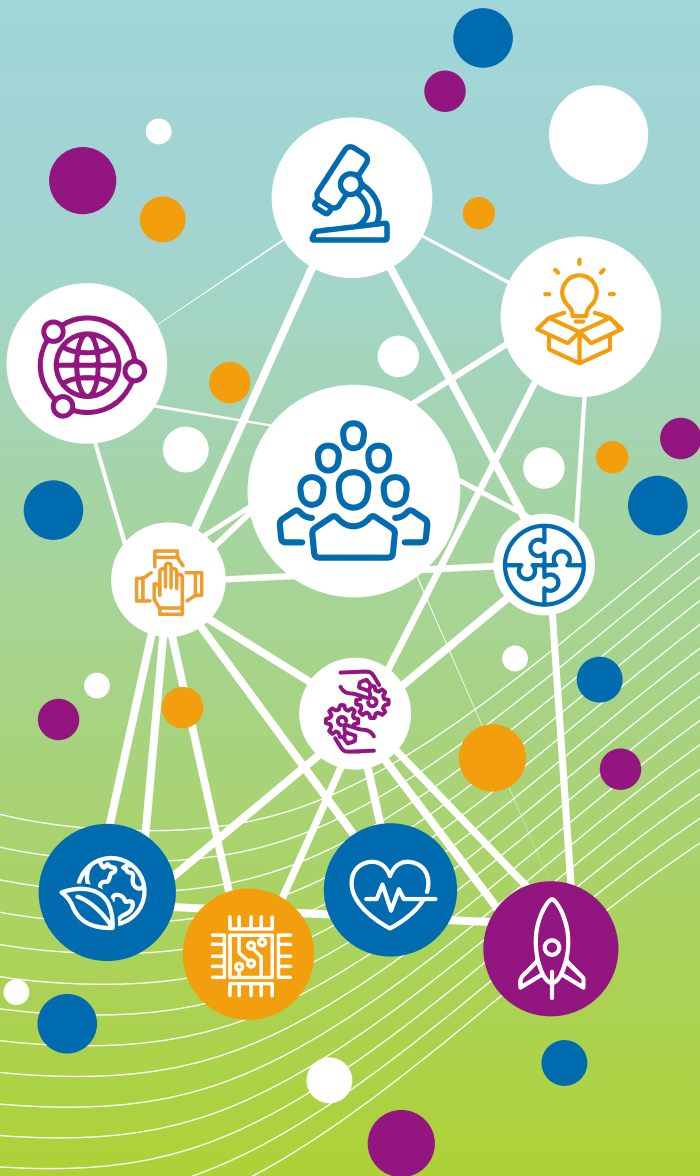




European  
Commission

# PERFORMANCE OF EUROPEAN PARTNERSHIPS

BIENNIAL  
MONITORING  
REPORT 2022  
ON PARTNERSHIPS  
IN HORIZON EUROPE



Research and  
Innovation

## **Performance of European Partnerships: Biennial Monitoring Report 2022 on partnerships in Horizon Europe**

European Commission

Directorate-General for Research and Innovation

Directorate G – Common Missions & Partnerships Service

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B-1049 Brussels

Manuscript completed in April 2022

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PDF ISBN 978-92-76-36195-4

doi:10.2777/144363

KI-05-21-240-EN-N

Luxembourg: Publications Office of the European Union, 2022

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EUROPEAN COMMISSION

# **PERFORMANCE OF EUROPEAN PARTNERSHIPS:**

**Biennial Monitoring Report (BMR) 2022  
on partnerships in Horizon Europe**

# FOREWORD



**I**n 2022, we celebrate the 20<sup>th</sup> anniversary of the EU Research and Innovation partnerships. The European Commission, together with the Member States, took the bold step to start coordinating the implementation of national, regional and EU research funding programmes as a key cornerstone of the European Research Area (ERA), launching the first public-to-public partnerships in 2002.

**Over 20 years, partnerships have become the major success story of ERA.** Since 2004, EUR 9.1 billion have been mobilised by the Member States and Associated Countries and the EU into some 760 joint calls resulting in more than 9 350 transnational projects. In 2021, which was a particularly busy year, we launched the first 37 Horizon Europe partnerships. **In Horizon Europe, we want partnerships to have more impact** and to make a strong contribution to the EU priorities of green and digital transitions and resilience.

The world is facing enormous challenges – climate change, epidemics and, most recently, threats to our security and values that can only be addressed if all actors in Europe team up. **Having a common long-term vision uniting European stakeholders is an essential starting point.**

**Concrete action with strong commitments is needed.** It is remarkable that Member States and Associated Countries have committed EUR 9 billion as national contributions to the first Horizon Europe partnerships, comparable to the investment made over 16 years (2004-2020). Industry, for its part, has committed over EUR 22 billion, which shows that European Partnerships have become strategic cooperation platforms for both our public and our private partners.

**I encourage partnerships to take more risks and go to places where individual governments or companies cannot.** This Biennial Monitoring Report (BMR) 2022 provides a multitude of inspiring examples of how partnerships are seeking synergies with other initiatives – either bilaterally or multilaterally. An example is the Inter-Partnership Assembly which has been set up to enhance collaboration between partnerships.

**We have shown how partnerships can improve their role by working hand in hand with Member States and stakeholders.** At the 2017 Council meeting of Research Ministers in Tallinn, Estonia, we discussed how partnerships could be more inclusive and open. The involvement of relevant actors across Europe is essential for partnerships to maximise their impact. I am glad to see that there is great awareness among partnerships on openness – both inside Europe and globally which is a key feature of the common indicators that we will use to monitor the progress of partnerships.

**Let me thank the independent expert group, the Member States, Norway and Iceland and the European Partnerships** for their help in producing the 2022 edition of the BMR. Thanks to the data collected through fiches and the first survey on common indicators, this publication provides a baseline and evidence-based examination of relevant policies and practices across 37 partnerships and 29 countries. The journey continues – the next BMR will be published in two years and will provide more insights into the role of European Partnerships in addressing the complex challenges of our time.

**Mariya Gabriel**  
*European Commissioner*

*Innovation, Research, Culture, Education and Youth*



# ACKNOWLEDGEMENTS

The 2022 edition of the Biennial Monitoring Report on European Partnerships has been drafted by the Commission Expert Group on support of the strategic coordinating process for partnerships<sup>1</sup>, in very close cooperation with the Common Missions & Partnerships Service at the Common Policy Centre of DG Research and Innovation.

The Commission gratefully acknowledges the significant contribution from the members of the Expert Group:

- Effie Amanatidou
- Maria Chiara Carrozza (chair)
- Michaël Doms
- Katharina Erbe
- Krzysztof Gulda
- Henric Johnson
- Daria Julkowska
- Ülle Napa
- Jari Romanainen (rapporteur)

The BMR is the result of a genuine co-creation process between the Expert Group, the members of the Partnership Knowledge Hub, and partnerships themselves, and the Commission Steering Committee, under the supervision of Common Missions and Partnerships Service – Marnix Surgeon (Deputy Head of Unit), Aleksandra Kordecka (Head of Unit) and Minna Wilkki<sup>2</sup>.

Maria Leek was responsible for the overall coordination of drafting of the report, providing support to the Expert Group. ESN supported the team with graphic design and communication deliverables.

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1) European Commission, Register of Commission Expert Groups and Other Similar Entities, <https://ec.europa.eu/transparency/expert-groups-register/screen/expert-groups/consult?do=groupDetail.groupDetail&groupID=3738&news=1>  
2) Head of Unit of the Common Missions and Partnerships Service until 31 March 2022.



# PERFORMANCE OF EUROPEAN PARTNERSHIPS

## BIENNIAL MONITORING REPORT 2022 ON PARTNERSHIPS IN HORIZON EUROPE

The Biennial Monitoring Report (BMR) aims to provide a strong and continuously evolving evidence base to guide the implementation of European Partnerships throughout their life cycles and to inform strategic discussions on Horizon Europe's new policy approach to them.

European Partnerships are a key instrument for the implementation of Horizon Europe and the European Research Area. They allow the EU to team up with public and private partners to help speed up new solutions for the green and digital transitions and to strengthen Europe's resilience.

### 2022 EDITION

- The BMR 2022 focuses on Horizon Europe's new partnership landscape and establishes benchmarks for assessing progress in future reports. BMR 2022 is the first attempt to comprehensively monitor partnerships using a set of common indicators and to analyse their contribution to EU policy objectives and the UN's Sustainable Development Goals (Chapter 2). It also provides a country-by-country snapshot of the performance of the 27 EU Member States, Iceland, and Norway (Chapter 3), as well as the performance of each European Partnership (Chapter 4).
- Two cross-cutting themes were selected for this edition: synergies, as European Partnerships are expected to take a more systematic approach for collaborating between themselves, as well as with other R&I initiatives, and 'expected contribution to the EU priorities of the green and digital transitions and resilience'. Insights related to the selected themes are integrated in the report's chapters.
- The first BMR is different from the following editions because data on the performance of European Partnerships is still very limited. Therefore, this report provides indicative observations based largely on Horizon 2020's data, while future reports will be largely based on Horizon Europe's data.

PERFORMANCE OF EUROPEAN PARTNERSHIPS:  
BIENNIAL MONITORING REPORT 2022 ON PARTNERSHIPS IN HORIZON EUROPE

1. THE PORTFOLIO OF 49 EUROPEAN PARTNERSHIPS IN THE FIRST HORIZON EUROPE STRATEGIC PLAN AND 37 PARTNERSHIPS COVERED IN THE BMR 2022

PILLAR II - Global challenges & European industrial competitiveness

PILLAR III - Innovative Europe

Cluster 1: Health	Cluster 4: Digital, industry and space	Cluster 5: Climate, energy and mobility	Cluster 6: Food, bioeconomy, natural resources, agriculture and environment	EIT: The European Institute of Innovation and Technology	European innovation ecosystems
Innovative Health Initiative	Key Digital Technologies	Clean Hydrogen	Circular Bio-based Europe	EIT InnoEnergy	Innovative SMEs
Global Health EDCTP3	Smart Networks and Services	Clean Aviation	Biodiversa+	Climate-KIC	
Transformation of Health Care Systems	High Performance Computing	Single European Sky ATM Research 3	Blue Economy	EIT Digital	
Risk Assessment of Chemicals	European Metrology (Art. 185)	Europe's Rail	Water4All	EIT Food	
ERA for Health	AI-Data-Robotics	Connected, Cooperative and Automated Mobility	Animal Health and Welfare	EIT Health	
Rare Diseases	Photonics	Batteries	Accelerating Farming Systems Transitions	EIT Raw materials	
One-Health Antimicrobial Resistance	Made in Europe	Zero-emission Waterborne Transport	Agriculture of data	EIT Manufacturing	
Personalised Medicine	Clean Steel – Low-Carbon Steelmaking	Zero-emission Road Transport	Safe and Sustainable Food Systems	EIT Urban Mobility	
Pandemic Preparedness	Processes4Planet	Built4People		Cultural and Creative Sectors and Industries	
	Globally Competitive Space Systems	Clean Energy Transition			
		Driving Urban Transitions			
				<b>CROSS-PILLARS II and III</b>	
				European Open Science Cloud	

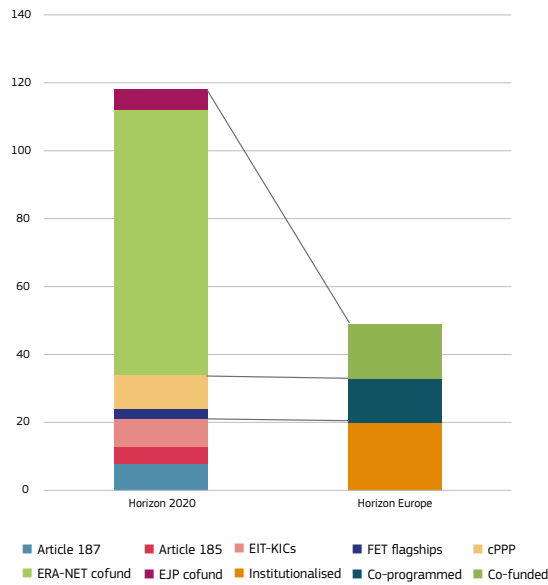
- Institutionalised partnerships (Art 185/7, EIT KICs)
- Co-programmed
- Co-funded
- Not covered in the BMR 2022 due to a later start date

Source: European Commission

PERFORMANCE OF EUROPEAN PARTNERSHIPS:  
BIENNIAL MONITORING REPORT 2022 ON PARTNERSHIPS IN HORIZON EUROPE

Partnership portfolio in Horizon 2020 and Horizon Europe

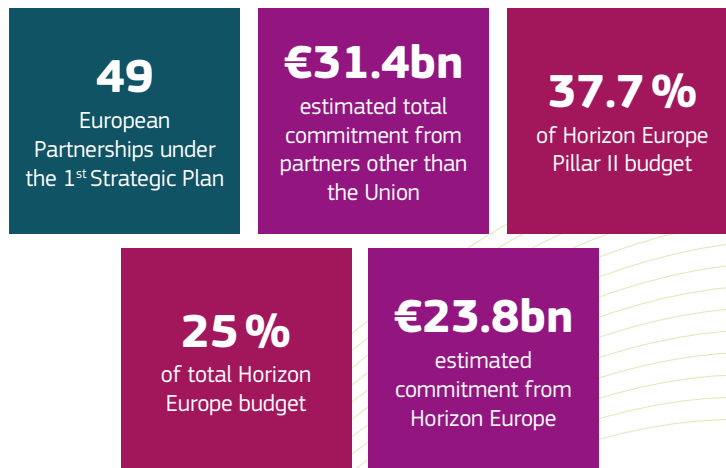
The extensive reform and rationalisation of partnerships entailed reducing the number to 49, compared to almost 120 partnerships under Horizon 2020. Under Horizon Europe, European Partnerships may only be set up in three different forms: co-funded, co-programmed and institutionalised.



Source: European Commission

2. BUDGET COMMITMENTS TO EUROPEAN PARTNERSHIPS

PARTNERSHIPS





PERFORMANCE OF EUROPEAN PARTNERSHIPS:  
BIENNIAL MONITORING REPORT 2022 ON PARTNERSHIPS IN HORIZON EUROPE

### 3. PARTNERSHIPS LEVERAGING FUNDING

Member States and Associated Countries have committed **EUR 9 billion to the first partnerships** launched under Horizon Europe. **This is a remarkable achievement** that is only comparable to the estimated actual investment made in calls since 2004, including the EU's contribution, which reaches some EUR 9 billion<sup>1</sup>.

**Industry has committed EUR 22.4 billion to the launched European Partnerships.** This exceeds by EUR 4.9 billion the requirement to match the EU's contribution for the co-programmed partnerships and joint undertakings<sup>2</sup>.

### 4. PARTNERSHIPS CONTRIBUTING TO THE TWIN DIGITAL AND GREEN TRANSITION, AND EUROPE'S RESILIENCE



The BMR 2022 shows the multidisciplinary way in which these priorities are being addressed in European Partnerships and therefore the clear potential for synergies and cooperation between partnerships across clusters.

### 5. PARTNERSHIPS CONTRIBUTING TO THE SDGS

European Partnerships address in particular the following SDGs:



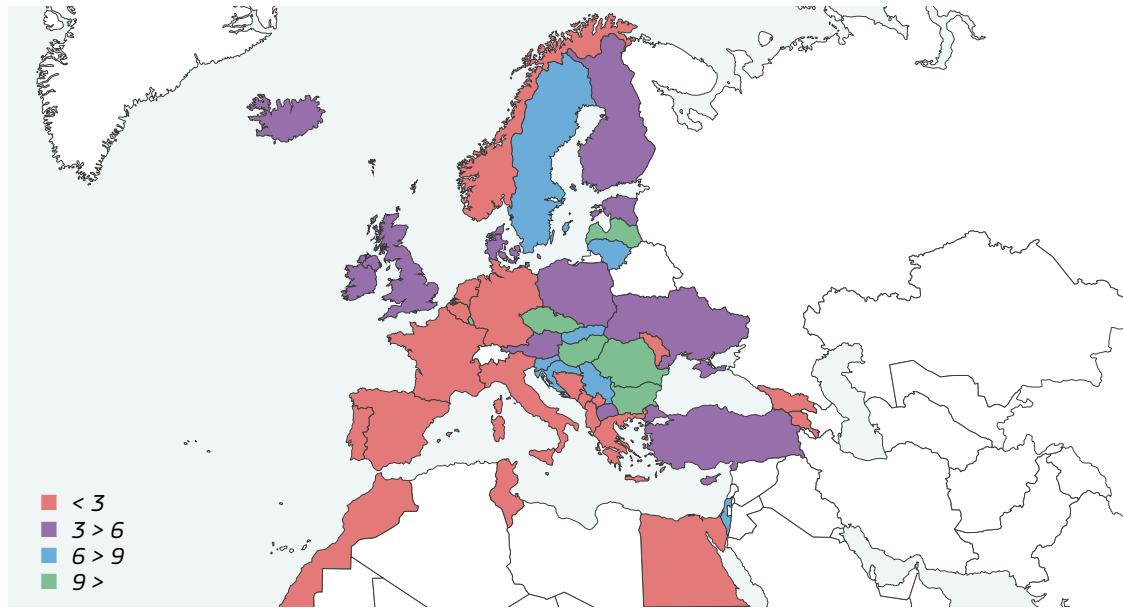
### 6. PARTNERSHIPS AS DRIVERS FOR WIDENING AND DEEPENING THE EUROPEAN RESEARCH AREA

European Partnerships demonstrate a strong awareness for improving openness, setting up dedicated measures for newcomers and an interest in reaching out to widening countries in Europe as shown in the graph below.

1) ERA-LEARN, Annual Report on Public-Public Partnerships 2020. ERA-LEARN. <https://www.era-learn.eu/documents/annualreport2020>  
 2) All are included except the Global Health EDCTP3 Joint Undertaking, which is considered as a public partnership.  
 3) Resources can contribute to several objectives at the same time, resulting in a total exceeding 100%.

PERFORMANCE OF EUROPEAN PARTNERSHIPS:  
BIENNIAL MONITORING REPORT 2022 ON PARTNERSHIPS IN HORIZON EUROPE

Geographical coverage of targeted newcomer partners (aggregated data for all European Partnerships that participated in the survey)



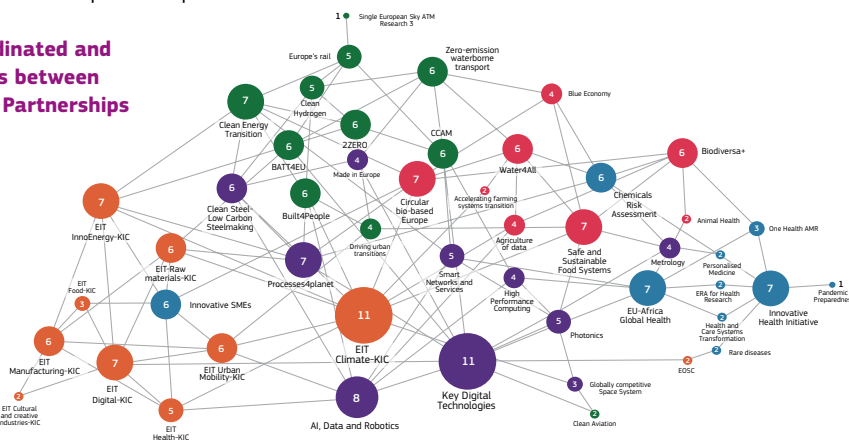
Source: Common indicators survey.

Partnerships are open for collaboration beyond the EU. When asked which newcomer non-EU countries partnerships target as partners, Norway and Israel were most often mentioned, alongside some African countries. Some partnerships also included Brazil, Canada, China, Chile, India, and the USA in their answers.

7. PARTNERSHIPS AS NETWORK BUILDERS

European Partnerships intend to establish numerous collaboration links between themselves. The central position of partnerships such as EIT Climate-KIC and AI, Data and Robotics stand out with the largest number of planned coordinated and joint activities with other partnerships.

Planned coordinated and joint activities between the European Partnerships



Source: Common Indicators Survey, November 2021.

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KI-05-22-105-EN-N – ISBN: 978-92-76-51699-6 – doi:10.2777/050192



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# ABBREVIATIONS

<b>AC</b>	Associated Country or countries associated to Horizon Europe
<b>AI</b>	Artificial intelligence
<b>B2T</b>	Business to Territory
<b>BMR</b>	Biennial Monitoring Report on European Partnerships, planned to be published in 2022, 2024, 2026 and 2028
<b>CEF</b>	Connecting Europe Facility
<b>cPPP</b>	Contractual public-private partnership
<b>CSA</b>	Coordination and Support Action
<b>CSIP</b>	Cluster Specific Impact Pathway
<b>eCORDA</b>	COmmon Research DAta Warehouse
<b>EIT KAVA</b>	EIT KIC Added Value Activities
<b>EIT KIC</b>	European Institute of Innovation and Technology – Knowledge and Innovation Community
<b>EJP</b>	European Joint Programme Cofund initiative
<b>ERC</b>	European Research Council
<b>ERA-LEARN</b>	A support platform for the R&I Partnership community, funded as a support action (CSA) by Horizon 2020. It operates a unique database of Partnership initiatives, their calls and funded projects and provides studies and analyses on thematic clustering, internationalization, alignment, etc.
<b>ERA-NET</b>	European Research Area (Thematic) Network
<b>ERDF</b>	The European Regional Development Fund
<b>ESIF</b>	The European Structural and Investment Fund
<b>EU</b>	European Union
<b>FP6</b>	Sixth European Framework Programme for Research and Innovation 2002-2006
<b>FP7</b>	Seventh European Framework Programme for Research and Innovation 2007-2013
<b>FTE</b>	Full-time equivalent, one full person year
<b>GPC</b>	High Level Group on Joint Programming



<b>H2020</b>	Horizon 2020, European Framework Programme for Research and Innovation 2014-2020
<b>HE</b>	Horizon Europe, European Framework Programme for Research and Innovation 2021-2027
<b>IA</b>	Innovation Action
<b>IPR</b>	Intellectual or industrial property rights
<b>IS</b>	Iceland
<b>JPI</b>	Joint Programming Initiative
<b>JPND</b>	EU Joint Programme - Neurodegenerative Disease Research
<b>JU</b>	Joint Undertaking
<b>KIP</b>	Key Impact Pathway defined by the Commission for Horizon Europe
<b>KPI</b>	Key performance indicator
<b>MS</b>	Member State
<b>MSCA</b>	Marie Skłodowska-Curie Actions
<b>NO</b>	Norway
<b>P2P</b>	Public-public partnership
<b>PPP</b>	Public-private partnership
<b>PSIP</b>	Partnership Specific Impact Pathway
<b>RDI</b>	Research and development and innovation
<b>R&amp;I</b>	Research and innovation
<b>RIA</b>	Research and innovation action
<b>RIS3</b>	Smart Specialisation Platform
<b>RRF</b>	Recovery and Resilience Facility
<b>SBA</b>	Single Basic Act
<b>SDG</b>	United Nations Sustainable Development Goal
<b>SME</b>	Small and medium-sized enterprise
<b>SRIA</b>	Strategic Research and Innovation Agenda, jointly defined by all members of a European Partnership
<b>TFEU</b>	Treaty on the Functioning of the European Union



# 1. INTRODUCTION

## HIGHLIGHTS OF THIS CHAPTER

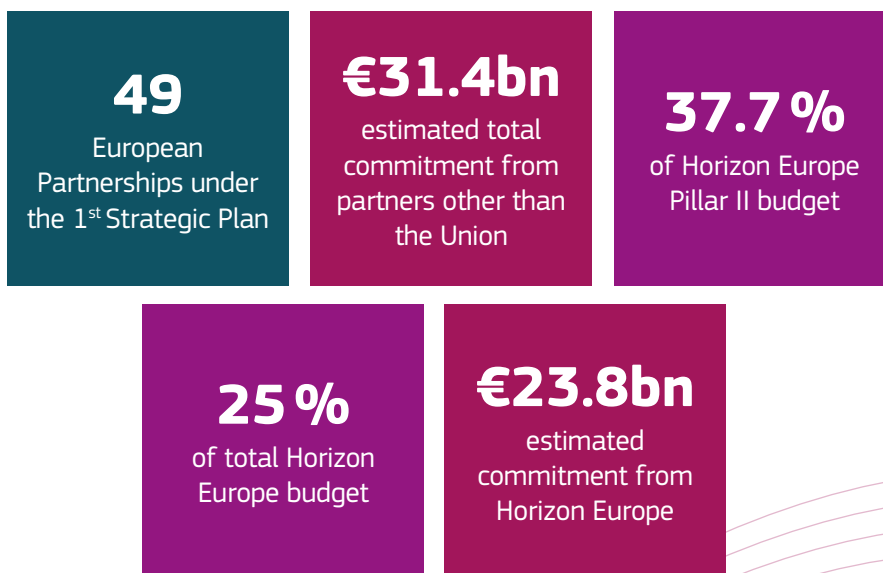
THIS CHAPTER ADDRESSES THE FOLLOWING QUESTIONS

**Why are partnerships needed, what is their underlying rationale and what is expected from them?  
When and where did the European Partnership instrument originate, how has the landscape of partnerships evolved over time, and what are some of the major achievements?  
What partnerships are there under Horizon Europe and why?**

Because the Horizon Europe project monitoring system is not fully functional, data regarding the performance and impact of European Partnerships in Horizon Europe is currently still very limited. Thus, this report provides both illustrative and indicative observations based largely on Horizon 2020 (H2020) data. Future reports will be based largely or entirely on Horizon Europe (HE) data.

This report covers 37 European Partnerships officially launched at the time of publishing this report. The number of Horizon Europe partnerships is expected to reach 49 by the time all currently planned partnerships have officially been launched under the first Strategic Plan in Horizon Europe (2021-2024).

## SELECTED KEY FIGURES





This report on the Performance of European Partnerships, also known as the Biennial Monitoring Report (BMR), aims to provide a strong evidence base to guide the implementation of partnerships and to inform strategic discussions on the effectiveness of the new policy approach to European Partnerships and, where relevant, how it should evolve.

**The BMR provides a systematic overview of the overall European Partnership landscape by shedding light on:**

- The effectiveness of the new policy approach for European Partnerships and the extent to which it leads to a better achievement of objectives and impacts compared to traditional calls under the Framework Programme.
- The progress of European Partnerships towards their objectives and targeted impacts – both individually and collectively, at the EU and national level.
- Early implementation barriers and drivers towards impacts – e.g. in terms of contributions, coherence, collaboration, openness or accessibility of partnerships.
- First results achieved, in view of their further demonstration, exploitation and valorisation, including for policymaking by Commission Services and national administrations.

This is the first in a series of four BMRs planned to be published in 2022, 2024, 2026 and 2028. It focuses on introducing the new Horizon Europe Partnership landscape and provides a reference point for future BMRs. This first report has been drafted with the support of an independent Expert Group of the European Commission<sup>3</sup>.

The four planned BMRs will have fixed content that will be repeated in each of the reports. In addition, each will discuss a limited number of cross-cutting themes, which will vary from one BMR to the next. The broad theme of Synergies was selected as a cross-cutting theme for this first report as European Partnerships are expected to take a more intensive and systematic approach to developing synergies with other international, EU, national or regional programmes. They are also expected to cooperate with other partnerships and initiatives, or new types of stakeholders, to maximise their efficiency and impact.

The BMR is broadly looking at quantitative and qualitative evidence, ranging from what has already been achieved, to what is currently being implemented, to future intentions. It explores the added value of European Partnerships by providing examples of outcomes and impacts, which would not have been (or will not be) generated, or at least not to the same extent, without such partnerships. Furthermore, the report looks at the expected contribution of European Partnerships to the EU priorities of green and digital transitions and resilience.

Besides data and indicators reported at the Horizon Europe level, the BMR also reports on progress through six common partnership-level indicators, capturing the agreed principles for their effective implementation and monitoring of European Partnerships: additionality and directionality, coherence and synergies, openness and transparency, and international visibility.

For this first BMR, data collected from 29 countries and 37 partnerships defines a reference point for future reports. It will also feed into the upcoming interim evaluation of Horizon Europe. The detailed methodology and process for preparing the BMR is described in the Second Interim Report of the Expert Group (forthcoming).

This report constitutes the first attempt at the comprehensive monitoring of the European Partnership landscape, using indicators decided upon by the Council and the European Parliament. The challenges of this exercise should not be underestimated given the high diversity of partnerships and lack of data at the beginning of Horizon Europe. Nevertheless, this first report already provides insights for policy development that hopefully readers will find interesting and paves the way for more complete BMRs in the future.

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3) <https://ec.europa.eu/transparency/expert-groups-register/screen/expert-groups/consult?do=groupDetail.groupDetail&groupID=3738&news=1>



## 1.1 EUROPEAN PARTNERSHIPS – POLICY CONTEXT

### 1.1.1 BRIEF HISTORY – 20 YEARS AS PART OF THE EUROPEAN RESEARCH AREA

Partnerships are not new. The first partnerships were set up in the context of developing the ERA and the launch of the Sixth Framework Programme (FP6) in 2002. The partnership concept was developed with the aim of addressing the fragmentation and unnecessary duplication of research efforts and to increase public and private investment in research activities and enhance their impact. The resulting size, scale and critical mass achieved by pooling resources across Europe was to ensure a strong global position for European research. Over the years, acknowledging that research plays a central role in providing solutions to address ‘the grand challenges of our time’<sup>4</sup>, such as sustainability, climate change, food safety, clean and affordable energy, etc., it has become clear that European Partnerships must increasingly focus on societal challenges.

At first, the Framework Programme focused on coordinating and aligning national research and innovation programmes and organising joint calls through ERA-NETs, Article 169 of the TFEU<sup>5</sup> and Joint Programming Initiatives (JPIs).

Building on the European Technology Platforms, the Commission also set up the first Joint Technology Initiatives (now Joint Undertakings) in the fields of aeronautics, medicines, fuel cells and hydrogen, nanoelectronics and embedded computing systems by using Article 171 of the Treaty establishing the European Community (now Article 187 of the TFEU) in 2007.

The 2008 financial crisis demanded quick action to support the competitiveness of key industrial sectors of the European economy, which led to the launch of several contractual public-private partnerships (cPPPs).

Finally, in order to address the knowledge triangle, a new type of partnership – the European Institute of Innovation and Technology – Knowledge and Innovation Communities (EIT-KICs), supported by the overarching EIT, were introduced in 2008.

Obviously, the practical implementation of the general partnership concept is critical in achieving success. With every new Framework Programme, new partnership types and partnership instruments have been proposed, although it has proved to be much more difficult to abandon or replace existing ones. The complexity of the partnership landscape reached its peak during Horizon 2020 with eight forms of implementation<sup>6</sup> and close to 120 partnership initiatives running without clear exit strategies and with increasing concerns about their lack of coherence, openness, and transparency.

There were also increasing concerns about the contribution of partnerships to European and national policy priorities, despite the fact that the partnerships delivered several positive impacts in progressing towards their objectives (e.g. by setting long-term agendas, structuring research and innovation (R&I) cooperation between otherwise dispersed actors and leveraging additional investments). Finally, the evidence on the added value was scarce, notably on what had been achieved beyond establishing joint agendas and launching calls<sup>7</sup>.

During the informal Council of Research Ministers in Tallinn in July 2017, there was a large consensus on the need to simplify the EU R&I landscape by drastically reducing the number of R&I partnerships and making them more open and attractive for stakeholders across Europe.

4) Lund Declaration 2009, <https://era.gv.at/era/societal-challenges/the-lund-declaration/>

5) Art. 185 as from 1 December 2009

6) For a full overview, see the Impact assessment of Horizon Europe, Commission Staff Working Document, SWD(2018)307, pp. 108. These include initiatives based on Article 187, Article 185 of the TFEU, contractual public-private partnerships, EIT KICs, ERA-NETs, European Joint Programmes, JPIs, and FET Flagships.

7) <https://www.technopolis-group.com/wp-content/uploads/2020/02/Increased-coherence-and-openness-of-European-Union-research-and-innovation-Partnerships.pdf>



This was also concluded by the interim evaluation of Horizon 2020<sup>8</sup> and by the so-called Lamy Report<sup>9</sup>. Consequently, the Commission carried out a major reform of its partnership policy with the aim of rationalising the landscape and making partnerships more open, coherent, and strategic.

## 1.1.2 RENEWED AMBITION FOR EUROPEAN PARTNERSHIPS UNDER HORIZON EUROPE

Horizon Europe – the EU’s R&I framework programme for 2021-2027 – introduced a new strategic, coherent, and impact-driven policy approach to European Partnerships. In this new policy framework, European Partnerships are expected to play a key role in achieving the EU’s strategic objectives – namely, accelerating the transition towards a green, climate neutral, and digital Europe while strengthening the resilience and competitiveness of European industry in line with the European Industrial Strategy<sup>10</sup>.

The challenges of climate and environmental change, attaining European technological leadership and open strategic autonomy, and ensuring a sustainable and inclusive recovery require directing dispersed research and innovation efforts towards a shared vision on the required transformation process. By teaming up with both the public and private sectors, European Partnerships are expected to help speed up novel solutions, particularly those that can reduce greenhouse gas emissions by 2030 in line with the European Green Deal and the Horizon Europe 35 % climate expenditure targets and help achieve the green and digital transitions.

To maximise the impact of European Partnerships, Horizon Europe has introduced several novelties compared to Horizon 2020:

**A simple architecture and toolbox for partnerships and a common umbrella brand ‘European Partnerships’.** European Partnerships may only be set up using three different forms: co-funded, co-programmed and institutionalised.

Whilst the co-funded and co-programmed partnerships are linked to the comitology procedure (including adoption of the Strategic Plan and the Horizon Europe Work Programmes), institutionalised partnerships require the adoption of separate legislation and are subject to an *ex-ante* impact assessment<sup>11</sup>.

The main differences between the different forms of European Partnerships are in their preparation and how they function, as well as in the overall impact they can trigger. The Horizon Europe Regulation foresees that the least complex form of implementation should always be preferred, which introduces some bias against institutionalised European Partnerships that take the longest to set up.

8) Impact assessment of Horizon Europe, Commission Staff Working Document, SWD(2018)307.

9) <https://op.europa.eu/en/publication-detail/-/publication/ffbe0115-6cfc-11e7-b2f2-01aa75ed71a1/language-en/format-PDF/source-77975731>

10) COM(2020) 102.

11) Following the Commission’s Better Regulation Guidelines: [https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how/better-regulation-guidelines-and-toolbox\\_en](https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how/better-regulation-guidelines-and-toolbox_en)





**TABLE 1. Types of European Partnerships and their key characteristics**

Type	Legal form	Implementation
<b>Co-programmed</b>	Memoranda of Understanding	Division of labour, whereby the EU contribution is implemented through a Framework Programme and partners' contributions under their responsibilities.
<b>Co-funded</b>	Grant Agreement	Union provides top-up funding for an integrated programme with distributed implementation by entities managing and/or funding national R&I programmes.
<b>Institutionalised</b>	Based on Art 185/187 of TFEU and the EIT Regulation for 2021-2027	Integrated programme with centralised implementation.

Source: European Commission

**Coherent life-cycle criteria for all European Partnerships:** including the notion of exit strategies from Horizon Europe funding. All European Partnerships have to follow the common criteria laid down in the Horizon Europe Regulation (Article 10 and Annex III):

- Directionality and additionality
- Coherence and synergies
- Transparency and openness
- International visibility
- Flexibility of implementation.

This means that European Partnerships are established only if there is evidence that they support achieving EU policy objectives more effectively than other Horizon Europe actions. They are all based on agreed objectives and a long-term vision, underpinned by Strategic Research and Innovation Agendas (SRIAs) that are shared and committed to by all partners in the partnership.

The launch of a European Partnership is conditional on the partners signing up to the objectives and committing the resources and investments needed to achieve these. In this context, the Commission has introduced a new approach to private partners' contributions in order to increase their level and relevance. A coherent approach also enables comparability in calculating contributions across European Partnerships with industry involvement.

Another important difference compared to Horizon 2020 is that European Partnerships are expected to be more transparent and open to the involvement of new participants and actors, including from public bodies and foundations, in identifying their priorities, as well as allowing newcomers to enter as members, participate in open calls and benefit from their activities and results.

All European Partnerships are expected to establish collaborations among one another, and synergies with other relevant programmes at the international, EU, national and regional level, including EU Missions. This means that partnerships need to set up and maintain a clear strategy for interfaces and joint activities with other relevant initiatives in order to secure an optimum level of interconnection and ensure effective synergies.

Operational guidelines for implementing the criteria framework were developed by the Commission in 2018<sup>12</sup> to support the coordinated preparation of European Partnerships and were further elaborated during the impact assessment for institutionalised European Partnerships<sup>13</sup>. These criteria were also the basis for developing the common indicators used in this report for monitoring the performance of European Partnerships (Section 2.4).

12) <https://www.era-learn.eu/documents/wk-14470-2018-init-en.pdf/view>

13) [https://ec.europa.eu/info/sites/default/files/research\\_and\\_innovation/knowledge\\_publications\\_tools\\_and\\_data/documents/ec\\_rtd\\_ia-ip-horizontal-analysis-efficiency-coherence.pdf](https://ec.europa.eu/info/sites/default/files/research_and_innovation/knowledge_publications_tools_and_data/documents/ec_rtd_ia-ip-horizontal-analysis-efficiency-coherence.pdf), p. 2118.

While the more ambitious European Partnerships have the potential to trigger EU-wide transformations towards sustainability, push the digital transformation, and gain more resilience, they are being implemented at a time of deep changes on world markets and multiple challenges. Given the unprecedented crisis brought about by the COVID-19 pandemic, the most recent security threats, and rapidly intensifying climate change<sup>14</sup>, it is more important than ever to ensure that partnerships step up and avoid business as usual.

The success of European Partnerships will depend on several factors – including a shared long-term vision and commitments from partners, the quality of the additional activities, establishing a meaningful cooperation with the Member States and Associated Countries<sup>15</sup>, and continuous monitoring of progress towards the objectives.

An important challenge for European Partnerships is their capacity to go beyond the traditional modalities of project funding and take a more systemic approach by covering a much wider set of activities needed for market, regulatory and societal uptake<sup>16</sup>. All of these must be carefully monitored to ensure that the ambitions regarding the European Green Deal become a reality.

### **BOX 1. ENSURING COMPLIANCE WITH THE CRITERIA DURING THE PREPARATION OF EUROPEAN PARTNERSHIPS**

The Commission set up a coordinated process for preparing European Partnerships to ensure compliance with Horizon Europe's new ambition and criteria. Partnerships launched in the first two years of Horizon Europe were required to develop a draft proposal (published on the Commission website<sup>17</sup>) describing the measures to ensure compliance with these criteria, including:

- Demonstration that the partnership approach is more effective than traditional Framework Programme calls in achieving the related objectives (the so-called 'necessity test').
- Demonstration of a long-term vision, including a clear intervention logic with concrete objectives and targets to be achieved during the lifespan of the partnership and with a set of KPIs to match these.
- Demonstration of ex-ante long-term commitment by the partners other than the EU.
- Measures for increasing the openness and involvement of newcomers.
- Measures ensuring coherence and synergies within the EU R&I landscape.

Institutionalised European Partnerships (based on Articles 185 and 187) were subject to a coordinated impact assessment analysing alternative implementation modes to Article 185/187 (the so-called 'necessity test'). A stand-alone impact assessment was carried out for the purposes of the revision of the EIT Regulation<sup>18</sup> and the EIT Strategic Innovation Agenda 2021–2027<sup>19</sup>.

14) <https://www.ipcc.ch/report/ar6/wg1/#SPM>

15) Third countries associated to Horizon Europe.

16) <https://www.technopolis-group.com/fr/increased-coherence-and-openness-of-european-union-research-and-innovation-Partnerships-2/>

17) [https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/european-Partnerships-horizon-europe\\_en](https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/european-Partnerships-horizon-europe_en)

18) REGULATION (EU) 2021/819 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20 May 2021 on the European Institute of Innovation and Technology.

19) DECISION (EU) 2021/820 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20 May 2021 on the Strategic Innovation Agenda of the European Institute of Innovation and Technology (EIT) 2021-2027.



European Partnerships continue to be a cornerstone of the ERA by aligning R&I agendas, improving skills, and increasing the absorption capacities of European businesses. This is supported by a dedicated action in the Horizon Europe Work Programme *Widening participation and strengthening the European Research Area* (see Box 2). Partnerships with Member State participation will be key for reaching the target set in the 2020 European Research Area Communication whereby Member States would commit 5% of national public R&D investments to joint programmes and European Partnerships by 2030. In terms of contributions, the private sector is expected to at least match every euro invested by the EU while the Participating States are expected to invest 2.3 euros for every 1 euro the EU invests<sup>20</sup>. The broader impact and leverage (e.g. for jobs, carbon emissions, energy demand) through the partnerships are expected to be much greater.

## **BOX 2. SUPPORT FOR POLICYMAKERS – PROGRAMME-LEVEL COLLABORATION BETWEEN NATIONAL R&I PROGRAMMES**

‘The new policy approach to European Partnerships limits co-funding to the collaboration of Member States and Associated Countries to Union and Horizon Europe priorities. Focus on strategic orientation leaves little room for bottom-up initiatives between national policymakers. For this reason, the ERA part of the Horizon Europe Work Programme provides the possibility for Member States, Associated Countries, and civil society organisations to align national and regional research funding programmes with the priorities of their choice and implement joint calls for transnational R&I projects.’<sup>21</sup>

Source: European Commission

### 1.1.3 RATIONALE OF EUROPEAN PARTNERSHIPS UNDER HORIZON EUROPE

EU R&I partnerships are strategic instruments which enable long-term collaborations to be established and economies of scale to be achieved to tackle common challenges<sup>22</sup>. Since their establishment in the early 2000s, the core activities of the partnerships have consisted of jointly developing common R&I agendas and building critical mass on common challenges. While this is still the core rationale of the European Partnerships, Horizon Europe goes beyond this and puts a much greater emphasis on their capacity to tackle complex cross-border challenges, such as those defined in the United Nations Sustainable Development Goals (UN SDGs).

Addressing these challenges requires more than the development of single (technological) solutions. It demands more profound and disruptive changes to the existing R&I systems. Partnerships are in a unique position to address such challenges and to support key EU policies because they are based on a common SRIA that is shared and committed to by all partners. This is a key feature that distinguishes all European Partnerships from other collaborative research instruments.

Secondly, the new generation of partnerships puts more focus on the better integration of sectoral R&I policies, notably through a more systematic and extended reach and the engagement of stakeholders, such as end-users and public authorities.

Finally, partnerships are more focused on cooperation and synergies with each other and other EU and Member-State programmes. Partnerships cannot act in isolation but must seek complementarities with other relevant initiatives or programmes to accelerate the development and diffusion of innovation. They enable systematic engagement with a variety of stakeholders and end-users, including standardisation bodies and international partners, to ensure that these solutions are taken up and can ultimately deliver on the ambitious goals. They act as dynamic change agents, strengthening linkages within their respective ecosystems and along the value chains. Finally, European Partnerships aspire to be more open and globally strategic.

20) Based on a standard scenario for the Co-funded Partnerships with 30% funding rate.

21) [https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2021-2022/wp-11-widening-participation-and-strengthening-the-european-research-area\\_horizon-2021-2022\\_en.pdf](https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2021-2022/wp-11-widening-participation-and-strengthening-the-european-research-area_horizon-2021-2022_en.pdf)

22) [https://eur-lex.europa.eu/resource.html?uri=cellar:9f0e350e-75de-11eb-9ac9-01aa75ed71a1.0001.02/DOC\\_8&format=PDF](https://eur-lex.europa.eu/resource.html?uri=cellar:9f0e350e-75de-11eb-9ac9-01aa75ed71a1.0001.02/DOC_8&format=PDF)

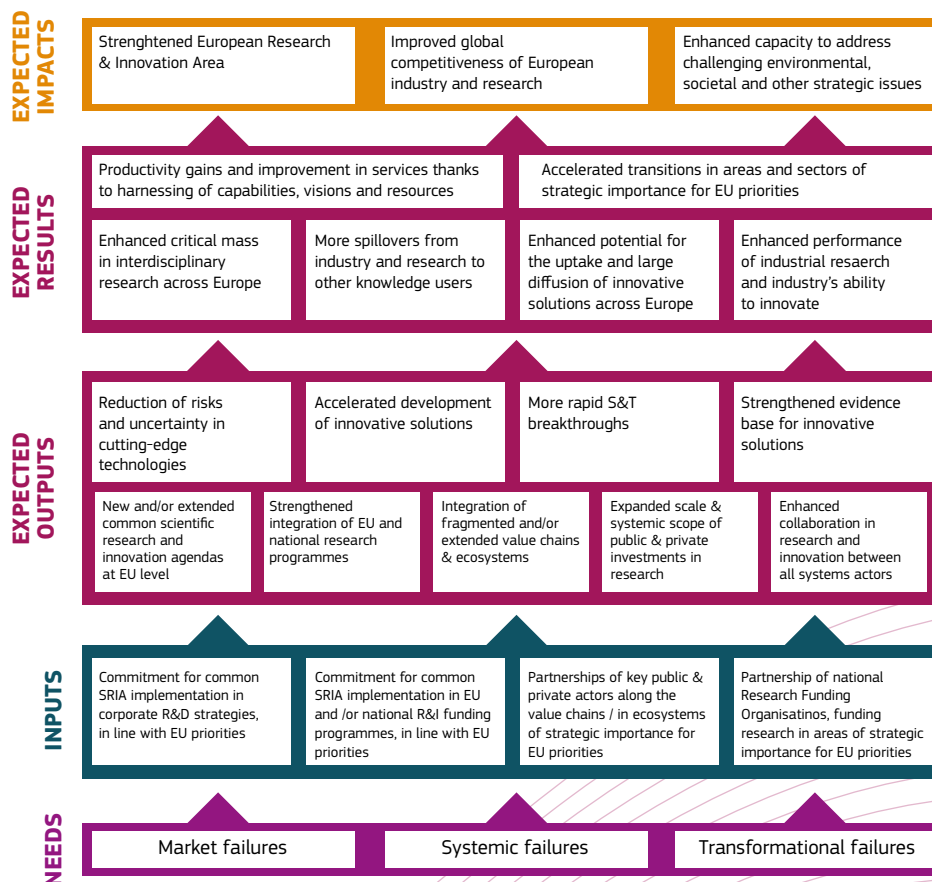
Creating a platform for strengthened collaboration and knowledge exchange between various actors in the European R&I system and an enhanced coordination of strategic research agendas and/or R&I funding programmes aims to address transformational failures to better align the agendas and policies of public and private funders, pool available resources, create critical mass, avoid unnecessary duplication of efforts, and leverage sufficiently large investments where needed but hardly achievable by individual countries.

The concentration of efforts and pooling of knowledge on common priorities to solve multi-faceted societal and economic challenges is at the core of these initiatives. Specifically, enhanced cross-disciplinary and cross-sectoral collaboration and a better integration of value chains and ecosystems are among the key objectives of these instruments.

In the light of Horizon Europe, the aim is to drive system transitions and transformations towards EU priorities. Especially in fast-growing technologies and sectors such as ICT, there is a need to react to emerging opportunities and address systemic failures, such as the shortage of skills or critical mass or cross-sectoral cooperation along the value chain that would hamper the attainment of future European leadership and/or strategic autonomy. Partnerships also aim to address market failures by enhancing industry investments thanks to the sharing of risks and providing investment predictability.

Figure 1 shows the most common failures which partnerships aim to address<sup>23</sup>.

**FIGURE 1. Intervention logic of the European Partnership Instrument**



Source: Technopolis

23) [https://ec.europa.eu/info/sites/default/files/research\\_and\\_innovation/knowledge\\_publications\\_tools\\_and\\_data/documents/ec\\_rtd\\_ia-ip-horizontal-analysis-efficiency-coherence.pdf](https://ec.europa.eu/info/sites/default/files/research_and_innovation/knowledge_publications_tools_and_data/documents/ec_rtd_ia-ip-horizontal-analysis-efficiency-coherence.pdf)

## 1.2 EUROPEAN PARTNERSHIP LANDSCAPE – HORIZON 2020 TO HORIZON EUROPE

European Partnerships have been identified as part of Horizon Europe Strategic Planning and the complementary strategic coordinating process for partnerships, involving the Member States closely. It involved a co-design exercise aiming to better align these initiatives with societal needs and policy priorities, while broadening the range of actors involved.

**FIGURE 2. Overview of 49 European Partnerships in the structure of Horizon Europe**

PILLAR II - Global challenges & European industrial competitiveness				PILLAR III - Innovative Europe	
Cluster 1: Health	Cluster 4: Digital, industry and space	Cluster 5: Climate, energy and mobility	Cluster 6: Food, bioeconomy, natural resources, agriculture and environment	EIT: The European Institute of Innovation and Technology	European innovation ecosystems
Innovative Health Initiative	Key Digital Technologies	Clean Hydrogen	Circular Bio-based Europe	EIT InnoEnergy	Innovative SMEs
Global Health EDCTP3	Smart Networks and Services	Clean Aviation	Biodiversa+	Climate-KIC	
Transformation of Health Care Systems	High Performance Computing	Single European Sky ATM Research 3	Blue Economy	EIT Digital	
Risk Assessment of Chemicals	European Metrology (Art. 185)	Europe's Rail	Water4All	EIT Food	
ERA for Health	AI-Data-Robotics	Connected, Cooperative and Automated Mobility	Animal Health and Welfare	EIT Health	
Rare Diseases	Photonics	Batteries	Accelerating Farming Systems Transitions	EIT Raw materials	
One-Health Antimicrobial Resistance	Made in Europe	Zero-emission Waterborne Transport	Agriculture of data	EIT Manufacturing	
Personalised Medicine	Clean Steel – Low-Carbon Steelmaking	Zero-emission Road Transport	Safe and Sustainable Food Systems	EIT Urban Mobility	
Pandemic Preparedness	Processes4Planet	Built4People		Cultural and Creative Sectors and Industries	
	Globally Competitive Space Systems	Clean Energy Transition			
		Driving Urban Transitions			
				<b>CROSS-PILLARS II and III</b>	
				European Open Science Cloud	

- Institutionalised partnerships (Art 185/7, EIT KICs)
- Co-programmed
- Co-funded
- Not covered in the BMR 2022 due to a later start date

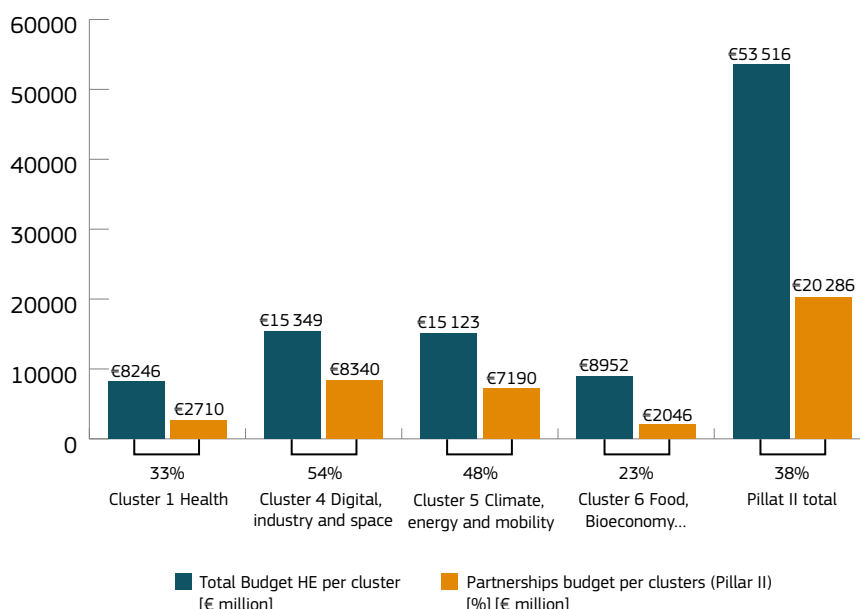
Source: European Commission



Considering the eight areas for institutionalised European Partnerships, based on Articles 185 and 187 TFEU and the budget cap for partnerships in pillar II set out in the Horizon Europe Regulation, the Commission services identified an initial list of 44 candidates for co-funded, co-programmed or institutionalised European Partnerships as part of the strategic planning process of Horizon Europe. The list was then expanded to 49 candidate initiatives following a co-design exercise with Member States<sup>24</sup>.

European Partnerships are set within the context and structure of Horizon Europe and are positioned dominantly in Horizon Europe's Pillar II. The European Open Science Cloud partnership is part of Pillar I but serves research activities in all Pillars of the HE programme. The European Partnership on Innovative SMEs and EIT KICs are positioned in the pillar III of Horizon Europe. Figure 2 gives an overview of all co-funded, co-programmed and institutionalised European Partnerships according to their positioning in the Horizon Europe structure. When this report was published, 37 European Partnerships had been launched and 12 will be launched later in 2022-2024. This is because some need to complete the current cycle, with active networks ongoing until 2022-2023<sup>25</sup>. Others are addressing entirely new priorities that require more preparation time<sup>26</sup>.

