*, p. 5.
- ⁵ *Ibid.*, pp. 23-25.
- ⁶ The 2017 EPRS [Cost of non-Europe report](#) states that the remaining implementation gap of ERA completion corresponds to a loss of €3 billion in additional GDP per year. According to [estimations](#) made by the European Commission, completion of the ERA and transnationally coordinated funding could benefit the EU economy by €16 billion per year (deriving from 0.25 % additional GDP growth on top of the 0.92 % additional growth expected from the Horizon 2020 programme). In addition, improved coordination of transnational funding would generate 323 000 additional jobs. The impact would be even greater if the [Barcelona target](#) (3 % of national GDP to be dedicated to R&I) were to be reached by 2020.
- ⁷ Regarding European research infrastructures, the report states the following: 'Research Infrastructures: 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.'
- ⁸ For the sake of completeness, it should be mentioned that the European Commission also aims to create synergies with other EU instruments, such as [InvestEU](#), the [European space programme](#) (Galileo, EGNOS, Copernicus, Govsatcom) and the [European Defence Fund](#).
- ⁹ The European Committee of the Regions' (CoR) [2017 report](#) is part of the regular monitoring on the annual progress and development of the EGTC instrument and gives an overview of the current state of play.
- ¹⁰ V. Reillon, [Preparing FP9: Designing the successor to the Horizon 2020 research and innovation framework programme](#), EPRS, European Parliament, April 2018, p. 19.
- ¹¹ Many central and eastern European countries consider Poland and the success of its SEZs (in terms of attracting FDI) as a model. However, the Polish SEZs have also been criticised. Trade unions such as Solidarnosc have [criticised](#) some SEZ companies for exploiting their employees and undermining trade union activities.

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