**FIGURE 3. European Partnerships' budgets in Horizon Europe cluster budgets**



Source: European Commission

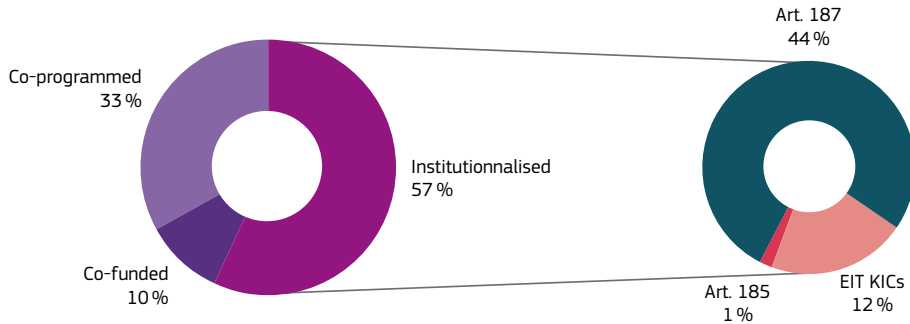
24) <https://www.era-learn.eu/news-events/news/european-Partnerships-under-horizon-europe-results-of-the-structured-consultation-of-member-states-1>

25) Rare diseases, Personalised Medicine, One Health AMR.

26) Accelerating farming systems transition, Animal health, Safe and Sustainable Food Systems, Environmental Observations, Pandemic Preparedness, Transforming Health and Care Systems, Globally competitive space systems.

The EU's contribution is defined for the full duration of all European Partnerships while there is flexibility to either decrease (e.g. if partners fail to meet their commitments) or increase the EU's contribution, provided it is at least matched by the partners. With the seven-year Multiannual Financial Framework and the additional NextGenerationEU budget, the budget proposed for partnerships would account for 37.7% of the Pillar II budget (i.e. EUR 20.3 billion) and 25% of the total Horizon Europe budget<sup>27</sup>. Considering the budget cap for partnerships in Pillar II (up to 49.9%), the remaining budgetary margin is around 12% of the Pillar II budget (i.e. EUR 6.5 billion)<sup>28</sup>.

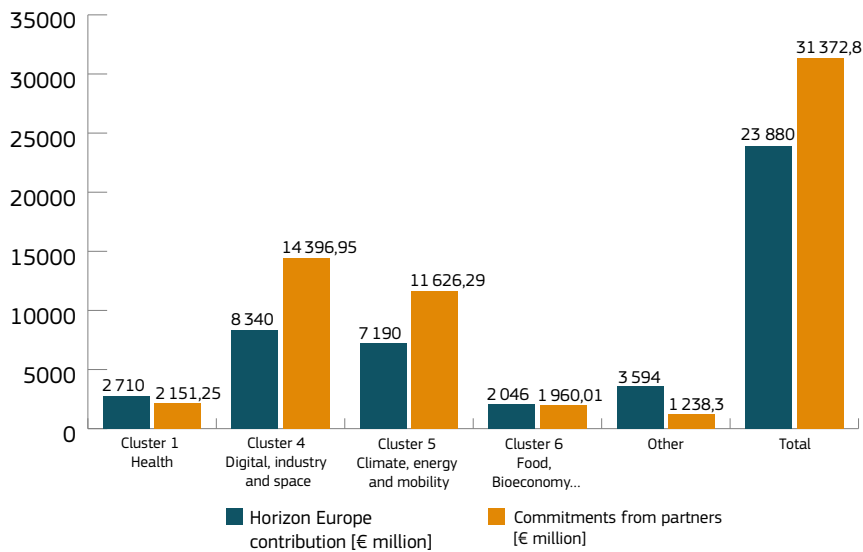
**FIGURE 4. Horizon Europe budget share split based on the type of partnership**



Source: European Commission

Institutionalised European Partnerships take up the biggest share of the Horizon Europe partnership budget (57%). Of the institutionalised partnerships, the largest share of the budget is dedicated to the 10 Joint Undertakings (JUs) (based on Article 187 of the TFEU) that are traditionally industry-led (with three exceptions: the Global Health EDCTP3, High Performance Computing and Key Digital Technologies Joint Undertaking). The co-programmed partnerships take up 33% of the Horizon Europe partnership budget. The European Partnerships, which are exclusively with Member States, Associated Countries, and their programmes, constitute 10% of the total budget allocated to partnerships under Horizon Europe.

**FIGURE 5. European Partnership budget distribution**



Source: European Commission. Commitments from partners = partners other than the European Union, Member States and Associated Countries combined, e.g. private companies, etc. The Other contains EOSC, Innovative SMEs and KICs, deviant Source: European Commission

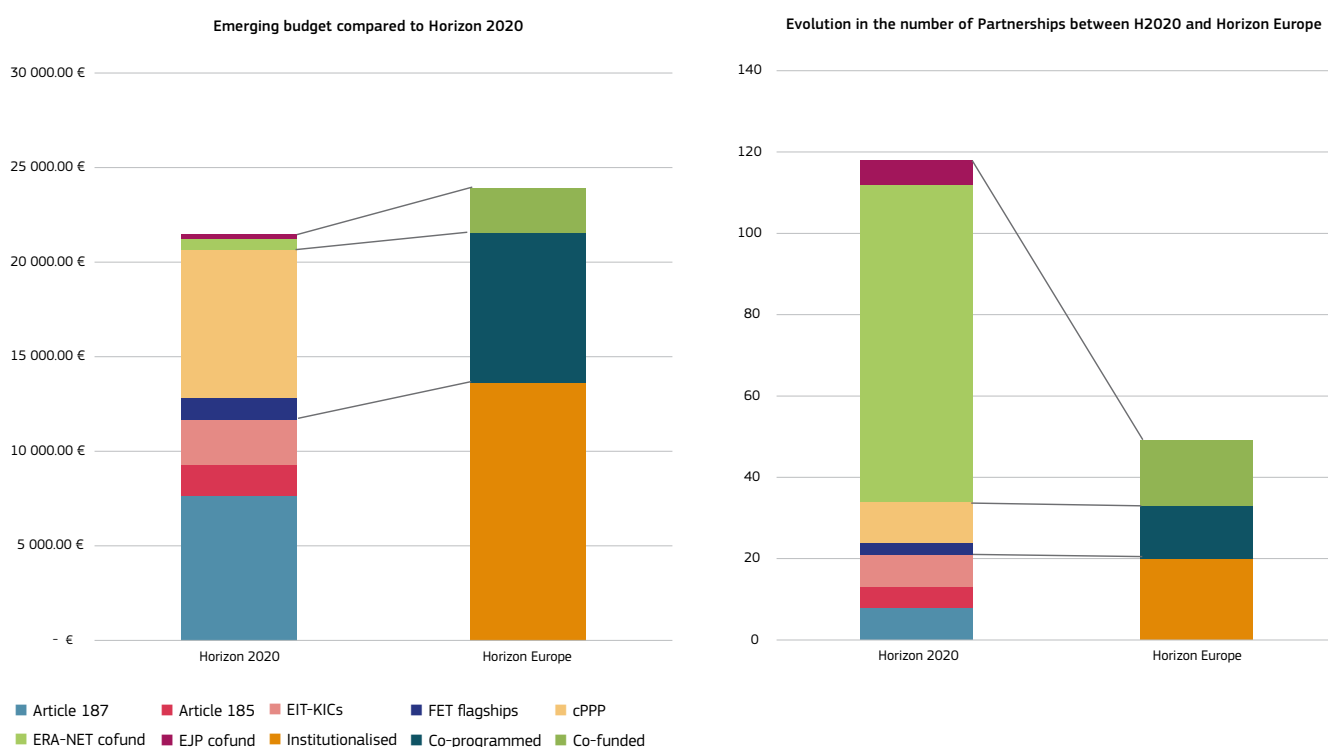
27) This does not include the budget for Pandemic Preparedness which is the only Partnership of the 49 for which there is no indication yet of the Union contribution.

28) This does not take into account the European Commission's recent proposal on European Chips Act

Under Horizon Europe, a precondition for setting up a partnership is the ex-ante commitment from partners. The total commitments from partners other than the Union amount to EUR 31.373 billion, of which EUR 9 041.75 billion are commitments from the Member States and Associated Countries<sup>29</sup>. The reason for the slightly lower commitments in Cluster 1 compared to the contribution from Horizon Europe is because for the Innovative Health Initiative, only EUR 1 billion is counted, while the JU expects to secure an additional EUR 200 million from contributing partners to match the EU contribution set out in the Single Basic Act. Moreover, several partnerships in Cluster 1 will only start in 2023 for which commitments will only be requested by summer 2022. The 'Other' category includes EOSC, Innovative SMEs and the KICs. The data on commitments from partners includes only those made for EOSC and Innovative SMEs due to the policy for partners' contributions which was changed under the new EIT Regulation<sup>30</sup>.

As shown in Figures 6 and 7, an extensive reform and rationalisation of the landscape was carried out which entailed reducing the number to 49 European Partnerships, compared to more than 120 partnerships under Horizon 2020. In addition, the number of partnership instruments was rationalised under Horizon Europe by merging ERA-NET and European Joint Programme (EJP) Cofunds that had the same basic rationale into a single flexible co-funded European Partnership, as well as by bringing Article 185 and 187 TFEU initiatives and KICs under a single umbrella of institutionalised European Partnerships. The overall budget for European Partnerships under Horizon Europe increased by around 11% compared to Horizon 2020, which is quite moderate considering that Horizon Europe, with a total budget of EUR 95.5 billion, is around 22% larger than the Horizon 2020 budget (EUR 77 billion).

**FIGURE 6. Partnership portfolio in H2020 and HE**



Source: European Commission

29) This only includes commitments made to Partnerships that start in 2021/2. The next round of requests for commitment for the remaining Partnerships starting in 2023/4 will be launched in 1Q 2022.

30) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R0819>



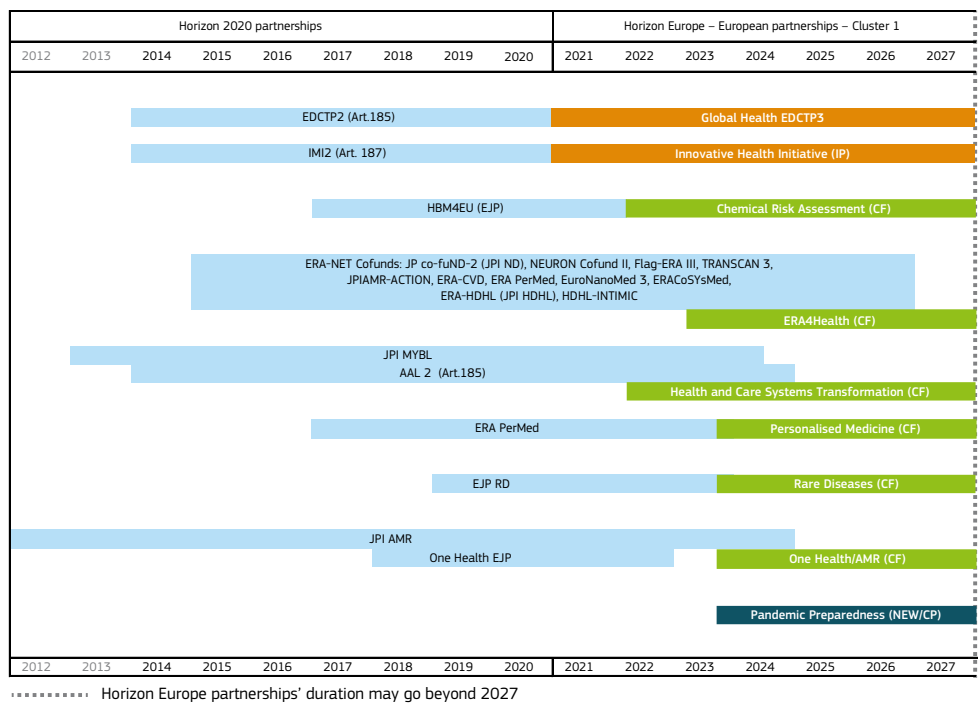


As shown in Figure 7, Horizon Europe clusters made considerable efforts to reduce the number of partnerships<sup>31</sup>. The rationalisation primarily followed three principles:

- **Reform** of the existing partnerships by changing the scope and/or partners involved and increasing the ambition. This approach was taken in the case of all JUs as well as for many co-programmed partnerships in clusters 4 and 5.
- **Merger** of H2020 partnerships into larger European Partnerships. This characterises many co-funded European Partnerships, notably in the areas of health, energy, water and maritime, but also the co-programmed partnership AI, data and robotics resulting from a merger of two cPPPs.
- **Discontinuation** of some H2020 partnerships, leading to the launch of European Partnerships addressing completely new priorities.

**FIGURE 7. H2020 predecessors of HE partnerships**

**(A) CLUSTER 1 Health**



31) See e.g. Orientations towards the first Strategic Plan annexes.



**(B) CLUSTER 4 Digital, Industry and Space**

Horizon 2020 partnerships										Horizon Europe – European partnerships – Cluster 4						
2012	2013	2014	2015	2016	2017	2018	2019	2020		2021	2022	2023	2024	2025	2026	2027

..... Horizon Europe partnerships' duration may go beyond 2027

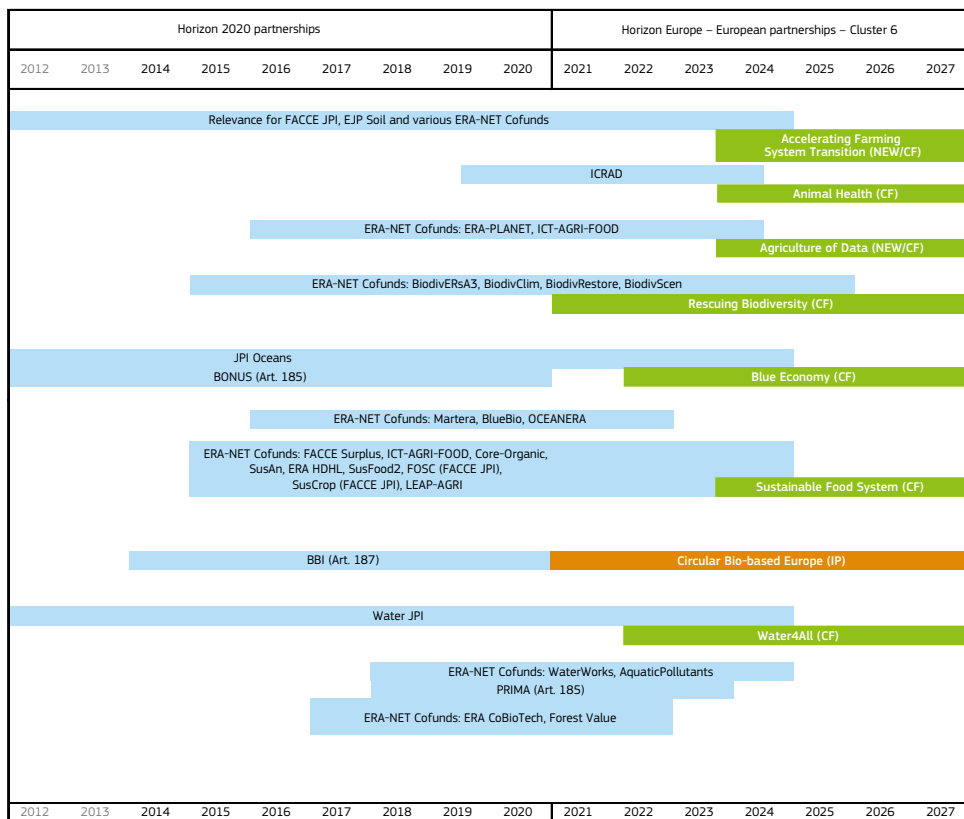
**(C) CLUSTER 5 Climate, Energy and Mobility**

Horizon 2020 partnerships										Horizon Europe – European partnerships – Cluster 5						
2012	2013	2014	2015	2016	2017	2018	2019	2020		2021	2022	2023	2024	2025	2026	2027

..... Horizon Europe partnerships' duration may go beyond 2027

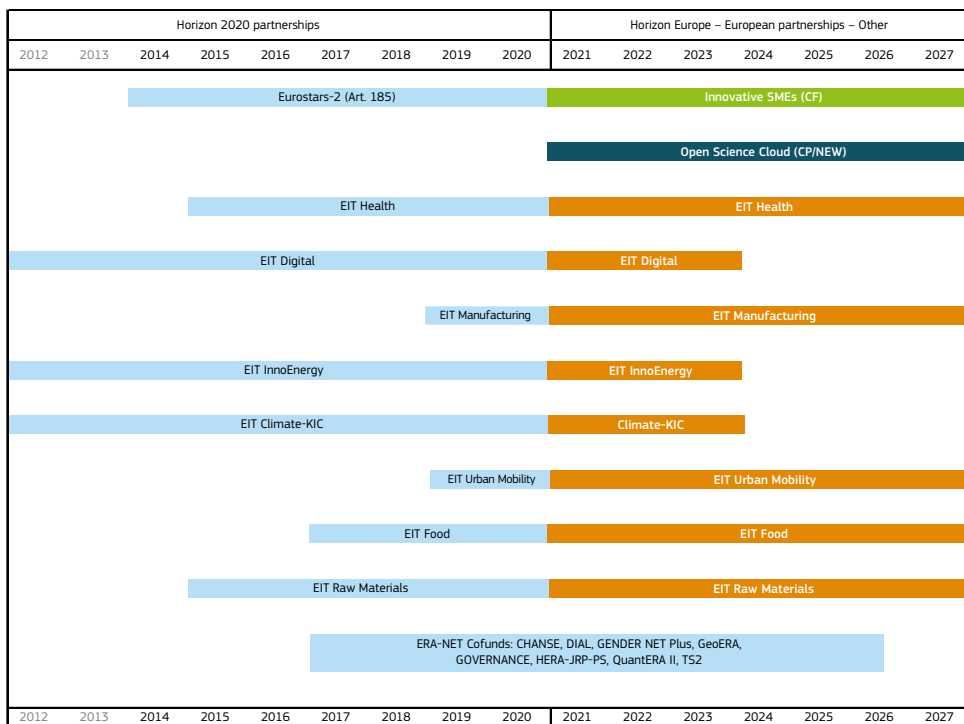


**(D) CLUSTER 6 Food, bioeconomy, natural resources, agriculture and environment**



..... Horizon Europe partnerships' duration may go beyond 2027

**(E) OTHER European Partnerships in Pillars I and III of Horizon Europe**



..... Horizon Europe partnerships' duration may go beyond 2027



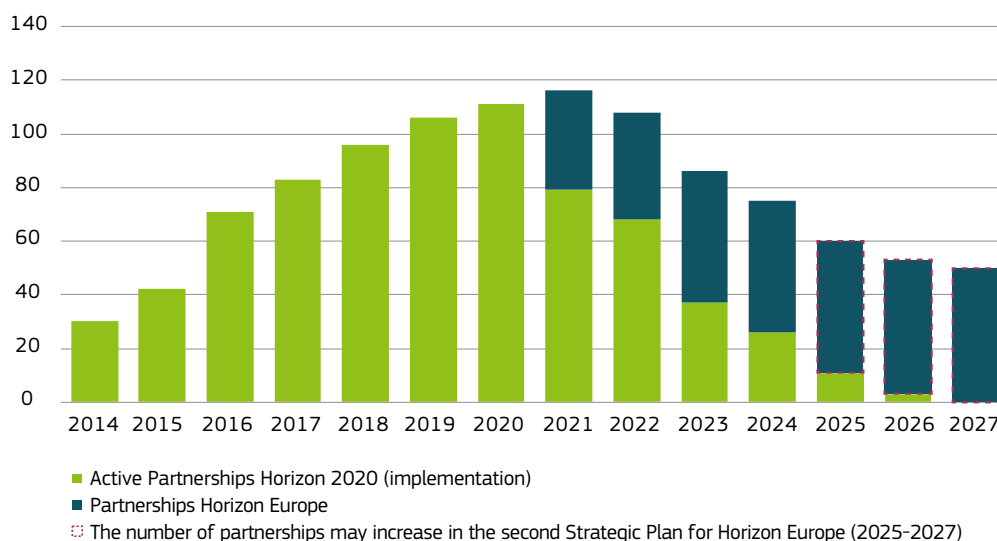
The rationalisation has come almost exclusively from the merging or discontinuation of public-public partnerships. While in clusters 1, 5 and 6 the focus has been on merging the numerous small networks into a single and larger co-funded European Partnerships, it is noteworthy that all P2Ps linked to the priorities of Cluster 4 have been discontinued under Horizon Europe<sup>32</sup>.

Less rationalisation has been achieved in the case of industry partnerships as the number of initiatives based on Article 187 TFEU has increased from 8 to 10 and the number of co-programmed partnerships from 10 to 13. That said, those industry-led partnerships with a predecessor in Horizon 2020 have undertaken important reforms by changing the scope and partner composition – notably to include the whole value chain and better address the demand side.

For example, the Innovative Health Initiative has broadened its scope to include diagnostics, medical devices, imaging and digital, as well as the pharmaceutical sector. Similarly, for the Circular Bio-based Europe Joint Undertaking, it is stated that it ‘is not a direct continuation of the Bio-Based Industries Joint Undertaking’ and the JU aims to change the scope to ‘involve a wider range of stakeholders, including the primary sector (namely agriculture, aquaculture, fisheries, and forestry) as well as providers of waste, residues and side streams, regional authorities and investors to prevent market failures and unsustainable bio-based processes’<sup>33</sup>.

In addition, there are 10 partnerships addressing completely new priorities: Transformation of Health Care Systems; Clean Steel; Globally Competitive Space Systems; Connected, Cooperative and Automated Mobility; Zero-emission Waterborne Transport; BATT4EU; Accelerating Farming Systems Transition; Agriculture of Data; Sustainable Food Systems; Pandemic Preparedness; and the European Open Science Cloud.

**FIGURE 8. Numbers of European Partnerships during the H2020-Horizon Europe transition**



Source: European Commission supported by ERA-LEARN

32) E.g. ERA-NET for materials R&I; ERA-NET for R&I on materials and battery technologies, supporting the European Green Deal; ERA-NET Photonics-based sensing; ERA-NET implements European-wide coordination of R&I programmes on raw materials to strengthen the industry competitiveness and the shift to a circular economy; ERA-NET Raw Materials for the Sustainable Development and the Circular Economy.

33) <https://eur-lex.europa.eu/eli/reg/2021/2085/oj>



It should be noted that many partnerships funded under Horizon 2020 continue their activities beyond the end of Horizon 2020 – e.g. many ERA-NETs, JPIs and PRIMA will implement calls until 2024. Others, even though no longer launching calls, will still be ending their activities (funding projects) and winding down operations. Consequently – as shown in Figure 8 – the total number of active partnerships (in both Horizon 2020 and Horizon Europe) peaked with the launch of European Partnerships in 2021 and a significant decrease will only happen towards the middle of Horizon Europe. It should be considered that while the number of European Partnerships is known for 2021-2024, it may increase from 2025 onwards, depending on discussions on the second Strategic Plan for Horizon Europe.

## 1.3 STRATEGIC COORDINATING PROCESS

### 1.3.1 A NEW GOVERNANCE FRAMEWORK – THE STRATEGIC COORDINATING PROCESS

A new governance framework realising the strategic approach to EU R&I partnerships has been included in the Horizon Europe legal base and is referred to as the Strategic Coordinating Process.

*'The strategic planning process shall be complemented by a strategic coordinating process for European Partnerships, with participation of Member States and the Commission on equal footing. It shall function as an entry point for foresight analysis, analysis and advice on the portfolio development, possible setup, implementation, monitoring and phasing out of R&I Partnerships and be guided by a comprehensive criteria framework, based on Annex III of the Horizon Europe Regulation.'*<sup>34</sup>

A key cornerstone of the Strategic Coordinating Process is to provide policymakers with evidence on the impacts and added value of the partnership approach. It should also provide feedback and advice to partnerships themselves on cross-cutting issues, such as implementing synergies and increasing the visibility and transparency of information regarding the partnership landscape.

The main vehicle of this process is the BMR. It will provide the necessary evidence base to inform strategic discussions on the partnerships, including how they fit with the overall R&I system and development of the ERA. At the heart of this effort is the aim to radically improve the understanding and tracking of the added value and impacts generated by partnerships to support the achievement of common EU objectives, at both EU and Member State level.

To implement the strategic coordinating process, the Commission has set up the Partnership Knowledge Hub<sup>35</sup>, a formal structure for collaboration between the Commission and the authorities responsible for national coordination and participation in EU R&I partnerships from Member States, Iceland, Norway and Turkey<sup>36</sup>. Since October 2021, the elected Member State co-chair of the Partnership Knowledge Hub for the next three years is the German representative Alexander Grablowitz. The Commission co-chair is the Director of the Common Policy Centre.

### 1.3.2 PARTNERSHIPS IN HORIZON EUROPE MONITORING AND EVALUATION

Previously, partnership monitoring was outside of the overall Framework Programme monitoring and evaluation strategy. Since 2021, the monitoring and evaluation of European Partnerships has been fully integrated into the Horizon Europe monitoring and evaluation framework<sup>37</sup>. A harmonised monitoring and evaluation system ensures that progress is analysed in the wider context of achieving Horizon Europe objectives and EU priorities.

34) Article 6(4) of the specific programme implementing Horizon Europe

35) <https://ec.europa.eu/transparency/expert-groups-register/screen/expert-groups/consult?lang=en&groupId=3783&fromMeetings=true&meetingId=26959>

36) In line with the Terms of Reference, other Associated Countries may join the group by expressing their interest. Turkey has already joined the Partnership Knowledge Hub.

37) Article 50 of Horizon Europe requires reporting annually on the progress of the Programme towards achieving the objectives referred to in Article 3 and set out in Annex V along the Key Impact Pathways (KIPs).



Consequently, the different monitoring mechanisms must be better harmonised across partnerships and between the partnerships and the overall Horizon Europe monitoring framework. This means many significant improvements when compared to Horizon 2020. For example, at the project level, monitoring and reporting will be integrated into the Commission's IT systems and the information will feed into the Horizon Dashboard. This will significantly improve transparency on partnerships' performance at the project level, providing data on implementation on the go, and comparable with the rest of the programme, without an additional reporting burden on beneficiaries.

But the added value of partnerships must surely go beyond individual projects. To verify this, each partnership must report and monitor the progress towards their general, specific and operational objectives. During the preparation of this report, all European Partnerships were working on operationalising their specific partnership monitoring frameworks – i.e. setting baselines, methodologies, identifying data sources, etc. These monitoring frameworks will be added to the SRIAs or adopted by the Partnership Governing Board and published separately.

To enable monitoring across the partnerships landscape, the Commission – with the support of the Expert Group – has developed a set of common indicators on the functioning of all European Partnerships. These are closely linked to the new policy approach and added value generated by partnerships, as compared to other Horizon Europe modalities such as traditional calls. The common indicators also capture other aspects of ERA, such as the structuring effect, improvements in the national R&I systems/fabric, etc.

Eventually, all partnerships will be evaluated as an integral component of the Framework Programme and put into perspective with other Horizon Europe modalities and instruments. This will allow to assess European Partnerships and their impact in their proper policy context. The BMRs and data collected for them may act as valuable sources of information in these evaluations.

## 1.4 STRUCTURE OF THE REPORT

This first edition of the BMR focuses on the new partnership landscape in relation to EU and Horizon Europe priorities, including the composition of partnerships, overall planned budget allocations, and comparison with Horizon 2020.

Future editions of the BMR will build on the framework developed for this BMR by providing updates on progress on the key indicators and analysing the dynamics of implementation through the various data sources and anecdotal evidence, such as success stories and case studies collected from the partnerships and countries. Over time, the BMRs will build a robust body of evidence on the functioning, added value, and impact of the partnership policies, processes and outcomes.

**Chapter 1** discusses the purpose and objectives of the European Partnerships as a policy tool. It explains where the instruments originate, how the partnership landscape has evolved and what the greater ambition for the partnerships under Horizon Europe means.

**Chapter 2** discusses the difficult task of establishing baselines and benchmarks for the partnerships based on available Horizon 2020 data. It then provides an analysis of the aggregated contribution of the full portfolio of partnerships (to the extent data was available) to the green and digital transitions and resilience and the Key Impact Pathways of Horizon Europe. This is followed by an analysis of six common indicators designed to monitor the performance of European Partnerships against the policy objectives set for European Partnerships as a policy instrument. The chapter closes with a discussion on the added value of partnerships compared to other Horizon Europe modalities such as traditional calls.



**Chapter 3** provides a snapshot of country performance in partnerships across 27 EU Member States, Iceland and Norway<sup>38</sup>. The chapter begins with short summaries of past Horizon 2020 performance, anecdotal evidence of past impacts, data collection challenges, and declared Horizon Europe intentions. The core of the chapter consists of standardised country fiches containing factual information on partnership intensity index per country, country-level points of reference, and ambitions for participation in European Partnerships, and anecdotal evidence on country-level impacts and synergies.

**Chapter 4** provides a snapshot of individual European Partnership performance through standardised fiches containing factual information on their vision, mission, strategy map, main KPIs. For ease of reference, the fiches are colour coded according to their positioning in the Horizon Europe structure<sup>39</sup>.

Each chapter includes key highlights and a selection of monitoring questions that invite readers to reflect on progress, gaps, and challenges in their own specific contexts.

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38) This first report includes the countries that are members of the Partnership Knowledge Hub (as of end 2021).

39) Cluster 1 – **blue**, Cluster 4 – **violet**, Cluster 5 – **green**, Cluster 6 – **red**, cross-pillar – **orange**



## 2. CONTRIBUTION OF EUROPEAN PARTNERSHIPS

### HIGHLIGHTS OF THIS CHAPTER

THIS CHAPTER ADDRESSES THE FOLLOWING QUESTIONS

**What are the relevant benchmarks or points of reference to which the achievements of Horizon Europe partnerships can be compared? [Ch 2.1]**

**What is the contribution of European Partnerships to major European objectives – digital transition, green transition, and resilience? [Ch 2.2]**

**How can the contribution of European Partnerships to major Horizon Europe objectives – Key Impact Pathways – be monitored? [Ch 0]**

**What is the contribution of European Partnerships to the specific objectives set for the partnership instrument – additionality, directionality, transparency, openness, coherence, and synergies? [Ch 2.4]**

**How can the added value of European Partnerships be monitored? [Ch 2.5]**

Because Horizon Europe partnerships have been launched only recently, and the Horizon Europe project-monitoring system is not fully functional, data regarding the performance and impact of Horizon Europe partnerships is very limited. Thus, this chapter is based partially on data collected from the officially launched Horizon Europe partnerships and partially on available data on H2020 partnerships, complemented with references to a limited number of relevant analyses and evaluation reports.

This report covers all 37 European Partnerships officially launched at the time of the report's publication. The number of Horizon Europe partnerships is expected to reach 49 by the time all currently planned partnerships have been officially launched.

A number of relevant benchmarks/reference points can be defined for Horizon Europe partnerships based on the data available on H2020 partnerships.

Horizon Europe partnerships are major contributors to both the digital and green transition, resilience, and the UN Sustainable Development Goals. The share of resources planned to contribute to these objectives is significantly higher in Horizon Europe than in H2020.

The Cluster Specific Impact Pathways developed in this report provide a framework and basis that may enable further analysis and insight into the combined impacts of the partnership portfolio.

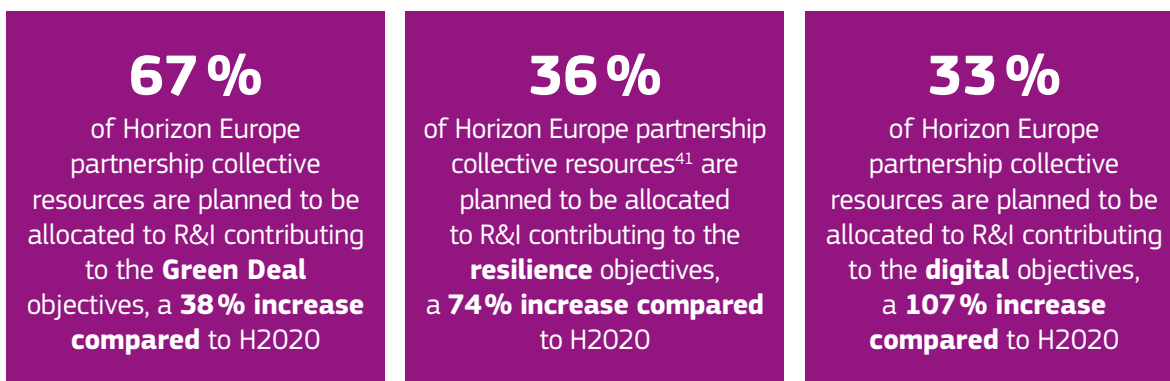
The KPIs defined by the Horizon Europe partnerships are well aligned with the KIPs defined for Horizon Europe. While further alignment efforts may prove appropriate and beneficial in the future, the proposed selection of indicators based on Horizon Europe project-monitoring data can provide complementary insights into the performance and impact of partnerships.

The data and anecdotal evidence collected from the officially launched Horizon Europe partnerships gives an early indication of the intended performance of the partnership instrument and its role in enhancing additionality, directionality, transparency, openness, coherence, and synergies of European R&I activity.

Relevant European Commission evaluation reports, ERA-LEARN policy briefs on impacts of H2020 partnerships and anecdotal evidence collected in the ERA-LEARN country reports and Horizon Europe Partnership Fiches (Chapter 4) and Country Fiches (Chapter 3) indicate the greater strategic importance of the partnership instrument and thereby an increased potential to produce European added value.



## SELECTED KEY FIGURES



## 2.1 SETTING BENCHMARKS BASED ON HORIZON 2020 PARTNERSHIPS

The purpose of this subchapter is to discuss the importance of establishing proper starting points (benchmarks) to facilitate the monitoring of partnerships, and how these starting points can be established initially by using Horizon 2020 data, and later starting points set by the Horizon Europe partnerships.

Since the data needed to define benchmarks is currently largely missing in Horizon Europe, the only viable option is to use H2020 partnership data in this first BMR. The second BMR will revisit this issue making use of starting points defined by the Horizon Europe partnerships for the purpose of demonstrating their progress and achievements.

The new partnerships (co-funded, co-programmed and institutionalised) are arguably different from their predecessors in many ways, including structure and organisation, scope, duration and ambition. However, certain factors, like the level of commitment from participating states, remain important, and research outputs, such as publications and IPR applications, are still included among the new partnerships' key output indicators.

At the same time, certain monitoring indicators, like the number of proposals received and projects granted, remain relevant, although they must be treated with caution as they depend on the number and frequency of calls as well as the size of the projects under the new partnerships. Nevertheless, bearing in mind these considerations, a benchmark can be set based on the performance of the corresponding partnerships under Horizon 2020<sup>40</sup>.

The relevant set of benchmarks based on the available partnership data from H2020 is presented in Table 2. Each benchmark is discussed in more detail in the following sections of this chapter.<sup>41</sup>

40) Resources can contribute to several objectives at the same time, resulting in a total exceeding 100%.

41) The Horizon 2020 Partnerships considered include: 99 P2P Partnerships; P2Ps include ERA-NET Cofunds, EJPs, Art. 185 initiatives and JPIs); 6 EIT KICs (Climate, Digital, Food, Health, InnoEnergy, Raw Materials); 8 JUs (BBI, ECSEL, EuroHPC, SC2, FCH, IMI 2, SESAR, Shift2Rail); and 10 cPPPs (FoF, EeB, EGVI, SPIRE, Photonics, Robotics, HPC, 5G, Cybersecurity, Big Data Value).



**TABLE 2. Benchmarks based on available partnership data during H2020**

Actual contributions from MS/AC (P2Ps considered only)	EUR 2 227 214 791.39 <sup>43</sup>
<b>Number of proposals</b>	4 761 (JUs); 2 645 (cPPPs); 280 677 (other H2020)
<b>Number of projects</b>	2748 (EIT KAVA); 1 320 (JUs); 405 (cPPPs); 3 793 (P2Ps); 33 962 (other H2020)
Success rates	28% (JUs); 15% (cPPPs); 12% (other H2020)
Publications	78 (EIT KICs); 6 819 (JUs); 2 807 (cPPPs)
IPR applications	64 (EIT KICs); 240 (JUs); 13 (cPPPs)
Private for-profit companies' participation	26.12% (EIT KICs); 14.91% (P2Ps); 57.25% (JUs); 54.09% (cPPPs); 35.41% (other H2020)

Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.) EIT KAVA: KIC Added Value Activities.

## 2.1.1 LEVEL OF CONTRIBUTIONS FROM MEMBER STATES AND ASSOCIATED COUNTRIES

In Horizon 2020, together with the EU, the Member States and Associated Countries participated actively in defining and funding, the programmes of ERA-NETs, Article 185 initiatives, EJPs and JPIs – i.e. the so-called P2Ps as well as the European High Performance Computing (EuroHPC) and Electronic Components and Systems for European Leadership (ECSEL) JUs. Based on ERA-LEARN data, which only covers P2Ps, the actual contributions<sup>43</sup> made by the Member States and Associated Countries<sup>44</sup> participating in the P2P partnerships reached more than EUR 2.2 billion<sup>46</sup>.

## 2.1.2 THEMATIC DISTRIBUTION OF FUNDING

Based on ERA-LEARN and eCORDA data (Table 3), Horizon 2020 partnerships provided around EUR 10 billion of project funding<sup>45</sup>. This is distributed as follows: around EUR 1.58 billion<sup>46</sup> as national contributions in P2Ps, EUR 5.74 billion for JUs and EUR 2.43 billion for cPPPs.

42) This figure does not include any other types of national contributions beyond grants to joint research projects, such as the contributions made by participating states to clinical trials under EDCTP 2.

43) By actual contributions, we refer to the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the P2Ps.

44) The 27 Member States are considered plus Iceland and Norway from the Associated Countries.

45) This amount is larger in reality as only the national contributions are considered for P2P projects, excluding the EU contribution.

46) This figure is less than the EUR 2.2 billion figure mentioned in Table 2 because not all funds were categorised thematically

**TABLE 3. Funding of thematic priorities under the different H2020 instruments (in EUR million)**

THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PR
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	143.70	79.57	91.98	3 355.48
Climate action, environment, resource efficiency and raw materials	<b>280.30</b>	10.93	96.11	2 179.37
Europe in a changing world - inclusive, innovative and reflective Societies (incl. secure societies - cPPPs)	49.64		<b>206.86</b>	2 172.30
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	<b>285.81</b>	686.81		2 158.10
Future and Emerging Technologies	43.22		49.16	2 003.42
Health, demographic change and wellbeing	<b>599.53</b>	<b>1 006.15</b>		<b>4 694.03</b>
Information and Communication Technologies		1 184.96	1 905.42	<b>5 015.79</b>
Secure, clean and efficient energy	101.24	<b>296.71</b>	84.91	<b>4 085.47</b>
Smart, green and integrated transport	80.24	<b>2 472.90</b>		4 919.32
<b>TOTALS</b>	<b>1 583.69</b>	<b>5 738.30</b>	<b>2 434.44</b>	<b>30 583.29</b>

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution. Share of specific instrument investments in the specific theme in the total investments under the specific instrument (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.). Only thematic priorities common across the different H2020 instruments are considered. Totals for 27 Member States, Iceland and Norway.

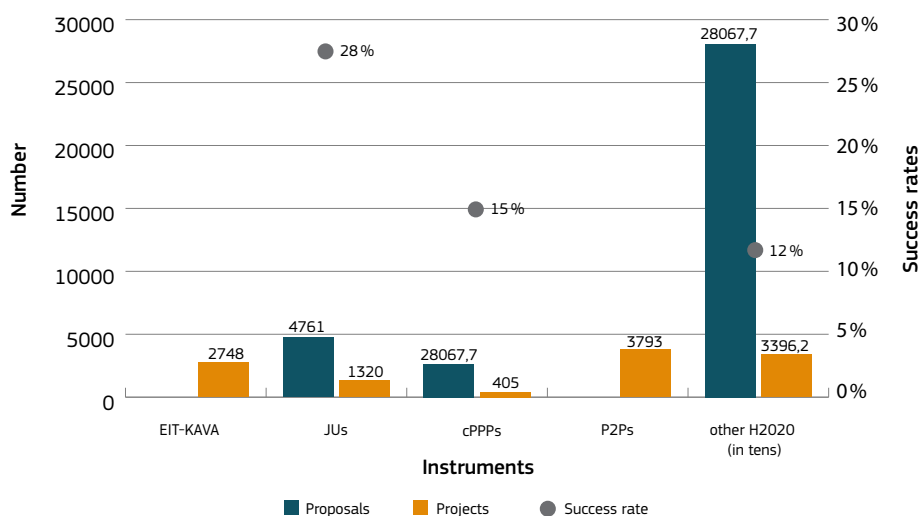
The thematic focus of the different types of Horizon 2020 partnerships varied. P2Ps funding was mainly concentrated in the areas of health, food security and agriculture and climate action. cPPP funding was allocated mainly to research related to ICT and Europe in a changing world topics. On the other hand, JU funding was mainly dedicated to transport and ICT as well as health-related research, which largely reflects the areas that also attracted most projects in the other Horizon 2020 instruments (i.e. CSAs, RIAs, IAs, etc.).

### 2.1.3 NUMBER OF PROPOSALS, PROJECTS AND SUCCESS RATES

Whereas the JUs are comparable to the cPPPs in terms of the number of proposals they attracted, the JUs present a far larger success rate than the cPPPs and when compared to the rest of the H2020 instruments (i.e. CSAs, RIA, IAs, etc.). Unfortunately, the missing data on the proposals submitted to P2Ps does not allow for an estimation of the success rate in these partnerships. Yet it is interesting to see that the P2Ps have supported a larger number of projects than the other partnerships. This can possibly be explained by the smaller size of the projects in P2Ps compared to those of JUs and cPPPs, although P2Ps projects are not homogeneous in size.



**FIGURE 9. Proposals, projects and success rates of P2Ps, JUs, cPPPs and other H2020 modalities**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.). EIT KAVA: KIC Added Value Activities; Proposal data for EIT KAVA and P2Ps not available.

## 2.1.4 PROJECT OUTPUTS FROM H2020 PARTNERSHIPS

Based on the available eCORDA data, the projects supported by EIT KICs, JUs and cPPPs produced a total of 9704 publications and 317 IPR applications. The dominance of JUs in producing the majority of these research outputs is significant.

**FIGURE 10. Project outputs from projects supported by EIT KICs, JUs and cPPPs**

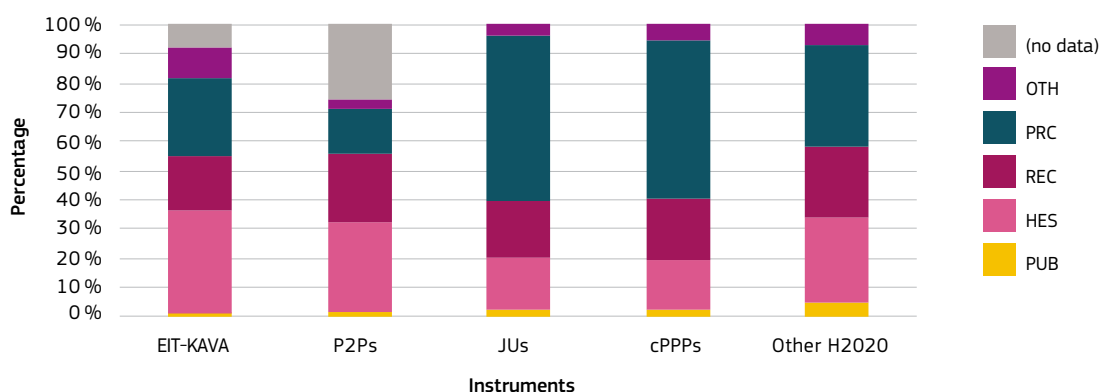
	EIT KICs projects	JUs projects	cPPPs projects
<b>Publications</b>	78	6819	2807
<b>IPR applications</b>	64	240	13

Source: eCORDA

## 2.1.5 PROJECT BENEFICIARIES IN H2020 PARTNERSHIPS

Partnerships differ as regards the beneficiary types they attract. EIT KICs and P2Ps, like the other H2020 instruments, address the full spectrum (higher education institutes, private for-profit companies, research organisations and, to a limited extent, public bodies), whereas projects supported by JUs and cPPPs are dominated by private for-profit entities.

FIGURE 11. Types of project beneficiaries in projects supported by EIT KICs, JU, and cPPPs



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.) EIT KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations. Totals for 27 Member States, Iceland and Norway.

## 2.2 CONTRIBUTION TO KEY EUROPEAN OBJECTIVES

The purpose of this subchapter is to give insights into the partnership portfolio's contribution to key European objectives at an aggregated level. This first report focuses on the EU's transitions towards the Green Deal and digital objectives, and support to a more resilient society, which constitute the major priorities of both the current Commission and the first Strategic Plan of Horizon Europe (2021-2024). For example, a hard target of 35% has been set in the Horizon Europe legal base for funding climate action<sup>47</sup>. The same 35% target is expected in support of the digital transition<sup>48</sup>. Resilience is a multidimensional and cross-cutting issue, so setting similar funding targets is not easy.

In this chapter, the analysis is based on a methodology that considers several elements obtained as input from the biennially updated partnership and country fiches, common indicators that are collected biennially, and biennially analysed Horizon Europe project-level data, to SRIAs, MoUs, Single Basic Act, studies, evaluations, etc. It will look particularly at the Partnership Specific Impact Pathways (PSIPs) and KPI tables (see Chapter 4) to understand how the partnerships intend to turn their expected results into useful innovations for European citizens and strengthen the ERA, and thereby contribute to the EU priorities of the green and digital transitions and resilience.

The analysis therefore draws on three main sources of data:

- strategy maps from the partnership fiches
- data collected through the partnership fiches on the main SDGs targeted (up to five)
- data collected through the Common Indicators Survey on indicator 3 Overall investments mobilised into EU priorities.

47) Art.7(10) Horizon Europe Regulation.

48) Funding for Digital | Shaping Europe's digital future (europa.eu)



Resilience was the most challenging priority to analyse. Health was chosen as the focus of the analysis of resilience because the COVID-19 pandemic was still active at the time these analyses were carried out. However, it is important to note that in the survey on the common indicators, where partnerships were asked to provide a self-assessment of the planned overall investments into activities linked to EU policy priorities, ‘resilience’ was interpreted in a broader way, encompassing health, societal and technological aspects (see Table 4).

The portfolio mapping carried out during the impact assessment of the institutionalised European Partnerships<sup>49</sup> showed the partnerships’ high relevance to the overarching EU priorities. This is also in line with the self-assessment by the European Partnerships during the Common Indicators Survey carried out in November 2021 (see Section 2.4.).

Approximately half of all resources are planned to be invested into activities linked to the European Green Deal priorities. Digital and resilience objectives were targeted by about one-sixth and one-fifth of all resources, respectively.

**TABLE 4. Overall investments mobilised into EU priorities by European Partnerships**

<b>EU priority</b> How much resources overall are invested into activities linked to the ...	<b>Benchmark: [%]</b> (H2020 predecessor or based on H2020 historic data)	<b>Target: [%]<sup>50</sup></b> (whole duration of the Partnership)	<b>Intended change: [%]</b>
... Green Deal objectives?	<b>49%</b>	<b>66%</b>	+36%
... Digital objectives?	<b>15%</b>	<b>31%</b>	+109%
... Resilience objectives?	<b>20%</b>	<b>34%</b>	+72%

*Overall=public and private; in-kind and financial*

*Source: Averages from EU Survey November 2021, Indicator #3 (see Chapter 2.4) (34 respondents out of 37 with response rates per question of 70-81%)*

At the same time, the responses might be biased by current discussions on climate change and decarbonisation, which were more evident than discussions on digitalisation when the survey was carried out. The high level of the Green Deal starting point explains the lower intended increase compared to the other two priorities. European Partnerships plan to double their resources on digital objectives. Resilience objectives are also increasingly targeted. Overall, the European Partnerships plan to link the Green Deal objectives with the digital and resilience objectives, respectively. These aggregated characteristics are also reflected in the cluster and specific approaches of European Partnerships.

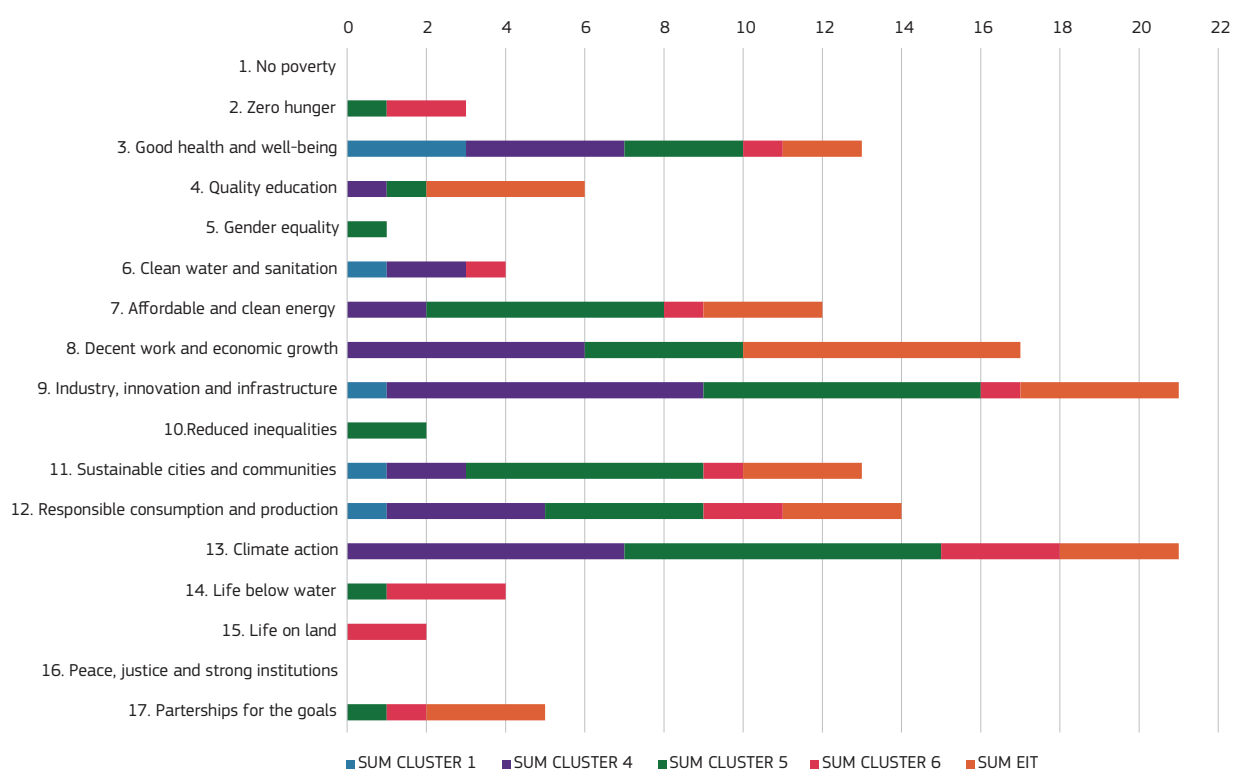
A core principle for the European Union is sustainable development and, therefore, this is a priority objective for the Horizon Europe Programme and partnerships. European Partnerships play a key role in tackling complex economic and societal challenges. In the fiches collected (see Chapter 4), each partnership has indicated the main SDGs it supports. Mapping the SDGs indicated by the partnerships illustrates the different aspects of expected contributions to EU priorities (Figure 12). In the following analysis, the SDGs are used in two ways: first, as widely accepted policy objectives, and second, as a proxy of partnerships’ engagement in EU policy priorities. The Key Impact Pathway 4 ‘Addressing EU priorities & global challenges through R&I’ will also monitor the projects’ contributions to EU priorities, including the SDGs, which in future may provide interesting insights to complement the current methodology.

49) European Commission, Directorate-General for Research and Innovation, Impact assessment for institutionalised European partnerships under Horizon Europe, Publications Office, 2021, <https://data.europa.eu/doi/10.2777/295096>

50) Percentages do not have to total 100. Resources may be linked to more than one EU priority.

The EU was instrumental in shaping the 2030 Agenda for Sustainable Development that has become the global blueprint. SDGs are an essential part of policymaking on internal and external actions across all sectors and partnerships. Over the years, an array of deeply transformative policies has been presented, highlighting the need for Europe to continue innovating and to remain at the cutting edge of global science. This will also strengthen Europe’s global competitiveness and enhance the EU’s international role – an important geopolitical perspective, in which emerging technologies have created a global innovation and scientific race. However, balancing openness and cooperation with strengthening global leadership and sovereignty in key sectors is crucial. European Partnerships have always been open to international collaboration as global challenges and strengthening competitiveness, especially in the climate and life-science domains, require joining forces beyond Europe.

**FIGURE 12. Contribution of the European Partnerships to the SDGs**



Source: Expert Group’s own analysis based on 35 Partnership fiches

Figure 12 indicates the biggest contributions from European Partnerships are to the following SDGs: #13 Climate action, #9 Industry, innovation and infrastructure, #8 Decent work and economic growth, #12 Responsible consumption and production, #11 Sustainable cities and communities, and #3 Good health and well-being.

Considering the expected concentration of efforts towards the three overarching policy priorities, further analysis of the aggregated contribution of the European Partnerships’ portfolio is called for. The focus of the analysis is on the allocation of resources, results, outputs, impacts, synergies, and leverages the partnerships are expected to create over time.

The analysis below will follow a cluster approach based on Horizon Europe clusters into which partnerships are assigned (clusters 1, 4, 5 and 6). The analysis will show if and how a group of partnerships contribute to selected EU policy priorities. Analysis across all clusters enables the identification of both possible and potential synergies between thematic orientations and individual clusters. Anecdotal evidence will be used to further illustrate synergies at the level of individual partnerships and between them.



The requirement for the Horizon Europe partnerships to define ex ante a clear logical framework of objectives together with a set of KPIs and resources to match these objectives has created a sound foundation for their better impact orientation. However, to address the complex and interconnected objectives of the twin green and digital transitions and resilience, partnerships must also act collectively at a strategic level and in line with SDGs and EU policies.

Therefore, the analysis will continue to draw on intervention logic for European Partnerships and build upon the rationales and objectives. It is proposed to use PSIPs for a more harmonised and, in some cases, a somewhat more detailed approach to intervention logic. The PSIPs show key linkages between resources, activities, outcomes, and impacts at the partnership level. The speed and extent to which the expected impacts and results will be obtained will depend on the scale of research efforts leveraged and the profile of partners involved and their commitments. In the analysis and with the existing PSIPs, Cluster Specific Impact Pathways (CSIPs) are further proposed to aggregate PSIPs data to enhance the strategic overview at the cluster level.

It must be understood that the development of CSIPs is still at an experimental stage and that they may well need to be further developed in future BMRs. Furthermore, the purpose of developing CSIPs for partnerships does not in any way undermine the importance of Partnership Specific Impact Pathways (PSIPs). On the contrary, CSIPs may develop into a functional tool only if the quality of PSIPs is sufficiently high. The objective for developing the CSIPs is twofold. First, by focusing on the pathways common to all partnerships belonging to a cluster, CSIPs inevitably highlight the specific characteristics of the thematic area, thereby providing further evidence for policymaking. Second, once the CSIPs have been further developed, in future they may be used to identify theme-specific indicators which are useful across all partnerships belonging to the same thematic cluster. This work could build on the Horizon Europe Destinations, which indicate the desired impacts for each cluster that the calls for proposals must address. Should these indicators prove useful for the partnerships, they may in future replace some of the existing partnership specific indicators and thereby enable further insight into the impact of clusters, i.e. joint impact of a thematic portfolio of partnerships. But it may be more difficult at the level of outcomes as partnerships have important specificities that risk being lost if only an aggregated approach is used.

Furthermore, the overall long-term objective of the analysis is to show the added value of partnerships, their specific contribution to policy priorities, and the importance of synergies between partnerships and clusters. The picture emerging from the analysis is that, when going beyond these methodology- and technology-oriented partnerships, there should be interconnections across the clusters. Clusters should not act in silos, but rather cross-fertilise each other to solve identified and complex grand challenges. Therefore, with the data collected it is possible to present links between partnership resources, actions, and results for individual partnerships as well as cross-partnership activities and within and between clusters.

The mapping and analysis of the European Partnerships' portfolio initially shows that they are equipped with the tools which are important to play a pivotal role in tackling the complex economic and societal challenges that constitute the EU priorities to create a stronger Europe in the world.



## 2.2.1 GREEN TRANSITION

Climate change and environmental degradation are an existential threat to both the EU and the world. To overcome these challenges, the European Green Deal is Europe's new growth strategy<sup>51</sup> which aims to transform the Union into a modern, resource-efficient and competitive economy. The ambition of the European Green Deal is to make Europe climate neutral by 2050, boost the economy through green technology, create sustainable industry and transport, and reduce pollution. Turning climate and environmental challenges into opportunities will make the transition just and inclusive for all. Horizon Europe aims to align its investments with the objectives of the Green Deal initiatives and to support the ecological transition<sup>52</sup>. The key clusters supporting the Green Deal objectives are Cluster 5 'Climate, energy and mobility' and Cluster 6 'Food, bioeconomy, natural resources, agriculture and environment'. While Cluster 5 focuses on 'deep reduction of greenhouse gas emissions in the energy and transport sectors'<sup>53</sup>, Cluster 6 supports initiatives, such as the Farm to Fork Strategy, EU Biodiversity Strategy, and the Circular Economy Action Plan. In this context, the focus of the following analysis is on the European Partnerships' activities under Clusters 5 and 6 and the impacts targeted under those clusters.

### Cluster 5: climate, energy and mobility

The analysis of the aggregation of PSIPs provided by the European Partnerships of Cluster 5,<sup>54</sup> leads to the CSIP presented in Figure 13, which provides a cumulative overview of dominant elements from PSIPs and enables the limited amount of Impact Pathways to be defined through strategy mapping from resources and actions, towards outcomes and impacts.

At this level of aggregation and identification of the dominant elements of PSIPs for groups of partnerships similar elements for all clusters are presented, in particular at the operational level. Namely, across all clusters, different aspects of access to capital (access to risk capital or access to RDI financing), cross-sector or cross-stakeholder activities (empowering, the mobilisation of stakeholders), and the alignment of legal frameworks and regulations are present as key resources and actions (fundaments) for Impact Pathways. The CSIP for Cluster 5 does not identify any cluster-specific element at the operational level.

This differs when outcomes and impacts are aggregated. Although there are similar elements across different clusters for outcomes and impacts (e.g. related to strengthening scientific capabilities, start-ups or standards and regulations), there are many more sector- and technology-specific ones. In the case of Cluster 5, the specific outcomes are related to technological sovereignty, accelerated deployment of advanced zero-emission technologies and solutions, reuse and recyclable materials, cost-effective hydrogen technologies, as well as human and technology complementarity, trustworthy interaction between all traffic participants and connected and automated mobility. These lead to specific impacts in Cluster 5 focusing on solutions for reducing greenhouse gas emissions, more efficient transport, clean energy transition, the circular economy, and development of hydrogen economy. While the circular economy is seen as one of Horizon Europe Cluster 6 impacts, the fact that it appeared in the expected impacts of Cluster 5 confirms the interconnectivity between European Partnerships and their contribution to the impacts of the other clusters.

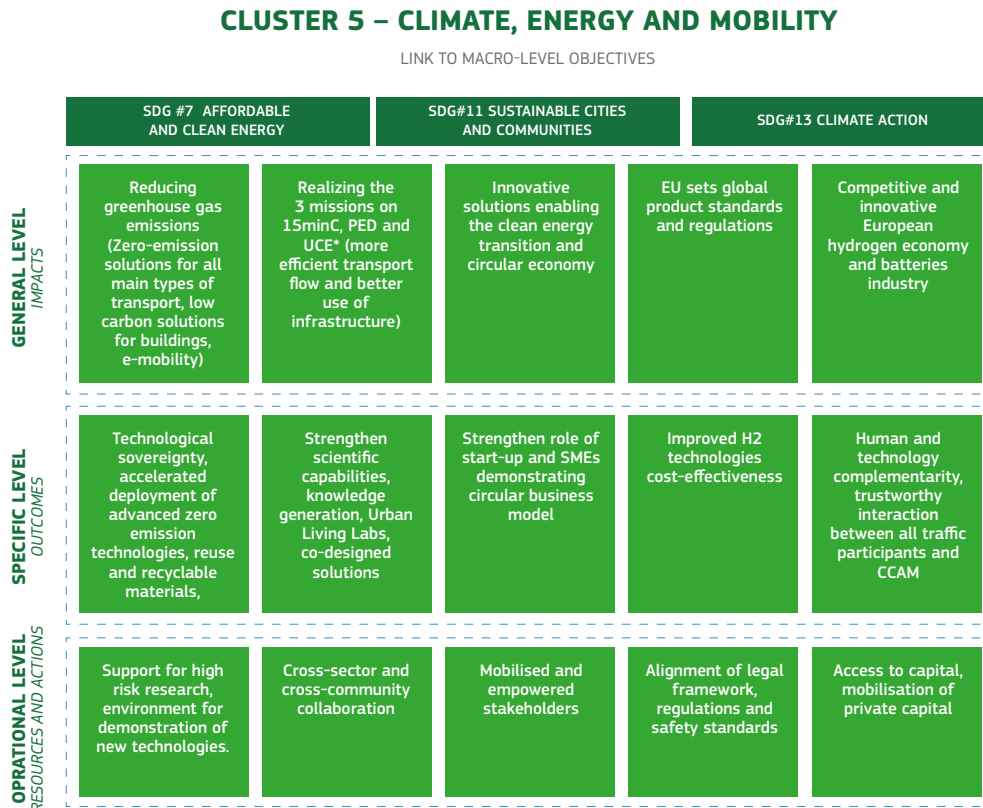
51) <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1576150542719&uri=COM%3A2019%3A640%3AFIN>

52) <https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/3c6ffd74-8ac3-11eb-b85c-01aa75ed71a1>, p. 10.

53) <https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/3c6ffd74-8ac3-11eb-b85c-01aa75ed71a1>, p. 76.

54) The following partnerships are included in the analysis of CSIPs: Clean Hydrogen, Clean Aviation, Single European Sky ATM Research 3, Europe's Rail, 2ZERO, CCAM, BATT4EU, Zero-emission Water Transport, Built4People, Clean Energy Transition, Driving Urban Transitions.

**FIGURE 13. CSIP for Cluster 5 highlighting dominant characteristics**



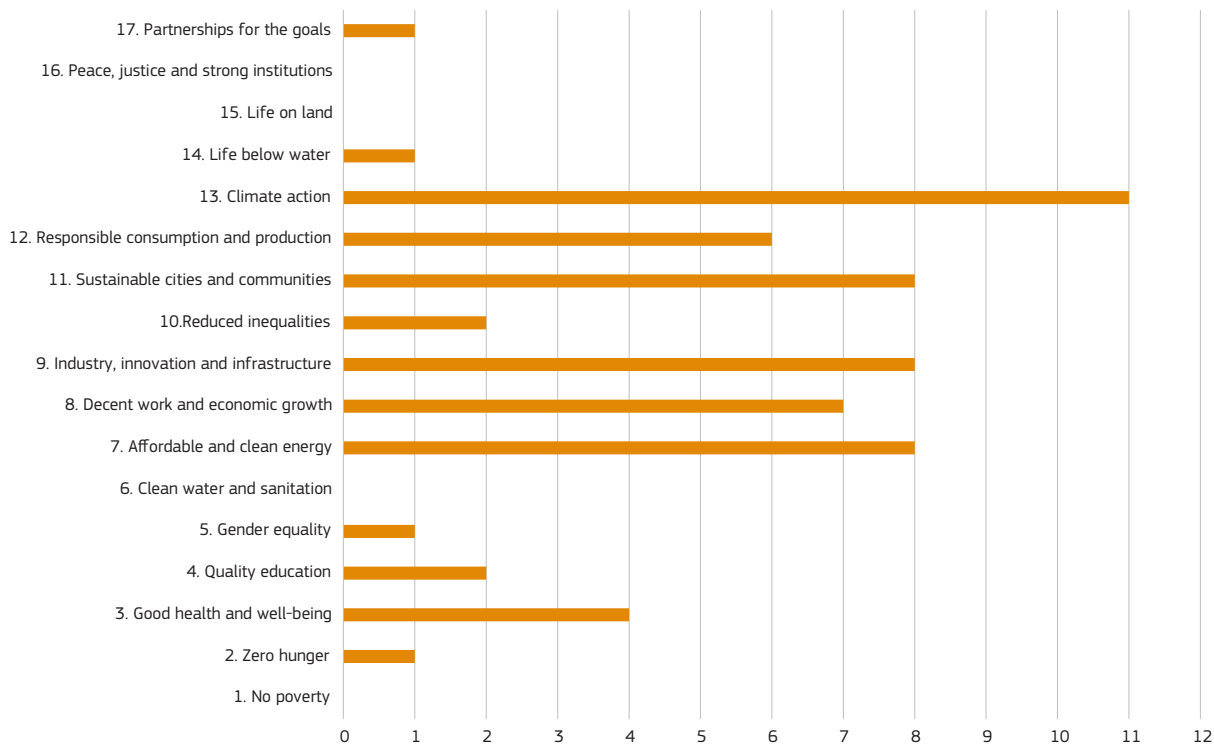
\* 15 Minute Cities, Positive Energy Districts and Urban Circular Economies  
Source: Expert Group analysis

The identification of SDGs #7 Affordable and clean energy, #11 Sustainable cities and communities and #13 Climate action as macro-level objectives in addition to the intervention logic (CSIP) for Cluster 5 is confirmed by analysis of the data from partnership fiches on supported SDGs, presented in Figure 14. Figure 14 presents a subset of data from Figure 12 for 11 partnerships from Cluster 5 plus 3 relevant EIT KICs: EIT Climate-KIC, EIT InnoEnergy and EIT Urban Mobility.

Each cluster creates its own specific pattern of supported SDGs which indicates areas of strategic focus. On the other hand, dispersion of data among less-supported SDGs for Cluster 5 partnerships (e.g. SDG #3 or SDG #8 and SDG#9) overlaps with SDGs of strategic focus for other clusters (Cluster 1 (#3) and Cluster 4 (#8 and #9), respectively). It clearly shows the importance of cross-cluster relations and the possible contribution (synergy) of partnerships' activities from one cluster in achieving goals of another cluster.



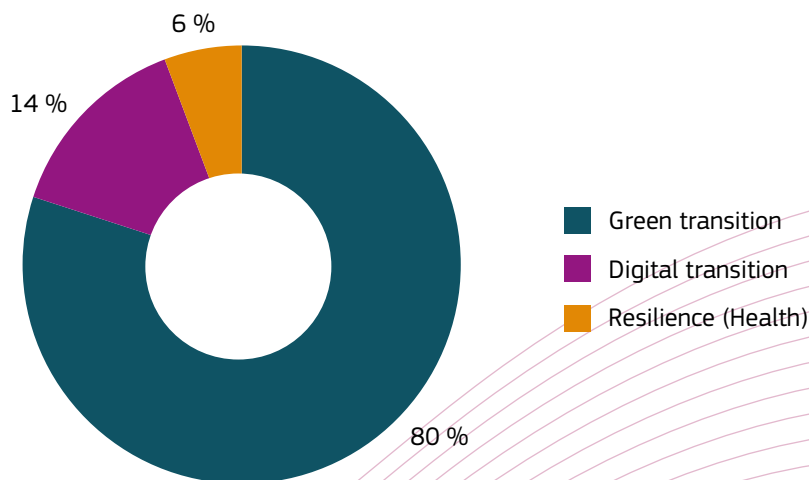
**FIGURE 14. SDGs supported by Cluster 5 partnerships (11) and relevant EIT KICs (3)**



Source: Expert Group analysis

This cross-cluster relations and cross-cluster contributions are even more explicit in the analysis of data presented in Figure 15. This presents data from partnership fiches on the SDGs supported from 11 Cluster 5 partnerships plus the 3 relevant EIT KICs aggregated to overview its contribution to 3 EU priority policy areas: green transition, digital transition, and resilience. Here, SDGs are aggregated to form proxies of partnerships’ contributions<sup>55</sup>. Figure 15 confirms that besides the natural concentration of Cluster 5 partnerships’ contribution to green transformation, they also contribute to two other policy priorities in a measurable way.

**FIGURE 15. Cluster 5 partnerships (11) and relevant EIT KICs (3) contribution to EU priorities**



Source: Expert Group analysis

55) Green transition = Green Deal (SDGs 2, 3, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 – official EC doc); Digital transformation = Europe fit for digital age (SDG 4, 9 – official EC doc); Resilience (limited to health) = arbitrary expert allocation (SDGs 3, 6).



Analysis of the expected contributions by partnerships to EC policy objectives based on the analysis of supported SDGs is very well confirmed by analysis of the data collected via the Common Indicators Survey. Table 5 presents the averages calculated from data collected for Indicator #3 Overall (public and private; in-kind and financial) investments mobilised into EU priorities by European Partnerships for the same group of partnerships as Figure 15. In particular, target values present a very similar pattern of investments into activities linked to EU policy objectives, like those presented on Figure 15.

**TABLE 5. Cluster 5 – averages for 9 partnerships and 3 EIT KICs**

<b>EU priority</b> How much resources overall are invested into activities linked to the ...	<b>Benchmark: [%]</b> (H2020 predecessor or based on H2020 historic data)	<b>Target: [%]49</b> (whole duration of the Partnership)	<b>Intended change: [%]</b>
... Green Deal objectives?	<b>66 %</b>	<b>84%</b>	27%
... Digital objectives?	<b>10%</b>	<b>20%</b>	92%
... Resilience objectives?	<b>11 %</b>	<b>29%</b>	170%

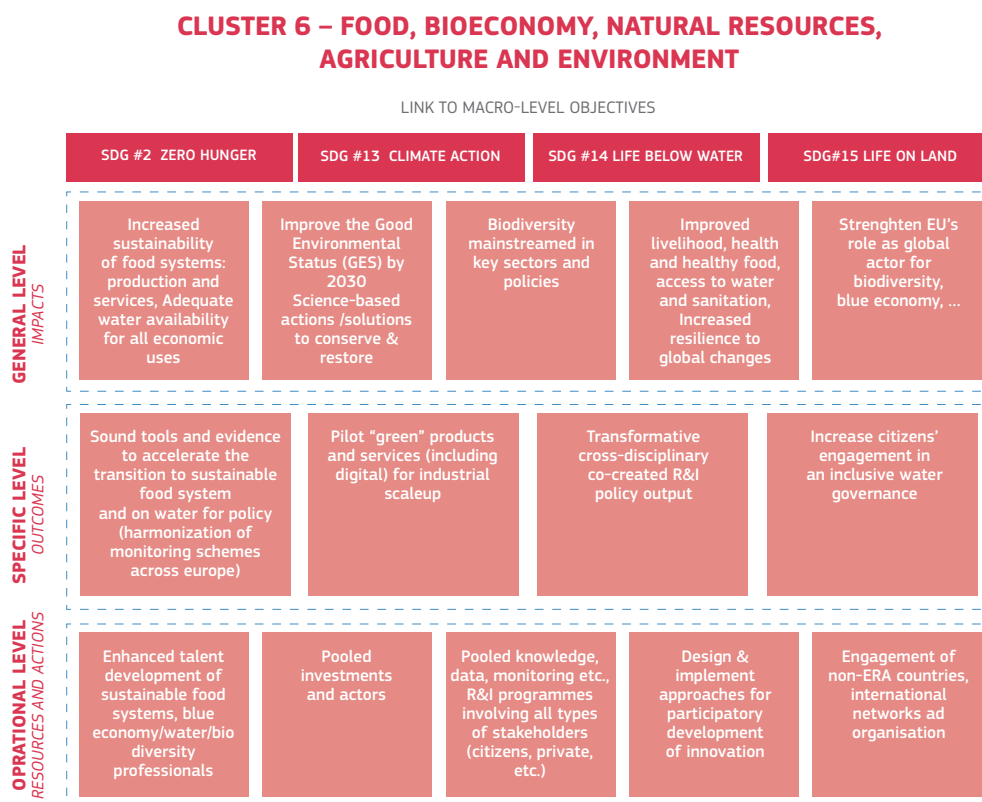
Source: Averages from EU survey November 2021

### **Cluster 6: Food, bioeconomy, natural resources, agriculture and environment**

The analysis of the aggregation of PSIPs provided by the European Partnerships of Cluster 6 leads to the CSIP presented in Figure 16. The CSIP for Cluster 6 allows for cumulative overview of dominant elements from PSIPs and enables the limited amount of Impact Pathways to be defined through strategy mapping from resources and actions, towards outcomes and impacts. It is important to note that this analysis is made on the basis of three partnership fiches that were available for the 1st BMR (Rescuing biodiversity to safeguard life on Earth; Water4All; Climate neutral, sustainable and productive Blue Economy). This explains why some important expected impacts, such as the circular economy, are missing from the overview. A more comprehensive picture will be drawn in the next BMR when more Cluster 6 partnerships have been launched and inputs made available.

Identification of the dominant elements of PSIPs for groups of partnerships reveal that there are similar elements for all clusters presented, in particular at the operational level. Namely, across all clusters, different aspects of access to capital (access to risk capital, access to RDI financing), enhancing cross-sector or cross-stakeholder engagement (e.g. mobilisation of stakeholders), and alignment of legal frameworks and regulations are present as key resources and actions (fundaments) for Impact Pathways. However, Cluster 6 CSIP recognises further specific operational-level elements like talent development, participatory development of innovations, and the engagement of non-ERA countries and international networks.

FIGURE 16. CSIPs for Cluster 6 highlighting dominant characteristics



Source: Expert Group analysis

Differences between clusters become more visible when elements of outputs and impacts are aggregated for a specific cluster. Although there are similar elements across different clusters for outcomes and impacts (e.g. related to strengthening scientific capabilities, start-ups or standards and regulations), there are many more sector- and technology-specific elements. Cluster 6 specific outcomes are related to pilot green products and services, the engagement of stakeholders in specific sector policies or the harmonisation of sector-specific regulations, leading to Cluster 6 specific impacts on the sustainability of production system and services, improved good environmental status, biodiversity, healthy food, etc.

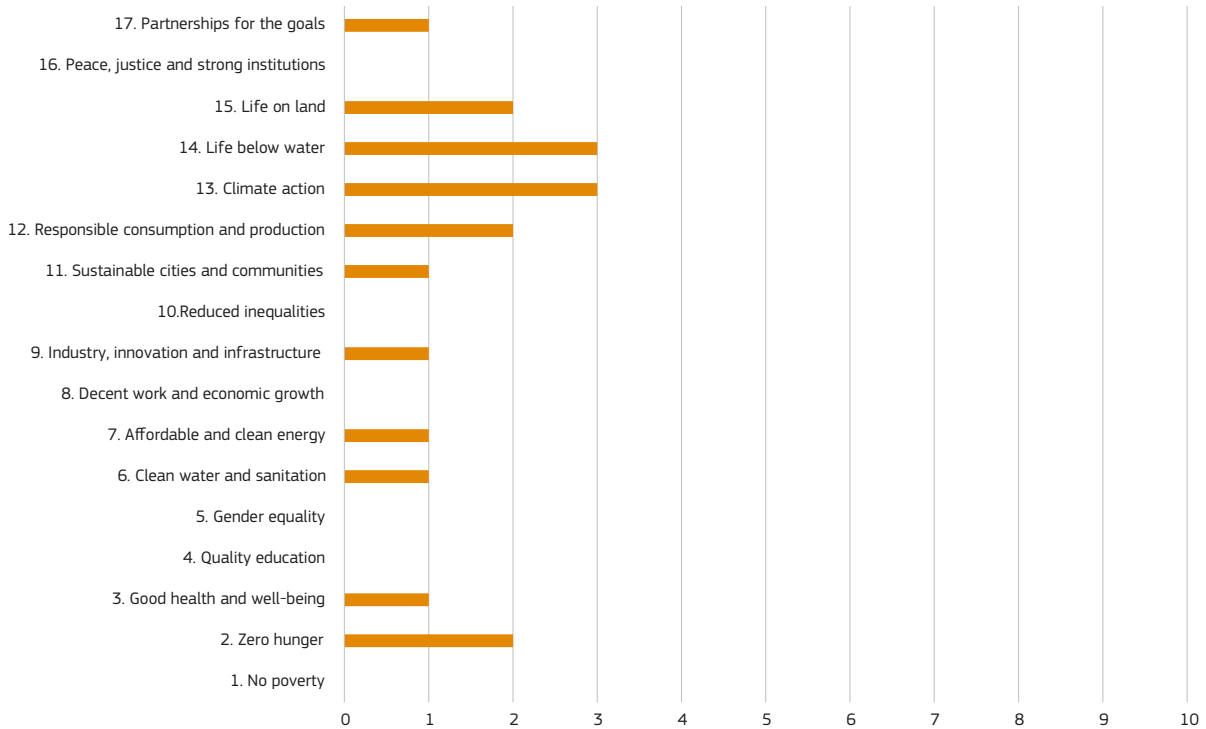
The identification of SDGs #2 Zero hunger, #13 Climate action, #14 Life below water and #15 Life on land as macro-level objectives in addition to the intervention logic (CSIP) for Cluster 6 is confirmed by analysis of the data from partnership fiches on supported SDGs presented in Figure 17. Figure 17 presents a subset of data from Figure 12 for four Cluster 6 partnerships<sup>56</sup>.

Each cluster creates its own specific pattern of supported SDGs which indicates areas of strategic focus. On the other hand, dispersion of data among less-supported SDGs for Cluster 6 partnerships (e.g. SDG #3 or SDG #12) overlaps with SDGs of strategic focus for other clusters (cluster 1 (#3) and Cluster 4 (#12), respectively). It clearly shows the importance of cross-cluster relations and the possible contribution of partnerships' activities in one cluster to achieving goals of another cluster.

56) From the partnerships that have been launched, only the data on EIT Food is missing.



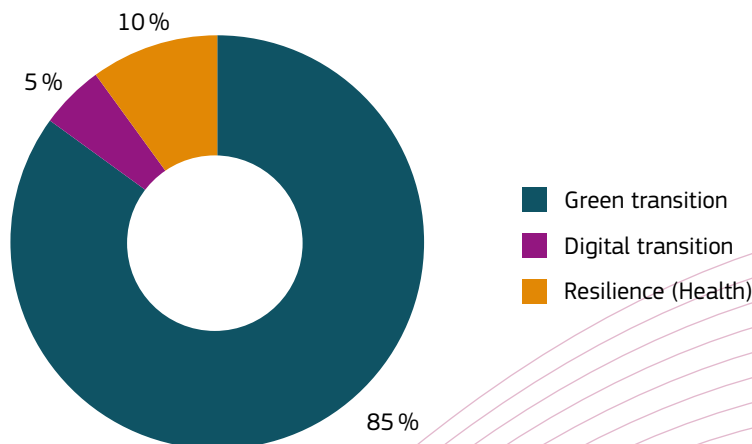
**FIGURE 17. SDGs supported by Cluster 6 partnerships (4)**



Source: Expert Group analysis

These cross-cluster relations and cross-cluster contributions are even more explicit through the analysis of data presented in Figure 18. Figure 18 presents data from partnership fiches on supported SDGs from four Cluster 6 partnerships plus EIT Food aggregated for an overview of its contribution to three EU priority policy areas: green transition, digital transition, and resilience. SDGs are aggregated to form proxies of partnerships' contributions<sup>57</sup>. Figure 18 confirms that besides the natural concentration of contributions from Cluster 6 partnerships to green transition, they also contribute to resilience in measurable way<sup>58</sup>.

**FIGURE 18. Cluster 6 partnerships' (4) contribution to EU priorities**



Source: Expert Group analysis

57) Green transition = Green Deal (SDGs 2, 3, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 – official EC doc); Digital transformation = Europe fit for digital age (SDGs 4, 9 – official EC doc); Resilience (limited to health) = arbitrary expert allocation (SDGs 3, 6).

58) Digital transition is now shown on this graph due to concerns related to the link between SDGs and digital transition, as well as data availability and quality.

Analysis of partnerships' contribution to EU policy objectives based on the analysis of supported SDGs is very well confirmed by the analysis of data collected via the Common Indicators Survey. Table 6 presents the averages calculated from data collected for Indicator #3 Overall (public and private; in-kind and financial) investments mobilised into EU priorities by European Partnerships for the same group of partnerships as in Figure 18. In particular, target values present a similar pattern of investments into activities linked to EU policy objectives as those presented in Figure 18. Here, the contribution to digital transformation and resilience is even more explicit and meaningful than in the analysis presented in Figure 18.

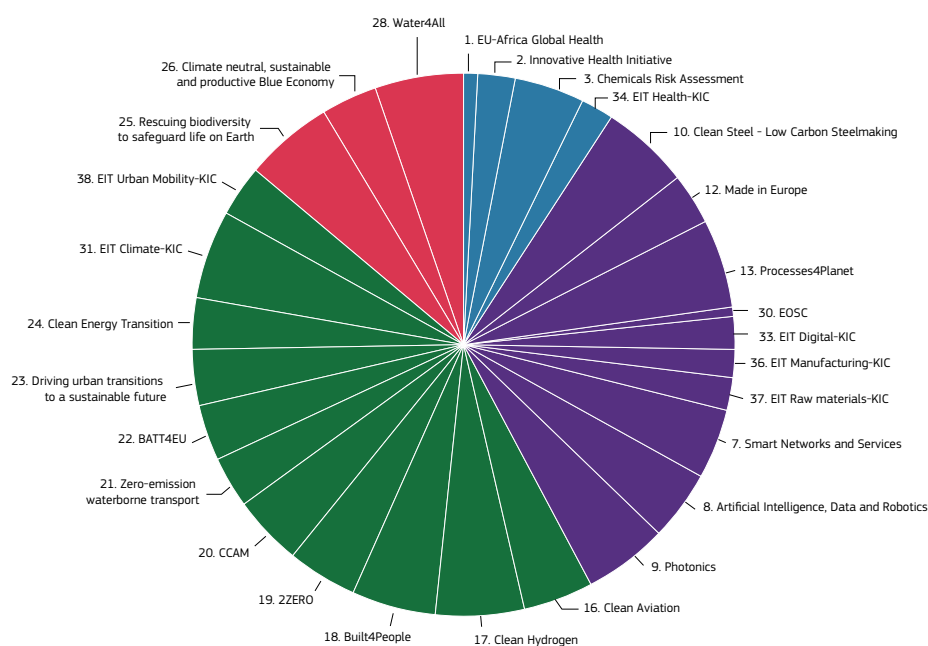
**TABLE 6. Cluster 6 – averages for 3 partnerships\***

<b>EU priority</b> How much resources overall are invested into activities linked to the ...	<b>Benchmark: [%]</b> (H2020 predecessor or based on H2020 historic data)	<b>Target: [%]49</b> (whole duration of the Partnership)	<b>Intended change: [%]</b>
... Green Deal objectives?	<b>75%</b>	<b>80%</b>	7%
... Digital objectives?	<b>16%</b>	<b>51%</b>	231%
... Resilience objectives?	<b>15%</b>	<b>19%</b>	25%

Source: Averages from EU survey November 2021. \*Data for EIT Food not available

Figure 19 shows that the partnerships with a primary focus on the green transition (Cluster 5) account for a sizeable share of European Partnerships' total contribution to the green transition. However, the total contribution of all other partnerships exceeds that of the primarily green-transition-oriented partnerships. This indicates that there is significant potential to identify and capture synergies and potential for cooperation, especially between clusters 4, 5 and 6.

**FIGURE 19. Contribution of all active partnerships to the green transition**



Source: Expert Group analysis. Cluster 1 + relevant EIT KICs – blue, Cluster 4 + relevant EIT KICs + EOSC – violet, Cluster 5 + relevant EIT KICs – green, Cluster 6 – red



The potential for synergies can also be observed by analysing the anecdotal evidence found in the partnership fiches (Chapter 4). Some of these are presented in boxes below.

### **BOX 3. BLUE ECONOMY PARTNERSHIP COLLABORATION WITH OTHER EUROPEAN PARTNERSHIPS**

‘A climate neutral, sustainable and productive Blue Economy (SBEP) partnership will enable a just and inclusive transition to a climate-neutral, sustainable and productive blue economy for key intervention areas for healthy oceans and the wellbeing of citizens in harmony with nature.

From the outset of the SBEP’s intervention areas, coordination will be sought with relevant European co-funded and co-programmed partnerships as well as Joint Programming Initiatives to foster alignment and exchange praxis as well as avoiding duplication.

Key partners include: JPIs Healthy and Productive Seas and Oceans and Connecting Climate Knowledge for Europe, and the European Partnerships Rescuing Biodiversity to Safeguard Life on Earth (Biodiversa+), Zero-emission Waterborne Transport; Clean Energy Transition; Water4All; Safe and Sustainable Food Systems; European Open Science Cloud; Artificial Intelligence, Data and Robotics; EIT Digital, EIT Raw Materials; and Innovative SMEs

Some relevant Blue Economy KPIs:

- Environmental resilience
- Citizens’ well-being.’

*Source: partnership fiches*

### **BOX 4. BIODIVERSA+ COLLABORATION WITH OTHER RELEVANT PARTNERSHIPS**

‘Through direct dialogue, and via relevant discussion fora, Biodiversa+ will ensure coherence and collaboration with other relevant partnerships (Accelerating Farming Systems Transitions; Water4All; Sustainable and Productive Blue Economy; Driving Urban Transitions, possibly also Circular Bio-based Europe; and Animal Health and Welfare) while designing and rolling out its flagship programmes. This will allow the partnership to tackle issues at the interface between biodiversity loss and other societal challenges. Partnerships can cover similar topics, but approach them from a different, complementary angle.

Some relevant Biodiversa+ KPIs:

- Uptake of nature-based solutions
- Shared monitoring priorities.’

*Source: partnership fiches*



## BOX 5. WATER4ALL PARTNERSHIP EFFORTS TO ALIGN WITH NATIONAL STRATEGIES

'Water JPI arose as a process whereby partner states agreed on a common vision to address major challenges and enable the alignment of national priorities. Members succeeded in the development in 2016 of a common strategic research and innovation agenda that has been recently updated and that outlines key RD&I areas for the sustainable management of water resources. Alignment activities have also allowed the launch of joint processes of research practices and project management as well as the identification of collaboration barriers. The set-up of mirror groups in some member countries has contributed to the better alignment of national strategies with Water JPI's priorities.

Some relevant Water4All KPIs:

- Population access to drinking water
- Population access to sanitation

This partnership contributes to (among others) SDG6: Clean water and sanitation that can be considered as transversal between the Green Deal and resilience.'

Source: partnership fiches

## 2.2.2 DIGITAL TRANSITION

The EU's digital transformation refers to the adoption of new, high-impact emerging technologies in businesses, science, and society. The EU's digital strategy<sup>59</sup> aims to make this transformation work for people and businesses while helping to achieve the European Green Deal objectives<sup>60</sup> and addressing challenges in society and the economy by an increasing need for resilience, such as that illustrated by the COVID-19 pandemic. Europe must now strengthen its digital sovereignty and set standards, rather than following those of others, with a clear focus on data, technology and infrastructure. The latest EU commitments to the digital transition and a smarter and greener use of technologies will help make Europe the first climate-neutral continent by 2050. Technology can improve energy and resource efficiency, facilitate the circular economy, lead to a better allocation of resources, and reduce emissions, pollution, biodiversity loss and environmental degradation. At the same time, the ICT sector must ensure the environmentally sound design and deployment of digital technologies. Horizon Europe aims to support the objectives of the EU's digital strategies<sup>61</sup>. While all Horizon Europe clusters contribute to the digital transition, Cluster 4 'Digital, industry and space' which supports 'the development and mastery of digital and key enabling technologies of the future'<sup>62</sup> is the key cluster enabling this. This is the reason why the following analysis focuses on the activities of the European Partnerships under Cluster 4.

### Cluster 4: digital, industry and space

The analysis of the aggregation of PSIPs provided by the European Partnerships of Cluster 4<sup>63</sup> leads to the CSIP presented in Figure 20, which allows for a cumulative overview of dominant elements from PSIPs and enables the limited amount of Impact Pathways to be defined through strategy mapping from resources and actions, towards outcomes and impacts.

59) <https://digital-strategy.ec.europa.eu/en/policies/europes-digital-decade#ecl-inpage-kyvdsotr>

60) <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A52021DC0118>

61) <https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/3c6ffd74-8ac3-11eb-b85c-01aa75ed71a1>, p. 4.

62) <https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/3c6ffd74-8ac3-11eb-b85c-01aa75ed71a1>, p. 9.

63) The following partnerships are included in the analysis of CSIPs: Smart Networks and Services, AI, Data and Robotics, Photonics, Made in Europe, Clean Steel - Low Carbon Steelmaking, Processes4Planet.

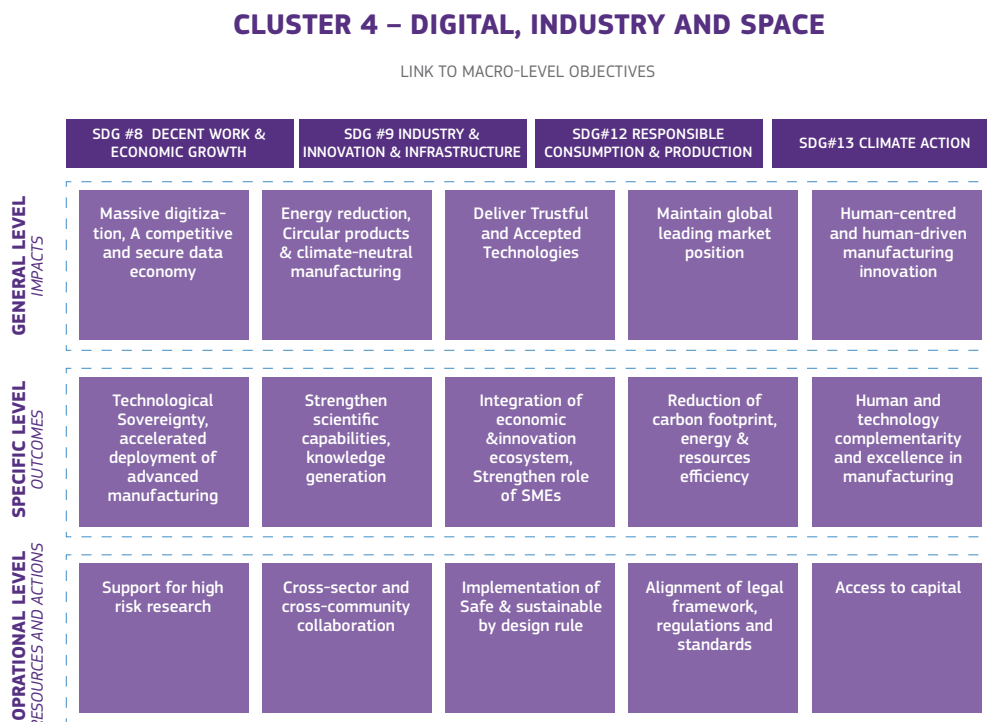


The identification of dominant elements of PSIPs for this group of partnerships reveals many of the same elements as for other clusters at the operational level. Different aspects of access to capital (access to risk capital or access to RDI financing), enhancement of cross-sector or cross-stakeholder activities (mobilisation of stakeholders), and the alignment of legal frameworks and regulations are present as key resources and actions (fundaments) for Impact Pathways. The CSIP for Cluster 4 does not present any further specific elements at the operational level.

Although there are similar elements across different clusters for outcomes and impacts (e.g. related to strengthening scientific capabilities, start-ups or standards and regulations), there are also more sector- and technology-specific elements. Cluster 4 specific outcomes relate to technological sovereignty, accelerated deployment of advanced manufacturing, reduction of the carbon footprint, energy and resources efficiency, and human and technology complementarity and excellence in manufacturing. These lead to Cluster 4 specific impacts on massive digitisation, a competitive and secure data economy, energy reduction, circular products and climate-neutral manufacturing, as well as on human-centred and human-driven manufacturing innovation.

This is also supported by an analysis of the anecdotal synergy stories from the fiches in which, for example, the partnership Made in Europe (Cluster 4) has described how it will collaborate with other partnerships in Cluster 5, such as the European Partnership towards Zero-emission Road Transport (2ZERO) and Clean Aviation. The Clean Aviation JU highlights synergies outside of Cluster 5, including existing opportunities with Key Digital Technologies JU, other research instruments related to digital technologies, the Made for Europe Partnership, and the EU space initiative (especially where it concerns hydrogen-related technologies). Although manufacturing is not at the core of these partnerships, they are strongly integrated into manufacturing. The Smart Network and Services JU also describes how it will explore future cooperation opportunities – towards realising the 6G vision – with a key vertical sector of European society, leveraging existing agreements with industry but also extending to further sectors in health and utilities. There are also significant synergies and interlinkages between clusters 1 and 4, especially in the Innovative Health Initiative and the upcoming partnership for Personalised Medicine, and how they deploy and create impact by digital data-driven solutions in the form of AI and advanced computing.

**FIGURE 20. CSIPs for Cluster 4 highlighting dominant characteristics**

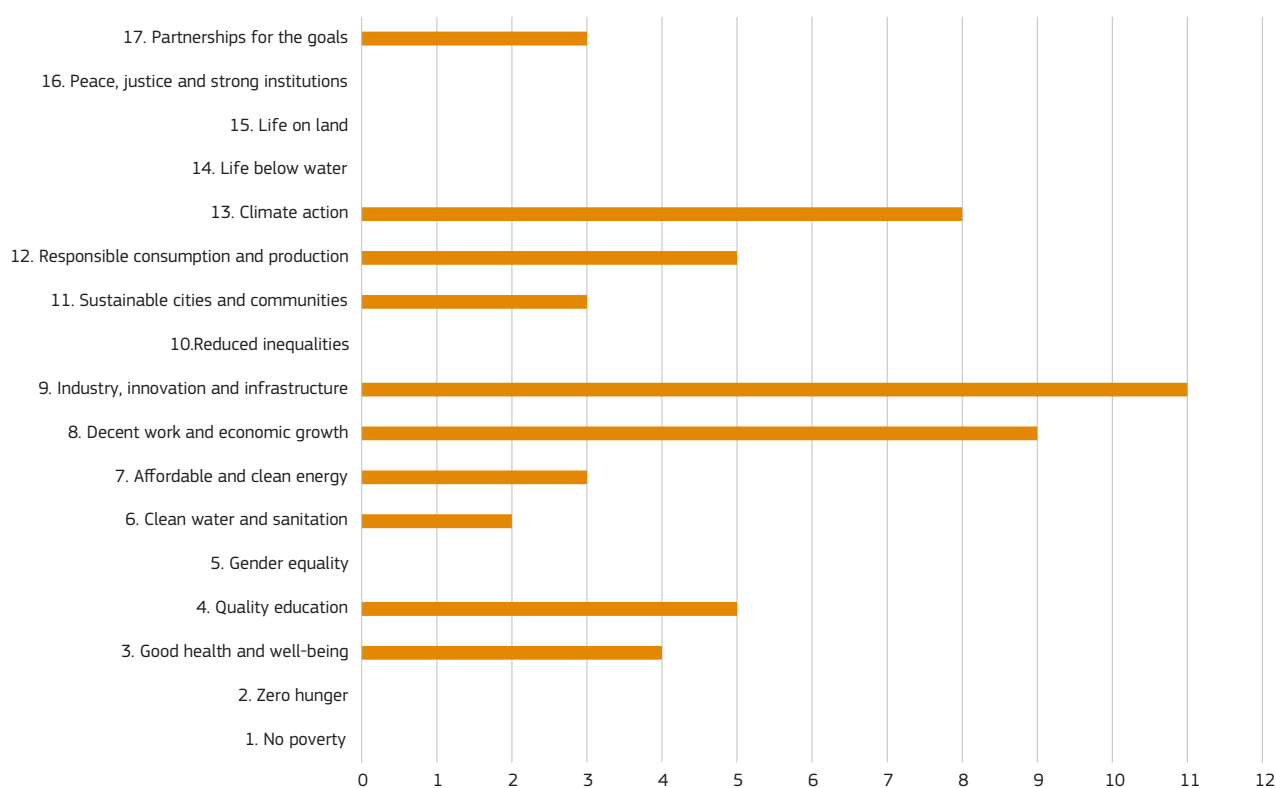


Source: Expert Group analysis

The identification of SDGs #8 Decent work and economic growth, #9 Industry, innovation and infrastructure, #12 Responsible consumption and production, and #13 Climate action, as macro-level objectives in addition to the intervention logic (CSIP) for Cluster 4, is confirmed by the analysis of data from partnership fiches on supported SDGs presented in Figure 21. Figure 21 presents a subset of data from Figure 12, with eight partnerships from Cluster 4 plus EOSC and 3 EIT KICs: EIT Digital, EIT Manufacturing and EIT Raw Materials.

The dispersion of data among less-supported SDGs for Cluster 4 partnerships (e.g. SDG #3 or SDG #11) overlaps with SDGs of strategic focus for other clusters (Cluster 1 (#3) and Cluster 5 (#11), respectively). It clearly shows the importance of cross-cluster relations and the possible contribution of partnerships' activities in one cluster to achieving goals of another cluster.

**FIGURE 21. SDGs supported by Cluster 4 partnerships (9) and relevant EIT KICs (3)**



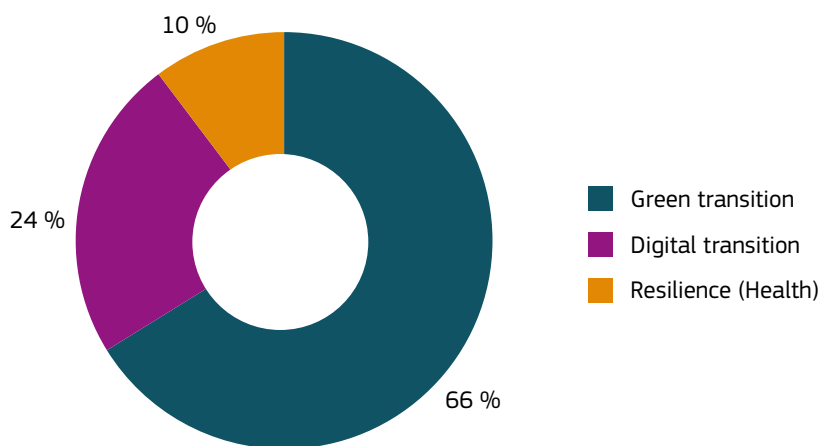
Source: Expert Group analysis

These cross-cluster relations and cross-cluster contributions are even more explicit through the analysis of data presented in Figure 22. Figure 22 presents data from partnership fiches on supported SDGs from eight Cluster 4 partnerships plus EOSC and three relevant EIT KICs aggregated to give an overview of its contribution to three EU priority policy areas: green transition, digital transition, and resilience. The SDGs are aggregated to form proxies of the partnerships' contribution<sup>64</sup>. Figure 22 confirms that besides the concentration of contributions from Cluster 4 partnerships to the green transition (biased by the allocation of a high number – 12 out of 17 – SDGs to that category), a large contribution goes to the digital transition and a smaller one to the resilience objectives.

64) Green transition = Green Deal (SDGs 2, 3, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 – official EC doc); Digital transformation = Europe fit for digital age (SDGs 4, 9 – official EC doc); Resilience (limited to health) = arbitrary expert allocation (SDGs 3, 6).



**FIGURE 22. Cluster 4 partnerships (6) and relevant EIT KICs (3) contribution to EU priorities**



Source: Expert Group analysis

The analysis of partnerships' contribution to European policy objectives based on an analysis of supported SDGs is not fully supported by the analysis of data collected from partnerships via the Common Indicators Survey. Table 7 presents averages calculated from data collected for Indicator #3 Overall (public and private; in-kind and financial) investments mobilised into EU priorities by European Partnerships for almost the same group of partnerships<sup>65</sup> as Figure 22. The most important target values present a pattern of a fair distribution of investments into activities linked to all EU policy objectives that is significantly different from that presented in Figure 22.

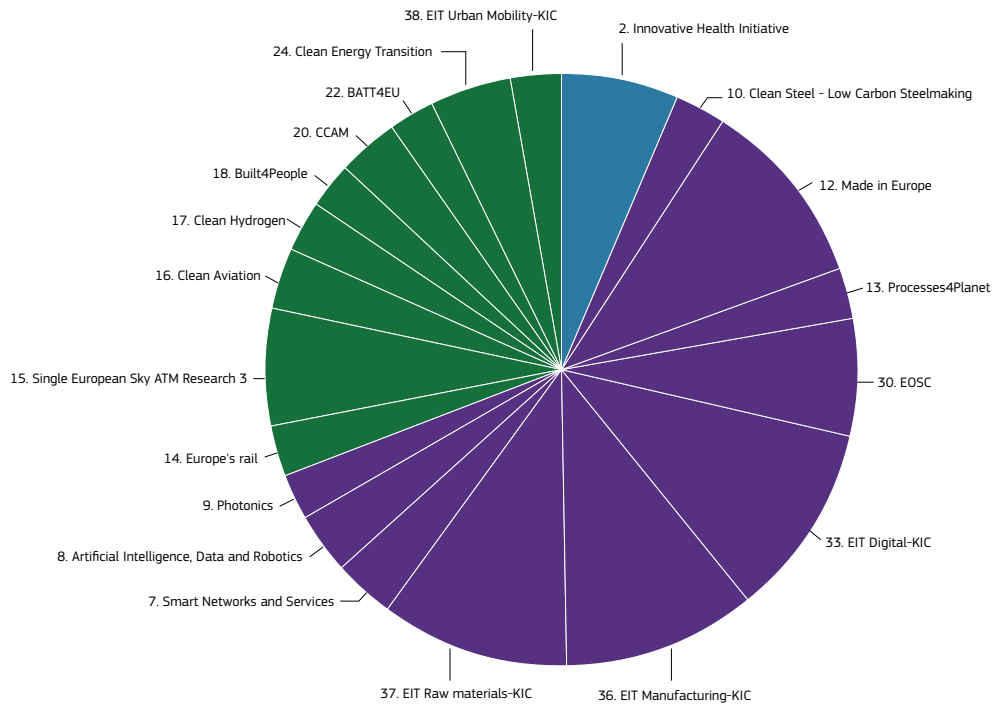
**TABLE 7. Cluster 4 – averages for six partnerships, EIT Digital, EIT Manufacturing and EOSC**

<b>EU priority</b> How much resources overall are invested into activities linked to the ...	<b>Benchmark: [%]</b> (H2020 predecessor or based on H2020 historic data)	<b>Target: [%]49</b> (whole duration of the Partnership)	<b>Intended change: [%]</b>
... Green Deal objectives?	<b>24%</b>	<b>48%</b>	98%
... Digital objectives?	<b>24%</b>	<b>53%</b>	124%
... Resilience objectives?	<b>20%</b>	<b>37%</b>	86%

Source: Averages from EU survey November 2021

65) Data for EIT Raw Materials was not available.

**FIGURE 23. Contribution of all partnerships to the digital transition**



Source: Expert Group analysis. Cluster 1 + relevant EIT KICs – blue, Cluster 4 + relevant EIT KICs + EOSC – violet, Cluster 5 + relevant EIT KICs – green

Figure 23 shows the contribution of all European Partnerships covered by this report to digital priorities. While contributions from Cluster 4 partnerships are dominant, it can be clearly seen that the contributions – particularly Cluster 5 – are sizeable. It is therefore likely that potential synergies may be identified and captured between partnerships allocating resources to address both digital and green transitions. Potential for cooperation can also be found between partnerships oriented to digital transition and resilience which, in Figure 23, has a limited scope of health.

The potential for synergies can also be observed by analysing the anecdotal evidence found in the partnership fiches (Chapter 4).

**BOX 6. EUROPEAN PARTNERSHIP FOR AI, DATA AND ROBOTICS IS ENGAGED IN DEVELOPING SOLUTIONS ADDRESSING VARIOUS SOCIETAL CHALLENGES RELATED TO, FOR EXAMPLE, GREEN TRANSITION AND RESILIENCE**

‘European artificial intelligence (AI), data and robotics are at the core of developing a modern society in all of its facets. They will create new opportunities and be principal drivers of innovation, productivity and economic growth. At the same time, they will help us to solve some of our greatest challenges in the sectors of health, energy, transportation, manufacturing, agriculture and protecting our environment, which will have a major impact on European citizens and society as a whole. Through its founding organisations, the AI, Data and Robotics Association (Adra) is building a broad coalition of diverse stakeholders to leverage the communities that underpin European AI, data and robotics. AI, data and robotics will create new opportunities, transform many, if not all, of the verticals and ultimately shift the balance of power in the shortest possible time. Together, they can be used to solve the greatest challenges we face: environmental sustainability, energy, food and water security, and improving health and quality of life. Collaboration within the European Partnership will deliver Europe’s vision for a human-centric and trustworthy use of AI, data and robotics.

This partnership contributes to SDG 3: Good health & well-being.’

Source: partnership fiches

## 2.2.3 RESILIENCE

There is no doubt that the COVID-19 pandemic affected our societies in profound and multifaceted ways. Far beyond the public health threat, the pandemic crisis caused economic dislocations, social disruptions and information disorder that have tested political processes and institutions. On the other hand, the COVID-19 pandemic has also opened opportunities for positive change and innovative new solutions that research actions could help to identify and grasp. Horizon Europe aims to accelerate Europe's recovery and resilience<sup>66</sup>. While the goal of several Horizon Europe clusters is to contribute to the EU resilience objectives, Cluster 1 on health is crucial in terms of tackling infectious diseases, ensuring access to innovative and high-quality health care, and maintaining a globally competitive health-related industry. Without a doubt, the biggest achievement of international public and private science was the development of COVID-19 vaccines in a very short time. Given this, it seems appropriate to focus the analysis of partnerships' contribution to resilience partly on health as represented by Cluster 1.

### **Cluster 1: health**

The analysis of the aggregation of PSIPs provided by the European Partnerships of Cluster 1 leads to the CSIP presented in Figure 24, which enables a cumulative overview of the dominant elements from the PSIPs and allows for the limited amount of Impact Pathways to be defined through strategy mapping from resources and actions, towards outcomes and impacts. It is important to note that this analysis is based on three partnership fiches that were available for the 1<sup>st</sup> BMR (Global Health EDCTP3, Innovative Health Initiative, and Risk Assessment of Chemicals). A more comprehensive picture will be drawn in the next BMR when more Cluster 1 partnerships have been launched and inputs are made available.

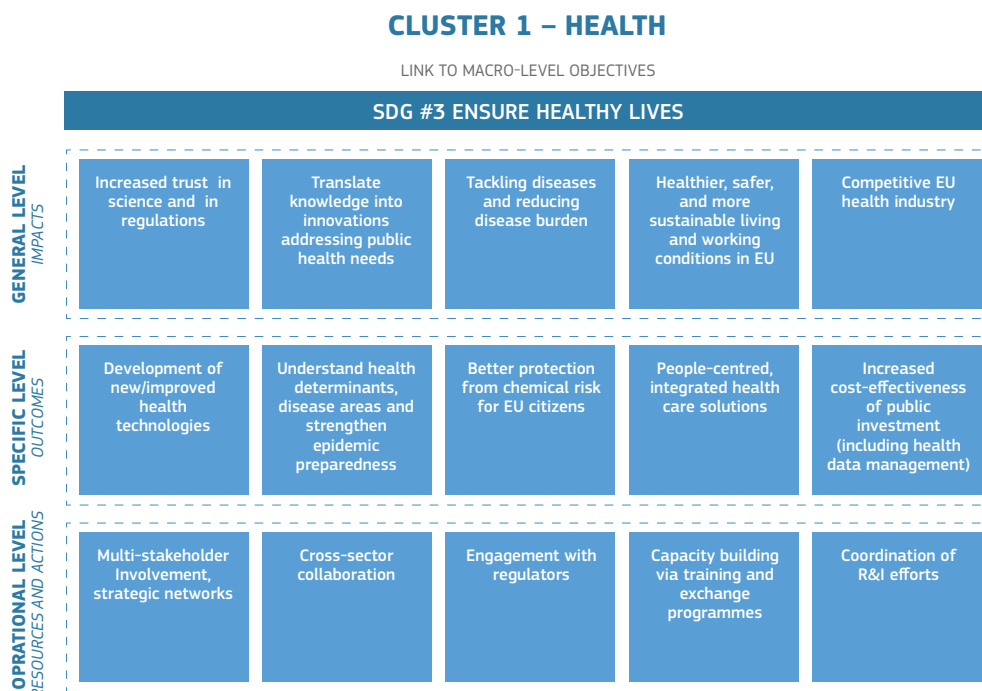
Different aspects of access to capital (access to risk capital or access to RDI financing), enhancement of cross-sector or cross-stakeholder activities (mobilisation of stakeholders), and the alignment of legal frameworks and regulations are also present as key resources and actions (fundaments) for Impact Pathways in Cluster 1. In addition to these common features, Cluster 1 CSIP recognises specific operational-level elements such as capacity building and training.

Similar elements across all clusters for outcomes and impacts (e.g. related to strengthening scientific capabilities, start-ups or standards and regulations) are also repeated in Cluster 1. However, there are also sector- and technology-specific outcomes related to new health technologies, health determinants and epidemic preparedness, protection from chemical risk, integrated health-care solutions, etc. These lead to Cluster 1 specific impacts on increased trust to science and regulations, diseases and disease burden, and healthier, safer, and more sustainable working conditions, etc.

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66) <https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/3c6ffd74-8ac3-11eb-b85c-01aa75ed71a1>, p. 3.

**FIGURE 24. CSIPs for Cluster 1 highlighting dominant characteristics**



Source: Expert Group analysis

The specific characteristics of Cluster 1 CSIPs are further illustrated by anecdotal evidence presented in the boxes below.

### **BOX 7. EUROPEAN PARTNERSHIP FOR RISK ASSESSMENT OF CHEMICALS (PARC) STRENGTHENING STAKEHOLDER INTERACTIONS**

‘PARC will strengthen interactions between the research community, risk assessors at EU and national regulatory level and other chemical risk assessment stakeholders (industry, NGO, citizens, etc.). The National Hubs (NHs) network will act as fora for discussion between chemical risk assessment stakeholders and provide crucial opportunities to cooperate and create synergies with all actors involved in chemical risk assessment.

The NHs will allow the harnessing of all available expertise on the ground and guarantee a close feedback loop between PARC and national programmes. These NHs are of utmost relevance to disseminate PARC interests and outputs, and to raise citizens’ awareness.

Moreover, the partnership has been designed to deliver outputs corresponding to the needs of end-users. To do so, it will ensure close collaboration between EU and national chemical risk assessment and management authorities. Concretely, a Science to Policy dialogue (S2PD) and interface will be implemented to build a joint R&I risk assessment hub of excellence to address chemical safety challenges. This S2PD will allow to identify the priorities in terms of risk assessment and risk management and to facilitate the uptake of PARC results contributing to create a sustainable engagement of the chemical risk assessment community on joint R&I priorities.

Some relevant PARC KPIs:

- Reuse of scientific and regulatory data
- Endorsement of chemical risk assessment innovation in policy
- Citizen trust in science and regulations.

This partnership is also linked to SDG 12: Responsible consumption and production, so it may also indirectly contribute to other clusters.’

Source: partnership fiches

## BOX 8. GLOBAL HEALTH EDCTP3 PARTNERING WITH WHO AND OTHER INTERNATIONAL ORGANISATIONS

'WHO is a key partner for EDCTP and collaboration is happening at strategic and technical levels, with EDCTP staff actively participating in several WHO policy and technical advisory group meetings. EDCTP representatives participate in a variety of committees and working groups established by WHO, including the WHO R&D Blueprint Global Coordination Mechanism, several workstreams coordinated by the WHO Global Malaria Programme to address the double challenge of malaria & COVID-19, and the WHO-AFRO Expert Committee on Traditional Medicine for COVID-19.

EDCTP became an active member of the ESSENCE on Health Research platform in 2020, an initiative that allows donors and funders to identify synergies, establish coherence and increase the value of resources for health research. EDCTP contributed to 1) the ESSENCE Working Group of Review of Investments (WGRI), which is developing a coordination mechanism for reviewing investments in clinical research capacity building in response to the World Bank and Coalition for Epidemic Preparedness and Innovation (CEPI) report *Money and Microbes: Strengthening Research Capacity to Prevent Epidemics*; as well as 2) the publishing and dissemination of a good practice document to guide funders on the best ways to invest in implementation science.

Finally, in September 2020, EDCTP became a member-observer of the Global Research Collaboration for Infectious Disease Preparedness GloPID-R network, an alliance bringing together research funding organisations on a global scale to facilitate effective and rapid research to address a significant outbreak of a new or re-emerging infectious disease with epidemic and pandemic potential.

Some relevant EDCTP3 KPIs:

- R&I Epidemic preparedness in sub-Saharan Africa
- Cost-effectiveness of public investment
- Sustainable global health research networks
- Health security.'

Source: partnership fiches

## BOX 9. INNOVATIVE HEALTH INITIATIVE (IHI) PARTNERING WITH REGULATORS AND INTERNATIONAL ORGANISATIONS

'IHI plans to explore future synergies with the planned public European Partnership on Transforming Health and Care Systems (THCS) which will be of particular importance as it may provide input for identifying scientific priorities, notably regarding unmet public health needs. Solutions proposed in the context of IHI could enable organisational innovations developed in the public-public THCS partnership.

Some relevant IHI KPIs:

- Regulator engagement
- Integrated health-care solutions and value assessment of integrated solutions
- AI feasibility in health care
- Strategies to address unmet public health needs (WHO list)
- Globally competitive EU health-care industry.'

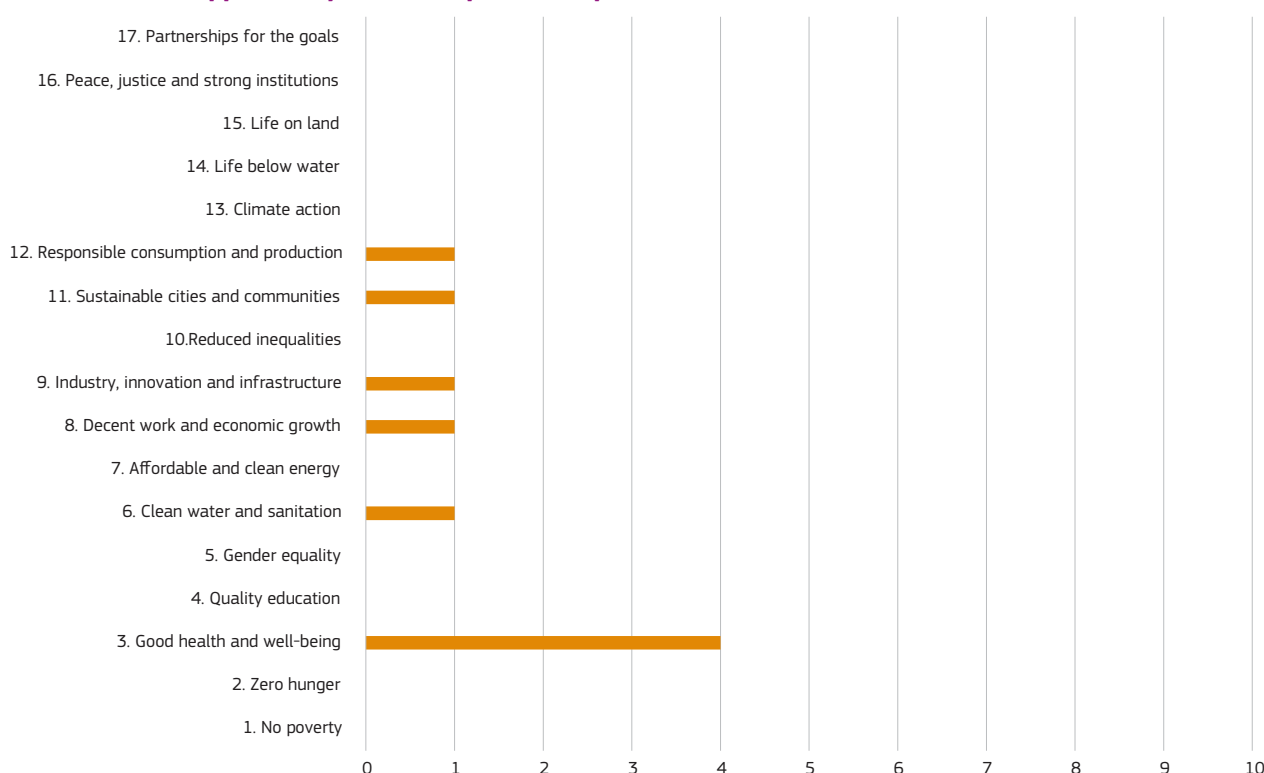
Source: partnership fiches



The identification of SDG #3 Ensure healthy lives, as a macro-level objective in addition to the intervention logic (CSIP) for Cluster 1, is confirmed by analysis of data from the partnership fiches on supported SDGs, presented in Figure 25. Figure 25 presents a subset of data from Figure 12 for three partnerships from Cluster 1 plus EIT Health.

The dispersion of data among less-supported SDGs for Cluster 1 partnerships (e.g. SDG #8 and SDG #9 or SDG #11) overlaps with SDGs of strategic focus for other clusters (Cluster 4 (#8 and #9) and Cluster 5 (#11) respectively). It clearly shows the importance of cross-cluster relations and the possible contribution of partnerships' activities from one cluster to achieving goals of another cluster.

**FIGURE 25. SDGs supported by Cluster 1 partnerships (3) and EIT Health**



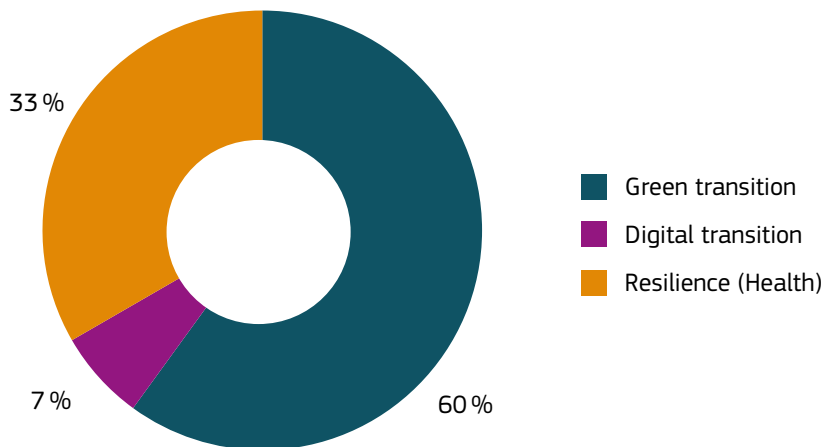
Source: Expert Group analysis

The cross-cluster relations and cross-cluster contributions are even more explicit through the analysis of data presented in Figure 26. Figure 26 presents data from partnership fiches on supported SDGs from three Cluster 1 partnerships plus EIT Health, aggregated to give an overview of its contribution to three EU priority policy areas: green transition, digital transition and resilience. The SDGs are aggregated to form proxies of partnerships' contributions<sup>67</sup>. Figure 26 confirms that, besides the statistically biased concentration of contributions by Cluster 1 partnerships to green transformation, a large contribution goes to resilience while a small but still measurable one goes to digital transformation.

67) Green transition = Green Deal (SDGs 2, 3, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 – official EC doc); Digital transformation = Europe fit for digital age (SDGs 4, 9 – official EC doc); Resilience (limited to Health) = arbitrary expert allocation (SDGs 3, 6).

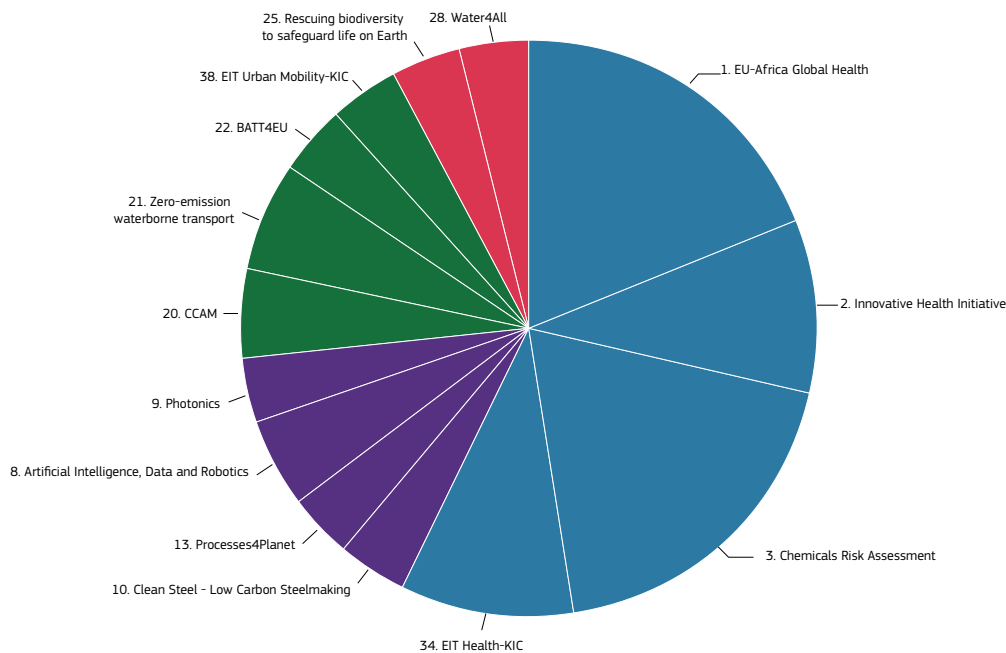


FIGURE 26. Cluster 1 partnerships (3) and EIT Health contribution to EU priorities



Source: Expert Group analysis

FIGURE 27. Contribution of all partnerships to health-related resilience



Source: Expert Group analysis. Cluster 1 + relevant EIT KICs – blue, Cluster 4 + relevant EIT KICs + EOSC – violet, Cluster 5 + relevant EIT KICs – green, Cluster 6 – red

Figure 27 shows the contribution of European Partnerships to health-related resilience. While the major contribution comes from Cluster 1, sizeable contributions are also made by all other clusters. The potential for synergies is evident in combinations of health with digitalisation, new materials, and processes, as well as environmental issues. This potential is likely to be much higher when all the relevant dimensions of resilience are covered.

## 2.3 CONTRIBUTION OF PARTNERSHIPS TO HORIZON EUROPE KEY IMPACT PATHWAYS

The purpose of this subchapter is three-fold: first, to illustrate the direct links of the Key Performance Indicators (KPIs) devised by the partnerships with the Horizon Europe KIP indicators, reflecting the integration of the partnerships as an instrument in the overall monitoring and evaluation of Horizon Europe. Second, the aim is to suggest possible ways of analysing the data on Horizon Europe KIPs as they become available for the next BMRs. Third, the objective is to select a subset of Horizon Europe KIPs that are worth presenting specifically for the partnerships, reflecting key elements of their intervention logic.

With a new level of ambition to boost the diversity of impacts of EU R&I funding, the Commission's proposal for Horizon Europe includes an approach for capturing and communicating impacts – the KIPs. The objective of this new approach is to allow policymakers and the wider public to get regular insights into the effects of and benefits from the Programme over time for European science, its economy, and the wider society.

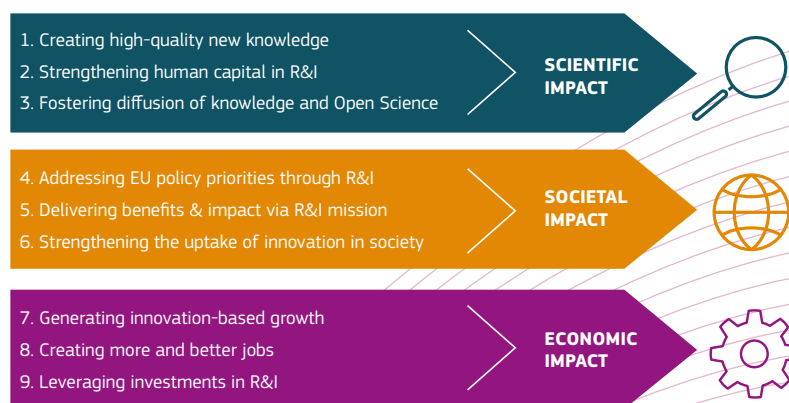
The Key Impact Pathways (Figure 28) will allow the difference made around nine key storylines to be captured and communicated at any given moment in time (both during and after the Programme). European Partnerships fully integrated into the Horizon Europe monitoring framework feed into the KIPs through their proposals and project-level data.

Demonstrating and communicating the diversity of impacts and the European added value of R&I investments, including those achieved through partnerships, is crucial for accountability, advocacy, and learning. However, capturing these impacts is not straightforward and requires dealing with complexities. Attribution/contribution, time lags, and uncertainty/risk are among the key challenges faced by the evaluators of impacts of R&I investments worldwide.

The KIPs focus on the most typical changes that are expected to occur in the short, medium, and longer term as a result of EU-funded activities targeted at the programme objectives. They combine the latest developments in understanding, measuring, and assessing the scientific, societal, and economic impact of R&I programmes.

The data-collection methods behind the proposed indicators allow for the tracking of additional disaggregated indicators based on the same dataset. In addition, and beyond KIP indicators, programme implementation and management data will also be collected and reported in close to real time, including the monitoring of collaborative links through network visualisations. This will include, *inter alia*, data on proposals, applications, participations and projects; applicants and participants (including type of organisation, country, gender, role in project, scientific discipline/sector, etc.); and contributions to thematic objectives such as climate. This data will also be collected from the Horizon Europe partnership projects.

FIGURE 28. Nine KIPs in Horizon Europe



Source: Horizon Europe Key Impact Pathways, EC, 2020



The KIPs underpinning Horizon Europe's monitoring system represent a novel, ambitious yet pragmatic approach to devising indicator frameworks for R&I programmes. It results from the identified need to start facing the complexity of R&I investments in monitoring and evaluation practices in order to deliver relevant and timely messages to policymakers. Based on a set of core principles (Proximity, Attribution, Traceability, Holism, and Stability = PATHS)<sup>68</sup>, this framework ensures information is collected on a set of key dimensions where impact is desired.

Overall, the KIPs are expected to support the better capture and communication of Horizon Europe's progress towards its objectives, and also beyond its lifetime. The simplicity and storytelling nature of the KIPs is expected to bring a more immediate and continuous visibility of the European added value of R&I investments for science, the economy and society, and enable this to reach a wider audience beyond the R&I community.

### 2.3.1 LINKS BETWEEN PARTNERSHIP KPIS AND HORIZON EUROPE KIPS

The Key Impact Pathways directly relate to and capture the value envisaged from partnerships' projects. As stated in the First interim report of the Expert Group on support for the Strategic Coordinating Process for partnerships<sup>69</sup>, there may be a significant overlap between the specific indicators (KPIs) of some partnerships and the Horizon Europe KIPs. Horizon Europe KIPs may be considered as a bridge between the activities and impacts of the specific partnerships and the overall Horizon programme, for which the KIPs will be applied to report on the achievement of the entire programme. Throughout the process of developing their monitoring and evaluation frameworks, the partnerships have tried to interpret the KIPs at the partnerships level.

As seen in the partnership fiches (Chapter 4), each partnership has developed its own PSIP to frame and guide their monitoring and evaluation tasks. The PSIPs are formed following a strategy mapping approach, starting from resources (inputs) and actions towards outcomes and impacts, based on (expected/proven) causal links. For each dimension (resources and actions, outcomes, and impacts) specific KPIs are set. Whereas the KPIs related to resources and actions mainly refer to managerial and organisational aspects, those related to outputs and impacts largely depict the expected short-, medium-, and longer-term results, although without necessarily being characterised as such. Notwithstanding, they can easily be turned into short-, medium-, and longer-term impacts in relation to science, the economy, and society. As a result, the PSIPs, as the basis for the partnership storyline, are the appropriate framework and do incorporate partnership-specific KPIs which can directly match many of the Horizon Europe KIPs' categories.

For example, some KPIs from the European Partnership for Photonics are presented along with the matching Horizon Europe KIPs.

68) Bruno, N. and Kadunc, M. 2019. Impact Pathways: Tracking and communicating the impact of the European Framework Programme for research and innovation. *Fteval Journal*. May 2019, Vol. 47, pp. 62-71. DOI: 10.22163/fteval.2019.330 [https://repository.fteval.at/416/1/Journal\\_47\\_10.22163\\_fteval.2019.330.pdf](https://repository.fteval.at/416/1/Journal_47_10.22163_fteval.2019.330.pdf)

69) European Commission, Directorate-General for Research and Innovation, Carrozza, M., Romanainen, J., Amanatidou, E., et al., A robust and harmonised framework for reporting and monitoring European Partnerships in Horizon Europe: first interim report, Publications Office, 2021, <https://data.europa.eu/doi/10.2777/017792>

TABLE 8. Examples of partnership KPIs and related Horizon Europe KIPs (Photonics)<sup>70</sup>

Examples of Photonics KPIs	Examples of relevant HE KIPs
<p><b>Next Generation Skillsets</b></p> <ul style="list-style-type: none"> <li>● Education, training, lifelong learning, attracting young people</li> <li>● new curricula in main areas</li> <li>● academic and non-academic</li> <li>● Digi Hubs/cross-cutting and collaborative institutions</li> </ul>	<p><b>Skills</b></p> <ul style="list-style-type: none"> <li>● Number of researchers having benefitted from upskilling activities in FP projects (through training, mobility, and access to infrastructures)</li> </ul>
<p>Examples of <b>photonics-enabled digital transformation</b> in critical industry value chains and applications</p> <p>Examples of <b>photonics-enabled health and consumer applications and processes</b> (e.g., autonomous driving, Point of care diagnosis et al)</p> <p>Examples of <b>photonics-enabled applications, processes for an enhanced secure and safe digitisation</b> (e.g. cyber security, zero-defect data collection, transport and analysis et al.)</p>	<p><b>Innovative outputs</b></p> <ul style="list-style-type: none"> <li>● Number of innovative products, processes or methods from FP (by type of innovation) and intellectual property rights (IPR) applications</li> </ul>
<p><b>Contribution to missions</b> and visions of the Horizon Europe programme objectives:</p> <ul style="list-style-type: none"> <li>● <b>Green Deal</b></li> <li>● <b>Digital transformation</b></li> <li>● <b>Sustainable development</b></li> <li>● <b>Technological sovereignty</b></li> </ul>	<p>Outputs</p> <ul style="list-style-type: none"> <li>● Number and share of <b>outputs aimed at addressing specific EU policy priorities</b> (including meeting the <b>SDGs</b>)</li> </ul> <p>R&amp;I mission outputs</p> <ul style="list-style-type: none"> <li>● Outputs in specific R&amp;I <b>missions</b></li> </ul>
<p>Set up collaborative deep-tech curricula in <b>close cooperation with end-users</b></p>	<p>Co-creation</p> <ul style="list-style-type: none"> <li>● Number and share of FP projects where <b>EU citizens and end-users contribute to the co-creation</b> of R&amp;I content</li> </ul>
<p># of <b>jobs created</b> (planned to create) within the next three years</p>	<p>Supported <b>employment</b></p> <ul style="list-style-type: none"> <li>● Number of full-time equivalent (FTE) jobs created, and jobs maintained in beneficiary entities for the FP project (by type of job)</li> </ul>
<p>New systems and/or technologies developed in projects</p> <ul style="list-style-type: none"> <li>● # of <b>spin-offs</b></li> <li>● # of <b>patents</b> applied linked to projects</li> <li>● # of new <b>pilot lines</b></li> <li>● # of new <b>demonstrators</b></li> </ul>	<p>Innovative outputs</p> <ul style="list-style-type: none"> <li>● <b>Number of innovative products, processes, or methods</b> from FP (by type of innovation) and <b>IPR applications</b></li> </ul> <p>Innovations</p> <ul style="list-style-type: none"> <li>● <b>Number of innovations</b> from FP projects (by type of innovation) including from awarded IPRs.</li> </ul>

70) The table includes a subset of KPIs from the full set of KPIs developed by photonics. They are not necessarily those included in the Partnership fiche (Chapter 4) which only covers 10 selected KPIs, mainly the new ones.

## 2.3.2 REPORTING ON PARTNERSHIP KPIS AND HORIZON EUROPE KIPS

The relevance of the partnership-specific KPIS and PSIPs to the Horizon Europe KIPs is clear. As a result, the data for the respective partnerships' KPIS – when the time is ripe for the partnerships to report on them – can complement those of the Horizon Europe KIPs that will be collected for all projects supported by Horizon Europe instruments and made available through the Horizon Europe dashboard. This is expected to pave the way for a more harmonised and robust monitoring of partnerships in the context of the expected impacts of Horizon Europe, as well as streamlining efforts.

Alternatively, data on the Horizon Europe KIPs can form the basis upon which the partnerships' performance partnerships-based on their projects' achievements, as reported through the KIPs – can be compared to those of other Horizon Europe instruments. Besides this direct comparison, such data can also inform the analysis on the additionality of the partnerships as a policy instrument vis-à-vis other Horizon instruments.

Nevertheless, the challenges faced by the Horizon Europe KIPs should also be considered. The definition of the time horizon (short term: at one year +, medium term: three years +, and long term: five years +) may not be appropriate for certain research fields like health, for instance. In addition, one of the most often reported challenges which evaluation exercises face is that of attribution. When the time is right to record medium- and longer-term impacts after the end of the project/intervention, the level of attribution of the results to the specific project/intervention falls drastically as a number of other factors and conditions may have affected the results (additional projects, enhanced strategy for collaboration, a national follow-up programme, etc.). Traceability of the beneficiaries is another major issue due to mobility. Reporting on KPIS as well as KIPs should always take such challenges into account.

It is also important to note that the Horizon Europe KIPs, being horizontally designed, do not capture the entire, specific value of the partnerships and their activities. Thus, any additionality analysis should include KIPs alongside partnership-specific KPIS and other monitoring and evaluation measures the partnerships design as relevant and appropriate to reflect their intervention logic and expected outcomes and impacts (PSIPs).

Furthermore, as the common indicators developed for European Partnerships (Chapter 2.4.) are largely input indicators, the Key Impact Pathway indicators can act as proxies to indicate whether increased inputs (e.g. commitments or synergies) lead to higher scientific outputs and the exploitation of knowledge.

## 2.3.3 SELECTED KEY IMPACT PATHWAYS FOR MONITORING EUROPEAN PARTNERSHIPS

A selected set of Horizon Europe KIPs which are closer to the partnerships' intervention logic (Figure 1) can be reported in the BMRs. The rationale for the selection of these KIPs is that:

- a focus on short-term, a limited number of mid-term and a couple of long-term indicators is pertinent to allow the effects and progress within the time framework relevant for the BMR cycle to be captured (2022, 2024, 2026, 2028); and
- the selected set should reflect the different types of impacts envisaged (scientific, economic, social) as well as the intervention logic of the design of the partnerships (Figure 13, Figure 16, Figure 20 and Figure 24).

As a result, the following KIPs have been chosen as of high relevance to the partnerships. Ideally, these should be monitored for the purposes of the BMRs, complementing the continued display of project data and analysis automatically generated on the Horizon Dashboard. At a later stage, when data for additional KIPs (medium and long term) become available, these should also be reconsidered to enable further analysis of the partnerships' contribution to the Horizon Europe KIPs. This should become possible for the BMRs planned from 2026.



## SCIENTIFIC IMPACT

### **Publications – Number of FP peer-reviewed scientific publications (short-term) – considering the benchmark set based on H2020 data (Chapter 2.1) – and the Field-Weighted Citation Index of FP peer-reviewed publications (medium term)**

This indicator reflects one of the most important outputs of partnership-supported projects: scientific publications. Based on H2020 data, the number of publications produced under projects supported by partnerships vary from 78 for EIT KICs, 6 819 for JU projects, and 2 807 for cPPPs projects (Chapter 2.1.4). These numbers may be used as a type of benchmark for the new partnerships under Horizon Europe, taking into account the differences in focus and scope across the different partnership types. At the same time, it is also important to report on the field-weighted citation index which denotes how important the research conducted by partnerships is and directly relates to the expected result of ‘Enhanced critical mass of interdisciplinary research across Europe’ in the intervention logic (Figure 1).

### **Number of researchers having benefitted from upskilling activities in FP projects (through training, mobility, and access to infrastructures) (short term)**

Capacity building has always been an important focus of partnerships programmes and activities. This indicator reflects the attention paid to such activities and their outcomes which directly contribute to the expected result of ‘Enhanced critical mass’ but also ‘Enhanced performance of industrial research and industry’s ability to innovate’ of the intervention logic (Figure 1).

### **Share of FP beneficiaries having developed new transdisciplinary/trans-sectoral collaborations with users of their open FP R&I outputs (long term)**

It is important to consider this long-term indicator as it reflects the significance of new collaborations across disciplines and sectors. This is relevant for the expected result of ‘More spill overs from industry and research to other knowledge users’ as well as the expected output of ‘Enhanced collaboration in R&I among all system actors’.

## ECONOMIC/TECHNOLOGICAL IMPACT

### **Intellectual Property Rights applications (short term) – considering the benchmark set based on H2020 data (Chapter 2.1) – and the Number of innovations from FP projects (by type of innovation) including from awarded IPRs (medium term)**

Based on H2020 data (Chapter 2.1.4), the number of IPR applications range from 64 in EIT KICs or 13 in cPPPs to 240 in JU projects. While these numbers may be used as a benchmark for the new partnerships under Horizon Europe corresponding to the short-term KIP economic/technological impact indicator, it is also important to monitor actual innovations being further developed/brought to the market (medium term).

### **Increase of FTE jobs in beneficiary entities following FP project (by type of job) (medium term)**

Both these indicators directly relate to the ‘Enhanced performance of industrial research and industry’s ability to innovate’ of the expected results in the intervention logic and to the ‘Productivity gains and improvement of services thanks to a harnessing of capabilities, visions, and resources’. This also refers to the ‘Accelerated developments of innovative solutions’ of the expected outputs of the intervention logic and the ‘Strengthened evidence base for innovative solutions’.



### **Amount of public and private investment mobilised with the initial FP investment (medium term)**

The third selected economic indicator relates to the ‘Enhanced potential for the uptake and large diffusion of innovative solutions’ of the expected results as well as to the ‘Expanded scale and systemic scope of public and private investment’ of the outputs.

## **SOCIETAL IMPACT**

### **Number and share of innovations and scientific results addressing specific EU policy priorities (including meeting the SDGs) (medium term)**

#### **Results in specific R&I missions (medium term)**

The two indicators above, besides directly reflecting a common indicator across partnerships (as explained in the following section), directly contribute to the ‘Strengthened integration of EU and national programmes’ of the expected outputs in the intervention logic’ and the ‘New and extended common SRIAs at EU level’ in jointly pursuing EU policy priorities and Horizon Europe Missions set.

### **Number and share of FP projects where EU citizens and end-users contribute to the co-creation of R&I content (short term)**

This indicator contributes to the ‘Enhanced collaboration in R&I across all system actors’ of the outputs and the ‘More spill overs from industry to research and other knowledge users’ from the results in the intervention logic.

When it is possible to collect data, ideally, this subsection of future BMRs would report on the partnership performance through the selected KIPs, while an analysis between the partnerships’ results and those of Horizon Europe would also be useful, bearing in mind the different features, focus, and scales.

As noted above, when the collection of data for the long-term KIPs is possible, these should also be considered in the presentation and analysis.





## 2.4 MONITORING EUROPEAN PARTNERSHIPS USING COMMON INDICATORS

The purpose of this subchapter is to present and discuss evidence collected from the Horizon Europe partnerships through a Common Indicators Survey on the performance of the partnerships against the objectives set for them as a policy instrument. The analysis is further supported by anecdotal evidence collected from the interactively developed partnership fiches (see Chapter 4). Due to limited availability of data and early stage of partnership implementation, this first BMR focuses on a limited set of six common indicators highlighting partnership performance as regards the following objectives: additionality, directionality, transparency, openness, coherence, and synergies.

The first interim report of the Expert Group on support for the Strategic Coordinating Process for Partnerships<sup>71</sup> proposed a set of common indicators that are complementary to the partnership-specific thematic indicators and KIPs (see Chapters 2.1 and 2.3). These common indicators on the functioning of European Partnership serve as a framework for the monitoring on how the new policy approach achieves its goals of stronger EU added value, directionality, additionality, synergies, increased transparency etc.<sup>72</sup> The Horizon Europe's new approach to European Partnerships and the life-cycle criteria were the guiding light for the choice of common indicators (for the criteria framework see Chapter 1.1.2). The monitoring of common indicators is intended to be ambitious and able to capture as much of the added value of the partnerships as possible, with a minimum burden of data collection for the partnerships. The pilot survey conducted for this first BMR was the first attempt to build a coordinated monitoring framework for all partnerships on the functioning of the policy instrument in an aggregated way and to set a benchmark for partnerships.

The data used in this subchapter is a result of an interactive process and coordinated feedback from European Partnerships on the common indicators between February and November 2021 and was collected between November and December 2021. The common indicators complement the selected KIPs (presented in Chapter 2.3) in addressing the rest of the elements in the partnerships' intervention logic (Figure 1). In particular, the common indicators mainly reflect the total of the input aspects and certain aspects from the expected outputs, such as the 'New and/or extended SRIAs', the 'Strengthened integration of EU and national research programmes', the 'Expanded scale and systemic scope of public and private investment' and the 'Enhanced collaboration in R&I across all system actors'.

As each partnership has its own identity and orientation, the data for each indicator is gathered at the level of individual partnerships. Due to the heterogeneity of partnerships, their different starting points, different branches, and scientific fields, the focus of this subchapter is not to compare partnerships to each other. The rationale here is to provide an aggregate benchmark for later monitoring reports and to show some initial developments. To facilitate future BMRs, European Partnerships should integrate the common indicators in their monitoring systems and also present their progress on the common indicators in their individual annual activity or equivalent reports.

This first survey asked for the benchmarks and targets for each indicator. Since the data available was not complete, the second BMR will complete this task. Future surveys and BMRs will focus on progress reached at that point in time. In most cases, the starting point for setting benchmarks was the end point of both Horizon 2020 and the predecessor partnership. Where quantifying and aggregating were not feasible, qualitative evidence and examples from the country fiches (see Chapter 3) and the individual European Partnership reports (see Chapter 4) were used to complement the survey answers.

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71) European Commission, Directorate-General for Research and Innovation, Carrozza, M., Romanainen, J., Amanatidou, E., et al., A robust and harmonised framework for reporting and monitoring European Partnerships in Horizon Europe: first interim report, Publications Office, 2021, <https://data.europa.eu/doi/10.2777/017792>

72) See monitoring and evaluation questions for future reports in "A robust and harmonised framework for reporting and monitoring European Partnerships in Horizon Europe" First interim report, p.22-23.

The common indicators are expected to be applicable for all types of partnerships. The pilot data-collection survey for this first BMR revealed that this was either not always the case or that sometimes a question was interpreted differently by the different types of partnerships. So, some adjustments should be made in view of the next BMR. Although the overall response rate on the survey was good at 84% (n=31 out of N=37)<sup>73</sup>, it differed significantly between indicators. For example, in some cases, EIT KICs were not able to present benchmarks due to significant changes in the functioning of the KIC model in the new EIT Regulation and the Strategic Innovation Agenda 2021-2027.

This first biennial monitoring report focuses on presenting and analysing the following subset of 6 of the 11 common indicators:

- **Indicator #1** Progress towards (financial and in-kind) contributions from partners other than the Union - i.e. committed vs. actual contributions [direct leverage]
- **Indicator #3** Overall (public and private; in-kind and financial) investments mobilised into EU priorities (presented in Chapter 2.1, see Table 4)
- **Indicator #5** Measures ensuring continuous openness and transparency and dedicated activities
- **Indicator #6** Share of newcomer partners in partnerships, including geographical coverage
- **Indicator #8** Share of budget dedicated to coordinated and joint activities with other European Partnerships
- **Indicator #10** Share of complementary and cumulative funding from other Union or national/regional funds (national/regional, ERDF and other cohesion policy funds, RRF, CEF, DEP).

These indicators were selected because for them the quality and availability of data was sufficient, and the observations could be complemented with further and anecdotal evidence. The original list of 11 proposed common indicators is available in the Expert Group's first interim report<sup>74</sup>. Issues related to data collection are further discussed in the Group's second interim report (forthcoming).

## 2.4.1 ADDITIONALITY AND DIRECTIONALITY

An important added value of European Partnerships derives from the additional private and/or public R&I investments in EU priorities (additionality) that can be translated into a leverage effect resulting from Union intervention. The alignment of these investments and contributions towards common objectives (directionality) and the achievement of impacts that cannot be created by other Horizon Europe or national actions alone is the main justification for using a partnership approach. The combined contributions (input) will mobilise additional investments (output) in support of the transitions and create long-term positive impacts on employment, the environment and society. This first report measures additionality with an input indicator #1 and it is understood as partnerships' financial and in-kind contributions partnerships (committed and actual). Future reports are also expected to report on the leverage once the first results from the completed projects and activities become available. For definitions of the terms 'Long-term financial commitment' and 'Leverage' see Box 10.

Previous evaluations – e.g. the Article 187 evaluation – point out that public-private partnership (PPP) activities need to be brought more in line with EU, national and regional policies. The directionality on EU priorities is measured with indicator #3 and presented in Chapter 2.1 along with an additional qualitative analysis of the PSIPs. Coherence and synergies linked to the common indicator #10 are discussed in Chapter 2.4.3.

73) Only Partnerships that have already started were included in the survey.

74) European Commission, Directorate-General for Research and Innovation, Carrozza, M., Romanainen, J., Amanatidou, E., et al., A robust and harmonised framework for reporting and monitoring European Partnerships in Horizon Europe: first interim report, Publications Office, 2021, <https://data.europa.eu/doi/10.2777/017792>, p. 29.

## BOX 10. COMMISSION DEFINITIONS<sup>76</sup> ON LEVERAGE EFFECT AND LONG-TERM FINANCIAL COMMITMENT

**‘Long-term financial commitment:** The long-term financial commitment of participating countries and/or industry and other stakeholders is a precondition for considering the establishment of a European Partnership. The commitment should be clear from the outset and ensured during the lifetime of the partnership, including beyond Union support, where appropriate. The endured commitment over the lifecycle of the European Partnership, including adequate human resources, is a core indicator for ensuring its relevance. The potential combination of cash and in-kind contributions has to be defined individually per partnership and requires appropriate and transparent calculation methodologies across the different partnership approaches.’

**‘Leverage:** The leverage effect of R&I partnerships has both a quantitative and qualitative dimension. The quantitative dimension describes the additional investments triggered by the partnerships and the corresponding leverage effect the EU co-funding creates for exploiting or scaling-up results (financial additionality). The quantitative leverage effect needs to be reported on the basis of a harmonised calculation methodology. The qualitative dimension describes the wider impacts according to its intervention logic.’

### Indicator #1 Progress towards (financial and in-kind) contributions from partners other than the Union - i.e. committed vs. actual contributions [direct leverage]

Indicator #1 shows the percentage of contributions achieved out of the total commitments made by the partners other than the EU at the beginning of the partnership. The benchmark is calculated as a percentage of actual contributions compared to those committed. The target value is presented in absolute terms because this is an estimate of the committed contributions. The share of committed to actual contributions may be calculated at the end of the partnership (to validate whether or not the targets were reached).

TABLE 9. Progress towards translating commitments from non-Union partners to actual contributions

Partnership type	Benchmark: How much of the commitment for the predecessor partnership under Horizon 2020 was turned into actual contributions?	Target: How much have the partners other than the Union committed to this partnership for its whole duration [EUR m]?
Institutionalised based on Arts. 185 and 187 of the TFEU	<b>94%</b> <sup>76</sup> n/N: 11/11 Min: 0% Max: 291%	<b>18 131</b> <sup>77</sup> n/N: 16/19 Average: 1 133 Min: 62 Max: 3 981
Co-funded	<b>69%</b> <sup>78</sup> n/N: 5/8 Min: 0% Max: 100%	<b>2 166</b> <sup>75</sup> n/N: 6/8 Average: 361 Min: 200 Max: 700
Co-programmed	Not applicable	<b>11 080</b> <sup>75</sup> n/N: 11/11 Average: 1 007 Min: 340 Max: 3 300

Source: Common Indicators Survey, November 2021. Indicator #1

75) Draft criteria Framework for European Partnerships under Horizon Europe (ERAC, 2018): <https://www.era-learn.eu/documents/wk-14470-2018-init-en.pdf> (p. 4).

76) Average of answers (7 EIT KICs excluded).

77) Sum of answers.

78) Average of answers.



All institutionalised partnerships except for EIT KICs provided benchmark data for this indicator and 84% target data. Co-funded partnerships had lower but still good response rates of 63% and 75%. Co-programmed partnerships responded 100% to the target question. The benchmark question was excluded from them because the question is not applicable: no ex-ante commitments were required under H2020. EIT KICs also struggled to present benchmarks due to the changed concept of contributions for the KICs under the new EIT Regulation<sup>79</sup>.

Significant heterogeneity can be observed between the individual partnerships for indicator #1. The largest sums are targeted for partnerships in the transport, energy and high-tech sectors. The target value of total commitments from partners other than the Union amounts to EUR 26.4 billion (all types of partnerships). This survey data matches the EUR 31.3 billion committed by partners other than the EU at the beginning of Horizon Europe (see key figures in Chapter 1). These commitments show the additionality to the budget committed by the European Commission in Horizon Europe to date. Continuous monitoring of this indicator in the coming years will be important to check if the committed contributions will turn into actual contributions and reach the overall additionality goal. This is important as the Union contribution must at least be matched by members other than the EU (co-programmed and institutionalised partnerships) and, in the case of European Partnerships, rises to 70% in most cases.

While it is too early to show qualitative leverage under Horizon Europe, there are some examples from H2020 – e.g. Box 11 shows how additional resources were mobilised in Bulgaria to acquire a large-scale computer in the context of the EuroHPC JU.

### **BOX 11. EXAMPLE OF ADDITIONALITY: THE BULGARIAN PETASCALE SUPERCOMPUTER**

‘Bulgarian participation in EuroHPC JU, despite challenges of the national budgeting and coordination processes related to European Partnerships, can be seen as a success story. The Bulgarian petascale supercomputer, among the five petascale supercomputers that were developed with support from EuroHPC (35% of the procurement was funded by the EU), leveraged significant national resources and high-level political engagement. The supercomputer, named Discoverer, currently ranks 91st among the global top 500.

The project is implemented by the consortium Petascale Supercomputer Bulgaria, which consists of Sofia Tech Park JSC, the association National Center for Computer Applications, and the Strategic Center for Artificial Intelligence. The supercomputer itself was delivered by Atos.

Discoverer was officially inaugurated on 21 October 2021.’

*Source: Bulgaria country fiche (see Chapter 3)*

**Indicator #3 Overall (public and private; in-kind and financial) investments mobilised into EU priorities is presented and discussed in Chapter 2.1.**

<sup>79</sup>) Regulation (EU) 2021/819.

## 2.4.2 TRANSPARENCY AND OPENNESS

Transparency and openness are central criteria for European Partnerships new approach to meet the goal of an integrated European research landscape. Under Horizon Europe, all European Partnerships should aspire to be open and serve the interests of all relevant stakeholders. A partnership can maximise its impacts by involving all relevant partners and stakeholders beyond the narrow composition of core partners and by remaining open throughout its lifetime. European Partnerships are expected to adopt measures to promote the participation of newcomers and to remove barriers that hinder them from joining the partnership or participating in its activities. Moreover, partnerships should have transparent processes for consulting all relevant stakeholders in their agenda-setting and ensure broad communication and dissemination of information on calls, results and partnership activities.

The Horizon 2020 interim evaluation pointed out several issues with partnerships' openness towards new members and project participants across the value chain and EU countries, highlighting the risk of closed clubs. Smaller actors and R&D-less-intensive countries and regions often do not have the necessary (human) resources to participate on equal terms<sup>80</sup>. This is a barrier for more optimal and inclusive participation of all types of stakeholders, favouring rather closed incumbent networks from a limited number of countries and hampering the diffusion of knowledge across borders, sectors, disciplines and along the value chain<sup>81</sup>.

At the same time, 18% of PPP and 23% of cPPP funding go to SMEs, which shows that, on average, those partnerships are more successful at attracting SMEs than H2020. Of course, there are differences with regard to the sectors/individual partnerships and additional analysis could provide further insights. A recent ERA-LEARN study observed a growing involvement of 'widening countries'<sup>82</sup> in leading programme activities, although much greater improvement is needed (currently only Poland and Portugal coordinate programmes, one each)<sup>83</sup>.

Over 35 international partner countries have participated in public-public partnerships and Joint Programming Initiatives in Horizon 2020, such as the Partnership for Research and Innovation in the Mediterranean Area (PRIMA), Water JPI, and EDCDP 2. JPI Urban Europe had two international calls (ERA-NET SUGI and a non-co-funded call with China. Another call with China is under preparation as part of EN-UAC<sup>84</sup>. Although these countries are not full members of JPI Urban Europe, the programme has always been open for international cooperation in joint calls. New partnerships will reinforce international cooperation through, for example, the Global Health EDCTP3 partnership, Water4All and Biodiversity partnerships.

80) [https://www.kowi.de/Portaldata/2/Resources/horizon2020/H2020-cPPP-mid-term-evaluation-report\\_.pdf](https://www.kowi.de/Portaldata/2/Resources/horizon2020/H2020-cPPP-mid-term-evaluation-report_.pdf), p. 16.

81) Impact assessment of Horizon Europe, Commission Staff Working Document, SWD(2018)307. <https://ec.europa.eu/transparency/regdoc/index.cfm?fuseaction=list&n=10&adv=0&cotelid=10102&year=2018&number=307&dateFrom=&dateTo=&servicelid=&documentType=&title=&titleLanguage=&titleSearch=EXACT&sortBy=NUMBER&sortOrder=DESC>, Annex 1.

82) Countries that are low performing in the area of R&I (70% of the EU average) are considered to be widening countries. More information can be found at [https://ncpwidenet.eu/wp-content/uploads/2021/06/From\\_Horizon\\_2020\\_to\\_Horizon\\_Europe\\_Changes\\_in\\_Widening\\_countries.pdf](https://ncpwidenet.eu/wp-content/uploads/2021/06/From_Horizon_2020_to_Horizon_Europe_Changes_in_Widening_countries.pdf)

83) ERA-LEARN report 'Inclusiveness in European R&I Partnership Programme', p. 10.

84) <https://www.era-learn.eu/network-information/networks/en-uac>



## BOX 12. DIFFERENT CHALLENGES FOR OPENNESS FOR THE THREE TYPES OF PARTNERSHIPS

Co-funded:

- Countries (i.e. their national/regional funding bodies) have to participate in the partnership for its stakeholders to apply to calls.
- Traditionally also not very open to SMEs or cities due to national funding rules, but there is a growing desire to open up.

Co-programmed:

- Characterised by large memberships (an association membership can vary from 100 to 3 000, depending on the industry sector).
- More MS involvement is needed – Member States and partnerships largely target the same challenges and good coordination is important to ensure complementarities (see H2020 evaluation).

A187:

- Past problems were ring-fenced calls (discontinued under HE).
- Little involvement of broader stakeholders across the value chain, end-users and regulators, beyond the JU members (impact assessment study).
- Lack of access to results and little dissemination.

Some challenges have already been addressed during the policy design phase of the European Partnerships – e.g. the requirement to have measures to attract newcomers, as well as a public consultation on the SRIA and the consistent use of States Representatives Group or equivalent in the case of industry partnerships. These measures are expected to improve the situation considerably during Horizon Europe.

### Indicator #5 Measures ensuring continuous openness and transparency and dedicated activities

This is a qualitative indicator. These measures should be described and assessed in terms of how open, transparent, and inclusive they are in addressing various types of stakeholders and countries. The survey questions were:

#### ***Do you have measures in place for a transparent and open involvement of stakeholders and all EU and Associated Countries, and for attracting newcomers?***

All partnerships that answered had measures in place for the transparent and open involvement of stakeholders, all the EU, and Associated Countries, and for attracting newcomers.

#### ***What are the most important planned measures for involving various types of stakeholders and countries and the progress you expect from these measures? (max. two statements)***

Most partnerships have planned measures for involving various types of stakeholders and countries. Reoccurring planned measures for several partnerships were stakeholder fora, open events, open calls, and activities in new countries. The partnerships could describe in detail external networks, communication plans, and even technical workshops, mini-conferences, and publications. There are no obvious differences between clusters (1, 4, 5) when it comes to describing networks and national hubs of stakeholders and experts. EIT KICs mentioned small companies, students, and society to a greater extent.



The survey responses indicate that co-funded partnerships intend to increase synergies and cooperation especially with national and regional authorities and Member States. They also plan to involve more relevant stakeholders and new partners via more co-creation and collaborations. A special challenge for co-funded partnerships was to engage and involve national and regional stakeholders with very heterogeneous capacities and needs. Also, the diverse innovation regimes at national and regional level have to be integrated, which is a complex task. Several co-funded partnerships replied that the involvement of small and medium-sized enterprises (SMEs) is still a challenge for them.

According to the survey answers, co-programmed partnerships plan a lot of different forms of participation activities for stakeholders. These range from workshops, hubs, platforms, plenary meetings to stakeholder fora. Co-programmed partnerships also seem to place special emphasis on additional communication activities, and face very diverse challenges, including fragmentation, complexity, and scarce resources.

Institutionalised partnerships plan to increase their stakeholder involvement through stakeholder fora and other types of interaction. They intend to launch open calls and increase their communication activities. Institutionalised partnerships face different challenges, but the one mentioned most often is limited resources.

The survey answers do not allow for any general conclusions to be drawn on the challenges faced and measures taken by the different partnership types. Some activities occur in all types such as more stakeholder involvement through workshops and other meetings. Nevertheless, the description in the previous paragraph shows that the different types of partnerships address the challenges mentioned in Box 12. Based on their responses to the Common Indicators Survey, co-funded partnerships seem particularly aware of the need to involve Member States more than under Horizon 2020. Co-programmed also increase their efforts to address the fragmentation and significant heterogeneity of stakeholders and potential partners. Institutionalised partnerships plan to increase the openness of their calls, which is also an obligation in the Single Basic Act that establishes Joint Undertakings under Horizon Europe<sup>85</sup>.

### **BOX 13. BUILT4PEOPLE: THE PARTNERSHIP STAKEHOLDER FORUM (CO-PROGRAMMED PARTNERSHIP)**

‘The Partnership Built4People Stakeholder Forum, with broad involvement (all stakeholders from the construction value chain, related sectors, and end-users, as well as those Member States demonstrating an interest in the partnership area and vision) will be informed on a regular basis (via different media channels) and through at least one plenary meeting each year about the partnership’s state of play and progress. This forum will also have the capacity to advise at strategic and operational level and support informed decision-making. Alongside Built4People innovation clusters, the forum will be an instrument to collect and provide regular information regarding market trends and evolution, challenges, and barriers, allowing for the refining and updating of estimates of impact and additional investments to be deployed, fine-tuning the partnership’s KPIs and supporting their monitoring, etc.’

*Source: Common Indicators Survey, November 2021.*

85) Council Regulation (EU) 2021/2085.

### **BOX 14. WATER4ALL STAKEHOLDERS ENGAGEMENT (CO-FUNDED PARTNERSHIP)**

'Stakeholders engagement starts from the development of the Strategic Research & Innovation Agenda (SRIA). A public consultation was run online in winter 2020-2021 to collect feedback on the draft SRIA from any source. Additional interviews with stakeholders are being carried out in the process of finalising the 1st version of the SRIA. The agenda will be reviewed halfway through the partnership, and again stakeholders' engagement will be sought through a series of (hopefully physical) workshops. The workshops will target various categories of actors (research operators, water associations, clusters, policy and management...) to collect broad, complementary and inclusive views.

In addition, the advisory boards of the partnership will include a stakeholders' board, where up to 12 entities will bring advice and input on a regular basis to the governing bodies of the partnership for planning the activities, directing the efforts and monitoring the progress. The composition of this board will seek a balance between various categories of stakeholders, including NGOs.'

*Source: Common Indicators Survey, November 2021.*

### **BOX 15. SMART AND NETWORK SERVICES (SNS) DISSEMINATION ACTIVITIES (INSTITUTIONALISED PARTNERSHIP)**

The 6G-IA is open for all that have research activities in Europe. The association has already performed extensive dissemination in Conferences, Workshops, other events to inform the communities about SNS and the 6G-IA. These events have been organised at the European, national and regional level. In addition, we have explicit MoUs with other key organisations and already communication links with other Partnerships. We have also had presentations and iterations with the Member States for the SNS WP.

*Source: Common Indicators Survey, November 2021.*

#### ***What are the most important challenges for setting up or implementing such measures/ procedures? (max. two statements)***

All 29 partnerships responding to indicator #5 questions had also defined important challenges for setting up or implementing such measures or procedures. While these vary across the partnerships, at least three partnerships mentioned the following categories of challenges:

- ecosystems currently fragmented for various legitimate reasons
- absence of national/regional funding support programmes for certain regions and research areas
- lack of national attention and national research network
- lack of resources
- conflict of interests
- large number of participants, and
- maintaining the existing network while outreaching to new members.





### **BOX 16. PARTNERSHIP FOR RISK ASSESSMENT OF CHEMICALS (PARC): STAKEHOLDER FORUM CHALLENGE (CO-FUNDED PARTNERSHIP)**

‘For the Stakeholder Forum, a key challenge will be to ensure that it has a good representative balance between stakeholders. Indeed, to ensure that the Stakeholder Forum can remain efficient and manageable, the number of participating organisations will be limited. However, not all stakeholders have access to the same resources; private stakeholders and NGOs may not have access to the same resources to actively contribute to PARC. In the same vein, the wide scope of activities in PARC will make challenging to identify the most appropriate and representative stakeholders.’

*Source: Common Indicators Survey, November 2021.*

### **BOX 17. WATER4ALL CHALLENGE OF PREVENTING CONFLICTS OF INTEREST (CO-FUNDED PARTNERSHIP)**

‘The other main concern for stakeholders’ involvement and newcomers’ integration is the prevention of conflicts of interest. For preventing this, we decided not to have any private company in the consortium (except one affiliated entity to a public agency). Still, we have to prevent the conflicts of interest for the research organisations and other stakeholders, as their involvement in the design of the strategic agenda and in the operational planning should not create a conflict in the actual implementation. We therefore have to be cautious about the role of each one in the planning part, with respect to the potential role in the implementation. The same care should be taken when discussing the integration of additional partners.’

*Source: Common Indicators Survey, November 2021.*

### **BOX 18. 2ZERO CHALLENGE OF INVOLVEMENT OF SMES (CO-PROGRAMMED PARTNERSHIP)**

‘Despite our efforts to raise awareness of the partnership opportunities and activities, and the interest expressed by most stakeholders with whom we interact, some of them do not have the capacity to contribute more actively than what they are doing already today.’

This is in particular the case for SMEs who are expressing high interest in the benefits of the partnership, but rarely turn their interest into actual active participation in the partnership and related association, for various reasons (human resources, financial capacities, preference for national funding schemes ...).’

*Source: Common Indicators Survey, November 2021.*

### **BOX 19. BUILT4PEOPLE CHALLENGE OF FRAGMENTATION (CO-PROGRAMMED PARTNERSHIP)**

‘Innovation clusters: The partnership Built4People sector is fragmented and has, traditionally, a wide range of stakeholders. Built4People has a holistic perspective aiming to a larger pool of stakeholders beyond the traditional ones in order to contribute to the achievement of the twin-transition targets. Therefore, the setting up of these cluster might encounter challenges on balancing the composition of these and connect to the cluster change makers and innovation pull.’

*Source: Common Indicators Survey, November 2021.*



## Indicator #6 Share of newcomer partners in partnerships, including geographical coverage

This indicator covers newcomer partners as a percentage of total partners<sup>86</sup>. Newcomer partners are those organisations that are partners in the current partnership but have never been a partner in this partnership or its predecessor(s). Because of data gaps in the survey responses, only data on the geographical coverage of potential newcomer countries can be presented. See the partnership fiches in Chapter 4 for information on the types of partners and their geographical coverage at the beginning of Horizon Europe, for which data was also collected through the Common Indicators Survey.

### *How many newcomer partners do you target to have in your partnership?*

Data on different types of newcomer partners (e.g. university, SME, etc.) that might be targeted during the partnership was requested from the partnerships. However, the responses received were not sufficiently complete to enable proper aggregation or concrete conclusions.

The only evidence available to address this issue in this report is anecdotal concerning the partnerships' efforts to reach out to newcomer partners gathered from the partnership fiches (Box 20, Box 21, and Chapter 4).

### **BOX 20. PHOTONICS EXAMPLE - SUPPORTING PHOTONICS SMES**

'The Photonics partnership will foster synergies with Photon Hub, a pan-European initiative bringing together more than 500 photonics experts from 15 Member States with the aim of supporting companies regarding photonics orienteering, training and reskilling, deep technology innovation support, business and investment coaching, as well as guidance to regional support.

Furthermore, the Photonics partnership will encourage photonics start-ups to participate in the newly established activities of the European Innovation Council and will advise them of financing opportunities and actively promote their participation in investment events. Access to venture capital for photonics start-ups and entrepreneurs will be created by holding an annual European Photonics Venture Forum. The Photonics partnership will also help to generate potential leads for the EIB to invest in photonics, furthering access to capital for SMEs in the later growth phase.'

*Source: partnership fiches*

### **BOX 21. CLEAN HYDROGEN ON HYDROGEN VALLEYS FOR OPENNESS**

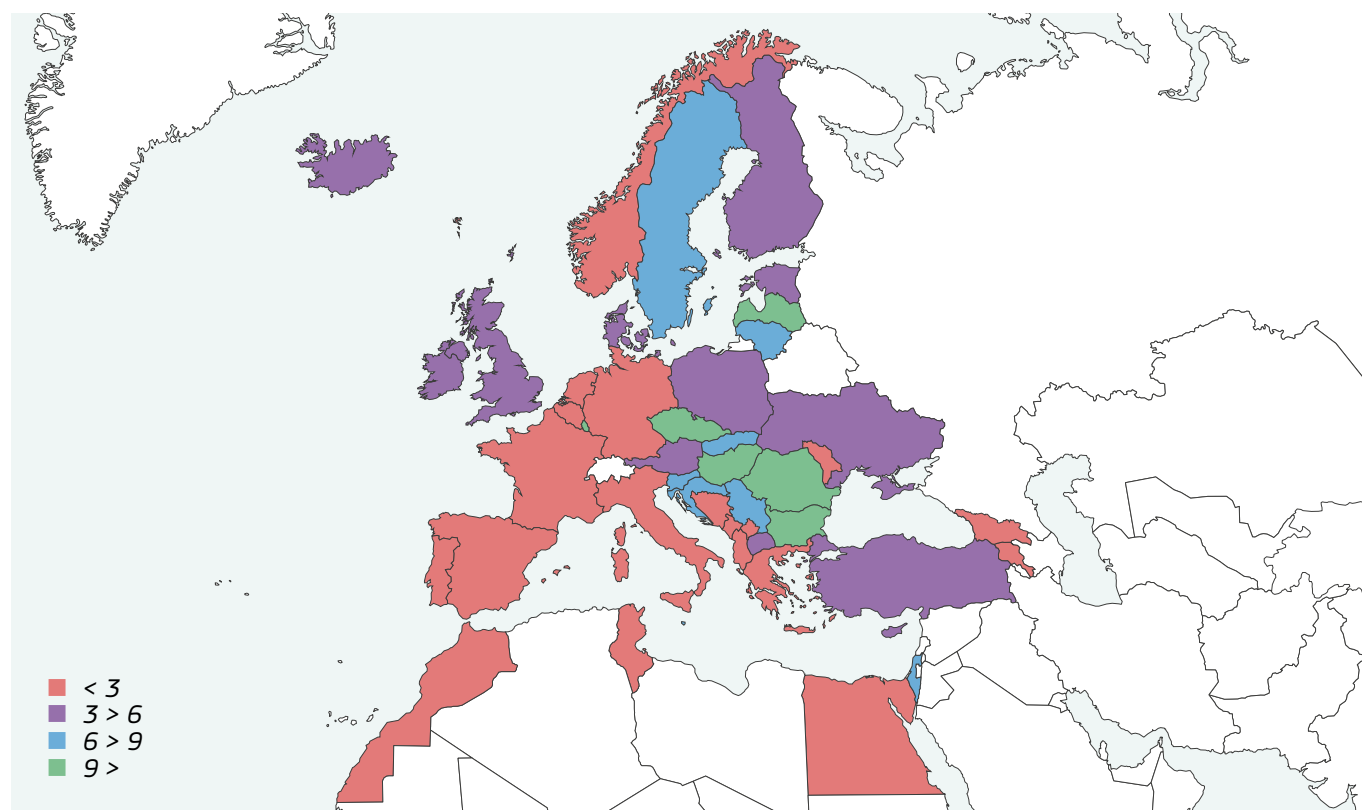
'Since 2014, FCH JU (the predecessor of Clean Hydrogen JU) has pursued the concept of hydrogen valleys, a defined geographical area where several hydrogen applications are combined and integrated within an FCH ecosystem. Hydrogen valleys are the most synergetic type of projects, involving different types of stakeholders (public and private partners, large companies and SMEs, private companies, and research institutions). They often combine various sources of funding: private, national, regional and EU funding streams, of which the JU funding is just a small share. Prime examples of these hydrogen valleys are the three recent projects of FCH JU: HEAVENN, Green Hysland and BIGHIT. The Clean Hydrogen JU will continue to support hydrogen valleys as one of its main activities.'

*Source: partnership fiches*

86) Partners are understood as meaning members of the JU/Grant Agreement establishing a Co-funded European Partnership or members of the associations representing the private partners in the co-programmed Partnerships or JUs.

**What newcomer countries (both EU and non-EU) do you target to add into your partnership as partners?**

**FIGURE 29: Geographical coverage of targeted newcomer partners (aggregated data for all European Partnerships that responded to the survey)**



Source: Common Indicators Survey (after cleaning the data, 21 of 34 answers were included on this map; only countries in Europe and Africa are displayed to make the map more readable).

The Common Indicators Survey asked about European Partnerships' intentions regarding targeting newcomer partners per country. Even though the data is not complete and only gives a rough picture<sup>87</sup>, in Figure 29, we observe a strong intention to reach out to widening countries in Europe. Hungary, Bulgaria, Latvia and Luxembourg were mentioned by 10 or more partnerships as potential newcomer partner countries. Outside the EU, Norway and Israel were mentioned most often. In addition, some African countries and some partnerships (not included in the map) also included Brazil, Canada, China, Chile, India and the USA in the answer boxes. It is important to note that the replies give an indication of intention and possible focus for partnerships' outreach measures in the coming years, although their materialisation also depends on the willingness of the countries or their stakeholders to join and contribute.

Besides newcomer countries, European Partnerships have broadened the range of actors involved across the value chain – either as direct members or in the governance processes. For example, the Smart Networks and Services JU has expanded its membership compared to its predecessor (5G cPPP) to include communities from the Internet of Things and cloud domain. Moreover, in 2020, the three JUs with traditionally consolidated sectors (rail, aviation, and air traffic management) organised open calls for expression of interest for new members to stimulate the participation of newcomers<sup>88</sup>.

87) For some of the partnerships, it was too early to give valid answers and targets on future partners. For others, there were some definition problems with this indicator, notably what was meant by a 'partner' or the role a Partnership can play in 'targeting' certain countries as the process of joining is a matter of mutual interest, opportunities, etc.

88) E.g. [https://ec.europa.eu/info/news/new-call-ideas-clean-aviation-Partnerships-2020-aug-26\\_en](https://ec.europa.eu/info/news/new-call-ideas-clean-aviation-Partnerships-2020-aug-26_en). Also, in September 2021, DG MOVE organised an information session for air-traffic-management stakeholders, introducing the possibility to become a member.



The country fiches (see Chapter 3.3) indicate that many Member States are improving pre-conditions to support the openness and transparency of networks (participation, access and funding) and to actively encourage new partners (project partners, but also new funding organisations) to join partnerships or their related projects. The country fiches state that partnerships (e.g. ERA-NETs from previous funding periods) are seen as important door openers and entry points to international cooperation. This has also been mentioned by different EU countries (irrespective of their geography or size) in previous discussions in partnership-related discussion groups.

Previous successful participation in partnerships in different countries has supported the engagement of new funding organisations (see Box 22 for the example of Estonia).

## **BOX 22. THE EXAMPLE OF ESTONIA**

‘During Horizon 2020, the ministries’ capacity to determine the R&D needs of society has improved considerably due to the active involvement in partnerships’ strategic planning on the national level. In Horizon Europe, six ministries have committed to supporting participation in partnerships with EUR 27 million and ensuring the complementarity of national policy goals with global societal challenges.’

*Source: Estonia’s country fiche*

Some country fiches mention that the national partnerships mirror groups created during Horizon 2020 have proven to be effective in engaging new stakeholders at the national level (i.e. new potential participants and new funding organisations) and in providing high-quality feedback already in the programming phase. Therefore, national mirror groups can be important support mechanisms for the greater involvement of different actors, greater programming transparency among partnerships and potentially can also be beneficial to partnership-related coordination and monitoring systems. Even though not all countries have established national-level mirror groups, it would seem highly recommended to do so. Some countries are planning to establish such groups for the new EU partnerships, as closer dialogue and greater involvement among different stakeholders is desired.

In addition, a strong and effective national coordination process could potentially support these indicators: for example, one country mentions a plan to ‘establish an adequate coordination mechanism between sectoral ministries and industry stakeholders’, while another explains: ‘revisions in national coordination and changed national co-funding allows additional new partners to participate in partnership’s related projects (e.g. SMEs, regional authorities). The aim was to align the national co-funding rules with overall Horizon Europe principles (to engage more different types of participants in the programme).’

Overall, even with the data gaps for indicators #5 and #6, a broad awareness for improving measures on openness and transparency can be observed. In addition, the evidence collected under indicator #6 shows approaches to target more widening countries and SMEs. The responses point out that there are still challenges in the field of openness and transparency, but the new European Partnerships and the Member States intend to address these through different channels and measures, which will have to be monitored.



## 2.4.3 COHERENCE AND SYNERGIES

The new impact-oriented approach expects European Partnerships to take a more systemic approach to achieving the objectives. In particular, partnerships should not act in isolation but in the broader landscape of R&I and sectoral policies by seeking and exploiting synergies with related Horizon Europe and other initiatives at the EU or national level, including with the EU Missions.

While an assessment of the coherence of the partnership portfolio goes beyond the scope of monitoring, this report aims to provide a benchmark for assessing whether or not the intentions to collaborate with other initiatives were attained.

### **Indicator #8 Share of budget dedicated to coordinated and joint activities with other European Partnerships**

This indicator covers the percentage of a partnership's budget dedicated to coordinated and joint activities with other European Partnerships:

#### ***Share of budget dedicated to coordinated and joint activities with other European Partnerships***

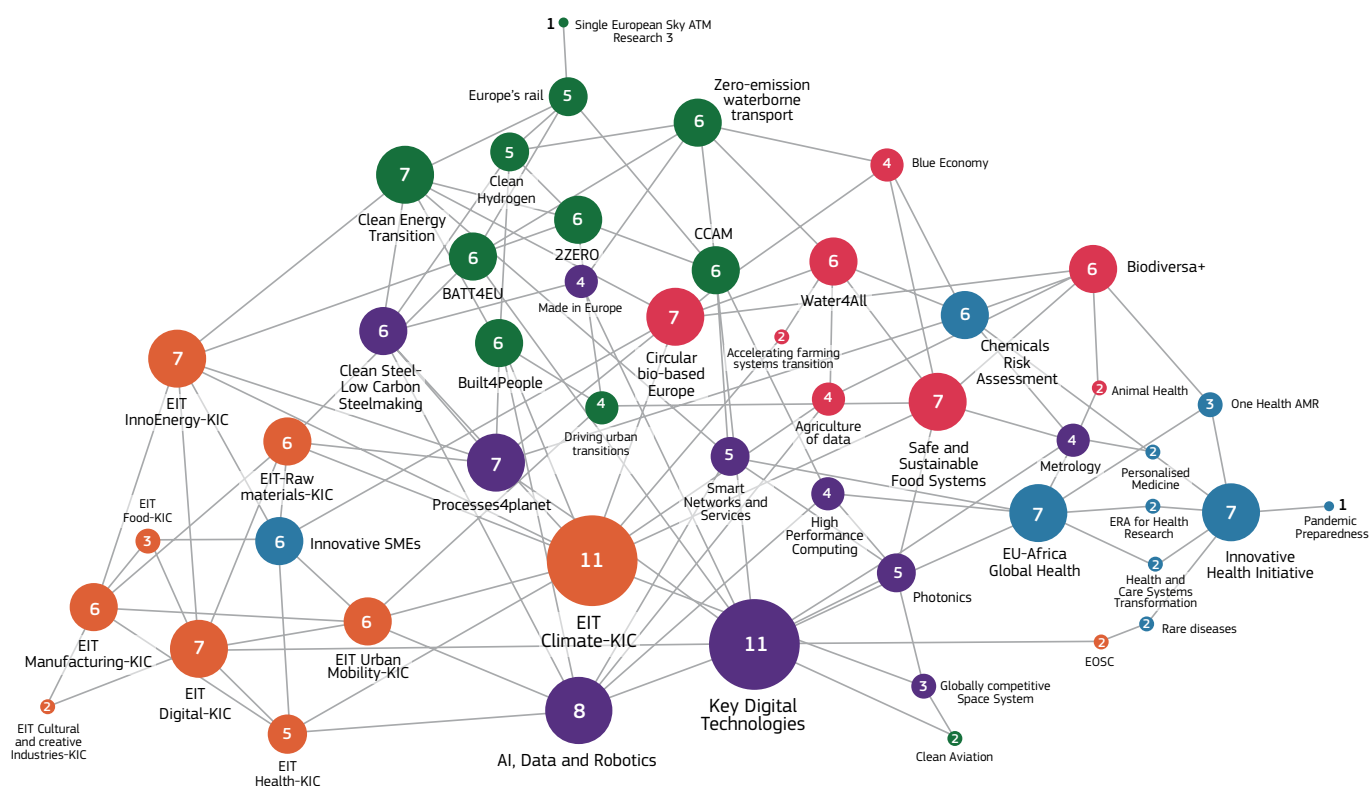
The values from the survey data were difficult to interpret as, for example, in some cases, many or all other partnerships were selected. The quantification of budget shares is understandably difficult to allocate or even estimate in this early phase. Consequently, the report only presents the planned cooperation between the European Partnerships and no numbers on the budgets.

The horizontal partnerships have a central position in the overall portfolio as they are expected to develop methodologies and technologies for application in other priority areas, ultimately supporting European strategic autonomy in these areas as well as technological sovereignty. These horizontal partnerships are typically proposed as institutionalised or co-programmed partnerships, in addition to a number of EIT KICs. They mainly cover the digital field in addition to space, creative industries and manufacturing, but also the initiative related to innovative SMEs. Vertical partnerships focus on the needs and development of specific application areas and are primarily expected to support enhanced environmental sustainability, thereby addressing the European Green Deal-related objectives<sup>89</sup>.

The network graph in Figure 30 shows the importance of cross-cutting topics like climate and digital issues for collaborations and synergies within the European Partnerships landscape. From the 31 partnerships which responded, the biggest nodes with the largest numbers of planned coordinated and joint activities with other European Partnerships show EIT Climate-KIC and AI, Data and Robotics. The survey indicates a good awareness of the need for alignments, synergies, and coherence between the European Partnerships and across different clusters.

89) See Impact Assessment 2\_EN\_impact\_assessment\_part3\_v3.pdf (cdep.ro)

**FIGURE 30. Planned coordinated and joint activities between the European Partnerships**



Source: common indicators survey, November 2021. Cluster 1 – blue, Cluster 4 – violet, Cluster 5 – green, Cluster 6 – red, Cross-pillar – orange

The impact assessment study highlighted the importance of the Commission services’ role in enhancing synergies, collaboration and bridging gaps between the different partnerships (pp. 217). A good example of such efforts is the development of the Clean Planet Inter-Partnership Assembly (see Box 23).

In addition, the partnership fiches in Chapter 4 include some good examples of how the individual partnerships approach synergies and coherence with other European Partnerships (see e.g. Box 24 and Box 25).



### **BOX 23. CLEAN PLANET INTER-PARTNERSHIP ASSEMBLY – AN EXAMPLE OF FOSTERING COOPERATION BETWEEN EUROPEAN PARTNERSHIPS**

'The **Inter-Partnership Assembly**, launched in December 2020 by the European Commission, has the main objective to harmonise and align the multi annual work programmes of the different partnerships (and of the collaborative parts in Horizon Europe), as well as stimulate synergies between initiatives (e.g., topics in the work programmes and also relevant project results).

Proposals for joint or coordinated research/innovation topics are being discussed across the different partnerships, in particular around hydrogen/electrification/manufacturing and IT technologies (being common enabling technologies serving all the other industrial sectors) as drivers for climate-neutral technologies in multiple industrial sectors. Potential coordinated calls should be in line with KPIs, which ideally should be fully aligned across the partnerships.

While the Inter-Partnerships Assembly had initially the focus on synergies between Partnerships in Cluster 5 (in particular to link the use of hydrogen technologies with applications), the Assembly scope has evolved in order to exploit synergies across Horizon Europe, in particular Clusters 4 and 5. Examples include:

- Electrification technologies (2Zero, Rail, Waterborne, Clean Aviation, ... and Batt4EU)
- Cities and built environment: CETP (Co-Fund on Clean Energy Transition), DUT (Co-fund on Driving Urban Transition), CCAM, B4P (co-programmed PP on building environment) and Cities Mission.
- digital technologies (e.g., HPC, SNS, KDT, Artificial Intelligence and Photonics and other sectoral Partnerships in energy, transport, health, construction, agriculture, etc...)
- Manufacturing/Process technologies (Made in Europe/European Metrology/ P4Planet and other sectoral Partnerships in energy, transport, health, construction, agriculture, etc...).'

*Source: European Commission*

### **BOX 24. CLEAN HYDROGEN COLLABORATION WITH OTHER EUROPEAN PARTNERSHIPS**

'The Clean Hydrogen JU aims to establish structured collaboration with many other European Partnerships, since hydrogen can be deployed as a fuel, energy carrier and for storing energy. Towards this goal, the Clean Hydrogen JU in close cooperation with other end-use partnerships, developed common roadmaps, aiming to better coordinate the planned activities per partnership in the context of R&D in hydrogen technologies. This common planning aims to prevent overlaps, enable synergies and lead to more visible impacts of hydrogen technologies in the context of the Horizon Europe Programme.'

*Source: partnership fiches*

### **BOX 25. DRIVING URBAN TRANSITIONS (DUT) COLLABORATION WITH OTHER EUROPEAN PARTNERSHIPS**

'Focusing on the complexity of urban transformation, JPI Urban Europe (and DUT) offer manifold entry points for cooperation with sectoral oriented initiatives and partnerships. Over the last years co-operation with the nine other joint programming initiatives has taken place to regularly develop common positions and organise joint events, e.g. JPI Urban Europe organised, in cooperation with all JPIs, the conference 10 years Joint Programming in 2018. Joint workshops with FACCE, Water JPI or JPI Climate allowed the identifying of common issues and the alignment of agendas. Dialogues were established with CETP, Biodiversa, EIT Urban Mobility or Food Systems to exchange on strategic issues and priorities.'

*Source: partnership fiches*



**Indicator #10 Share of complementary and cumulative funding from other Union or national/regional funds (national/regional, ERDF and other cohesion policy funds, RRF, CEF, DEP)**

The indicator asked for complementary and cumulative funding from other EU or national funds as a percentage of the total partnership budget. The survey database is too incomplete to analyse this indicator properly. The reasons for this are a lack of data at partnership level for all types of partnerships. In particular, targets for these seem not to have been sufficiently discussed, so the partnerships struggled to answer this question quantitatively. Nevertheless, good anecdotal evidence from the partnership fiches in Chapter 4 is available. Two examples from partnership fiches for Photonics and Clean Aviation show a significant effort to create synergies with other programmes and national policies (see Box 26 and Box 27).

**BOX 26. PHOTONICS SYNERGIES WITH NATIONAL AND REGIONAL POLICIES**

‘Fostering synergies with the National and Regional Advisory Board (former Mirror Group): The efficient coordination of photonics investment and public initiatives at the European, national and regional level is a major challenge for Europe and has so far been insufficiently successful. At the Member State level, the partnership had already established the Photonics21 Mirror Group, which is made up of representatives of national ministries coordinating national priorities and investments in photonics. As a result of this activity, five joint transnational photonics calls on different photonics subjects have been implemented under the ERANET co-funded partnership and the EUREKA programme scheme. The partnership will now take this activity to the next level to trigger new joint cross-Member State calls in photonics, and to enable a close alignment with Horizon Europe’s Photonics partnership investments and an efficient preparation and coordination of new joint calls.’

*Source: partnership fiches*

**BOX 27. CLEAN AVIATION SYNERGIES WITH NATIONAL AND REGIONAL POLICIES**

‘Clean Sky 2 has developed synergies with the regions and European Structural Investment Funds (ESIF) through Memorandum of Understandings (MoUs) with national and regional authorities aligning objectives with regional strategies and Regional Strategy for Research and Innovation for Smart Specialisation (RIS3). Eighteen MoUs have been signed with Member States/regions, and twelve Clean Sky Synergy Labels have been awarded to complementary activities. More than fifty projects have been supported by ESIF with a budget above EUR 50 million.

The Clean Aviation JU (CAJU) will also develop synergies with national and regional authorities on the basis of the RIS3 and utilising the European Regional Development Fund (ERDF) Operational Programmes in place or under preparation for 2021–2028. At least EUR 100 million plus involving the top 30–40 regions with relevant RIS3 will be targeted. The CAJU plans to develop an innovation architecture spanning the major national R&I programmes in Member States and Associated Countries. Participation by national authorities will be by mutual agreement and based on the significance of the national efforts and budget available and the commitment to align roadmaps and programmes so as to achieve practical synergies in technology development, both in terms of content and timing (as related to the ambition of the Clean Aviation SRIA and SBA Objectives). Together with the NextGenEU funds at least 100 % leverage, i.e., a further EUR 1.7 billion will be targeted through this collaboration and joint programming.

The CAJU plans to leverage recovery plans and NextGenEU funding as made available to the Member States and where earmarked for innovation. Active discussions are underway with Member States such as France, Spain, Italy, Germany and the Netherlands.’

*Source: partnership fiches*





In addition to these examples, further insights into this issue can be gained from the country fiches (see Chapter 3.3). According to these fiches, the countries plan to apply a more strategic approach to partnerships in Horizon Europe at the national level by supporting participation with an efficiently coordinated portfolio of (co)-funding. It is also clear that during Horizon 2020 countries have tried and will continue to try to create and find synergies with/for partnerships during the Horizon Europe period with other national, regional, and EU funds. The aim is to effectively support participation in European Partnerships and achieve the common goals of different programmes. Some complementary and cumulative funding schemes or matching programmes have already been used with success for Horizon 2020 partnerships and were mentioned in the country fiches (e.g. regional funding schemes for (co)-funding partnerships (Belgium, Greece), Seal for Excellence national-level funding schemes for the ERC seals of excellence and for SME instrument seals of excellence (Belgium); National Centres for Excellence Research for the same topics as EU-level partnerships have been created to support the achievement of common goals and priorities (Cyprus); and matching programmes for partnerships to use ESIF/ERDF funds for co-funding partnerships (being planned in Estonia, Hungary and Poland). If these schemes receive positive feedback, they are very likely to be continued and further developed ('New and simplified national granting processes as a sort of Seal of Excellence, for the allocation of funds, by automatically accepting the peer review done during the international evaluation.')

(Source: *Spain's country fiche*)

Country fiches also reveal that not all countries have been (fully) using the options of other Union funds and have rather been co-funding and creating synergies with national-level funds. However, they are becoming increasingly aware of these options and plan to use new EU funds which were not available during the previous funding period. ('Funding agencies at national level have not used other EU funds for co-funding Joint Transnational Calls during the period 2014-2020. Nevertheless, additional funding from the RRF will promote internationalisation of the national system. At regional level, some smart specialisation strategies foresee the use of European Structural and Investment Funds to co-fund joint international calls, enhancing the internationalisation of the regional systems.')

(Source: *Spain's country fiche*)

It is also clear that, for example, that structural funds are not available to all the countries to the same extent, but that synergies with these funds remain very important as a cumulative or complementary funding source for the coming years, and preconditions for such activities are under preparation. ('Participating in partnerships has been an example of synergy between different EU programmes: Estonia has supported participation in European Research Area activities (including partnerships) with ERDF: about 1/3 of ERA-NET participations in Horizon 2020 were funded from structural funds. This also remains a very important funding source in Horizon Europe. In Estonia, sectoral ministries are responsible for their sectorial partnerships. Therefore the national ministries actively seek co-funding from national level funding sources, and also from other EU funding sources.')

(Source: *Estonia's country fiche*).

Funds other than national or regional R&I funds were mentioned as great potential opportunities for synergies but also require co-operation and efforts by different ministries or regional authorities ('Ministries actively seek co-funding from national-level funding sources, and also from other EU funding sources to contribute to the fulfilment of Ireland's RD&I policy objectives.')

(Source: *Ireland's country fiche*)

The synergies between the Centres of Excellence created through the TEAMING scheme (supported under H2020 and Horizon Europe) and partnerships were mentioned ('[Centres of Excellence] are expected to become R&I technology hubs for Cyprus and beyond while making significant contributions to relevant partnerships.')

(Source: *Cyprus' country fiche*).

In conclusion, it is clear that countries are planning to capture the various opportunities for complementary and cumulative funding between national, regional, and Union funds. These synergies are often very dependent on the national preconditions created and on the national priorities, therefore governments have a very important role here.

## 2.5 ADDED VALUE OF EUROPEAN PARTNERSHIPS

This subchapter presents evidence and views about the added value of the partnerships under H2020, as documented in relevant ERA-LEARN reports, as well as the JU Annual Activity Reports and cPPP Progress Monitoring Reports. Indicative success stories based on the projects supported are also presented, although highlighting that the list is in no way exhausting. Anecdotal evidence is also presented, drawing on the inputs provided by the Member States and Associated Countries in the country fiches included in the next chapter.

### 2.5.1 IMPACTS OF H2020 P2PS BASED ON AVAILABLE LITERATURE

ERA-LEARN has conducted several studies<sup>90</sup> in relation to the impacts of participating in P2Ps, drawing on the testimonies from partnerships members (ERA-NETs, Art. 185s, JPIs) and public officials in participating states as well as individual researchers. Overall, the impacts can be grouped as follows:

- **Enduring connectivity** that relates to the networking and collaboration opportunities offered by partnerships and were highly appreciated both by the research community as well as by public officials. Benefits stemming from international collaboration were perceived by project beneficiaries while public officials appreciated the exchange of experience in managing international projects with foreign counterparts. They were also quite positive about improved collaboration across different ministries and with different funding agencies at the international level, although even more importantly at the national level, aspiring to less fragmentation in national R&I systems.
- **Capacity building** facilitated by the partnership programmes in subject areas where previously transnational collaboration amongst Member States was poor or non-existent. The multi-disciplinary approach promoted is also an important aspect of capacity building.
- **Attitudinal/cultural change**, both at the level of ministries and agencies as well as the research and business communities, and society. Within Member States, there are clearly impacts in attitudes manifested in multidisciplinary and interdisciplinary approaches being adopted in the research areas addressed. Examples of partnerships where such a change in attitude was mentioned include ERA-NETs, such as Biodiversa and CORE ORGANIC, or JPIs, like JPI Climate, Urban Europe, More Years Better Lives, and FACCE-JPI. Attitudes also changed in relation to investment in international calls. For example, in France, the National Funding Agency, ANR, decided to orientate a substantial part of the funds of its environment programme towards multilateral international calls related, for instance, to FACCE JPIs, Climate, Oceans and Water JPIs as well as other programmes such as ERA-NETs Biodiversa (I-II-III) and Belmont Forum calls. Another example was the UK's experience of the MACSUR Knowledge Hub developed under the FACCE JPI. This was a large flagship alignment activity in modelling research all around Europe. While the UK only devoted 'glue' money, this activity highlighted millions in investment in modelling research from UK Research Councils and the Scottish National Government.
- **Conceptual impact** refers to changed thinking among policymakers, influences on policy issues, and greater awareness in the policy world. There is already evidence of a conceptual impact through participation in partnerships and the resulting increased awareness among national governments of specific issues and topics. This is the case, for example, for cultural heritage, climate change and anti-microbial resistance research.

90) <https://www.era-learn.eu/support-for-Partnerships/governance-administration-legal-base/monitoring-and-assessment>

- **Structural impacts** relate to changes in institutions and structures in the national or European research landscape. Structural impact, in the form of changes to government organisation, is realised broadly across the Member States. New, interministerial forms or structures have been created responding to the need to coordinate national participation in P2Ps. These initiatives are expected to lead to less-fragmented national research systems. Structural impacts have also emerged from developing the SRIAs. This impact can be of two main types: first, the development of a national strategy in the specific area that did not exist before, as in the case of Norway and JPI Healthy Diet for Healthy Life (HDHL), and secondly, consideration of the SRIA in the national strategies in the respective areas or research such as in the area of water research for Cyprus.

Specifically with regard to the benefits perceived by project beneficiaries, the 2020 ERA-LEARN report on the analysis of impacts in three bioeconomy-related partnerships<sup>91</sup> shows that researchers are triggered to participate in transnational R&I programmes to enjoy the usual benefits from international collaboration, including, for instance, access to complementary expertise and infrastructure, building capacity to access EU-wide funding opportunities, and building new and strengthening existing relationships with partners. For specific partnerships like those in the bioeconomy area, participation was mostly motivated by improving the research base as well as creating linkages between research and private organisations and practitioners. For newcomers, motivations mainly related to their potential to extend the organisation's policy outreach or to foster their organisation's performance.

The impact expectations on their own organisation, which were reported by the beneficiaries in the respective survey, may be summarised in four main factors: 1) 'increased economic benefits'; 2) 'increased research benefits'; 3) 'better evidence for policymaking and high-level of influence'; and 4) 'expected increase in organisational performance, including skills, competences and environmental performance'. Interestingly, for most of the survey respondents, impacts related to research were more likely to occur than economic impacts. Yet, the opportunity offered by these projects to link R&I activities alongside their 'problem-driven' nature and solve 'real-life problems for companies and practitioners' were appreciated by both the business and research communities alike.

The study also revealed that prospective economic impact does not only rely on external conditions, such as access to transnational resources, but also on internal management factors during a project's lifetime. The impact pathway for future policy impacts goes through a high project-based societal impact, the delivery of which is associated both with improving the scientific evidence base as well as with disseminating activities targeting academic and policy audiences. At the same time, the pathway of the R&I impact is also linked to managerial factors and, more importantly, shows that R&I are inseparable and work complementarily in achieving the same objective.

As emerged from the interviews with public officials who were members of the three bioeconomy-related partnerships studied, overall, transnational projects add value to existing national funding schemes, in particular complementing those at the subnational level. Some ERA-NETs were deemed instrumental in embedding EU-level priorities more clearly into national and regional agendas.

The 2021 ERA-LEARN/GPC<sup>92</sup> report on the impact of the overall joint programming process at the national level collected responses from GPC delegates from 21 countries and the Belgian region of Flanders. The reports conclude that the partnerships have undoubtedly positively modified the European arena of transnational projects. In certain countries, this might not have been as evident as in others. This might be attributed to the national research community's already good international standing, as reported by Denmark, Spain, and Flanders, or the already good collaboration with other countries, as claimed by Denmark and Slovenia.

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91) ERA-LEARN. 2020. Policy brief on impacts from three bioeconomy Partnerships, <https://www.era-learn.eu/support-for-Partnerships/governance-administration-legal-base/monitoring-and-assessment>. This ERA-LEARN Policy Brief presents the results of the impact assessment of three bioeconomy Partnerships: SUSFOOD, ICT-Agri, CORE ORGANIC II and their supported projects. The brief draws on the results of the online centralised impact assessment survey hosted by ERA-LEARN (responses submitted by participants up to December 2019 only). The survey has been complemented with 30 interviews held with Partnership members as well as project beneficiaries.

92) ERA-LEARN/GPC analysis of the impact of JPP and JPIs at the national level 2021: <https://www.era-learn.eu/documents/documents-listing>

However, the costs outweighed the benefits for both Flanders and Slovenia. A more general explanation is also pertinent here. The costs and benefits relate to the administrative burden that is caused by participation, the national contributions made available, and the benefits gained in terms of number of projects eventually approved. As Slovenia is one of the least-represented countries in overall participation in public R&I partnerships, based on the ERA-LEARN data, it is natural that the benefits are low which, in turn, exacerbates the perceived costs of participation.

The impact of participation in partnerships extends beyond supporting research projects and influencing policies or structures at the national level. It also relates to policy learning. When asked about the capacity of the research funding organisations to manage transnational programmes, respondents were divided into those stating that this had improved due to participation and those where capacities remained the same. When the performance of these countries is also examined in terms of participation in public R&I partnerships, based on the ERA-LEARN database, it turns out that the more the participation, the greater the benefits gained via mutual learning. However, it is also true that capacities may worsen because of the limited resources available to manage transnational collaboration in the first place.

The report also notes that, whereas the alignment of national policies was moderately achieved, the level of achievement of interoperability across national programming and policy cycles seems to have been particularly limited. Such barriers, along with the, usually, substantial efforts needed to administer participation in partnerships, and the lower success rates in some countries, might render the whole effort less worthwhile. These conditions are quite relevant to the new Horizon Europe partnerships, thereby making the lessons learnt from participating in the old type of partnerships quite valuable.

The report concludes that, although, the initial expectations were fulfilled to varying degrees across the countries – and this can be explained for various reasons – and more efforts are needed for the uptake of research results in policy and economy, respondents to the GPC survey reported several examples of influencing the national systems. To note just a few:

- BiodivERsA has been key to the development of a Belgian Biodiversity Platform to promote Belgian research and to act as a science-policy interface in biodiversity (Belgium).
- The national programme Mare:N in Germany considers strategic aspects of the SRIA of JPI Oceans (Germany).
- JPI Oceans SRIA used in National Marine Research & Innovation Strategy 2017-2021 (Ireland).
- The BYFORSK was clearly inspired by transdisciplinary and cross-sectoral scope of JPI UE (Norway).
- The new research and innovation act includes a provision that the missions of all ministries should address societal-challenge research, same for the new national strategy for internationalisation (Slovenia).
- Member States and communities of JPIs actively engaged in the design of the European Partnerships in Horizon Europe, e.g. JPI Urban Europe and the European Partnership – Driving urban transitions to a sustainable future (Driving Urban Transitions).
- ‘Participation in JPI Ocean has led to pan-European cooperation on two very critical topics which would not have taken place had it not been for JPI Oceans(... ) FACCE JPI and HDHL have provided useful platforms for Norway (and the other MS/AC) to promote the need for R&I in the field of food and nutrition security (FNS) at the World Expo 2015 in Milano.’ (Norway)



In relation to success stories, some indicative examples are included in the ERA-LEARN publication *15 Years of European Public-Public partnerships in Research & Innovation*<sup>93</sup> which, however, do not do justice to the numerous examples included in the individual annual reports and websites of the 99 currently active P2Ps.

The research supported under E-RARE led to the identification of hundreds of new genes and the establishment of new diagnostics protocols and guidelines, as well as a number of patents filed. A project supported by WoodWisdom-Net (WW-N) 2, called FireInTimber, led to the very first European-wide guideline on the fire-safe use of wood in buildings. The results of the WW-N projects led to the creation of a special renovation system (by Paroc Group Oy) that is used in retrofit projects in several European countries. The research carried out under ERACoBioTech enabled the production of GMO-free kefir which led to an estimated 15% growth rate in the Chr. Hansen company, a global market leader in dairy ingredients that took up the results. The 2PCS Personal Protection and Caring System developed under AAL is a wearable technology designed to tackle the underlying causes of immobility. The specific system also incorporates Fearless, a sensory alarm system that detects accidents in the homes, which was also created in another AAL project. As another example, the ROSETTA project has developed an innovative, integrated system aiming at prevention and management of the problems that can occur in elderly people as a result of chronic progressive diseases (such as Alzheimer's).

A significant number of the Euramet European Metrology Research Programme (EMRP) projects contribute to the implementation of EU regulations in areas such as energy, environment, and health. As an example, EMRP research in advanced measurement techniques has resulted in an end-to-end traceability chain (from European National Measurement Institutes to end-users). This enables instrumentation manufacturers to verify the performance of new highly sensitive equipment that vehicle manufacturers and testing authorities use to demonstrate compliance with a new EU Regulation limiting emissions, which for the first time requires a test procedure to assess emissions under real driving conditions. The Joint Baltic Sea Research Programme (BONUS) contributes to policy and regulation in the battle against overfishing and to the sustainability of the Baltic Sea fish populations. As an example, the BONUS fisheries projects InSPIRE and GOHERR provided scientific information to define the total allowable catch and maximum sustainable yield of the fish population in the Baltic Sea. European and Developing Countries Clinical Trials Partnership (EDCTP) funding have made major contributions to the development of vaccines, diagnostics, and treatments for the most important infectious diseases affecting sub-Saharan Africa. It has also triggered the creation or capacity improvement of several clinical trial sites (in Republic of Guinea, Guinea Bissau, Mozambique, Namibia, Senegal and Tanzania), as well as the establishment of the first African clinical trials networks in the sub-Saharan regions.

As regard Art. 185 initiatives, the expert group on the meta-evaluation of Art. 185 initiatives<sup>94</sup> provided some insights into their added value. While the main aim of these initiatives is to address common challenges in specific research areas by creating economies of scale and synergies between national and EU research programmes and investments, their ambition is to achieve scientific, managerial, and financial integration amongst national research programmes in a given field. Article 185 initiatives have a number of distinctive features that set them apart from other partnering initiatives in Europe. These include the long-term perspective, the scale of national co-funding and their international visibility. They have demonstrated the attractiveness and versatility of the instrument across a wide variety of subjects that are of common interest to the relevant research funding organisations in different countries. Each Article 185 has been able to exploit these common interests in their own way and they have been successful in mobilising significant investment in transnational research projects in important policy areas, both global and/or regional. Overall, the Expert Group recognised that Article 185 initiatives managed to mobilise significant investments in important policy areas, not only of high European added value but also of global relevance. Their added value lies in the high quality of R&I projects not realisable at national level; the higher impacts and knowledge gains associated with transnational programmes; the strong network effects; the seeding of communities; and the catalytic effect on national initiatives and activities.

93) <https://www.era-learn.eu/documents/era-learn-publications/era-learn-15-yr-brochure-aw2-web.pdf>

94) <https://www.era-learn.eu/documents/documents-listing>. The main evidence for the meta-evaluation was based on an online survey of EU Member States and a series of hearings with important stakeholder groups, including the evaluators of the individual Art. 185 initiatives.



However, according to the Expert Group, there are a number of issues on the meta-evaluation of Art. 185 initiatives which (if addressed) could significantly improve their strategic impact beyond the research community. First, their prominence and synergy within both the national and EU policy landscape is rather unclear and a coherent selection process is not apparent. Secondly, their joint and collaboration activities do not extend much beyond the research community. Thirdly, there are significant barriers to participation for the less-R&D-intensive countries and underexploited synergies with the Structural Funds. Last, but not least, the H2020 legal and administrative framework for the Article 185 instrument is a major inhibiting factor for all concerned and there is scope for substantial simplification and shared infrastructure.

## 2.5.2 ADDED VALUE OF H2020 PPPS

The added value of industry-driven partnerships has been documented in the interim evaluation of H2020 JUs<sup>95</sup> based on consultation with stakeholders. As noted, their key strength is their ability to engage major, strategic industry partners in the EU's priority areas, across borders and business sectors. The JUs have managed to bring together competing or even previously unrelated stakeholders and created long-lasting collaborative networks. With a leveraging effect in mobilising private funds either in line with or above the targets set, JUs achieved very high stakeholder satisfaction for their services (more than 90%). The Expert Groups assigned to the interim evaluation of the JUs also identified certain challenges, including the uneven SME and widening countries' participation rates, and the need to revisit the KPIs and reinforce communication activities and to further align JU activities with policies at the EU, national and regional level.

Besides the interim evaluation, there is ample evidence in the JUs' Annual Activity Reports of the numbers of calls and projects supported as well as the level of achievement of the set KPIs. Numerous success stories are also identified on the JUs' websites. Although they do not comprise a comprehensive analysis of the impacts of JUs, they do indicate a strong potential to impact the economy and society. Some indicative examples are summarised below.

The BBI JU-funded EUCALIVA project, for instance, has achieved to extract industrial polymers from lignin, an alternative that grows on trees. The SHERPACK project argues that cellulosic materials fit current regulations pushing for sustainable packaging to replace fossil-based plastic packaging with biobased materials. The BBI JU-funded AgriMax project is working to make the most of organic waste. Researchers under the projects RECOVER, BIZENTE and ENZYCLE are turning their attention to microorganisms, enzymes, earthworms and insects to break down plastics, while the BBI JU-funded GRETE project is developing new, non-toxic and recyclable solvents that will boost the safety and sustainability of making textiles from wood<sup>96</sup>.

Clean Sky introduces some of the most promising technologies in their 2020 Annual Report with the Tech TP engine demonstrator, the UltraFan technology demonstrator, RACER and Next GenCTR. The Tech TP project is working to develop a 100% European-built, sustainable, low-fuel and low-noise engine for use in general aviation and smaller commuter-sized aircraft (up to 19 passengers). UltraFan is a technology demonstrator for the next generation of environmentally friendly gas turbines for large commercial aircraft. RACER combines an innovative wing-box design with lighter structures and improved power management efficiency, while NextGenCTR features a fixed-engine, split gearbox drivetrain concept, with an advanced flight-control system, efficient nacelle architecture, advanced wing architecture and optimised tail configuration (Clean Sky Annual Activity Report, 2020).

Under ECSEL, some of the projects that finished in 2020 (Aguas, Autodrive, Scott) have led to the development of new hardware components, design tools, new standards and new market opportunities. The Dense project combines different types of sensors to make a self-driving car 'see' better than its driver in bad weather conditions; the ENSO project addressed the energy needs of small autonomous systems; and the SILENCE project dealt with some unique applications of ultrasound.

95) Commission Staff Working Document SWD(2017) 339 final, Brussels, 6.10.2017.

96) <https://www.bbi.europa.eu/success-stories-overview>



Other important achievements in 2020 include the White Papers by the Industry4.E Lighthouse Initiative (a cross-platform ECSEL – orientated Industry4.E strategic roadmap) and one from Health.E identifying more than 13 emerging medical domains that can be served now and in the future by the ECS industry (ECSEL, Annual Activity Report 2020).

The EuroHPC JU signed four contracts for petascale supercomputers to be hosted in Luxembourg, Czechia, Slovenia and Bulgaria, giving access to valuable computing resources in these countries. Two further contracts for precursor to exascale supercomputers were signed by the JU to be hosted in Italy and Finland (EuroHPC Annual Activity Report 2020).

Research under the Fuel Cells and Hydrogen (FCH) JU projects is targeting low-emission flight. A commercially viable fuel cell for zero-carbon emergency and in-flight power is being developed in FLHYSAFE, while HEAVEN is designing compressed-fuel tanks and a high-power fuel cell for fully hydrogen planes. FCH JU projects, such as H2ME and H2ME 2, are responsible for many of the 150 sites of public hydrogen refuelling stations in operation in Europe, making it the largest network in the world. FCH JU projects are scaling up electrolysers that generate hydrogen from renewables and installing them in large refineries and factories. This technology is considered a reliable, viable alternative to hydrogen production from natural gas, and can contribute to decarbonising industries and connected businesses in emerging hydrogen valleys. FCH has also supported policy with the launch of CertifHy3, for instance, a study on accelerating the deployment of Guarantees of Origin (GO) schemes for hydrogen and for the design of a voluntary scheme for compliance with the Renewable Energy Directive (RED II) targets, or with the public launch of the Fuel Cells and Hydrogen Observatory (FCHO) in collaboration with DG R&I<sup>97</sup>.

The role of IMI 2 research has been decisive in addressing the COVID-19 pandemic. For example, the COVID treatment project CARE, launched in the wake of the COVID-19 pandemic outbreak, is the largest undertaking of its kind dedicated to accelerating the discovery and development of urgently needed treatment options for COVID-19 patients. It focuses on both identifying therapeutics for the current pandemic as well as long-term preparedness by identifying antiviral therapies for future outbreaks. The fellow COVID treatment project MAD-COV 2 has shown that a low-dose combination of the antiviral remdesivir and a drug called APN01 (hrsACE2) can stop the virus from multiplying in cells, paving the way for clinical trials. The diagnostics project RAPID-COVID has carried out field trials of its prototype point-of-care diagnostic instrument in preparation for a larger clinical validation study. New projects were also launched in 2020 to advance cancer research, thereby ensuring a strong contribution to the wider cancer mission. At the same time, IMI projects' outputs have been recognised by regulators in various ways. In July 2020, the European Commission officially granted market authorisation for an IMI-supported Ebola vaccine regimen which represents a vital tool in the fight against the deadly disease. INNODIA has developed a master protocol for certain clinical trials of treatments that could potentially stop type 1 diabetes that was supported by the European Medicines Agency in 2020. By the end of the year, the project had launched four clinical trials designed to test treatments to prevent and cure type 1 diabetes in people who have just been diagnosed. A study funded in part by IMI's EMIF project reveals three distinct subtypes of Alzheimer's disease, suggesting that a treatment which would benefit patients with one subtype may actually be harmful to patients with another subtype, thereby taking an important step towards more personalised treatments for people with Alzheimer's disease<sup>98</sup>.

Shift2Rail (S2R) JU took a major step ahead of digital rail freight enabling new operations and services with the endorsement of the European DAC (Digital Automatic Coupler) Delivery Programme which builds upon the outcomes achieved in Shift2Rail's freight-related R&I activities (Innovation Programme 5). This programme brings together the rail sector beyond S2R Membership to bridge the research work with innovation, including migration planning, towards the deployment of a European DAC solution, built on open and transparent standard specifications (S2R Annual Activity Report 2020).

97) [https://www.fch.europa.eu/sites/default/files/images/ALL\\_FCH\\_factsheets\\_2021%20%28ID%2012364795%29.pdf](https://www.fch.europa.eu/sites/default/files/images/ALL_FCH_factsheets_2021%20%28ID%2012364795%29.pdf)

98) <https://www.imi.europa.eu/projects-results/success-stories-projects>



Despite the challenging circumstances in the aviation sector, SESAR JU managed to deliver a batch of new digital solutions – in total, 32 are ready for implementation. SESAR projects and partners were among the winners of the Air Traffic Management Awards 2019, as outstanding performers spearheading innovation and leading the industry to ever-greater performance. The progress made regarding SESAR's virtual centre is pivotal. This centre refers to the decoupling of air traffic management (ATM) data services, such as flight data, radar, and weather information, from the physical controller working position (CWP). The aim is to enable greater flexibility when it comes to organising air traffic control operations and, in so doing, seamless and more cost-efficient service provision to airlines and other airspace users. While research is ongoing, the first results are promising, and this solution was identified in the recently published Airspace Architecture Study as a critical element for optimising Europe's airspace (SESAR Annual Activity Report 2020).

The cPPP instrument was designed to implement strategies to increase the competitiveness impact of European R&D funding through Horizon 2020. In this respect, it offered industry a more active role in the management of the instrument and in promoting higher technology readiness levels (TRLs) in the projects. The Expert Group that carried out the mid-term evaluation of the cPPPs highlighted that the instrument substantially achieved these targets. Inclusion and participation of SMEs are higher than on average in Horizon 2020 for most of the cPPPs. The Group also suggested that to increase the European value added of cPPPs and ensure a closer link between roadmaps and regional and national policies, a deeper involvement of Member States was desirable (EC, 2020<sup>99</sup>).

Besides the results of the mid-term evaluation, cPPPs also demonstrate a variety of success stories. The H2020 projects supported by Energy-efficient Buildings contractual PPP (EeB cPPP) reported the development of a total of 260 new systems and technologies, as well as 104 non-technological innovations. A 38.4% reduction in energy use and a 40% reduction in CO<sub>2</sub> emissions is expected by the end of the projects. H2020 projects have already reported 24 patent applications and 85 are expected by the end of the projects. The EeB cPPP plays a vital role as the EU focal point of a scattered industry and transforming sector, representing a pan-European ecosystem of researchers, industrialists, owners, legislators, financiers, users' associations, etc. addressing the whole value chain and integrating different industries (EeB cPPP Progress Monitoring Report, 2019).

The Big Data Value cPPP supported project, DataBio, has shown promising results and uptake. For example, an olive farm managed to reduce its production costs (spraying and irrigation) by 30%; the Wuudis component in forestry management has matured commercially with deployment in Finland and an MoU with Sierra Leone; a forest health service is to be used by the Czechian Ministry of Agriculture for policy decisions. Another project, Transforming Transport, has generated 25 innovations with market value and with commercially exploitable potential. The FashionBrain project has developed FLAIR – a very simple framework for state-of-the-art natural language processing (NLP), officially integrated in the PyTorch ecosystem and referenced in many prestigious magazines and online sites, while the data Skipping technology developed under BigDataStack is already a beta service for IBM's SQL Cloud query.

The Factories of the Future cPPP has revitalised the interest of manufacturing stakeholders from all over Europe, including large companies and SMEs. The partnership generates meaningful results which contribute to the transformation of manufacturing in Europe, enabling the realisation of Industry 4.0. The FoF PPP has also provided a blueprint for many national and regional actors in the manufacturing domain which have launched similar national and regional activities, thereby improving the quality of national and regional programmes in the manufacturing domain (FoF cPPP, Monitoring Progress Report 2018).

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99) European Commission, Directorate-General for Research and Innovation, *Mid-term review of the contractual Public Private Partnerships (cPPPs) under Horizon 2020: report of the independent expert group*, Publications Office, 2017, <https://data.europa.eu/doi/10.2777/699241>





The SPIRE cPPP has brought together eight process-industry sectors (cement, chemicals, ceramics, engineering, minerals, non-ferrous metals, steel, and water) to jointly address their R&I objectives at the EU level. SPIRE achieved the creation of trust among the multiple sectors and stakeholders within the SPIRE community. This was enabled by the strong link to EU policy developments and by having a significant and stable source of funding (EUR 900 million) dedicated to SPIRE calls under H2020. The SPIRE projects reported they might make significant improvements in energy and raw materials efficiency: on average, 36% reduction in fossil energy consumption (30% target); 30% reduction in CO<sub>2</sub>e (up to 40% target), and 25% reduction in non-renewable primary raw material consumption (target up to 20%). Building on the knowledge and results of the projects is relevant for realising the SPIRE 2050 vision and roadmap. An example of this is the Hubs for Circularity which intends to promote a quantum leap towards the Business to Territory (B2T) plans as the future EU circular business models addressing the 3 Cs: climate, circular and competitiveness (SPIRE cPPP, Progress Monitoring Report, 2018).

The contractual PPP in Robotics (SPARC) has paid particular attention to helping SMEs. Based on the pioneering work of the ECHORD and ECHORD++ projects, a decision was made to build cascade calls into parts of the work programme to provide tailored support for SMEs where shorter, lower entry cost, smaller projects could enable them to access funds and carry out R&I in collaboration with a small number of partners. This led to several highly successful projects for SMEs. The development of the multi-annual roadmap and the extensive overview of robotics, that was enabled through the work of SPARC, has been used extensively by academia and companies alike to provide an overview and assess their technology portfolio. The feeling of ownership of the work programme enabled strategic direction to directly influence key items in calls. The ROSIN and RobMoSys projects were the direct result of a strategic push to drive impact towards particular aspects of robot software development. Similarly, the EUROBENCH and COVR projects were the direct result of strategic directions pushed by SPARC.

The HELIS and ALISE projects supported under the European Green Vehicles Initiative (EGVI) cPPP have achieved promising results on future chemistries for automotive batteries, particularly on lithium sulphur batteries, with promising developments in cell level, weight reduction and second life/recycling options. With its newly developed CNG engine technologies, the GasON project demonstrated a 18% reduction in CO<sub>2</sub> emissions compared to the 2014 best-in-class CNG engines. Projects dealing with improvements in particle measurements (DownToTen, SUREAL-23 and PEMs4Nano), sampling system development, and the PN-Portable Emission Measurement System demonstrator, could have a significant impact on improving air quality, particularly in urban areas, and positively impacting human health in a mid- to long-term perspective. XERIC's new hybrid climate control system (CCS) for EVs is proving good performance at TRL6 in reducing the energy used throughout the year for passenger comfort by more than 50% and the energy used for air cooling/dehumidifying in extreme summer conditions by 30% (EVGI Progress Monitoring Report, 2018).

A number of impactful projects supported under Photonics cPPP are mentioned in the Progress Monitoring Report, 2020. The OCTLIGHT project developed a new fast laser that helps doctors image the eye in full, while PULSEEU developed a powerful new laser that can boost the car industry. RAIS created a new blood test to diagnose sepsis in minutes. The OCTINION strawberry-picking robots are another success story, as is the laser-engraved metal developed by MULTIFLEX to reduce environmental impact (Photonics, Progress Monitoring Report, 2020)

In their partnership fiches included in Chapter 4, new partnerships comment on the uniqueness of the instrument involving all relevant types of stakeholders, bridging silos between research fields and sectors from the local to the national and transnational level. IHI aspires to become a unique platform that does not exist anywhere else, a multi-sector partnership for health innovation to break the silos between different industries and between industry and its respective stakeholders. The Artificial intelligence, data and robotics partnership wants to cohere the communities that underpin European AI, data and robotics. For BATT4EU, only a partnership – a long-lasting and coordinated effort involving industry, research, and the public sector – can bring predictability to EU battery value-chain stakeholders. The Sustainable Blue Economy partnership wants to contribute, through structured coordination and co-creation, to the integration in the blue economy of relevant sea-basin programmes, strategies and initiatives, including macro-regional strategies for co-creation, to generate impact at the local level.



### 2.5.3 ADDED VALUE OF H2020 PARTNERSHIPS BASED ON ERA-LEARN COUNTRY REPORTS AND THE COUNTRY FICHES INCLUDED IN THE PRESENT REPORT

The ERA-LEARN country report<sup>100</sup> are also a resource for insights into the value of the partnerships based on the views of ministries' and funding agencies' officials and individual researchers. Overall, European researchers see the value of partnerships in filling in a gap in the support for research. As they state, the smaller-scale projects enable the actual building of relationships which is harder to achieve in larger H2020 projects with dozens of partners. The administrative burden, which is already known as it follows the national rules, is smaller compared to the time-consuming efforts and expertise required to apply for H2020 grants. Sometimes the success rate is also higher than that in H2020. These conditions make the partnerships more appealing for researchers, especially for those newcomers in research programmes, and they see their participation in partnerships as a stepping stone for more ambitious, larger endeavours.

#### **BOX 28. EXAMPLES OF THE ADDED VALUE OF H2020 PARTNERSHIPS**

'The ACT [Accelerating CCS technology as a new low-carbon energy vector] call filled a gap in terms of the area of research addressed. Although there is the CCS programme in Norway but the funding has been decreasing and the block funding has been low so it is compulsory to find other funding opportunities. ACT also covered the area of CCS more comprehensively and in a more general way than H2020.' (project supported by ACT ERA-NET; ERA-LEARN report Norway)

'JPND allows research collaboration within EU and beyond (between the North and the South, East and West - very integrating in Europe) and is not as bureaucratic as H2020. The project participants have become so enthusiastic that we continued to collaborate after the official end of the project.' (project supported by JPco-fuND; ERA-LEARN report Norway)

'...In JPIs you can develop the project in a way that you can choose the type of research to do and allow a broader scope of research combining different types. In a national programme it would have to be either basic or applied and the focus is mainly at the national (rather than international) level.' (project supported by ENSUF/JPI Urban Europe; ERA-LEARN report Belgium)

'E-RARE is ideal for small groups working on rare diseases. We cannot possibly compete either at national or European level. H2020 is highly competitive with much lower success rates, let alone that rare diseases are not addressed that much anyway; ... Belgian funding authorities should ensure that such instruments are maintained in the future.' (project supported by E-RARE, ERA-LEARN report Belgium)

'... In this regard, our project has been crucial in an area that our company has already been working on. If we were to finance it on our own, we would not probably do it in this way, i.e. it might have been with less resources...We hope to have a follow-up project to take this further and develop marketable products,' (project supported under PhotonicSensing ERA-NET; ERA-LEARN report Belgium)

'The call advertisement was straightforward as the procedure for preparing the proposal. Proposals did not need to be long (around 20 pp.) This was much better compared with H2020 proposals that are around 80 pp...In comparison to national programmes, JPI MYBL allows and promotes multi-disciplinarity; the call themes require that several scientific fields work together, and this is a great thing!' (JPI MYBL project; ERA-LEARN report Finland)

'These types of trans-national projects are important both for building capacity to get involved in larger, follow-on projects but also as important means of achieving certain goals that need a small number of countries to do comparative analysis...The fact that this is a small, manageable project enables us to really work together, create collective knowledge and acknowledge each other's' contribution.' (BiodivERSa projects; ERA-LEARN report Finland)

'Compared with national programmes in DEMOWIND you are able to collaborate with others and the funding levels are higher. Compared to H2020, the process is much easier and less time-consuming...The scope of DEMOWIND is also very appealing to us as it allows for closer-to-market research and demonstration projects with high TRLs.' (Project beneficiary; ERA-LEARN report Spain)

100) <https://www.era-learn.eu/documents/documents-listing>

## BOX 28. CONTINUED

‘Partnerships are absolutely critical for Europe in providing opportunities for trans-national collaboration with the best scientists in the area. The projects helped create a European network (multiple sclerosis research and especially neuron immunology) of top labs that are highly engaged in such projects. This is a critical advantage that goes much beyond what the national projects can do that allow for international partnerships but usually not more than 1-2 partners... The research led to changes in scientific perceptions of how multiple sclerosis research should be addressed and this paved the way for significant progress in the field.’ (*NEURON project beneficiary; ERA-LEARN report Austria*)

*Source: ERA-LEARN country reports*

Nevertheless, researchers also noted the difficulties created by the different national rules of participation and timings in the funding cycles, which sometimes affected not only the projects’ starting times but also the ability to fulfil all planned activities.

Public officials in ministries and funding agencies largely agreed with the researchers’ views and also appreciated the opportunities offered for mutual learning in relation to the policy design and management of international programmes. They also stressed the need for time for impacts to become visible as well as more collaboration among the partnerships.

## BOX 29. EXAMPLES OF MUTUAL LEARNING

‘ERA-NETs help us streamline our research priorities and support the decision process at the national level’ (BMNT official). ‘The JPI potential is heavily underestimated in terms of the benefits it can bring to the EU. You get national systems and institutes aligned and involved in joint efforts. This is much more than having EU funds invested in an area’ (BMBWF official). ‘Collaboration between partnerships may be improved. EUROSTARS might offer the next step for collaboration among organisations and smaller companies that may have started their collaboration in specific partnerships. However, it is important that EUROSTARS remains a bottom-up programme.’ (*BMDW official*) (*ERA-LEARN report Austria*).

‘It is difficult to find arguments to convince the political level of the value of these schemes especially if the results (number of approved projects) are not as high as expected and the efforts you put in to manage the networks are rather heavy. But that doesn’t mean it has not been worth the effort. On the contrary, it should be encouraged to find ways to facilitate participation and improve the results.’ (*Innobasque official*) (*ERA-LEARN report Spain*)

‘From the Finnish point of view, the public-private partnerships can really work well if and when some level of openness is ensured specially to accommodate smaller players’ (Business Finland Officials). ‘The access to knowledge and infrastructure enabled through international collaboration outweighs the national commitments made. This is very important for a small country like Finland...Thus, the net benefit is positive, despite the hard work needed by the (Ministry of Agriculture and Forestry).’ (*MMM officers*) (*ERA-LEARN report Finland*)

‘ERA-NETs and R&I partnerships overall, are interesting starting points for further collaboration at international or EU level, while industrial PPPs open new markets and opportunities for internationalisation’ (INNOVIRIS official). ‘Getting in contact with colleagues internationally through which you learn a lot of things is very important, even though this may not be among the primary objectives of the partnerships... Younger researchers are pulled in by stronger teams and this is highly beneficial in building or strengthening research capacities’ (FWO officials). ‘An important element next to the research side is that participating companies get in contact with counterparts in other countries with whom they compete in the market but are actually getting to collaborate with each other under the projects... Moreover, it offers the opportunity to companies, in particular SMEs, to participate in international value chains.’ (*Flanders Innovation & Entrepreneurship, VLAIO officials*) (*ERA-LEARN report Belgium*)



### **BOX 29. CONTINUED**

'We have several motivations to take part in partnerships. We believe we can solve domestic challenges and problems by working together on the international arena... We also acknowledge that many of our challenges are global, expressed through the Sustainable Development Goals, and that we have to work together – internationally and globally – to solve them.' (*Ministry of Education and Research Officials*) (*ERA-LEARN report Norway*)

*Source: ERA-LEARN country reports*

The country fiches in this report (Chapter 3) include similar insights articulated by the country delegates themselves. European Partnerships present a clear added value in terms of the opportunities they offer for international collaboration in smaller teams under well-known national rules and procedures, with higher success rates than Horizon 2020. They are a good steppingstone especially for less-experienced researchers to enter the international arena, and the eligibility of certain non-EU countries is highly appreciated.

### **BOX 30. EXAMPLES OF INTERNATIONAL COLLABORATION IN SMALLER TEAMS**

'Moreover, partnerships often serve as a nucleus for stable and long-term R&I cooperation networks in the ERA. These networks proved to be key to tackling global challenges as well as ensuring Europe's technological sovereignty beyond the EU's R&I framework programme.' (*Germany's country fiche*)

'From the perspective of a funding agency or a research performing organisation, PRIMA is a success story as it provides opportunities for cooperation with countries in the immediate neighbourhood outside the EU and it addresses research and innovation fields that are not adequately covered in H2020 calls.' (*Greece's country fiche*)

'The National Science Centre's participation in ERA-NET co-fund programmes was a stepping stone for building bilateral and multilateral initiatives with international partners, as well as the successful application for EU funds.' (*Poland's country fiche*)

*Source: Country fiches*

At the same time, partnerships have been instrumental in consolidating certain policy areas at the national level and boosting international collaboration in key areas of interest for the countries' involved.

### **BOX 31. EXAMPLES OF BOOSTING INTERNATIONAL COLLABORATION**

'Health-related partnerships, for example, have contributed to the consolidation of that domain, which has been defined as a national priority area only a little over 10 years ago.' (*Luxembourg's country fiche*).

'The GEOTHERMICA ERA-NET has been a successful component of Iceland's strategy to increase and expand international cooperation in this field. This can be seen from the fact that 27% of the funding to Icelandic participants in Horizon 2020 is within the field of secure, clean and efficient energy.' (*Iceland's country fiche*).

*Source: Country fiches*

### 3. EUROPEAN PARTNERSHIPS AT THE COUNTRY LEVEL

#### HIGHLIGHTS OF THIS CHAPTER

**Member States recognise the value of partnerships by showing increased interest and commitments in the Horizon Europe partnerships.**

Acknowledging the value of Horizon Europe partnerships as more strategic policy instruments marks a difference from the way in which the first partnerships were perceived back in FP6 and FP7 when they were merely considered as an additional funding source.

The partnerships have led to a variety of impacts at national level going beyond those created by the transnational collaboration in R&I. These include structural impacts improving the national R&I governance system, as well as dedicated funding structures and tools enriching the national portfolios.

Some partnerships have also been instrumental in improving the capacity of certain countries in relation to infrastructures. This is particularly important for the less-advanced countries.

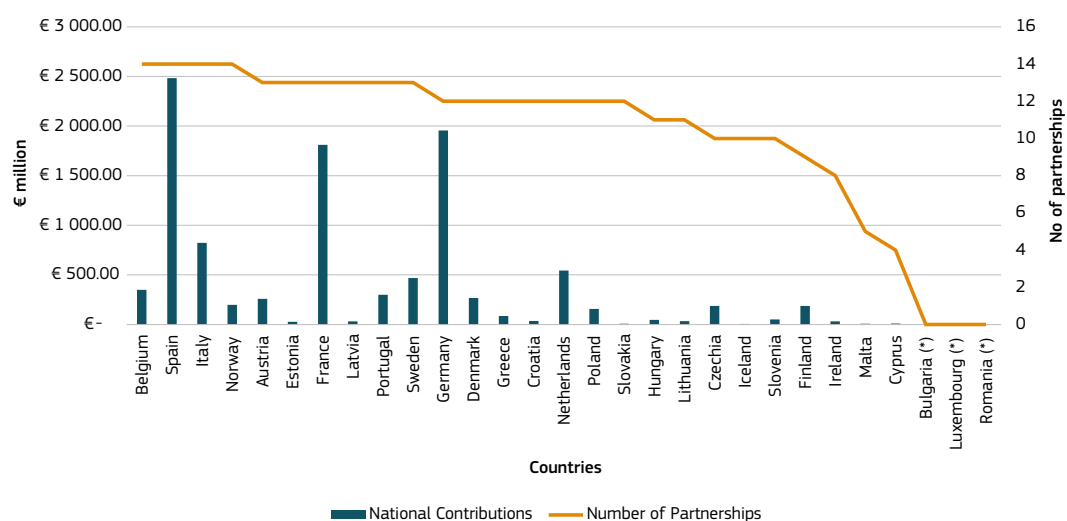
#### SELECTED KEY FIGURES OF COUNTRY PARTICIPATION IN HORIZON EUROPE

Member States and Associated Countries have committed **EUR 9 billion as national contributions in the first 14 partnerships** to be launched under Horizon Europe (Figure 31).

This is more than half of the partnerships' total estimated budgets that amounts to EUR 17 billion (Figure 32). Considering that the pre-call national contributions earmarked by Member States and Associated Countries for partnership calls during H2020 was around EUR 3.13 billion, **this is a remarkable achievement.**

It is only comparable to the estimated actual investment in calls that the participating states have made since 2004, including the EU contribution, which reaches some EUR 9.1 billion based on the ERA-LEARN Annual Report 2020<sup>102</sup>.

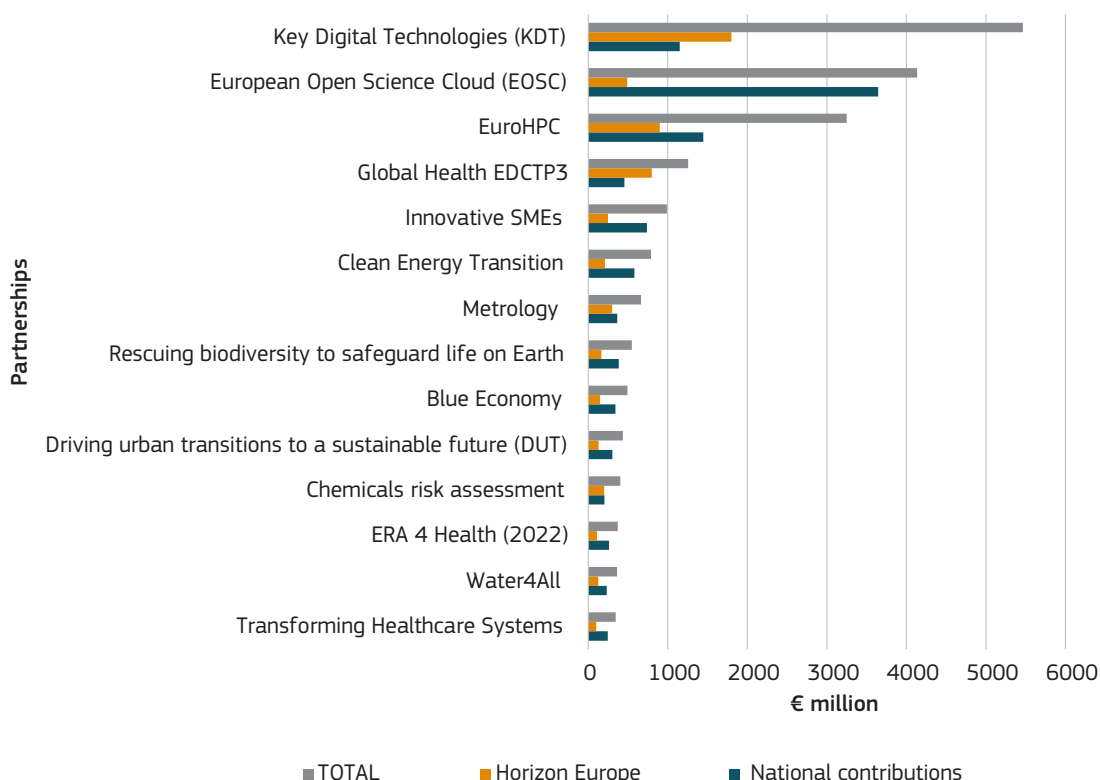
**FIGURE 31. National commitments (EUR m) and number of partnerships per country in Horizon Europe**



Source: EC; Data snapshot, November 2021; (\*) unknown data

101) <https://www.era-learn.eu/documents/annualreport2020>

FIGURE 32. Total committed budget by MS/AC to the European Partnerships under Horizon Europe (EUR m).



Source: EC; Data snapshot, November 2021

### 3.1 FRAMEWORK AND METHODOLOGY

#### 3.1.1 AIM OF THE CHAPTER AND SPECIFICITIES OF THIS REPORT

The primary aim of the subchapter is to present the performance of the participating countries (Member States and Associated Countries) in the European R&I partnerships. Due to the fact that not all the new partnerships are fully operational yet and the data on various indicators do not exist, a compromise has been made to focus on the performance of the participating countries in the existing partnerships – i.e. under Horizon 2020, based on data in the period 2014-2020. Thus, the aim of the chapter in the first biennial monitoring report, which is special in this respect, is to illustrate what kind of information, data and analysis can be presented rather than presenting actual monitoring and evaluation data from the new partnerships and the Associated Countries' performances.

More specifically, the partnerships under Horizon 2020 covered in this chapter due to the absence of data on Horizon Europe partnerships, include:

- 99 P2P partnerships including ERA-NET Cofunds, EJPs, Art. 185 initiatives and JPIs (included in the ERA-LEARN database as H2020 networks plus the 10 JPIs, <https://www.era-learn.eu/network-information/networks/view>)
- 6 EIT KICs (EIT Climate-KIC, EIT Digital, EIT Food, EIT Health, EIT InnoEnergy, EIT RawMaterials)
- 8 JUs (BBI, ECSEL, EuroHPC, SC2, FCH, IMI 2, SESAR, Shift2Rail)
- 10 cPPPs (FoF, EeB, EGVI, SPIRE, Photonics, Robotics, EuroHPC, 5G, Cybersecurity, Big Data Value).



The countries addressed include the 27 EU Member States plus Iceland and Norway as Associated Countries.

This first BMR presents data under different types of partnerships, including EIT KICs, P2Ps, JUs and cPPPs, but in future BMRs these will be replaced by the three new types, i.e. co-funded, co-programmed and institutionalised. Whereas the data presented here refer to the Horizon 2020 period 2014-2020, the following reports will present data under Horizon Europe as and when this becomes available.

### 3.1.2 DATA CAVEATS

The country fiches draw upon various sources of data that are not harmonised and, as such, introduce a number of gaps and inconsistencies. In particular,

- The ERA-LEARN data used, at a cut-off date of June 2021, was approximately 75% complete, as not all the information required (especially project-related and financial data) had been fully updated by the partnerships. The quantitative data included in the country fiches were pre-filled in by the Expert Group and sent to the delegates of the MS/AC with a request, among others, to verify whether the financial data (actual national contributions made as grants to supported projects) coming from ERA-LEARN were close to reality. Whereas such verification was possible in some countries with centralised funding systems, it was impossible in most of the countries due to the numerous and highly decentralised funding structures involved in partnerships. Thus, the financial data presented in the first page of the country fiches must be treated with due caution.
- It is also important to emphasise that the data collected in terms of actual national contributions in selected projects do not consider differences across countries in the eligibility of certain expenses. In some countries, for example, only additional costs of a research project are eligible while personnel costs are not.
- Furthermore, in-kind contributions made by funding organisations when participating in public R&I partnerships – which differ from country to country – are not usually considered as national investments in partnerships and are thus not included in the data presented in the report, although this has changed under Horizon Europe.
- Besides the ERA-LEARN database, eCORDA data extracts have been provided by the Commission regarding the data for EIT KICs, JUs and cPPPs. As these sources are not connected to each other, certain gaps could not be bridged. For instance, data on project outputs (publications and IPR applications) were only available for JUs, EIT KICs and cPPPs and there were no data on the number of proposals submitted for P2Ps or EIT KICs, the latter due to the different nature of the concept of 'project' in the EIT KIC model.

### 3.1.3 STRUCTURE OF THE COUNTRY FICHES AND RELATED CLARIFICATIONS

Each country fiche is structured into four pages. The first page presents data regarding the participation of the MS/AC in public partnerships where the participating countries earmark national funds to financially support the partnership programme. This is only relevant for the so-called P2Ps. Thus, all the data presented on the first page of the fiche refer only to P2Ps.

The second and third page draws on data from different types of partnerships (P2Ps and PPPs), albeit the caveats presented above regarding the number of proposals submitted. Fiche Table 1 showing the 'Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities' is based on the actual national contributions for P2Ps, as recorded in the ERA-LEARN database and on the net EU contributions in eCORDA as regards the other instruments. The data presented on page 3 refers to the collaborator countries of the specific

country based on the data included in eCORDA. It should be noted that the eCORDA-project-related data covers different types of instruments, including JUs, cPPPs, etc. In the case of the collaborations (fiche page 3), all the data were considered; thus, fiche Figure 3 presents the top collaborators overall. The project-related data on fiche page 2, however, were split to present each instrument separately.

The quantitative data presented in the fiches is complemented by qualitative inputs (in fiche boxes) the content of which was provided by the MS/AC themselves under the Expert Group's guidance. In particular, the start of the fiche is marked by certain key highlights about overall country performance or a specific element the country wanted to note. A second input refers to the 'Key intentions for the future'. This mainly addressed the thematic priorities to be targeted by the country either through the partnerships or in Horizon Europe overall.

The inputs related to 'Additional investments/activities triggered' (page 2) mainly referred to the role of the EU's top-up funding that enabled more projects to be supported. This has been particularly valuable for those research groups coming from the widening countries, and to other investments or activities triggered at the national level.

### **BOX 32. EXAMPLES OF ACTIVITIES TRIGGERED BY THE COUNTRIES' PARTICIPATION IN PARTNERSHIPS**

A national umbrella programme was created for co-funding Hungarian participation in ERA-NETs (*Hungary's country fiche*).

Similarly, in Slovakia, a national programme supporting the preparation of Horizon Europe project proposals and a dedicated call to co-fund the participation of Slovak institutions in European Partnerships were designed (*Slovakia's country fiche*).

Strong participation by SMEs in partnerships has been facilitated in Iceland by increased national support through tax incentive schemes. This, in turn, has provided further justification for maintaining a generous tax incentive scheme in Iceland (*Iceland's country fiche*).

In Malta, additional activities included a bilateral funding programme that was developed through Malta's active participation in the PRIMA programme, as well as a proposal-writing assistance scheme to facilitate the participation of less-experienced researchers in PRIMA projects (*Malta's country fiche*).

Participation in Horizon 2020 partnerships has also resulted in new national-level structures for funding in Lithuania, where the Ministry of Energy is planning a dedicated funding tool to co-fund partnerships in the clean energy transition field (*Lithuania's country fiche*).

A Seal of Excellence support scheme ("2nd opportunity") was put in place in Cyprus in order to help implement excellent ideas not funded by the Commission instruments, including the partnerships (*Cyprus' country fiche*).

*Source: Country fiches*

The inputs provided on 'Complementary and cumulative funding' (page 2) reveal that countries have not made use of possibilities to combine different funding sources to support their participation in partnerships during Horizon 2020. However, some of them clearly intend to do so in the future. As discussed in Chapter 2, based on the insights included by the Member States and Associated Countries in their country fiches, the tendency is to apply a more strategic approach to partnerships at the national level in future and to exploit different funding sources as far as possible. Some countries have already implemented this approach successfully in H2020 partnerships, while others have been more reluctant to do so considering that certain EU funds like the ESIF/ERDF are not available to the same extent in all countries.



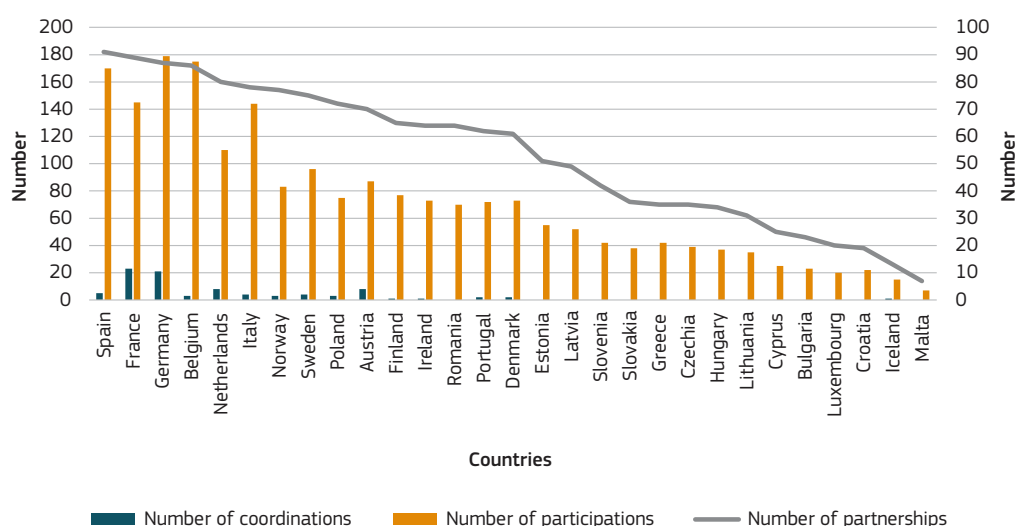
Finally, the last text box on page 4 of the fiche addresses success stories on impacts at the national level regarding, for instance, impact on policy, programme design/management, creation of national coordination mechanisms, funding levels of certain areas, etc. as well as the impact on alignment of national policies. This has attracted a variety of views that are presented in more detail in the next subchapter.

## 3.2 DISAGGREGATED/COMPARATIVE INDICATORS BETWEEN COUNTRIES

### 3.2.1 COUNTRY PARTICIPATION IN P2PS DURING H2020

Based on the ERA-LEARN data, there are 99 P2P H2020 partnerships in total. It is interesting to note that half of the participating countries take part in 60 or more of these (green line, Figure 33), while five participate in more than 80 of them. Nevertheless, not many countries take the leading role of coordinating a partnership, the lack of administrative resources being the main reason here. This role is distributed among the most active countries, i.e. France, Germany, the Netherlands, Austria and Spain.

**FIGURE 33. Participation in P2Ps per country during H2020**

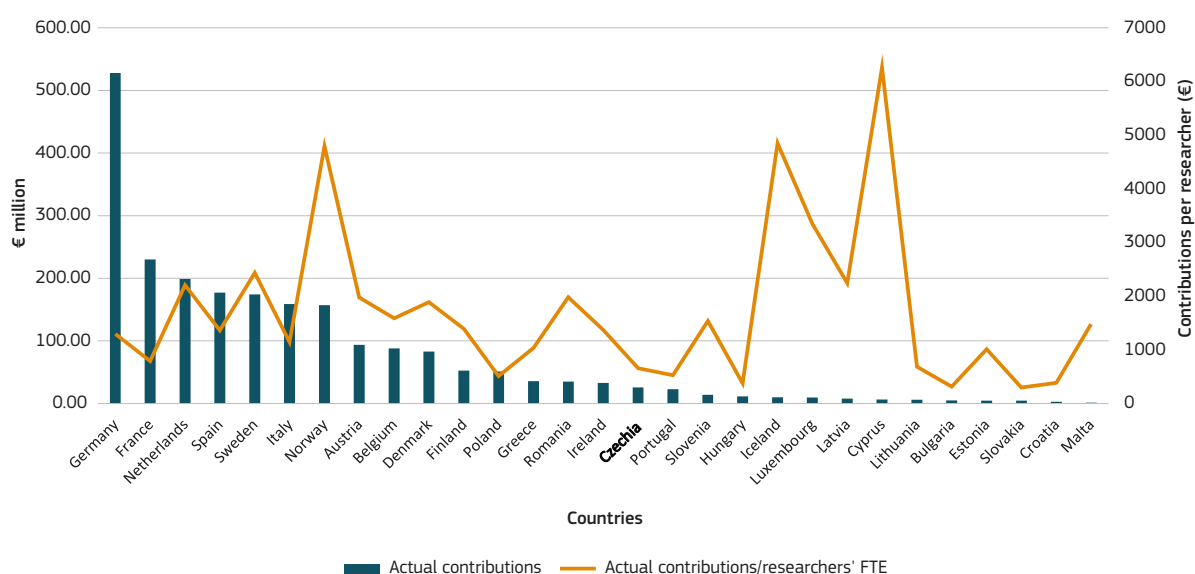


Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) excluding EIT KICs, EuroHPC and ECSEL. Horizon 2020 public-public partnerships include ERA-NET Co-funds, EJPs, Art. 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part in as a participant – for certain countries, more than one national organisation may take part thus the participations may be more than the number of partnerships a country is part of. Total Partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

### 3.2.2 ACTUAL NATIONAL CONTRIBUTIONS IN P2PS DURING H2020

Germany tops all participating countries in terms of the actual contributions made in joint calls, with EUR 528 million during Horizon 2020. This is more than double the amount made available by the second country in the rankings – France, with EUR 230 million. However, when these contributions are normalised by the number of researchers (FTE), the situation changes with countries such as Cyprus and Iceland coming top although their contributions are much lower in absolute figures (EUR 6 million and EUR 10 million, respectively per country). The exception is Norway which provides a relatively high contribution (EUR 156 million) that also represents a considerable amount per researcher (EUR 4 793 per researcher). Sweden and the Netherlands also report high averages per researcher and relatively large contributions.

**FIGURE 34. Actual national contributions (EUR m) in P2Ps during H2020 and contribution per researchers' FTE (EUR)**



Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020). Actual national contributions are the funding given by each country to cover the participation of national science and technology groups in the funded projects in the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country, estimated in average FTE between 2014-2019, based on Eurostat data.

### 3.2.3 IMPACTS AND SUCCESS STORIES

Participation of the Member States and Associated Countries in partnerships has increased over the years. This experience has led to a variety of impacts, as articulated in the country fiches. First, as highlighted by all countries, their participation in the partnerships, overall, combined with the more strategic approach required in Horizon Europe, resulted in improved policy coordination at the national level. This was achieved through the creation of national coordination processes bringing together all research funders and ministries, interministerial coordination groups, multi-sectoral groups, or dedicated units to enhance collaboration and coordination among the key national stakeholders.

Going even further in some cases, changes were made to regulations to allow sectoral ministries to also fund scientific R&I activities (Slovenia) or to integrate decision-making around participation in European Partnerships in relevant existing national funding structures (the Netherlands).

Second, significant policy learning was achieved thanks to participation in partnerships, in particular, developing the SRIAs.

### BOX 33. EXAMPLES OF POLICY IMPACTS AT THE NATIONAL LEVEL

‘SRIAs of BiodivERSA influenced the national strategy. Also, the national cancer plan benefitted from EU network research agendas.’ (*Belgium’s country fiche*)

‘Participation in JPI Ocean has been very important to Norway. This cooperation has contributed to the alignment of research policy in this field in Europe. Norway has been very active in this initiative and is also a candidate coordinator for the Blue Economy partnership in Horizon Europe.’ (*Norway’s country fiche*)

‘JPIs influenced national policy making with their SRIAs – the effect is noticeable in the strategic aspects of relevant national strategies related to the SRIAs of JPI JPND (dementia control strategy) and JPI Climate (strategic framework for adaptation to climate change).’ (*Slovenia’s country fiche*).

‘European Partnerships have inspired Swedish thematic R&I programmes to tackle societal challenges with national programme committees and strategic R&I agendas.’ (*Sweden’s country fiche*).

‘JPI Urban Europe and its ERA-Net activities resulted in the partnership Driving Urban Transition with a high impact on Austrian R&I in its domain and on the EU-Mission on Cities.’ (*Austria’s country fiche*)

Source: Country fiches

Third, specific dedicated structures and tools were also designed in some cases to further assist participation in partnerships by the national research and business communities.

### BOX 34. EXAMPLES OF DEDICATED STRUCTURES AND TOOLS

‘The Estonian Environmental Investment Centre is planning a dedicated funding tool to co-fund partnerships (in the environmental field).’ (*Estonia’s country fiche*)

‘A national umbrella programme was created for co-funding Hungarian participation in ERA-NETs. The previously fragmented programmes to co-fund certain ERA-NETs have been aligned.’ (*Hungary’s country fiche*)

‘Strong participation by SMEs in partnerships has been facilitated by increased national support through tax incentive schemes. This in turn provides further justification for maintaining a generous tax incentive scheme in Iceland.’ (*Iceland’s country fiche*)

‘To increase participation in European Partnerships under Horizon Europe, a national programme supporting the preparation of Horizon Europe project proposals and a dedicated call to co-fund the participation of Slovak institutions in European Partnerships were designed.’ (*Slovakia’s country fiche*)

‘National measures that aim to support participation in EU programmes for research and innovation.’ (*Croatia’s country fiche*)

‘A bilateral funding programme that was developed through Malta’s active participation in the PRIMA programme, as well as a proposal writing assistance scheme to facilitate the participation of less experienced researchers in PRIMA projects.’ (*Malta’s country fiche*)

‘The Ministry of Energy is planning a dedicated funding tool to co-fund European Partnerships (in the field of clean energy transition).’ (*Lithuania’s country fiche*)

‘A Seal of Excellence support scheme (2nd opportunity) was put in place in order to help implement excellent ideas not funded by the Commission.’ (*Cyprus country fiche*)

Source: Country fiches



Last but not least, countries have highlighted the significant role specific partnerships have played in important decisions either in relation to infrastructure or in key areas of national expertise.

### **BOX 35. EXAMPLES OF KEY ROLE OF CERTAIN PARTNERSHIPS FOR SOME COUNTRIES**

‘Nationally funded platforms and infrastructures are aligned with European Research Infrastructures (for example, the Biobank platform with BBMRI-ERIC, the platform for clinical research with ECRIN-ERIC, etc.) and European initiatives (Beyond 1 Million Genome Project with IMPACT).’ (*Spain’s country fiche*)

‘The Bulgarian petascale supercomputer, [is] among the five petascale supercomputers that were developed with support from EuroHPC.’ (*Bulgaria’s country fiche*).

‘The JU ECSEL shows that even a small country like Austria can have a strong position by contributing to the European microelectronic research roadmaps and therefore can be very effective in related research and innovation projects.’ (*Austria’s country fiche*)

Source: Country fiches

Based on the future intentions stated in the country fiches, there is unanimity that the participating countries will continue to support the partnerships in Horizon Europe with increased interest and commitments and will apply a more strategic approach in their participation. This marks a difference in the way that partnerships are now appreciated by Member States and Associated Countries. When the first ERA-NETs were launched in FP6 and FP7, they were primarily seen as an additional funding source to complement the national and the EU Framework Programmes. As noted in the ‘Analysis of ERA-NET Co-fund actions under Horizon 2020’<sup>102</sup>, stakeholders in the participating states as well as EC officials had not yet realised the full potential of the scheme as a policy instrument in terms of alignment and strategic development.

Since then, however, based on the ERA-LEARN Annual Report 2020, some 747 joint calls have been implemented by P2Ps, while the number of additional ERA-NET Co-fund calls (without EU co-funding) has been higher than the number of calls that have received EU co-funding since 2018. At the same time, more JPI calls were implemented in 2020 than in any year since 2015<sup>103</sup>. This demonstrates the leverage effect of the initial EU co-funding as well as the growing interest and attractiveness of the partnerships for the participating states and their research communities.

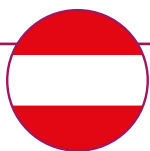
Overall, countries have realised the partnerships’ strong role in contributing to ERA’s advancement, bringing different communities together (research funders, performers, businesses, users, regional/local authorities), and society at large, and consolidating whole sectors of research and the economy. Jointly addressing sometimes urgent challenges that cross-national borders is another motivation that now seems more relevant and pertinent than ever.

## **3.3 COUNTRY FICHES**

The information presented below gives a snapshot of the performance of the 27 EU Member States, Iceland and Norway in partnerships under Horizon 2020, as well as future intentions of the countries for participating in Horizon Europe partnerships.

102) <https://op.europa.eu/en/publication-detail/-/publication/74c34f43-b147-11e6-871e-01aa75ed71a1> [hyperlink?]

103) ERA-LEARN Annual Report 2020, <https://www.era-learn.eu/documents/annualreport2020>



## KEY HIGHLIGHTS

Austria has been participating very actively in partnerships and it has a strong commitment to European and international research collaboration. Researchers appreciate the participation in transnational projects. Austria's participation is highly beneficial for the further development of national R&I in the domains in question. For Horizon Europe, the Austrian RTI Strategy 2030 stipulates increasing participation in European Partnerships by following a more strategic approach at the national level and supporting participation with an efficiently coordinated portfolio of funding.

**70** H2020  
public  
partnerships (\*)

Or  
**70.71%**  
of total  
(99 partnerships)

**87** H2020  
public  
partnerships (\*)  
participations

Or  
**4.04%**  
of total

**8** H2020  
public  
partnerships (\*)  
coordinations

Or  
**8.08%**  
of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJP, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€93.57 million**

in actual national contributions in public partnerships  
during H2020 (2014-2020)

Or **4.30%** of total

**€1 940**

per researcher FTE (average between 2014-2019 based  
on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

In Horizon Europe, Austria will continue its active participation in partnerships with a focus on strengthening national priorities and aligning with national programmes and priorities. Austria provided financial commitment to 13 partnerships in the first wave, for example industry driven initiatives such as Key Digital Technologies and also on partnerships addressing health topics or biodiversity. Austria is the lead for the co-funded partnerships Driving Urban Transition and Clean Energy Transition.

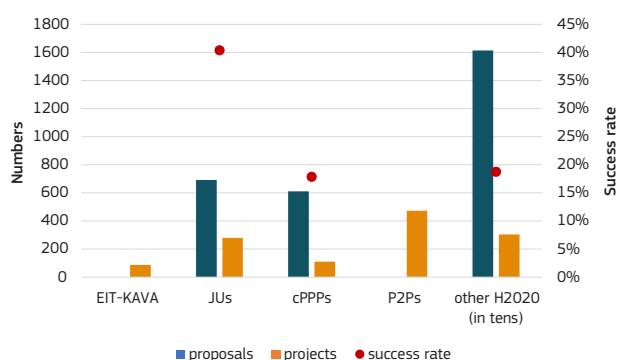


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

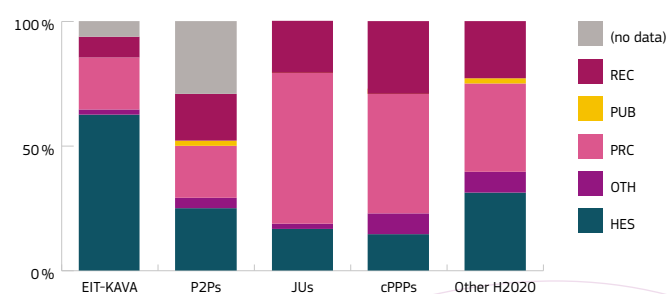
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	4.99 %	0.40 %	3.25 %	13.15 %
Climate action, environment, resource efficiency and raw materials	12.76 %	0.03 %	2.21 %	6.35 %
Europe in a changing world - inclusive, innovative and reflective Societies	3.37 %		5.32 %	8.67 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	5.56 %	7.49 %		4.30 %
Future and Emerging Technologies	3.72 %		0.50 %	7.96 %
Health, demographic change and wellbeing	36.16 %	16.96 %		12.33 %
Information and Communication Technologies		36.69 %	83.85 %	15.78 %
Secure, clean and efficient energy	10.37 %	6.18 %	4.87 %	14.36 %
Smart, green and integrated transport	23.07 %	32.25 %		17.10 %
	100.00 %	100.00 %	100.00 %	100.00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)

The Austrian success rate in Horizon 2020 is amongst the highest in the EU. Concerning partnerships, Austria is very successful in industry driven initiatives like JUs and cPPPs. As an example, the JU ECSEL shows that even a small country like Austria can have a strong position by contributing to the European microelectronic research roadmaps and therefore can be very effective in related research and innovation projects.



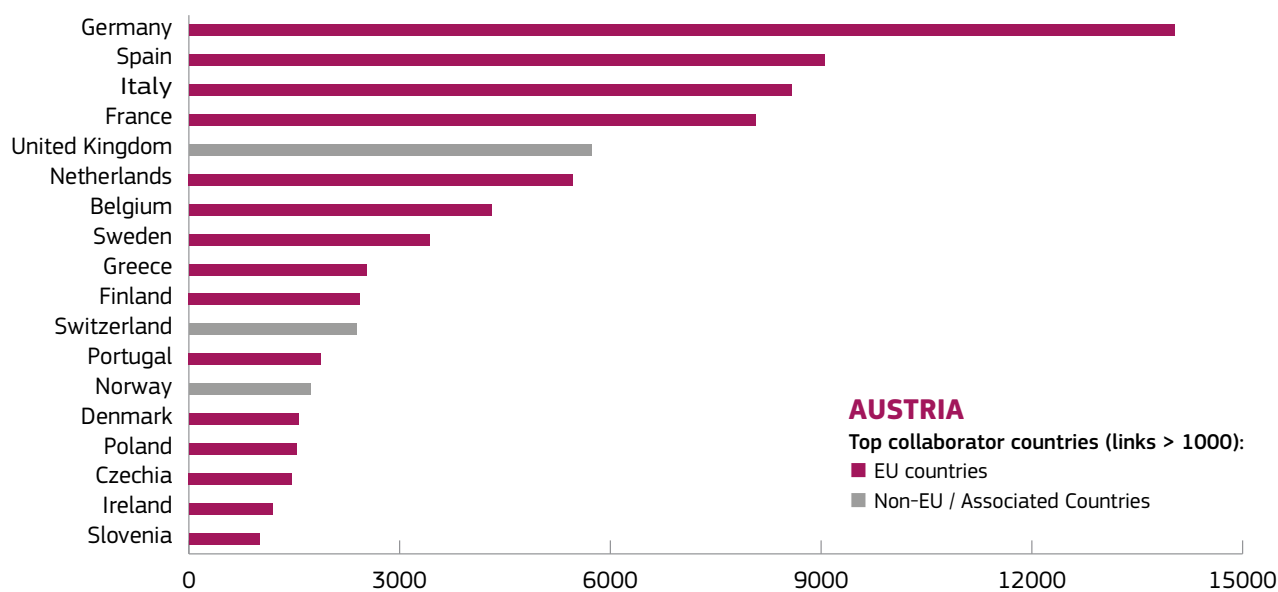
## IMPACT OF EU CONTRIBUTION

In terms of transnational cooperation, ERA-NET funding is seen as a door opener and an entry point to international cooperation, particularly for SMEs. The EU contribution has enabled the funding of additional projects and has allowed R&I collaboration in projects of European dimension.

## COMPLEMENTARY AND CUMULATIVE FUNDING

Austria has not use other EU funds for co-funding transnational calls so far. The partnership Clean Energy Transition can be seen in some context to the RRF-financed Austria participation in the first wave of IPCEI Hydrogen. Austria builds on the partnership Driving Urban Transition and on JPI Urban Europe in defining R&I activities related to the Cities Mission in Horizon Europe.

**FIGURE 3: Top collaborators of Austrian researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda (showing countries of >1000 links)



## SUCCESS STORIES

The **impact of participation** in partnerships can be illustrated by some indicative examples among plenty:

- ✦ JPI Urban Europe and its ERA-Net activities resulted in the partnership Driving Urban Transition with a high impact on Austrian R&I in its domain and on the EU-Mission on Cities.
- ✦ Austrian researchers participated successfully in ERA-Net Biodiversa. It laid the ground for the new partnership Biodiversity in which Austria will participate and from which the Austrian research community can greatly benefit.

In relation to alignment, there has been a shift towards finding a common position on alignment in Austria among the major R&D stakeholders. A collaborative process bringing together the relevant Austrian research stakeholders to work towards a common national agreement on transnational alignment in research strategy, planning and funding was set up, during the course of which awareness for alignment topics was raised and commitments towards future alignment among national RTI stakeholders was built. (For details [see https://www.era-learn.eu/documents/eralearn2020\\_t43\\_casestudyno4\\_commonalignmentpositioninaustria\\_final.pdf](https://www.era-learn.eu/documents/eralearn2020_t43_casestudyno4_commonalignmentpositioninaustria_final.pdf) ).





## KEY HIGHLIGHTS

The cumulated involvement of all Belgian federated entities illustrates the importance attributed to partnerships. They hold a solid position that the partnerships are beneficial.

Each Belgian entity applies its own strategy for its participation and the repartition of the funding. This leads to a relatively high number of participations. This strong engagement will be maintained.

The low number of coordinations might reflect the decentralised nature of the Belgian R&I system where smaller administrations cannot afford to spend much time on coordinating many partnerships. In addition, certain complexities and administrative rigidities within the partnerships may explain this as well.

**86** H2020  
public  
partnerships (\*)

Or  
**86.87%**  
of total  
(99 partnerships)

**175**  
H2020 public  
partnerships (\*)  
participations

Or  
**8.12%**  
of total

**3** H2020  
public  
partnerships (\*)  
coordinations

Or  
**3.03%**  
of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€88.06 million**

in actual national contributions in public partnerships  
during H2020 (2014-2020)

Or **4.05%** of total

**€1 561**

per researcher FTE (average between 2014-2019 based  
on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY AREAS ADDRESSED

The difference in RFOs (funding of fundamental/basic vs. applied research) is reflected in their policies: the former support as many topics as possible via P2Ps while the latter tend to focus on fewer topics (more technology oriented) with a higher budget. The most important topics are: health and life sciences, digital technologies, agile production methods, circular materials, sustainable energy, agri-food, biotech, clean tech, water and blue economy, management of the environment and urban planning.

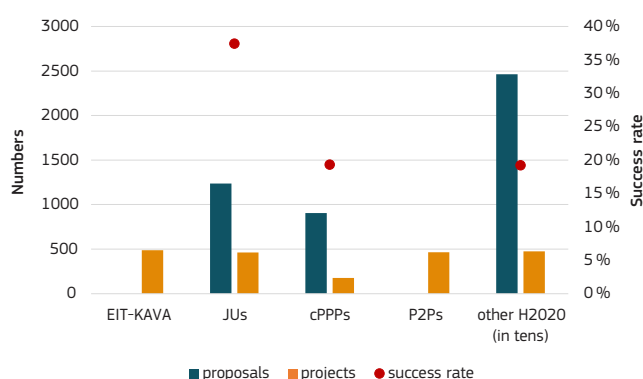


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

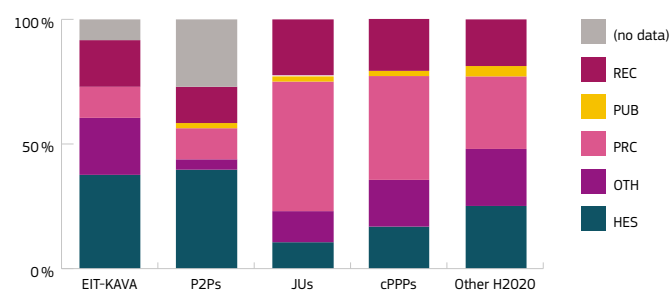
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	10.05 %	1.64 %	2.56 %	10.30 %
Climate action, environment, resource efficiency and raw materials	19.87 %	0.04 %	5.68 %	8.02 %
Europe in a changing world - inclusive, innovative and reflective Societies	5.60 %		6.98 %	8.59 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	15.31 %	18.03 %		8.10 %
Future and Emerging Technologies	4.14 %		1.19 %	4.88 %
Health, demographic change and wellbeing	32.05 %	22.89 %		17.33 %
Information and Communication Technologies		34.22 %	78.78 %	14.73 %
Secure, clean and efficient energy	4.21 %	2.96 %	4.83 %	13.95 %
Smart, green and integrated transport	8.76 %	20.23 %		14.10 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)

## ADDITIONAL INVESTMENTS/ACTIVITIES TRIGGERED

Some reduced forms of Seal of Excellence funding are available for ERC Seals of Excellence and for SME instrument Seals of Excellence.

FP6/FP7 ERA-NETs IRAsme and CorNet still continue to use regional funding only.

Networking and collaborations in some thematic areas have been developed successfully.



### COMPLEMENTARY AND CUMULATIVE FUNDING

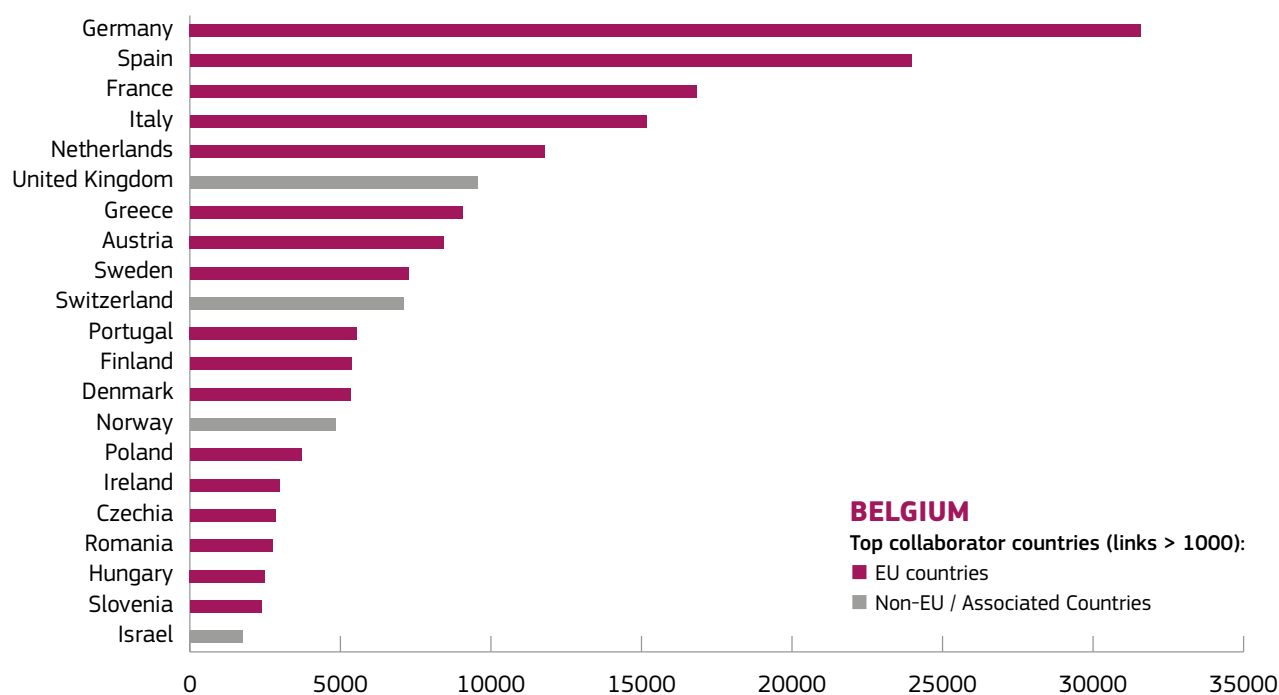
In Wallonia, participation in partnerships is closely linked to the Smart Specialisation Strategy. The Wallonia Brussels Federation has a strategy in place to participate in all co-funded partnerships where basic research can be performed.

In the Brussels Capital Region, R&I investment follows the Regional Innovation Plan priorities and S3.

ESIF funds in the Brussels Capital Region and in the Walloon Region are used to co-finance projects in the areas of S3. The level of ERDF investment varies considerably across the regions (very small amounts in Brussels; larger amounts in Wallonia).

In Flanders, ESIF funds are not used for participating in partnerships. RRF money is used to support R&I activities but not directly linked to European Partnerships.

**FIGURE 3: Top collaborators of Belgian researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda; Showing countries with links >1 000



## SUCCESS STORIES

- ✦ Regional programmes in Belgium complement EU funding in the areas of AI and digital technologies.
- ✦ Fundamental and basic research happens in a bottom-up way, leading to broad participation across all scientific fields.
- ✦ SRIAs of BiodivERsA influenced the national strategy. Also, the national cancer plan benefitted from EU network research agendas.
- ✦ S3 allows better preparation and alignment with PRI (regional innovation plan and policies); this is a clear structuring effect.
- ✦ The elaboration of new partnerships encourages stakeholders to work together and co-create the programmes, and in some Belgian region(s), align the funding instruments, identify and act on target groups.
- ✦ The requirement to collaborate contributes to the structuring of the R&I ecosystem in the Brussels region involving actors and funding instruments in a more holistic approach towards R&I.



## KEY HIGHLIGHTS

Bulgaria experienced relatively unsatisfactory participation in European Partnerships under Horizon 2020. A lack of national funding and an inefficient mechanism for collaboration with industry are identified as the key challenges/factors which have led to this situation. National-level budgetary and re-prioritisation processes, as well as ad hoc factors also contributed toward an inability to use allocated resources. Bulgarian higher education institutions, research performing organisations, and in particular SMEs, also seem to be little interested and/or unable to participate in European Partnerships mainly due to the challenges stated above.

Bulgaria has an ambition to allocate significant resources from the Programme for R&I and Digitalisation for Smart Growth (under ESIF) for national co-funding and other relevant support schemes to address these challenges, as well as establish an adequate coordination mechanism between sectoral ministries and industry stakeholders. National resources will also be leveraged. Bulgaria hopes to significantly boost its participation and performance.

**23** H2020  
public  
partnerships (\*)

Or  
**23.23%**  
of total  
(99 partnerships)

**23** H2020  
public  
partnerships (\*)  
participations

Or  
**1.07%**  
of total

**0** H2020  
public  
partnerships (\*)  
coordinations

Or  
**0%**  
of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€4.8 million**

in actual national contributions in public partnerships  
during H2020 (2014-2020)

Or **0.22%** of total

**€307**

per researcher FTE (average between 2014-2019 based  
on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.



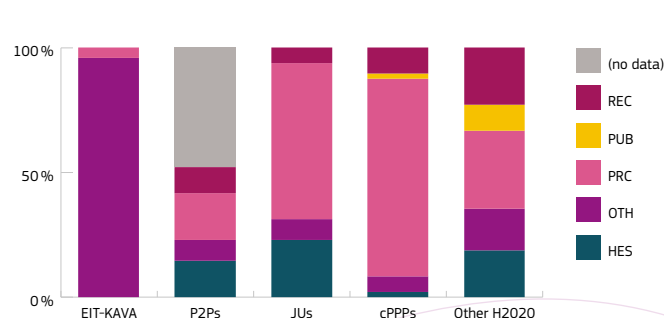
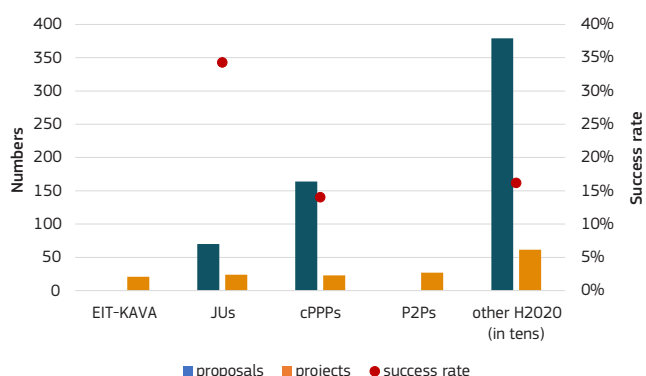
**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	22.11 %	1.94 %	0.00 %	7.25 %
Climate action, environment, resource efficiency and raw materials	25.32 %	0.00 %	0.00 %	6.15 %
Europe in a changing world - inclusive, innovative and reflective Societies	0.00 %		32.54 %	19.69 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	23.67 %	13.41 %		10.67 %
Future and Emerging Technologies	28.89 %		2.47 %	3.83 %
Health, demographic change and wellbeing	0.00 %	0.00 %		5.05 %
Information and Communication Technologies		20.46 %	64.99 %	13.50 %
Secure, clean and efficient energy	0.00 %	14.33 %	0.00 %	29.68 %
Smart, green and integrated transport	0.00 %	49.86 %		4.18 %
	100,00%	100,00%	100,00%	100,00%

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument.

**FIGURE 1: Eligible proposals, projects and success rates**

**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA. JUs. cPPPs. other H2020 projects (RIAs. CSAs. etc.)

No proposal data for P2Ps. EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)

It is well observed that Bulgarian participation in European Partnerships achieves higher success rates than the average rates for Bulgaria in Horizon 2020, especially in JUs, which is not unusual per se, but can be seen as a major reason to step-up national efforts in supporting and encouraging participation in all partnerships under Horizon Europe, including EIT-KICs.



### ADDITIONAL INVESTMENTS AND QUALITATIVE IMPACTS

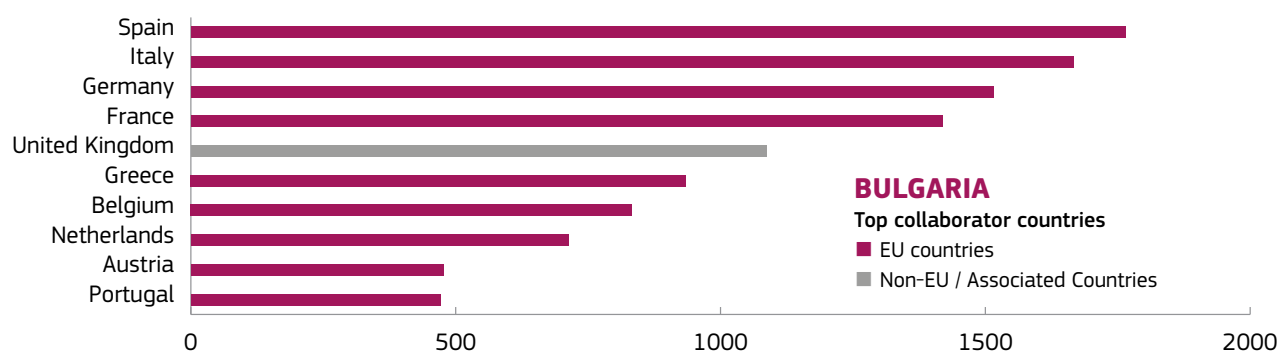
There is very little data and analysis on triggered additional investments. National investments under EuroHPC to acquire a petascale HPC system can be pointed out as an exception.

Increasing the post-project internationalisation (international collaboration) of research teams and organisations can be identified as a qualitative impact. This is increasingly important for the Bulgarian national R&I system.

### COMPLEMENTARY AND CUMULATIVE FUNDING

Complementary and cumulative funding from the national budget was made available for partnerships and other calls under H2020 that require such – e.g. Teaming using ESIF, despite the gaps in coordination, allocation and execution of such resources throughout the years. Inconsistent performance by national funding bodies makes it difficult to assess the processes and the impact.

**FIGURE 3: Top collaborators of Bulgarian researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda (showing top-10 collaborator countries)



## SUCCESS STORIES

- ✦ Bulgarian participation in EuroHPC JU, despite challenges of the national budgeting and coordination processes related to European Partnerships, can be seen as a success story. The Bulgarian petascale supercomputer, among the five petascale supercomputers that were developed with support from EuroHPC (35% of the procurement was funded by the EU), leveraged significant national resources and high-level political engagement. The supercomputer, named Discoverer, currently ranks 91<sup>st</sup> among the global top 500.
- ✦ The project is implemented by the consortium Petascale Supercomputer Bulgaria, which consists of Sofia Tech Park JSC, the association National Center for Computer Applications, and the Strategic Center for Artificial Intelligence. The supercomputer itself was delivered by Atos.
- ✦ Discoverer was officially inaugurated on 21 October 2021. The special high-level event was attended by the Minister of Education and Science, Nikolay Denkov; the Minister of Economy, Krasimir Kiryakov; the Deputy-Mayor of Sofia, Doncho Barbalov; Commissioner Mariya Gabriel; EuroHPC Executive Director Ander Jensen and others.





## KEY HIGHLIGHTS

Croatia's participation is linked with the following partnerships: JPI Oceans, PRIMA, ERA-NETs (BlueBio, ERA PerMed) and EuroHPC. The national strategic documents (e.g. Smart Specialisation Strategy) has indicated the importance of increasing R&I capacity and collaboration between research organisations and enterprises. The future participation in new European Partnerships will be more strategical and better aligned with national priorities. In this regard, the integration of research communities and the business sector is one of the main goals. This could be achieved within the partnerships and for this reason Croatia has expressed interest in participating in various partnerships within Horizon Europe. For the Croatian researchers and entities, the participation in joint calls organised by partnerships that may provide new skills that could contribute to increasing national participation in framework programmes.

**19** H2020  
public  
partnerships (\*)

Or  
**19.19%**  
of total  
(99 partnerships)

**22** H2020  
public  
partnerships (\*)  
participations

Or  
**1.02%**  
of total

**0** H2020  
public  
partnerships (\*)  
coordinations

Or  
**0%**  
of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€2.88 million**

in actual national contributions in public partnerships  
during H2020 (2014-2020)

Or **0.13%** of total

**€371**

per researcher FTE (average between 2014-2019 based  
on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

The Ministry of Science and Education (MSE) has established the intersectoral group for strategic support and collaboration on national level with the aim to increase national participation, empower operational and human capacities and enable synergies. Since Croatia was the most successful in the area of ICT, energy, food and maritime, Croatia will continue to prioritise those areas in the new Framework Programme. In this regard, MSE has implemented national measures supporting participation in EU programmes for R&I, especially strategic research areas such as ICT, health, energy and artificial intelligence.

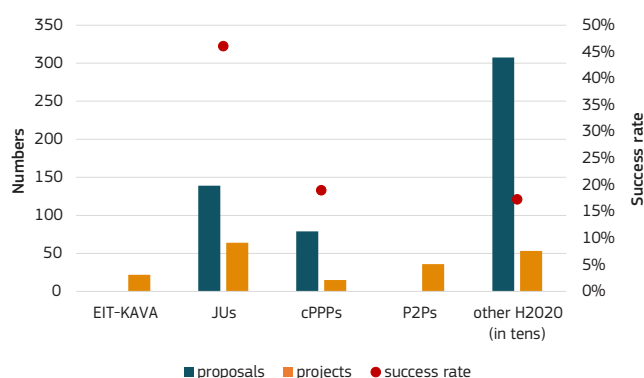


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

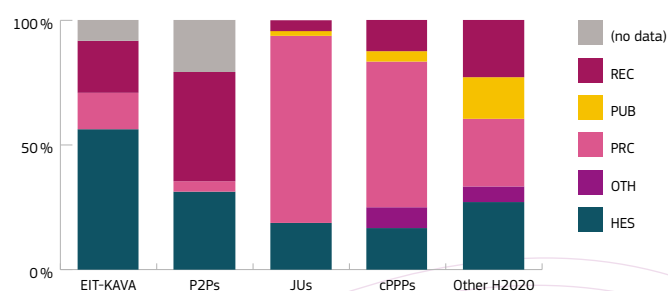
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	0.00 %	12.08 %	0.00 %	4.29 %
Climate action, environment, resource efficiency and raw materials	0.00 %	0.00 %	10.95 %	9.75 %
Europe in a changing world - inclusive, innovative and reflective Societies	5.83 %		26.62 %	11.64 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	57.82 %	45.68 %		8.95 %
Future and Emerging Technologies	0.00 %		0.00 %	3.26 %
Health, demographic change and wellbeing	0.00 %	2.11 %		14.39 %
Information and Communication Technologies		6.39 %	62.43 %	11.20 %
Secure, clean and efficient energy	36.35 %	5.25 %	0.00 %	28.50 %
Smart, green and integrated transport	0.00 %	28.49 %		8.03 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument.

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA. JUs. cPPPs. other H2020 projects (RIAs. CSAs. etc.)

No proposal data for P2Ps. EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)



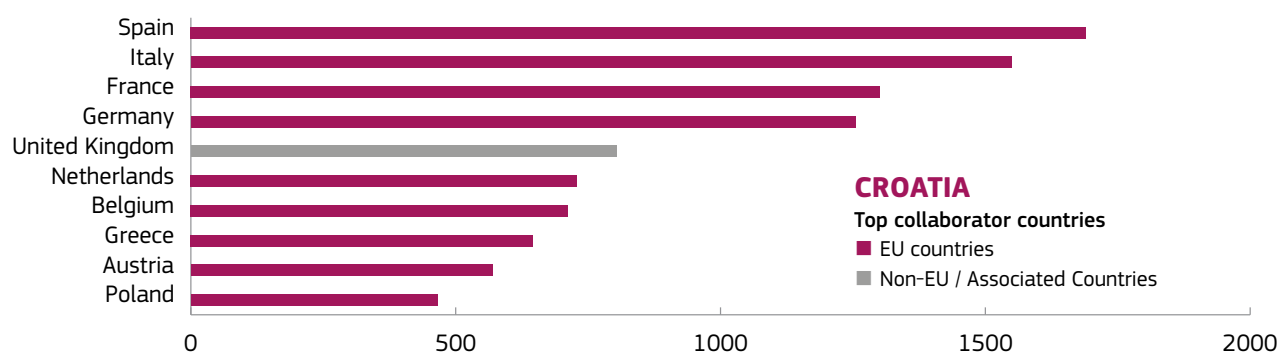
### ADDITIONAL ACTIVITIES TRIGGERED

Participation in additional joint calls leads to new knowledge and policy interventions envisaged under the S3 and are expected to enhance Croatia’s overall R&I performance and capacities. Croatia has developed the NCP network for applicants applying to joint transnational calls (JTCs) as well as a national scheme for co-funded projects. The aim is to encourage Croatian researchers to participate in Horizon Europe funding schemes and partnerships. Croatian participation in partnerships played a key role in increasing collaboration between academia and industry as well as enabling new opportunities for networking.

### COMPLEMENTARY AND CUMULATIVE FUNDING

National funding agencies have not used other EU funds for co-funding JTCs during 2014-2020. All JTCs were financed from the national state budget. In this regard, for the Horizon Europe programme period Croatia will ensure instruments aimed at enabling synergies and complementarities between public sector R&D, industrial development and human capital development.

**FIGURE 3: Top collaborators of Croatian researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda; Showing top-ten collaborator-countries



### **SUCCESS STORIES**

- ✦ National measures that aim to support participation in EU programmes for research and innovation.
- ✦ Establishing the thematic advisory working group to increase cooperation, ensure synergies and implement joint actions between different stakeholders and ministries.
- ✦ Croatian participation in partnerships was a valuable learning exercise for R&I stakeholders and for funding agencies seeking to develop new skills in programme coordination and implementation.
- ✦ Croatia, represented by the Faculty of Electrical Engineering and Computing, University of Zagreb, is participating as a partner in EuroHPC, which has ensured stronger visibility for the Croatian research community and the further involvement of the Croatian Research Area in the European Research Area.



## KEY HIGHLIGHTS

Cyprus has a small but growing R&I ecosystem that plays a limited but slowly expanding role in economic growth. With an R&D expenditure of 0.74% of GDP in 2019, international cooperation has long been identified as a key ingredient for development. Participation in H2020 partnerships has been satisfactory but the small budget allocated and its fragmentation over a number of partnerships has limited the potential impact on Cyprus' R&I community. Participation in new European R&I partnerships will be more strategic in order to best serve the needs of the R&I community and at the same time address national priorities.

**25** H2020  
public  
partnerships (\*)

Or  
**25.25%**  
of total  
(99 partnerships)

**25** H2020  
public  
partnerships (\*)  
participations

Or  
**1.16%**  
of total

**0** H2020  
public  
partnerships (\*)  
coordinations

Or  
**0%**  
of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€6.42 million**

in actual national contributions in public partnerships  
during H2020 (2014-2020)

Or **0.30%** of total

**€6 110**

per researcher FTE (average between 2014-2019 based  
on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021). H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY AREAS ADDRESSED

According to the Smart Specialisation Strategy for Cyprus (S3Cy 2015), tourism and energy were identified as the major priority sectors for future investment. From the primary sector, construction, transport and health emerged as secondary priority sectors. The environment as well as ICT were defined as important horizontal sectors.

In line with this, Cyprus has so far committed to participating in four partnerships under Horizon Europe, focusing on the clean energy transition, the blue economy, key digital technologies and SME support.

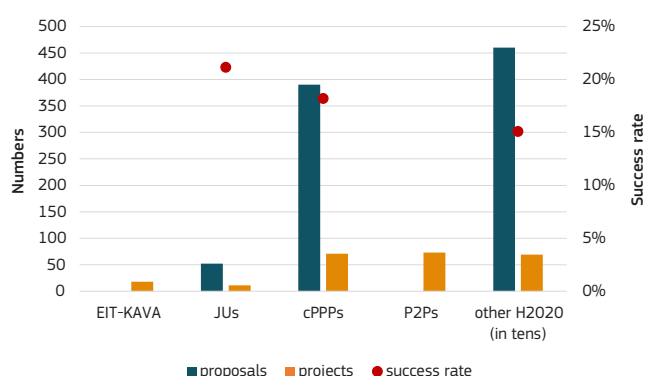


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

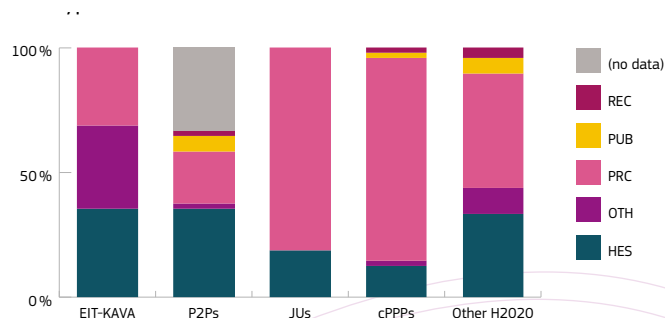
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	11.62 %	0.00 %	0.00 %	7.80 %
Climate action, environment, resource efficiency and raw materials	23.31 %	0.00 %	2.40 %	5.60 %
Europe in a changing world - inclusive, innovative and reflective Societies	12.57 %		20.19 %	19.37 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	21.38 %	35.83 %		4.24 %
Future and Emerging Technologies	0.00 %		0.00 %	5.06 %
Health, demographic change and wellbeing	25.49 %	0.00 %		9.66 %
Information and Communication Technologies		54.74 %	73.79 %	24.19 %
Secure, clean and efficient energy	1.87 %	0.00 %	3.61 %	13.51 %
Smart, green and integrated transport	3.76 %	9.43 %		10.56 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)



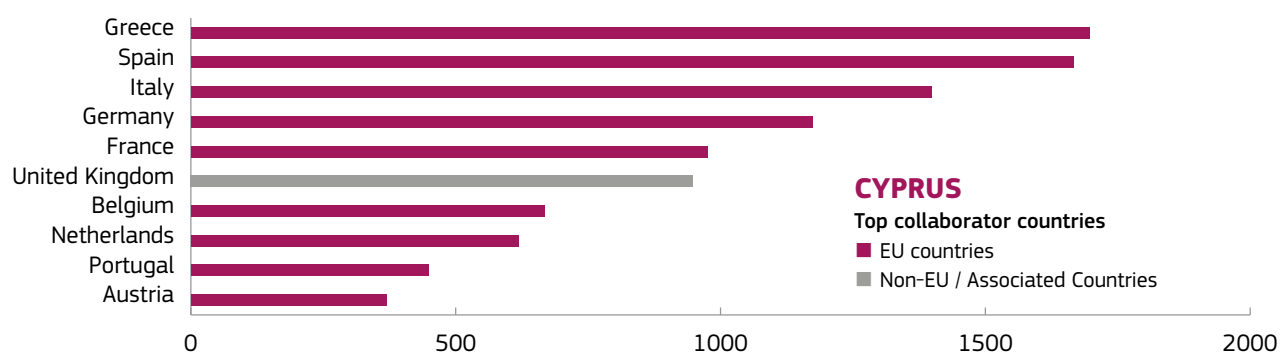
### COMPLEMENTARY AND CUMULATIVE FUNDING

Cyprus had not used ESIF/ERDF funds for supporting participation in European collaborations in the past. However, ESIF 2021-2027 co-funding will be used to support participation in the four partnerships selected under Horizon Europe, as mentioned above (and any others to be selected during the course of the programming period).

### ADDITIONAL INVESTMENTS TRIGGERED

Cyprus has been quite successful in H2020. This was the result of the ecosystem's quality and pursuit of internationalisation, assisted by an active national NCP-system as well as various national schemes supporting and motivating participation in H2020. Furthermore, a Seal of Excellence support scheme (2<sup>nd</sup> opportunity) was put in place in order to help implement excellent ideas not funded by the Commission.

**FIGURE 3: Top collaborators of Cypriot researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



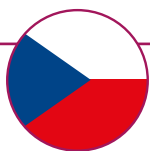
Source: eCorda; Showing top-10 collaborator-countries



## SUCCESS STORIES

- ✦ H2020 funded the development of six Centres of Excellence in Cyprus through the TEAMING scheme. These are expected to become R&I technology hubs for Cyprus and beyond while making significant contributions to relevant partnerships.
- ✦ A National Strategy for R&I is under preparation by the newly-formed Deputy Ministry for Research Innovation and Digital Policy (DMRID). This will address/promote the priorities of the government in R&I and the needs and challenges of the national R&I ecosystem. A review of Cyprus' Smart Specialisation Strategy will complement the National Strategy. When these strategies are adopted the selection of new participating partnerships will be based on their alignment with national priorities.
- ✦ Collaboration between DMIRID and RIF for the selection and coordination of participation in Horizon Europe partnerships has enhanced the national R&I governance structure.
- ✦ In a national study amongst R&I stakeholders it was indicated that access to funding was a main driver for participation in H2020. Next to the typical drivers for international research that were common to all (development of knowledge and capabilities, development of international networks and partnerships etc.) there was a strong emphasis on the sharing of costs and risks in the creation of IPR and innovation in general among start-ups and SMEs, while the universities (especially the private ones) highlighted the need for funding 'seed' research. On the matter of partnerships, stakeholders highlighted the opportunity provided to network at the European level, implement cutting-edge research and increase prospects for sustainable and successful collaborations in key thematic areas.





## KEY HIGHLIGHTS

For Czechia, the new landscape of European Partnerships represents a significant opportunity to further develop the existing platforms and strengthen the newly emerging ones related to international cooperation in research, development and innovation. European Partnerships are viewed as an opportunity to capitalise on Czechia's research capacities and capabilities at the international level, which can ultimately help to address topics with an international dimension. Therefore, in order to ensure sustainable economic growth and an ability to cope with the socio-economic challenges, it is crucial that Czechia is actively involved in new European Partnerships.

**35** H2020  
public  
partnerships (\*)

Or  
**35.35%**  
of total  
(99 partnerships)

**39** H2020  
public  
partnerships (\*)  
participations

Or  
**1.81%**  
of total

**0** H2020  
public  
partnerships (\*)  
coordinations

Or  
**0%**  
of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€25.62 million**

in actual national contributions in public partnerships  
during H2020 (2014-2020)

Or **1.18%** of total

**€646**

per researcher FTE (average between 2014-2019 based  
on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

In line with the National Research, Development and Innovation Policy of Czechia 2021+, Czechia will continue in efforts to effectively promote the priority orientations or themes of Czechia's research and innovation in the Horizon Europe. However, the priority areas for the national participation within the European Partnerships are not limited and will depend primarily on the absorption capacity of the research performing organisations as well as financial capacity of the state budget to finance their participation.

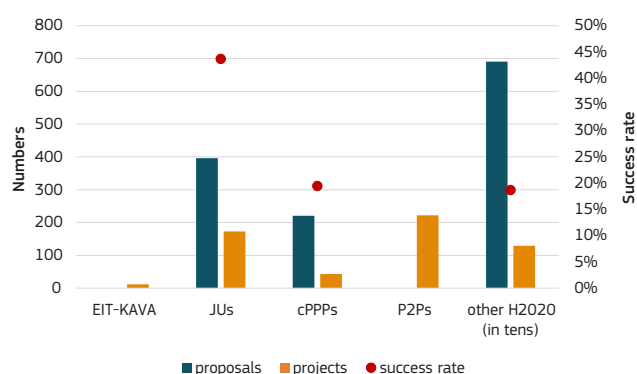


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

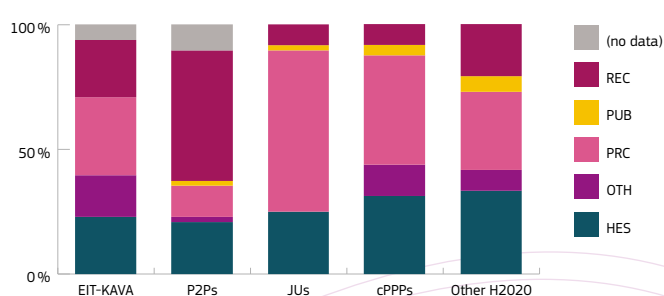
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	18.08 %	0.60 %	1.60 %	10.47 %
Climate action, environment, resource efficiency and raw materials	20.68 %	0.23 %	13.21 %	4.69 %
Europe in a changing world - inclusive, innovative and reflective Societies	12.24 %		4.75 %	5.74 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	0.00 %	2.82 %		8.75 %
Future and Emerging Technologies	10.47 %		1.68 %	5.12 %
Health, demographic change and wellbeing	36.98 %	3.33 %		8.71 %
Information and Communication Technologies		19.46 %	76.75 %	15.83 %
Secure, clean and efficient energy	1.55 %	1.72 %	2.01 %	11.58 %
Smart, green and integrated transport	0.00 %	71.85 %		29.10 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument.

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)



## IMPACT OF EU CONTRIBUTION

The funding mechanism for current programmes and initiatives based on joint funding has proven to be effective. The top-up contribution served as a positive motivating factor, especially for research performing organisations, which perceived this opportunity as a means to maximise the impact of their scientific contributions while receiving a higher level of funding than would have been possible from national contributions.

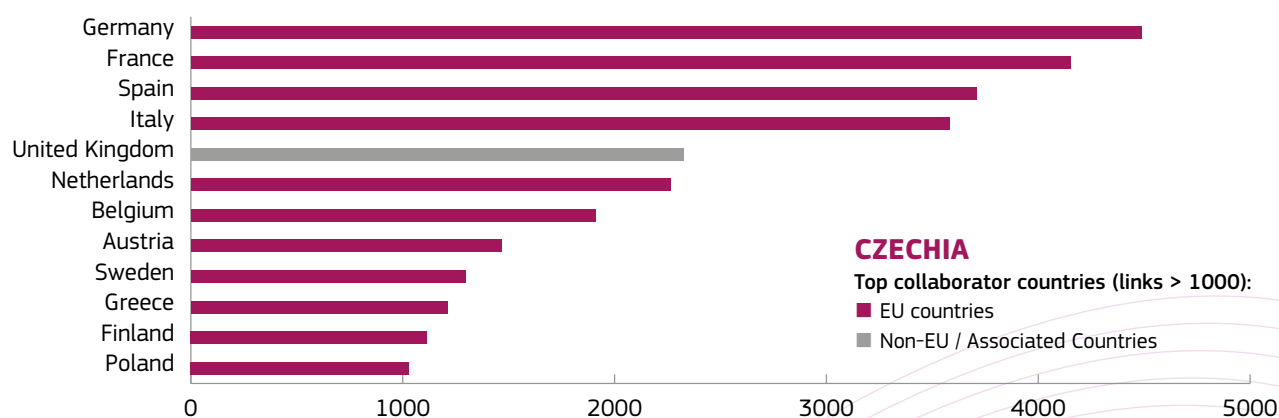
## ADDITIONAL INVESTMENTS TRIGGERED

In Czechia, the Ministry of Education, Youth and Sports is the central coordinating body for international research and development cooperation. The ministry supports a number of research areas at the horizontal level. In the future, Czechia will aim to link national sectoral policies even more closely to the European Partnerships portfolio and thus involve other sectoral ministries, which have so far participated partially in international research and development cooperation within the EU's framework programmes. This will allow them to cooperate even more closely in their respective thematic areas in order to achieve the maximum possible impacts.

## COMPLEMENTARY AND CUMULATIVE FUNDING

The aim of Czechia is to make the best use of ESIF in order to strengthen the capacity of research consortia within international programmes so as to have a practical impact at the national and macro-regional levels. Therefore, it is essential to establish clear guidance for synergic cooperation mechanisms, in a way that allows for a variable portfolio of co-funding.

**FIGURE 3: Top collaborators of Czech researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda; Showing countries with links > 1 000



## SUCCESS STORIES

- ✦ Public-to-public partnerships have proved to be an important tool for Czechia to strengthen cooperation in research and innovation at the international level, especially in the framework of initiatives implemented on a legislative basis (Joint Undertakings).
- ✦ International cooperation under joint programming initiatives has also achieved the expected results, broadening the portfolio of cooperation and, above all, enabling research organisations to establish the necessary networks with partner institutions from abroad. The research community could therefore benefit from the opportunity to build their international profiles. On the other hand, national funding authorities were able to make use of the exchange of experiences.
- ✦ Due to the experience acquired so far, a need has been identified to set up a functional coordination system in Czechia which would interconnect the Ministry of Education, Youth and Sports, which has the central role in the research and development governance system, and sectorial ministries and agencies in order to better define the needs and the necessities of the national research community, and to find more effective forms of supporting the involvement of organisations doing research in the international programmes and initiatives.
- ✦ Under EuroHPC, Czechia is hosting the Karolina supercomputer, which became operational in 2021.



## KEY HIGHLIGHTS

Denmark has participated in a number of partnerships in Horizon 2020. It is the intention under Horizon Europe to continue giving high priority to partnerships, with a focus on partnerships supporting the national strategy to focus on green research and innovation. Danish participation in partnerships has been very successful in a number of areas and Danish scientists and companies have benefitted from the increased internationalisation the partnerships have opened up for them.

**61** H2020  
public  
partnerships (\*)

Or  
**61.6%**  
of total  
(99 partnerships)

**73** H2020  
public  
partnerships (\*)  
participations

Or  
**3.4%**  
of total

**2** H2020  
public  
partnerships (\*)  
coordinations

Or  
**2%**  
of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€83 million**

in actual national contributions in public partnerships  
during H2020 (2014-2020)

Or **3.8%** of total

**€1 869**

per researcher FTE (average between 2014-2019 based  
on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

In 2020, the Danish government introduced a new research strategy focusing on green science and innovation. This means that national funding of science and innovation will focus on green areas such as climate, energy, environment, recycling, and transportation. In addition, Denmark will continue to prioritise Danish positions of strength like health, ICT, and food/bio.

The new strategy will set the direction for Danish prioritisation of its engagement in future partnerships. Denmark has committed to participate in all 14 partnerships from the first wave of Horizon Europe partnerships starting in 2021/22.

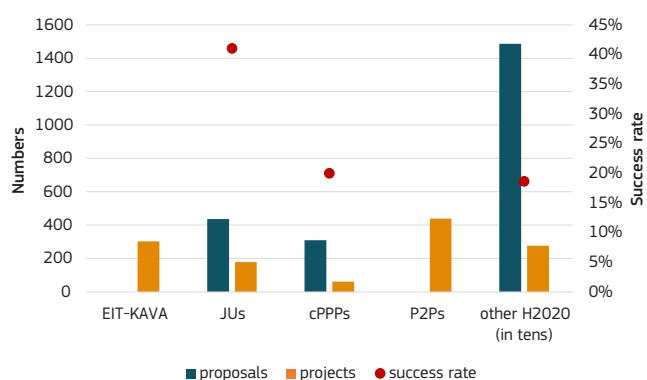


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

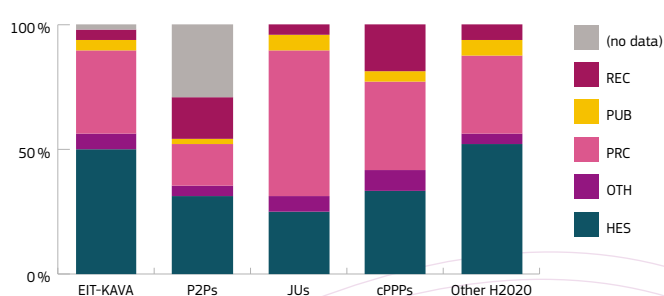
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	0.00 %	2.28 %	0.25 %	9.53 %
Climate action, environment, resource efficiency and raw materials	18.99 %	0.28 %	2.08 %	7.53 %
Europe in a changing world - inclusive, innovative and reflective Societies	3.96 %		0.73 %	4.58 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	26.19 %	18.24 %		14.09 %
Future and Emerging Technologies	2.52 %		0.72 %	6.65 %
Health, demographic change and wellbeing	29.87 %	28.40 %		16.44 %
Information and Communication Technologies		4.77 %	83.99 %	10.83 %
Secure, clean and efficient energy	10.73 %	16.21 %	12.23 %	21.58 %
Smart, green and integrated transport	7.73 %	29.81 %		8.76 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument.

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)



### ADDITIONAL INVESTMENTS TRIGGERED

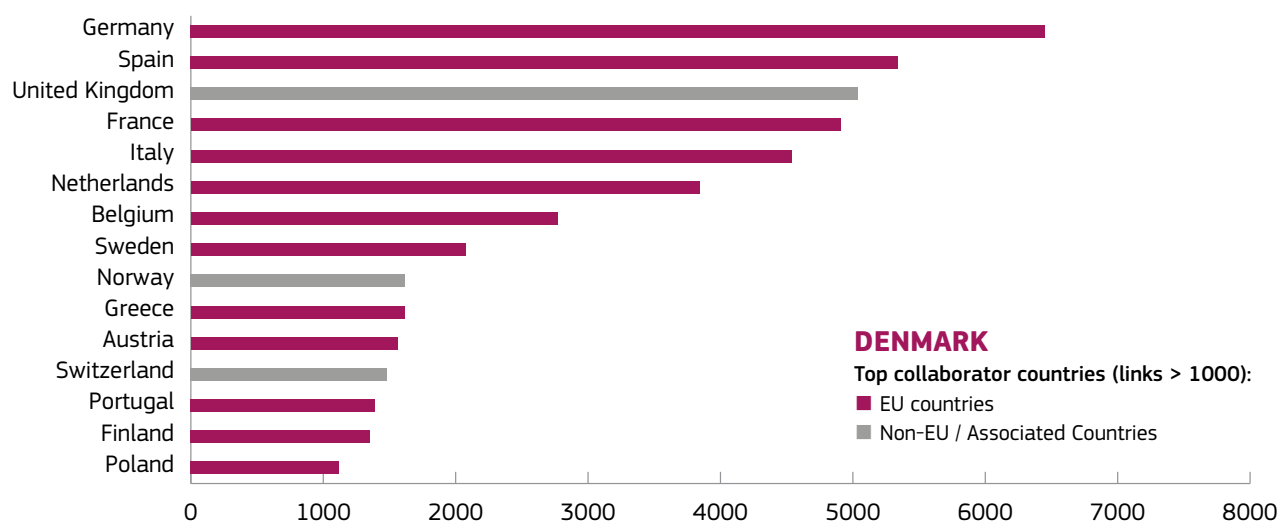
With a more strategic approach to partnerships, it is expected that partnerships will play a stronger role in some areas (especially green research and innovation) and will attract participation – both in-cash and in-kind – from both public and private partners.

### COMPLEMENTARY AND CUMULATIVE FUNDING

The main financial supporter of Danish participation in partnerships is the Innovation Fund Denmark. Other ministries (environment, transportation, health, etc.) primarily participate in partnerships on an in-kind basis.

An element in the Danish strategy for green science and innovation is a mapping of European funding sources for green science and innovation. The purpose is to secure Danish knowledge and access to international funding that can boost Danish (and European) implementation of green solutions, for instance through partnerships.

**FIGURE 3: Top collaborators of Danish researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



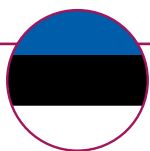
Source: eCorda; Showing countries where links >1 000



### SUCCESS STORIES

- ✦ In 2020 the Danish government launched a new strategy for a green science and innovation strategy. An element of this strategy is to establish a number of national partnerships focusing on green research and innovation. The new green strategy emphasises that national partnerships should seek international collaborations, and partnerships in Horizon Europe are mentioned as important potential partners.
- ✦ In general, partnerships have become more visible and effective instruments for Danish researchers. The interest for partnerships among universities, companies etc. has increased – especially for participating in the planning and implementation of new Horizon Europe partnerships.





## KEY HIGHLIGHTS

Compared to Horizon 2020, Estonia's participation in new European Partnerships will be more strategic and better aligned with national priorities. Participation is associated with the focus areas defined in the new Research and Development, Innovation and Entrepreneurship (RDIE) Strategy for 2021–2035. In addition, national level co-funding mechanisms were re-designed to allow a wider range of actors to join EU partnerships.

**51** H2020  
public  
partnerships (\*)

Or  
**51.55%**  
of total  
(99 partnerships)

**55** H2020  
public  
partnerships (\*)  
participations

Or  
**2.55%**  
of total

**0** H2020  
public  
partnerships (\*)  
coordinations

Or  
**0%**  
of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014–2020) excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€7.1 million**

in actual national contributions in public partnerships  
during H2020 (2014–2020)

Or **0.21%** of total

**€1 533**

per researcher FTE (average between 2014–2019 based  
on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014–2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by public partnerships. Actual contributions for each researcher are the total of actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) averaged between 2014–2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

In Horizon Europe, Estonia will continue participating in partnerships, with a primary focus on priority areas (Research and Development, Innovation and Entrepreneurship Strategy 2021–2035):

- digital solutions across all areas of life
- health technologies and services
- valorisation of local resources
- smart and suitable energy solutions
- thriving Estonian society, language and cultural space.
- For the new funding period (2021–2035), Estonia's participation in partnerships is more strategic – the participation is primarily focused on initiatives related to the new RDIE strategy 2021–35 focus areas.

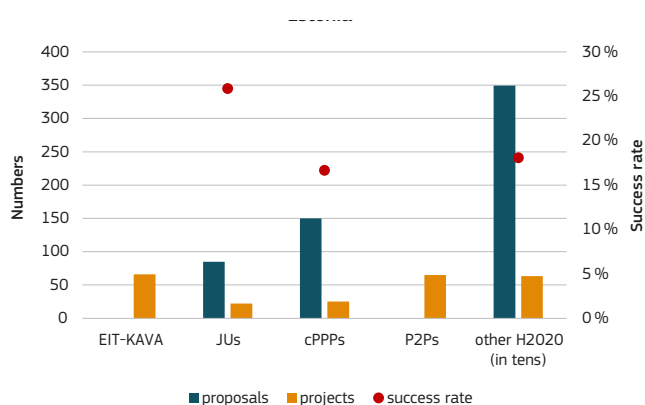


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

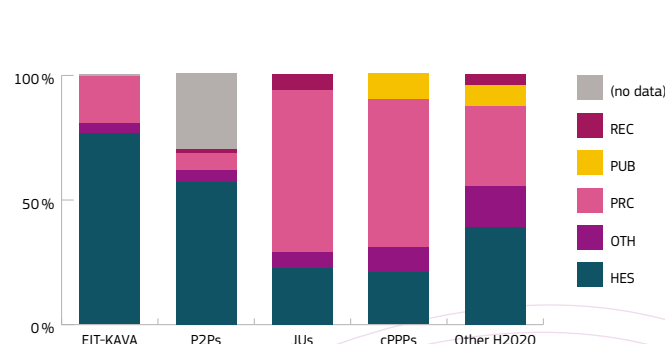
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	23.15 %	1.61 %	0.00 %	9.38 %
Climate action, environment, resource efficiency and raw materials	18.47 %	0.00 %	0.00 %	5.84 %
Europe in a changing world - inclusive, innovative and reflective Societies	3.15 %		28.49 %	20.15 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	26.59 %	76.93 %		6.32 %
Future and Emerging Technologies	0.00 %		0.00 %	3.28 %
Health, demographic change and wellbeing	28.65 %	10.54 %		15.10 %
Information and Communication Technologies		4.59 %	67.83 %	16.41 %
Secure, clean and efficient energy	0.00 %	2.44 %	3.68 %	18.58 %
Smart, green and integrated transport	0.00 %	3.88 %		4.95 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument.

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

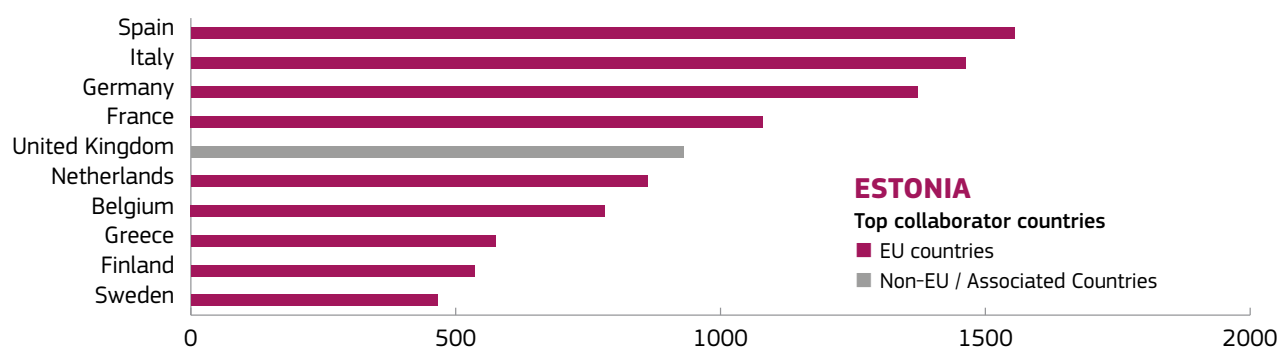
No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)



### COMPLEMENTARY AND CUMULATIVE FUNDING

- Participating in partnerships has been an example of synergy between different EU programmes: Estonia has supported participation in European Research Area activities (including partnerships) with ERDF: about 1/3 of ERA-NET participations in Horizon 2020 were funded from structural funds. This also remains a very important funding source in Horizon Europe.
- In Estonia, sectoral ministries are responsible for their sectorial partnerships. Therefore the national ministries actively seek co-funding from national level funding sources, and also from other EU funding sources.
- During Horizon 2020, the ministries' capacity to determine the R&D needs of society has improved considerably due to the active involvement in partnerships' strategic planning on the national level. In Horizon Europe, six ministries have committed to supporting participation in partnerships with EUR 27 million and ensuring the complementarity of national policy goals with global societal challenges.

**FIGURE 3: Top collaborators of Estonian researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda; Showing top-ten collaborator-countries



## SUCCESS STORIES

- ✦ **Impact on programme design/management:** Participation in Horizon 2020 partnerships has resulted in new national-level structures for funding. For example, in the case of European Partnerships, the Estonian Environmental Investment Centre is planning a dedicated funding tool to co-fund partnerships (in the environmental field).
- ✦ **Impact on national coordination mechanism:** The Research and Development **Council\* revised** the national coordination mechanism for new European Partnerships to better fit with the overall (budget) planning at the national and EU level (including the change in data collection timing).

### Impact on alignment

- ✦ The abovementioned revision changed national co-funding criteria to also allow additional new partners to participate in a partnership's related projects (e.g. SMEs and regional authorities). The aim is to align national co-funding rules with overall Horizon Europe principles (to more engage different types of participants in the programme).

\* The Research and Development Council advises the Republic's government in matters relating to the research and development strategy, thereby directing the systematic development of the national research, development and innovation system.



## KEY HIGHLIGHTS

Finland has strategically joined those Horizon Europe Partnerships that play a key role in tackling the targets of the twin transition and recovery from corona pandemic. Participation in European Partnerships have been considered as an effective way to build and execute RDI agendas with European partners. The recent update of the national RDI Roadmap includes several actions aiming to increase participation in partnerships. for example by improved advisory services and by using RRF funding.

**65** H2020  
public  
partnerships (\*)

Or  
**66%**  
of total  
(99 partnerships)

**77** H2020  
public  
partnerships (\*)  
participations

Or  
**3.6%**  
of total

**1** H2020  
public  
partnerships (\*)  
coordinations

Or  
**1%**  
of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€52.6 million**

in actual national contributions in public partnerships  
during H2020 (2014-2020)

Or **2.4%** of total

**€1 396**

per researcher FTE (average between 2014-2019 based  
on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

Thematically the weight of participation is in such areas as health, environment and IT/digital, where Finland has been an active participant during H2020.

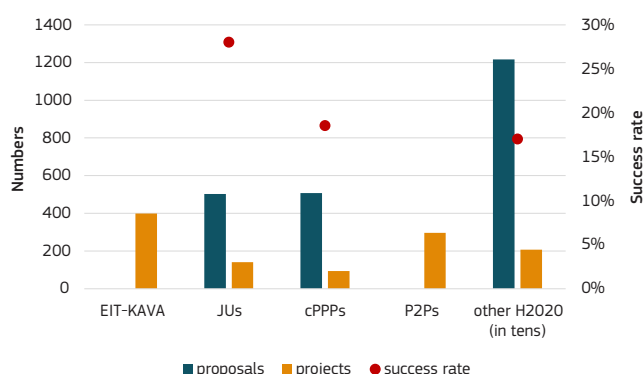


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

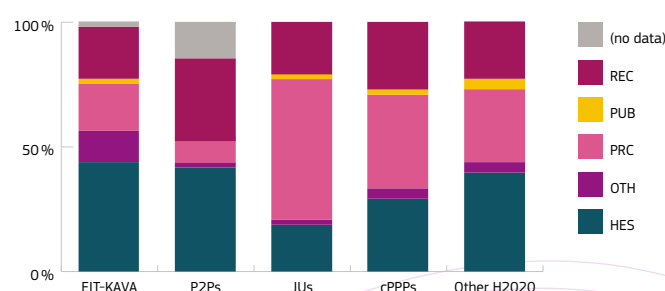
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	0.00 %	2.52 %	2.73 %	9.94 %
Climate action, environment, resource efficiency and raw materials	27.70 %	0.00 %	1.99 %	10.97 %
Europe in a changing world - inclusive, innovative and reflective Societies	4.12 %		4.62 %	6.82 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	20.38 %	26.60 %		7.51 %
Future and Emerging Technologies	0.64 %		0.00 %	6.28 %
Health, demographic change and wellbeing	38.13 %	17.20 %		13.95 %
Information and Communication Technologies		32.55 %	89.72 %	21.70 %
Secure, clean and efficient energy	1.01 %	14.04 %	0.94 %	14.07 %
Smart, green and integrated transport	8.03 %	7.09 %		8.75 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



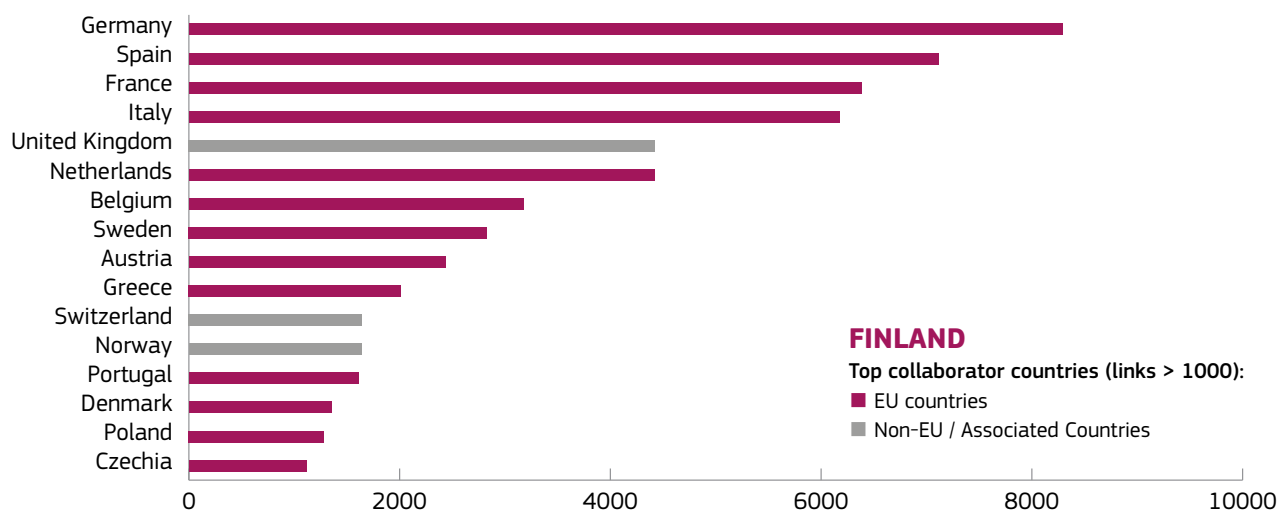
Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)

In general, success rates have been higher in partnerships compared to other instruments in Horizon 2020. This is an additional positive feature of partnerships, as higher success rate reduces over-all cost of the preparations of the project proposals.



**FIGURE 3: Top collaborators of Finnish researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**

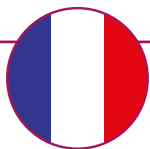


Source: eCorda; Showing countries where links >1 000



### SUCCESS STORIES

- ✦ In EuroHPC partnership, Finland is hosting and funding the LUMI pre-exascale supercomputer together with nine other EuroHPC Participating States (BE, CH, CZ, DK, EE, IS, NO, PL, SE) and the EuroHPC Joint Undertaking. LUMI will be operational in 2021-2022 and is located in Kajaani in the Datacenter of CSC – IT Center for Science.
- ✦ The policy-driven Baltic Sea research and development programme (BONUS, 2010-2020) was funded jointly by the national research institution in eight EU member states around the Baltic Sea (DK, EE, FI, DE, LC, LT, PL, SE) and the EU for a total of EUR 100 million. The BONUS programme supported multidisciplinary science and created a scientific basis for decision making and thus responded to the major societal and environmental challenges in the Baltic Sea region. The Academy of Finland had observer status in BANOS (the Baltic Sea and North Sea Coordination and Support Action), which co-created the R&I agenda for the Baltic Sea and the North Sea region to be used for further activities, like for example the European partnership A climate neutral, sustainable and productive blue economy.



## KEY HIGHLIGHTS

France has been strongly committed to European Partnerships in H2020, thanks to solid research and innovation communities, and to the commitment of national institutions, notably its national research funding agency and national thematic research organisations. Transnational collaboration is considered as a key policy and partnerships allow researchers to take part in transnational collaborative projects through the procedures of national funding agencies. This approach will continue to be promoted with the new European Partnerships in Horizon Europe, in line with developments at the national level (e.g. national strategies in a number of defined areas within PIA4).

**89** H2020  
public  
partnerships (\*)

Or  
**90%**  
of total  
(99 partnerships)

**145**  
H2020 public  
partnerships (\*)  
participations

Or  
**6.7%**  
of total

**23** H2020  
public  
partnerships (\*)  
coordinations

Or  
**23%**  
of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) Excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership

**€230 million**

in actual national contributions in public partnerships  
during H2020 (2014-2020)

Or **10.6%** of total

**€778**

per researcher FTE (average between 2014-2019 based  
on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

France has been strongly involved in partnerships addressing societal and technological challenges, such as in health, transport and ICT areas. This will continue to be a priority, notably in the context of the establishment of the national strategies funded by PIA4 at the national level. Moreover, partnerships also promote interdisciplinarity, which is considered as essential to address grand challenges.



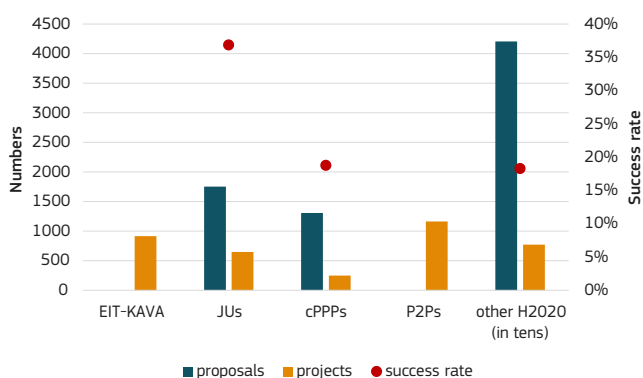


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	7.13 %	1.78 %	4.64 %	8.52 %
Climate action, environment, resource efficiency and raw materials	18.16 %	0.37 %	1.25 %	4.92 %
Europe in a changing world - inclusive, innovative and reflective Societies	2.45 %		10.37 %	5.55 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	17.66 %	6.45 %		5.98 %
Future and Emerging Technologies	5.07 %		2.13 %	7.51 %
Health, demographic change and wellbeing	45.83 %	11.15 %		14.23 %
Information and Communication Technologies		19.74 %	78.84 %	15.89 %
Secure, clean and efficient energy	2.87 %	2.61 %	2.76 %	11.52 %
Smart, green and integrated transport	0.82 %	57.90 %		25.88 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)



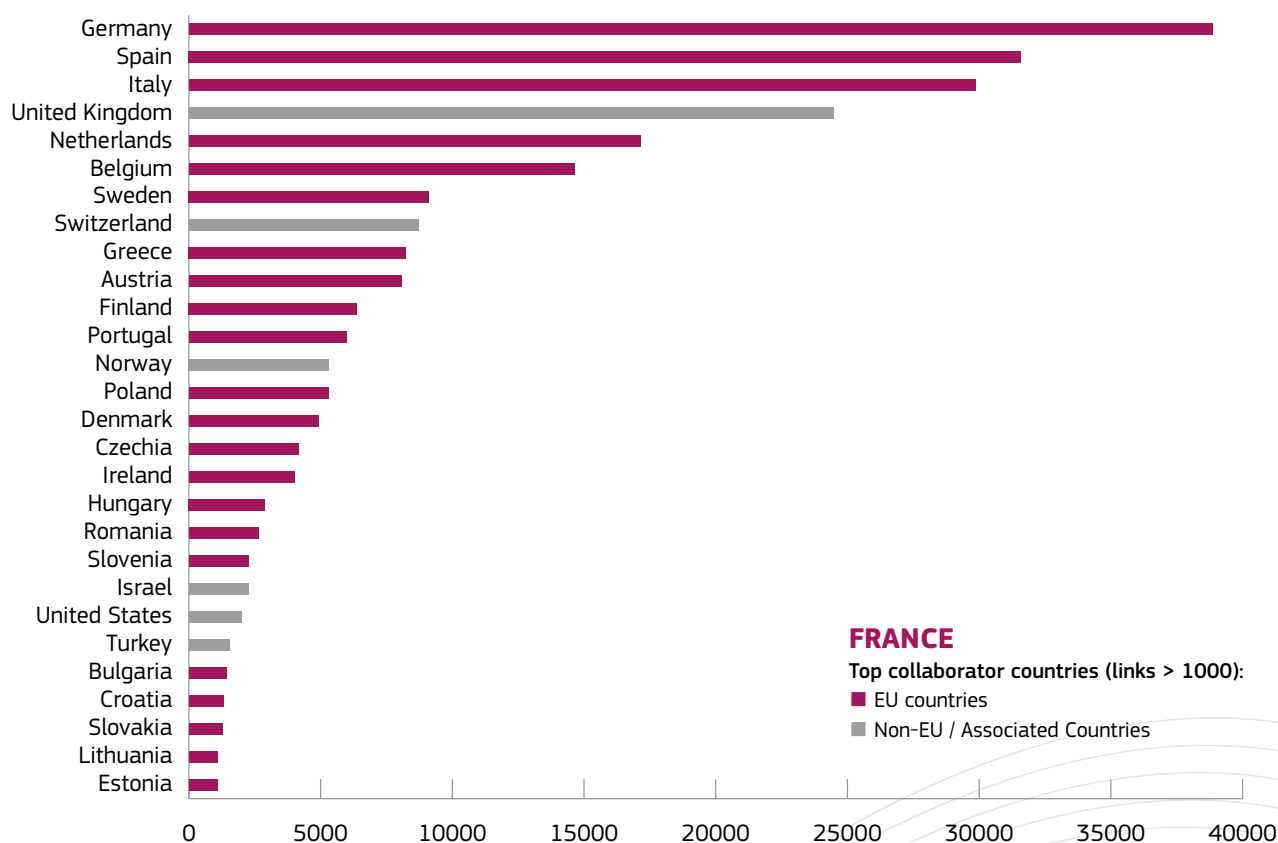
### ADDITIONAL INVESTMENTS TRIGGERED

French RPOs and RFOs, notably the National Research Agency (ANR), have often participated in additional activities carried out by the networks (joint calls, knowledge hubs), showing the interest of national communities in being part of these transnational activities beyond the EU contribution.

### COMPLEMENTARY AND CUMULATIVE FUNDING

France's national contribution to European partnerships has been mainly through national public funds for R&I, notably through the ANR for joint calls. In some cases, such as for ECSEL, it has also allowed the pooling of other national funds dedicated to this area at the national level to ensure complementarity with the European level.

**FIGURE 3: Top collaborators of French researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda; Showing countries where links >1 000



## SUCCESS STORIES

- ✦ In the area of quantum technologies, structuring at the European level, notably through the QuantERA network, has been key for support at the national level, and this domain is now well positioned in terms of national priorities.
- ✦ French teams have successfully participated in networks and partnerships targeting developing countries (LeapAGRI, Water JPI, PRIMA, etc.), which have helped to pull the European Research Area towards the Global South. Numerous success stories during H2020 show how these projects have had an impact on research policies in these countries.
- ✦ In the area of antimicrobial resistance (AMR), it has been shown that France's participation in joint initiatives, in particular JPI AMR, has led to an increase of projects in this area at the national level, demonstrating impact in terms of topic alignment between European and national research activities.
- ✦ The implementation of partnerships (such as ERA-NETs, JPis etc.) has led to the development of coordinating structures at national level (e.g. mirror groups), which has gradually made it more and more normal to have a structuring approach at the national level in order to be more efficient. In this context, the five national thematic alliances (made up of national research organisations and universities) have had an important role in terms of programming.
- ✦ Some topics have first benefited from structuring actions at European level (networks/partnerships) before being strongly supported at national level, e.g. quantum technologies.
- ✦ Many partnerships have been coherent with national strategies in corresponding areas, including at the level of sectoral ministries, and the input to sectoral policy making is important (recommendations, policy papers, etc.).



## KEY HIGHLIGHTS

Germany has always been actively involved in current and earlier formats of European Partnerships and has shown strong commitment in all research areas, also taking often a leading/coordinating role within the partnerships. The national engagement is also facilitated by national actions for strategic participation. Since their launch, Germany has made high investments in partnerships and will continue to play an active role in the future. The new European approach to partnerships is accompanied nationally by a new and more strategic decision-making process that targets and involves all national stakeholders of European Partnerships.

**87** H2020 public partnerships (\*)

Or **87.88%** of total (99 partnerships)

**179** H2020 public partnerships (\*) participations

Or **8.31%** of total

**21** H2020 public partnerships (\*) coordinations

Or **21.21%** of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) Excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€527.83 million**

in actual national contributions in public partnerships during H2020 (2014-2020)

Or **24.28%** of total

**€1 263**

per researcher FTE (average between 2014-2019 based on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

With a view to its involvement in European Partnerships, Germany is participating in all thematic areas with different foci depending on the partnership format: in P2P partnerships there is a strong focus on health, agri-food and climate action, while most of the JUs and cPPP investments go to ICT, transport and energy. Strategic focus in the future will create synergies between national strategies and the Strategic Plan which includes partnerships and missions.

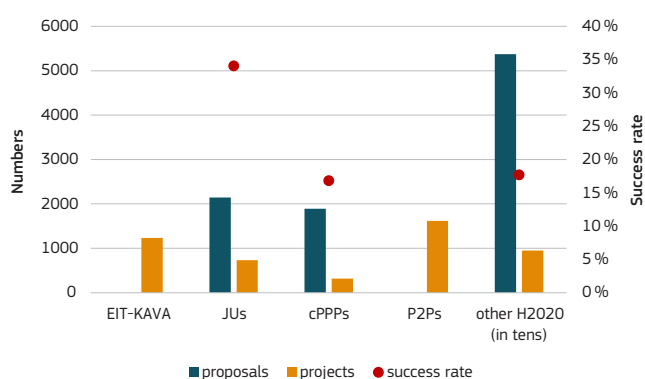


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

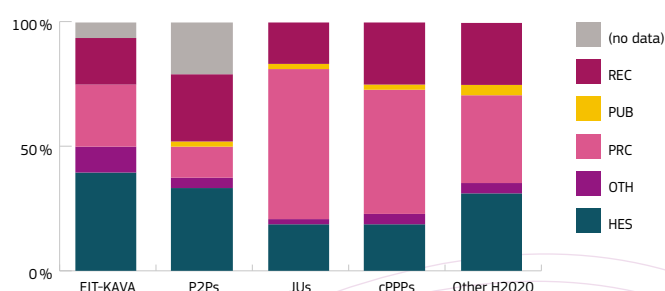
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	8.91 %	0.44 %	3.09 %	11.77 %
Climate action, environment, resource efficiency and raw materials	20.34 %	0.48 %	3.20 %	6.46 %
Europe in a changing world - inclusive, innovative and reflective Societies	2.56 %		5.44 %	4.90 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	16.37 %	6.67 %		4.30 %
Future and Emerging Technologies	2.08 %		4.64 %	8.67 %
Health, demographic change and wellbeing	40.73 %	13.94 %		14.40 %
Information and Communication Technologies		26.41 %	81.92 %	17.60 %
Secure, clean and efficient energy	6.62 %	7.81 %	1.70 %	12.40 %
Smart, green and integrated transport	2.38 %	44.24 %		19.50 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)

For Germany, there is a clear additional value concerning the participation in partnerships. Collaboration in smaller teams with well-known national processes in connection with a higher success rate compared to the framework programme offers the chance for many researchers to enter the European and international research arena.



### IMPACT OF EU CONTRIBUTION

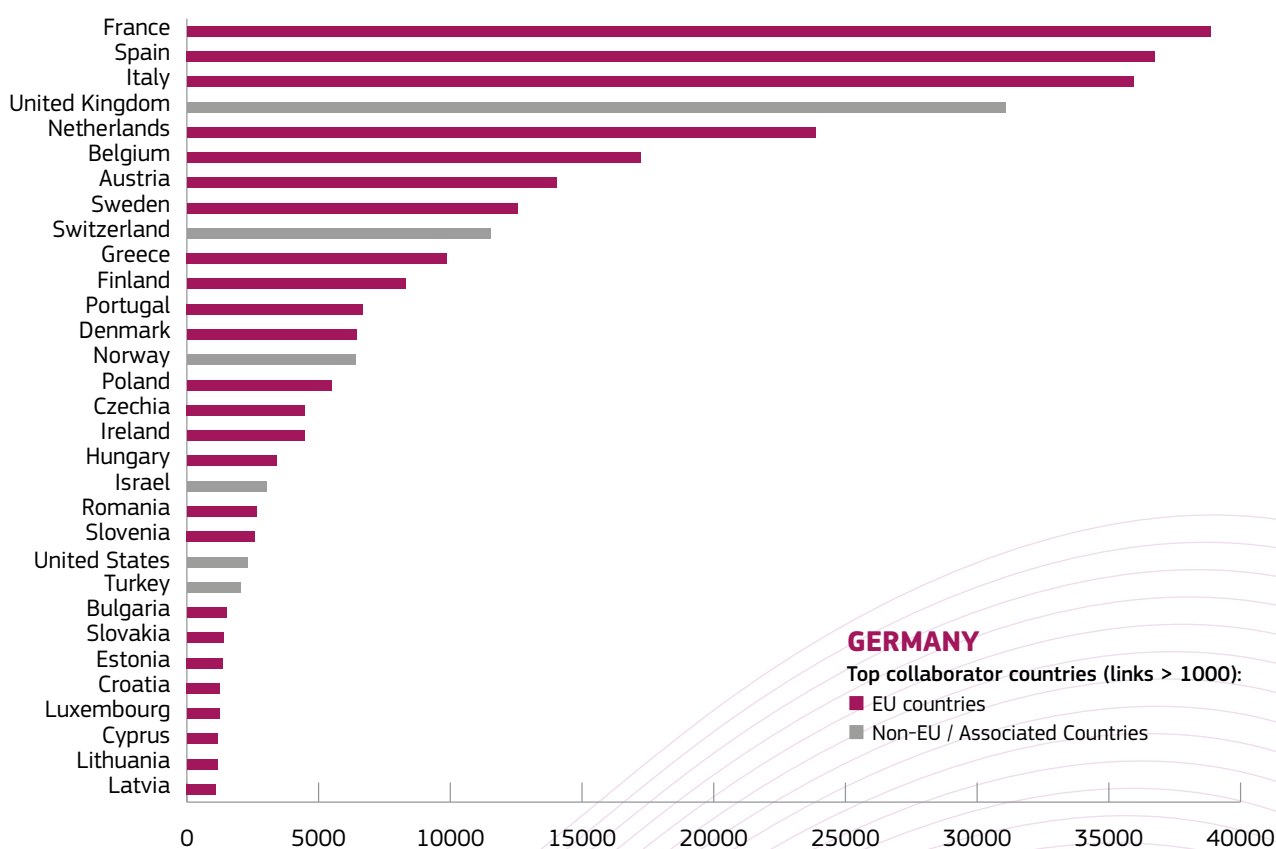
With P2Ps as well as cPPPs and Joint Undertakings, partnerships are sufficiently diverse to cater to the broad thematic scope and needs of the research landscape in Germany.

Via partnerships, researchers may access transnational R&I programmes, while at the same time work within familiar national administrative procedures. Moreover, researchers from certain non-EU countries may more easily access P2P partnerships through national programmes. In combination with European funding via the framework programme as well as national level funding, partnerships complete the R&I policy toolbox.

### COMPLEMENTARY AND CUMULATIVE FUNDING

In Germany, national contributions for partnerships come from five federal ministries, notably in charge of education and research, economy, health, transport and infrastructure and agriculture. Stronger contributions from the regional level (Länder) is encouraged, supported by a working group with federal and regional representatives. In single cases, structural funds are involved. Important partnerships involving regional and national co-funding include [ECSEL](#), the [EIT on raw materials](#) or the [ERA CoBioTech](#).

**FIGURE 3: Top collaborators of German researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda; Showing countries where links >1 000



## SUCCESS STORIES

- ✦ In support of the new approach to partnerships under Horizon Europe and with a view to a closer coordination of the broad partnership landscape in Germany, the Federal Ministry for Education and Research has launched a national coordination process that includes all relevant stakeholders from the research and business communities as well as other relevant ministries (economy, environment, health, transport and agriculture).
- ✦ R&I actors highly appreciate the unique opportunity for cooperation among Member States and/or industry sectors at the programme level. Moreover, partnerships often serve as a nucleus for stable and long-term R&I cooperation networks in the ERA. These networks proved to be key to tackling global challenges as well as ensuring Europe's technological sovereignty beyond the EU's R&I framework programme.
- ✦ As one of the leading industrial locations and science hubs in the world, Germany is pursuing an active role in encouraging international cooperation in research and innovation. Partnerships proved to be an attractive tool for encouraging the participation of relevant R&I actors beyond the EU.



## KEY HIGHLIGHTS

Overall participation of Greece in European Partnerships under H2020 is considered beneficial as it encourages international networking and the creation of common agendas in R&I while ensuring relevance with national priorities. An item of concern is the lack of Greek partnership coordinators, despite the fact that the country is not a newcomer to ERA-NET schemes. The participation of Greece in the Art. 185 and 187 partnerships could have been broader if ESIF were eligible as a national contribution.

**32** H2020  
public  
partnerships (\*)

Or  
**32.32%**  
of total  
(99 partnerships)

**42** H2020  
public  
partnerships (\*)  
participations

Or  
**1.95%**  
of total

**0** H2020  
public  
partnerships (\*)  
coordinations

Or  
**0%**  
of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) Excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€35.6 million**

in actual national contributions in public partnerships  
during H2020 (2014-2020)

Or **1.60%** of total

**€1 038**

per researcher FTE (average between 2014-2019 based  
on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY AREAS ADDRESSED

Greece participates in co-funded partnerships with ERDF funds. As a result, consistency with the Research and Innovation Strategy for Smart Specialisation (RIS3) is an on/off criterion for selecting calls and topics in which to participate. The priorities of ERDF's current programming period (2021-2027) as identified in the National RIS3 through the entrepreneurial discovery process are: the agro-food chain, environment and circular economy, biosciences-health and pharmaceuticals, transport and logistics, materials-construction and industry, tourism-culture and creative industries, sustainable energy, and digital technologies. Participation in the partnerships also depends on the availability of national funds, which is seriously limited by the non-eligibility of ERDF as a national contribution to the JUs, Art. 185 and Art.187 partnerships. This has implications at the level that priorities are addressed.



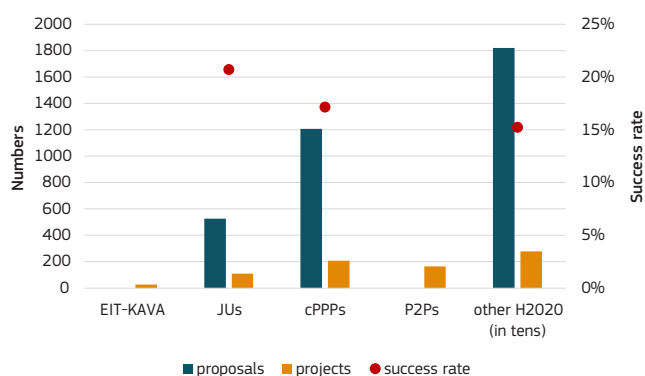


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

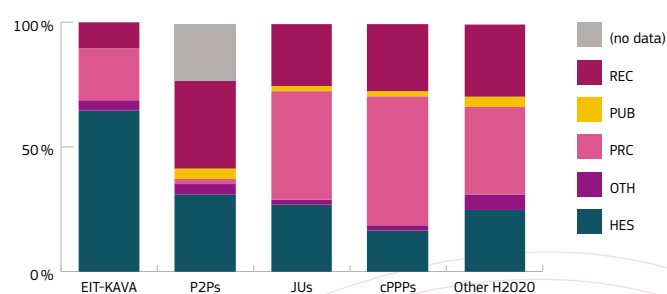
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	10.07 %	1.38 %	1.87 %	12.20 %
Climate action, environment, resource efficiency and raw materials	22.22 %	0.00 %	2.39 %	6.52 %
Europe in a changing world - inclusive, innovative and reflective Societies	0.00 %		14.62 %	16.46 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	45.87 %	20.06 %		6.50 %
Future and Emerging Technologies	3.04 %	0.00 %	1.91 %	4.32 %
Health, demographic change and wellbeing	16.42 %	8.05 %		9.00 %
Information and Communication Technologies		21.61 %	75.17 %	26.04 %
Secure, clean and efficient energy	2.37 %	12.19 %	4.04 %	10.74 %
Smart, green and integrated transport	0.00 %	36.72 %		8.22 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)



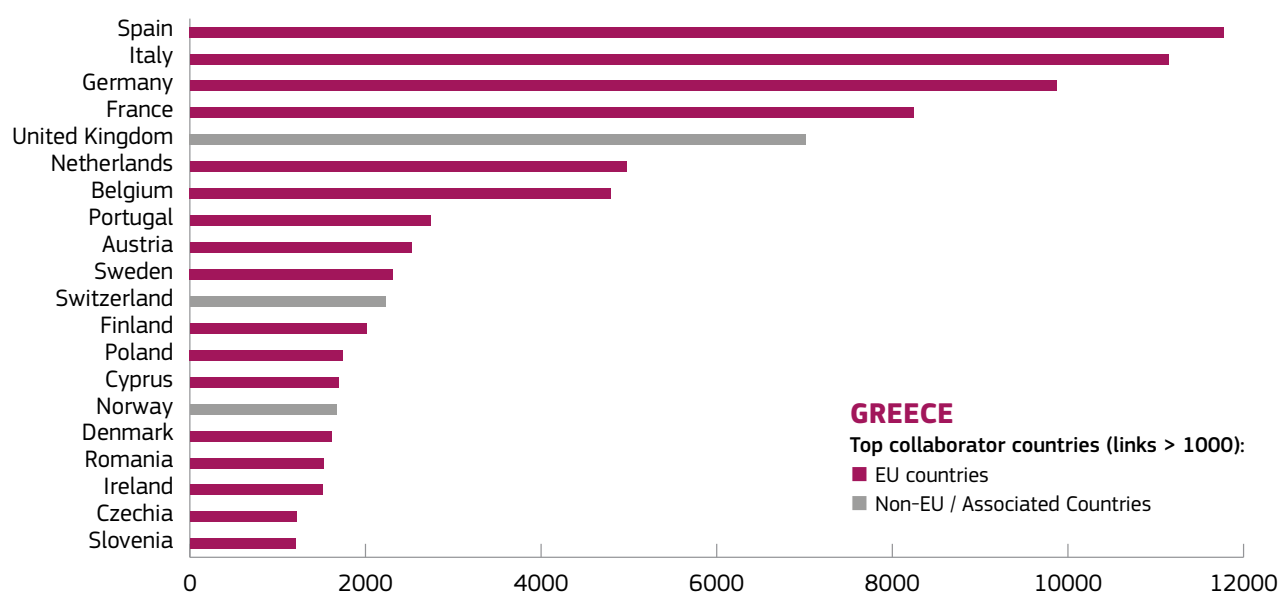
### ADDITIONAL INVESTMENTS TRIGGERED

Participation in PRIMA and EuroHPC attracted national investments equal to the EU's contribution. Even though participation in JUs and Art. 185 and Art. 187 initiatives is modest, primarily due to limited national funds and administrative resources, the picture may change in the future when the central management of funds is applied.

### COMPLEMENTARY AND CUMULATIVE FUNDING

Greece's participation in ERA-NET schemes was funded through ESIF/ERDF; the funding scheme involved certain challenges related mainly to the restrictions arising from requirements for a regional distribution of ESIF funds and the different timelines for implementation, especially towards the end of programming periods.

**FIGURE 3: Top collaborators of Greek researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda (showing countries of >1000 links)



### **SUCCESS STORIES**

- ✦ From the perspective of a funding agency or a research performing organisation, PRIMA is a success story as it provides opportunities for cooperation with countries in the immediate neighbourhood outside the EU and it addresses research and innovation fields that are not adequately covered in H2020 calls.
- ✦ Greece's participation in European partnerships under H2020 has been a learning exercise for researchers and the funding authority (General Secretariat for Research and Innovation) mainly related to programme design and coordination.
- ✦ It is worth mentioning that certain Greek regions and especially the Region of Western Greece, which has a very active research and innovation ecosystem in the area of materials science, among others, participated independently in ERA-NET schemes and funded the participation of their institutions with regional funds.



## KEY HIGHLIGHTS

Hungary's participation level in H2020 partnerships was rather low, in particular in industry-led programmes such as cPPPs, P2Ps, JUs with public co-funding (ECSEL) and EIT KICs activities were the most successful areas. Hungary's performance improved towards the end of the programme (raised awareness and increased involvement and national co-funding in P2Ps). For Horizon Europe, a more strategic approach will be followed, since partnerships can play a key role in better integration of participants from Widening countries in European RDI networks and can be well aligned with national sectorial and S3 priorities. Therefore a significantly increased participation is foreseen in Horizon Europe partnerships with higher national funding allocations (including use of ERDF).

**34** H2020 public partnerships (\*)

Or **34.34%** of total (99 partnerships)

**37** H2020 public partnerships (\*) participations

Or **1.72%** of total

**0** H2020 public partnerships (\*) coordinations

Or **0%** of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) Excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€11.45 million**

in actual national contributions in public partnerships during H2020 (2014-2020)

Or **0.53%** of total

**€366**

per researcher FTE (average between 2014-2019 based on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data

## KEY INTENTIONS FOR THE FUTURE

The main thematic priorities for Hungary, reflected also in the investment into H2020 partnerships, were health, ICT, transport, and agricultural and food technologies. These areas were also identified as the priorities of the Hungarian S3 strategy for 2014-20 and in general these are the fields where Hungarian organisations perform the best in the traditional H2020 call as well. As for Horizon Europe, stronger links with national sectorial strategies will be ensured through specific coordination mechanisms with the responsible ministries. Hungary's participation in European Partnerships will be also aligned with the thematic priorities of the S3 Strategy for 2021-27 which are the following: health, digitalisation, agriculture and food industries, resource efficient economy, energy and climate, and creative industries.

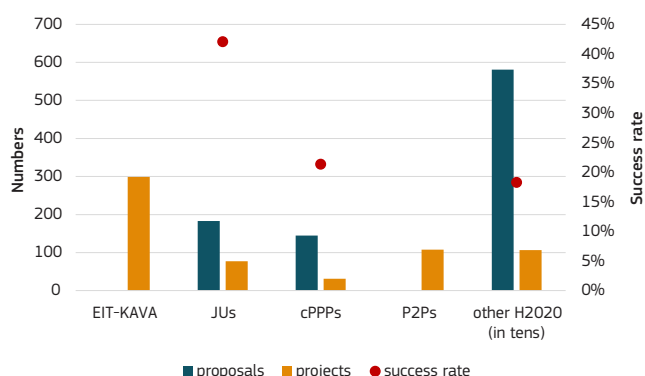


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

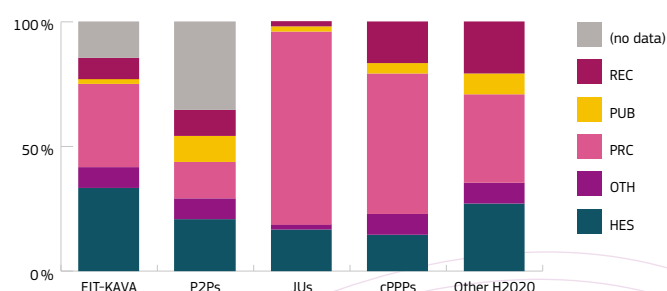
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	5.91 %	0.48 %	1.74 %	9.18 %
Climate action, environment, resource efficiency and raw materials	2.71 %	0.00 %	2.33 %	7.92 %
Europe in a changing world - inclusive, innovative and reflective Societies	0.00 %		3.35 %	10.15 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	6.71 %	4.35 %		16.03 %
Future and Emerging Technologies	10.54 %		0.00 %	4.89 %
Health, demographic change and wellbeing	57.00 %	22.75 %		12.40 %
Information and Communication Technologies		50.12 %	87.61 %	16.18 %
Secure, clean and efficient energy	2.71 %	0.13 %	4.97 %	11.71 %
Smart, green and integrated transport	14.42 %	22.17 %		11.53 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)

In Hungary the source of national co-financing for successful participants in H2020 partnerships was the National Research Development and Innovation Fund (NRDI Fund). Co-funding provided by the European Commission enabled the support of more projects.



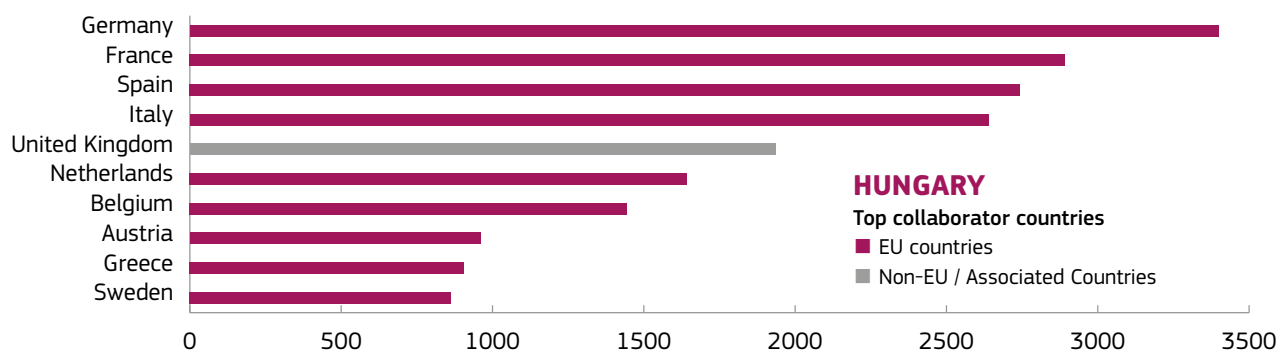
### COMPLEMENTARY AND CUMULATIVE FUNDING

For Horizon Europe partnerships it is foreseen that in addition to the national funding (NRDI Fund) ERDF sources will also be used to support Hungarian participation (ERDF for convergence regions and the NRDI Fund for the capital region). ERDF funding allocated to support Hungarian participation in Horizon Europe partnerships will be part of the Economic Development and Innovation Operational Programme Plus (EDIOP Plus).

### ADDITIONAL INVESTMENTS TRIGGERED

As a positive impact of a stronger coordination with sectorial ministries in relation to participation in H2020 partnerships, a more intense working level cooperation has been established through collaboration in thematic working groups, national hubs with a broader scope than the partnerships. Discussions have started on how to mobilise additional funding from the budget of sectorial ministries to support Hungarian participation in Horizon Europe partnerships.

**FIGURE 3: Top collaborators of Hungarian researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda; Showing top-10 collaborator-countries



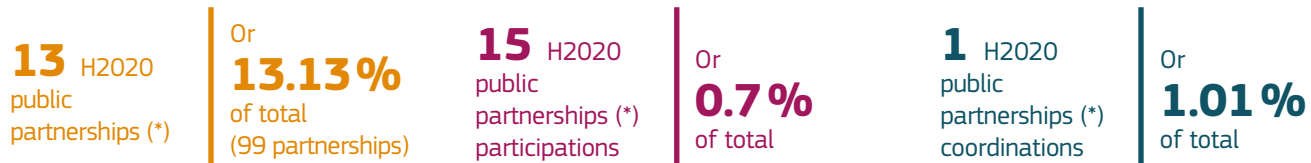
## SUCCESS STORIES

- ✦ **Impact on policy, programme design/management:** in the last years of Horizon 2020 a national umbrella programme was created for co-funding Hungarian participation in ERA-NETs. The previously fragmented programmes to co-fund certain ERA-NETs have been aligned. This approach makes it possible to use national co-funding in a more efficient way by re-allocating the funding between different sub-programmes if needed based on Hungary's performance in specific ERA-NETs.
- ✦ **Impact on the national coordination mechanism:** in the preparation phase for Horizon Europe coordination with the ministries responsible for sectorial policies and strategies has improved a lot. The process is managed by the National Research Development and Innovation Office. Awareness was raised about partnerships and Horizon Europe priorities in general, discussions were organised on how to set priorities regarding Hungarian participation in partnerships, and regular communication channels were established.



## KEY HIGHLIGHTS

At the national level the emphasis on international partnerships has focused on areas such as the blue economy, and geothermal and hydropower energy. Out of the 13 partnerships Iceland has actively participated in 6 are in these fields, which is clearly reflected in the country's thematic success in Horizon 2020. And this success has, in return, been a boost to national research and innovation activities in these fields – a clear synergy between international and national interests.



Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) Excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€10 million**

in actual national contributions in public partnerships during H2020 (2014-2020)

Or **0.45%** of total

**€4848**

per researcher FTE (average between 2014-2019 based on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

For Horizon Europe, Iceland will continue to participate in partnerships in the focus areas it has previously participated in but will also expand this to include partnerships under Cluster 1 Health in particular.

Iceland will be more active in other co-funded partnerships. Out of the nine co-funded partnerships that started in 2021, Iceland has decided to participate in eight.



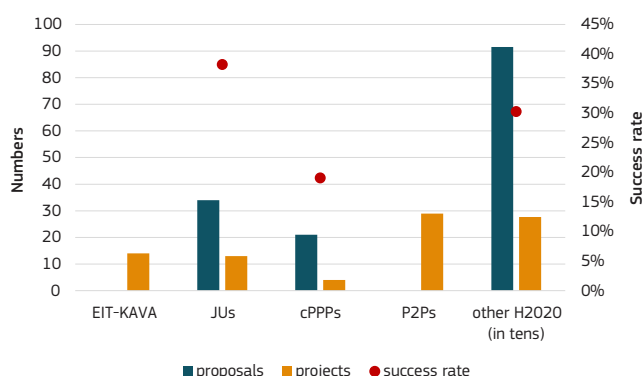


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	9.42 %	0.00 %	0.00 %	6.05 %
Climate action, environment, resource efficiency and raw materials	9.42 %	0.00 %	0.00 %	6.93 %
Europe in a changing world - inclusive, innovative and reflective Societies	2.75 %		0.00 %	2.85 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	29.48 %	49.73 %		17.59 %
Future and Emerging Technologies	0.00 %		25.63 %	0.53 %
Health, demographic change and wellbeing	0.00 %	1.99 %		14.90 %
Information and Communication Technologies		15.59 %	74.37 %	6.15 %
Secure, clean and efficient energy	48.94 %	9.09 %	0.00 %	43.37 %
Smart, green and integrated transport	0.00 %	23.60 %		1.65 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)



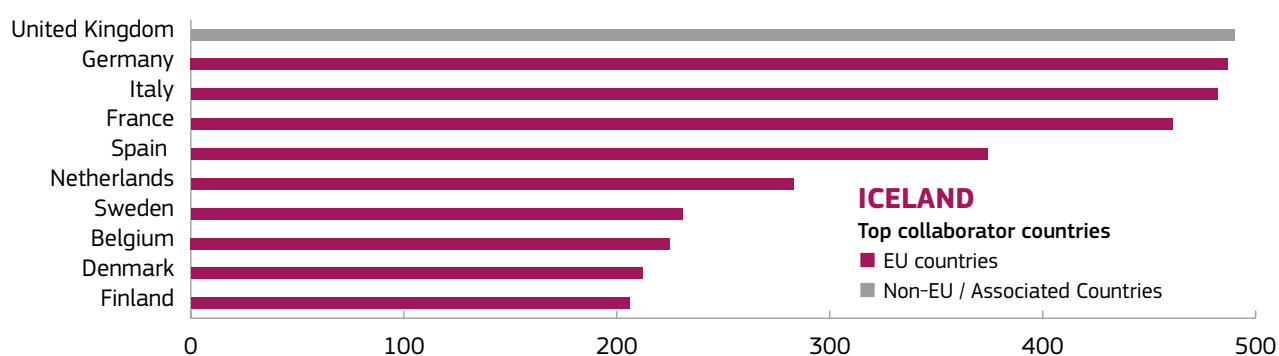
### ADDITIONAL INVESTMENTS TRIGGERED

Strong participation by SMEs in partnerships has been facilitated by increased national support through tax incentive schemes. This in turn provides further justification for maintaining a generous tax incentive scheme in Iceland.

### COMPLEMENTARY AND CUMULATIVE FUNDING

Business expenditure on research and innovation has grown quite significantly since 2014. This has been helped by an active participation in European cooperation both through partnerships and research actions under Horizon 2020 and improved tax incentives for companies. National funding was increased significantly in response to the pandemic and this should provide a good basis for Icelandic companies to continue their strong participation in future partnerships.

**FIGURE 3: Top collaborators of Icelandic researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda; Showing top-10 collaborator-countries



## SUCCESS STORIES

- ✦ The GEOTHERMICA ERA-NET has been a successful component of Iceland's strategy to increase and expand international cooperation in this field. This can be seen from the fact that 27% of the funding to Icelandic participants in Horizon 2020 is within the field of secure, clean and efficient energy.
- ✦ Increased national support of research and innovation in SMEs together with participation in Eurostars has resulted in a notable success in the SME Instrument under Horizon 2020. This is an example of a good alignment between national and European policy.
- ✦ The Science and Technology Policy for Iceland for 2020-2022 shows a clear alignment with European policy and major societal challenges and green and digital solutions to them. Active and increased participation in European cooperation is also a key component to that policy, which resulted in participation programmes Iceland has not participated in before (Digital Europe, Life and Space) and that have clear synergy with Horizon Europe and the partnerships.



## KEY HIGHLIGHTS

Grand challenges such as digital transformation, climate action and COVID-19, which were relatively minor features in Ireland's previous innovation strategy, Innovation 2020, are now centre-stage in research, innovation and enterprise policy development. These challenges will be central to Ireland's innovation strategy for 2022 to 2027, which is framed as an enabler of social, cultural, ecological and economic innovation. Challenge-driven innovation is included alongside innovation for economic prosperity in Ireland's new framing for innovation policy. Ireland will continue to leverage Horizon Europe partnerships in pursuit of these twin goals.

**64** H2020 public partnerships (\*)

Or **65%**

of total (99 partnerships)

**73** H2020 public partnerships (\*) participations

Or **3.4%** of total

**1** H2020 public partnerships (\*) coordinations

Or **1%** of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) Excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€33 million**

in actual national contributions in public partnerships during H2020 (2014-2020)

Or **1.5%** of total

**€1 378**

per researcher FTE (average between 2014-2019 based on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

Ireland will continue to participate in Horizon Europe partnerships, with a focus on areas defined by Ireland's forthcoming research and innovation strategy and other national strategic priorities, which are informed by major sectoral policies including: Ireland's Climate Action Plan 2021, Food Vision 2030, Strategy 2021-2025 - Health Research - Making an Impact, Ireland's Industry 4.0 Strategy, Ireland's National Smart Specialisation Strategy, Enterprise Ireland's strategy 2022-2025 and SFI Strategy 2025.

Issues of particular salience in the coming period include transdisciplinary research integrating STEM and AHSS, and alignment of Ireland's innovation strategy with the emergence of technological universities and their priorities.

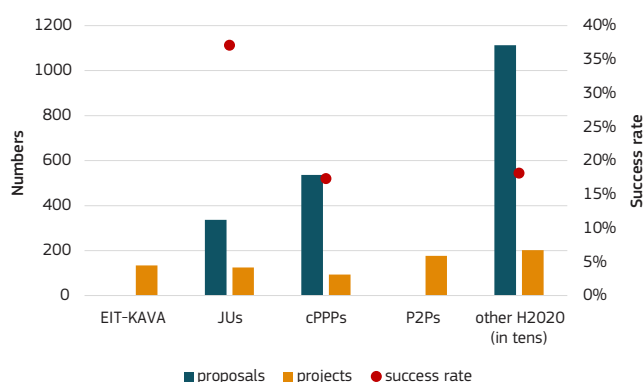


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

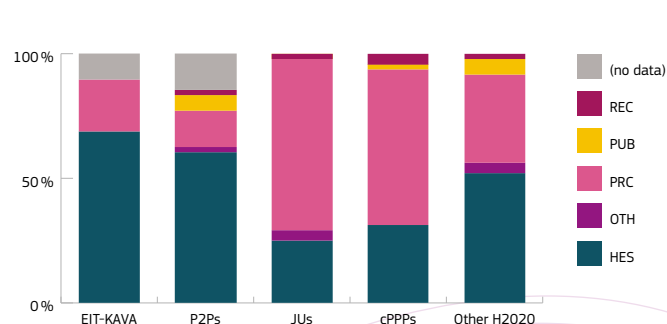
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	6.06%	0.77%	1.96%	12.53%
Climate action, environment, resource efficiency and raw materials	18.24%	0.00%	0.54%	4.84%
Europe in a changing world - inclusive, innovative and reflective Societies	3.05%		10.62%	8.25%
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	20.30%	36.52%		12.25%
Future and Emerging Technologies	0.73%		0.00%	3.18%
Health, demographic change and wellbeing	44.77%	36.26%		18.70%
Information and Communication Technologies		11.73%	79.41%	22.27%
Secure, clean and efficient energy	5.35%	0.40%	7.46%	12.83%
Smart, green and integrated transport	1.49%	14.33%		5.15%
	100,00%	100,00%	100,00%	100,00%

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

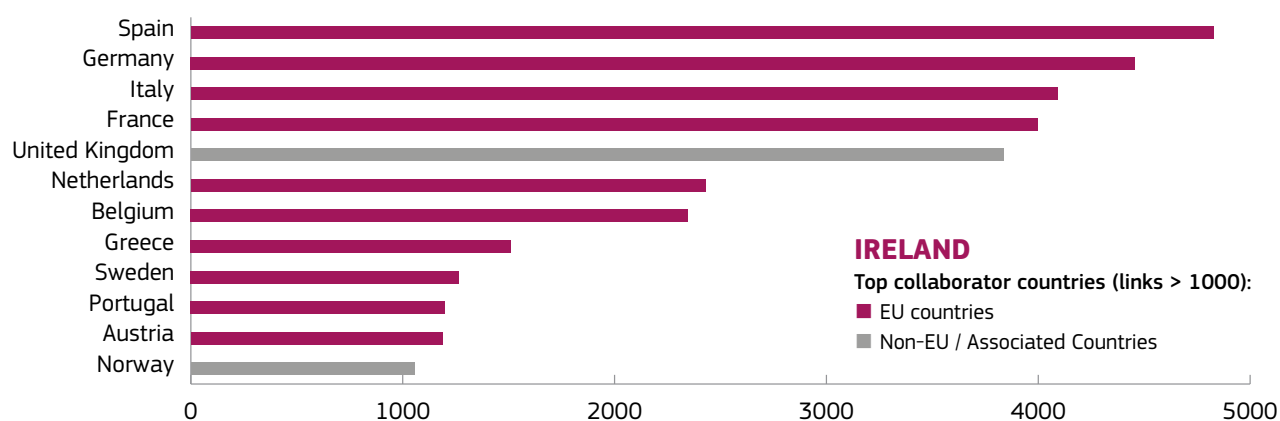
No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)



## COMPLEMENTARY AND CUMULATIVE FUNDING

In Ireland, the sectoral ministries are responsible for sectorial partnerships within the wider government framework for international R&D activities led by the Department of Further and Higher Education, Research, Innovation and Science. Therefore, ministries actively seek co-funding from national-level funding sources, and also from other EU funding sources to contribute to the fulfilment of Ireland's RD&I policy objectives.

**FIGURE 3: Top collaborators of Irish researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**

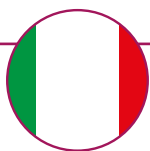


Source: eCorda; Showing countries where links >1 000



## SUCCESS STORIES

- + Ireland's new research and innovation strategy will include revised governance structures to enable maintain and enhance cross-government coordination and action, including oversight of Ireland's participation in Horizon Europe partnerships.



## KEY HIGHLIGHTS

In comparison to H2020 partnerships, where a bottom-up approach was used, for Horizon Europe the identification of themes where a partnership was needed followed a more strategic and top-down approach. In parallel with the definition of Horizon Europe, Italy defined its own National Research Programme 2021-27, taking into account the national priorities and needs and the new European Framework Programme as well. National participation in European Partnerships has been included in this overall strategic planning, providing the possibility to also align participation in European Partnerships with national strategies and, therefore, to sensibly increase Italy's financial participation.

**78** H2020 public partnerships (\*)

Or **78.79%** of total (99 partnerships)

**144** H2020 public partnerships (\*) participations

Or **6.69%** of total

**4** H2020 public partnerships (\*) coordinations

Or **4.04%** of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) Excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€158.80 million**

in actual national contributions in public partnerships during H2020 (2014-2020)

Or **7.3%** of total

**€1 113**

per researcher FTE (average between 2014-2019 based on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

Considering the dimension of its research and innovation landscape, Italy will be participating in almost all partnerships. However, a stronger focus will be given to themes connected to sustainable blue economy, health and health systems-oriented research, the clean energy transition and digital technologies.

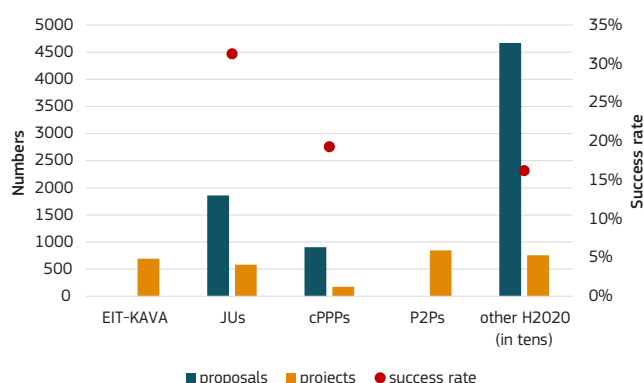


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

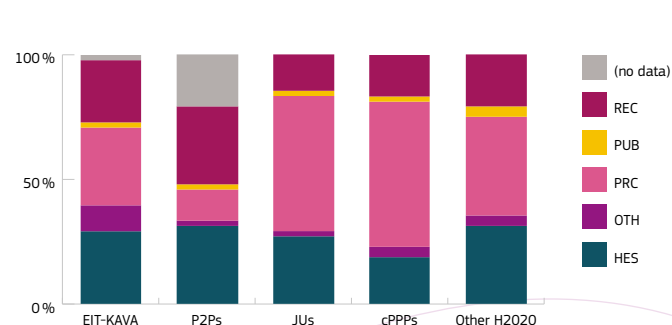
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	11.04 %	1.81 %	4.52 %	12.44 %
Climate action, environment, resource efficiency and raw materials	10.85 %	0.06 %	3.70 %	6.98 %
Europe in a changing world - inclusive, innovative and reflective Societies	1.69 %		8.92 %	7.81 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	28.97 %	11.09 %		7.13 %
Future and Emerging Technologies	2.52 %		1.43 %	7.90 %
Health, demographic change and wellbeing	42.21 %	10.37 %		11.81 %
Information and Communication Technologies		15.43 %	77.30 %	15.41 %
Secure, clean and efficient energy	0.76 %	6.56 %	4.14 %	12.26 %
Smart, green and integrated transport	1.96 %	54.69 %		18.25 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)

Preliminary data on participation in partnerships projects show an increased level of coordination between research and industrial actors, as well as a good participation by SMEs with respect to large enterprises.



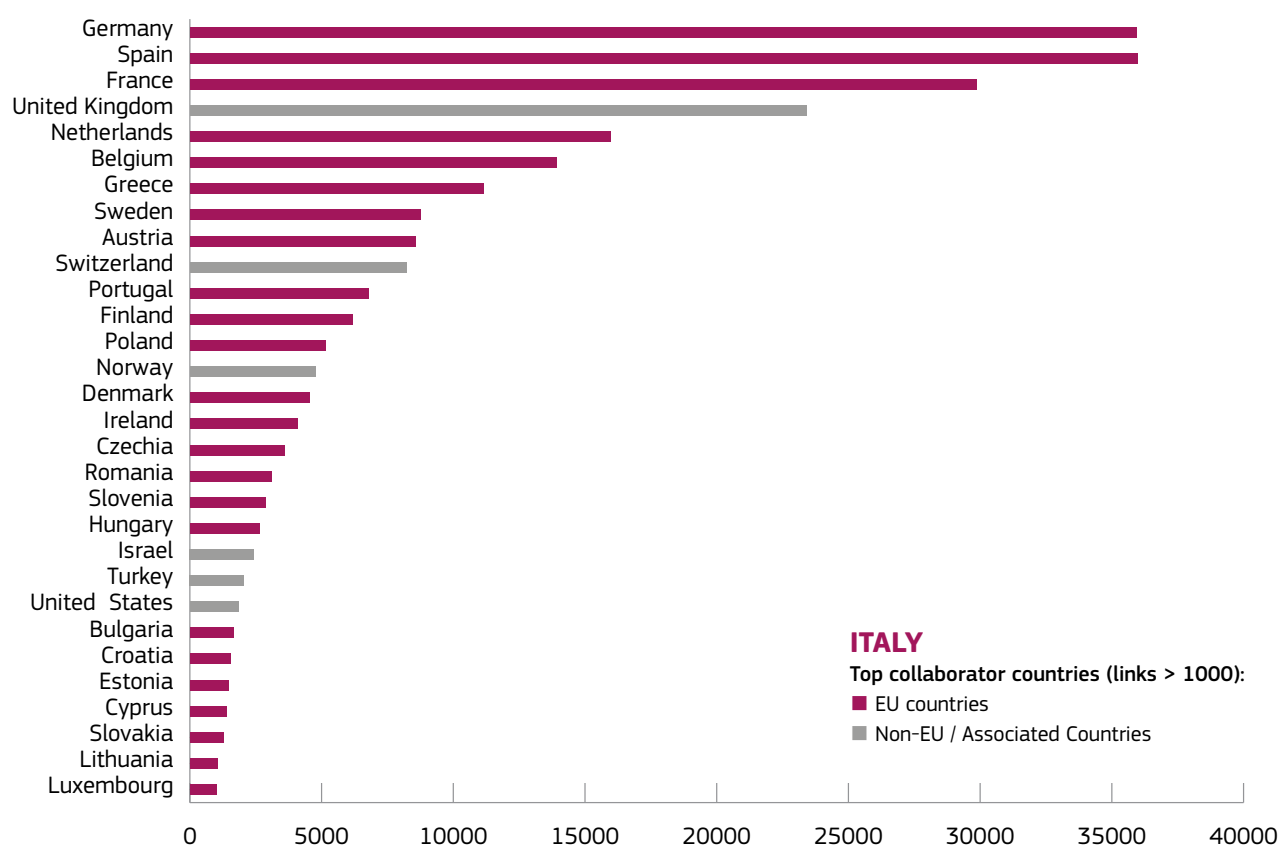


### COMPLEMENTARY AND CUMULATIVE FUNDING

Partnership are stimulating an increased and synergic cooperation among different ministries, including some who have been involved only marginally in European research activities in the past. This will result in additional investments either directly in co-funding research projects and in supporting new or improved additional activities.

Partnerships are triggering a synergic use of different funds, like for example national/regional funds, cohesion funds and recovery and resilience funds, with the aim to create more opportunities for Italian researchers to participate to European projects.

**FIGURE 3: Top collaborators of Italian researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda; Showing countries where links >1 000.

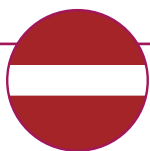


## SUCCESS STORIES

- ✦ The positive results of H2020 partnerships pushed the Ministry of Universities and Research into creating a dedicated Directorate-General in charge of the internationalisation of universities and research.
- ✦ A new funding law, approved in December 2021, simplifies participation in European Partnerships and supports the research projects selected by these initiatives.
- ✦ Under EuroHPC, Italy is hosting the LEONARDO supercomputer. LEONARDO will be operational at the end of 2022 and is located on the premises of Tecnopolo di Bologna.

### Impact on alignment

- ✦ Thanks to the opportunities provided by the partnerships, dialogue and coordination among different ministries has increased, even if a complete alignment is still far from being achieved, mainly due to the different sources of funding.



## KEY HIGHLIGHTS

*Not available*

**49** H2020  
public  
partnerships (\*)

Or  
**49.49%**  
of total  
(99 partnerships)

**52** H2020  
public  
partnerships (\*)  
participations

Or  
**2.41%**  
of total

**0** H2020  
public  
partnerships (\*)  
coordinations

Or  
**0%**  
of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) Excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€7.88 million**

in actual national contributions in public partnerships  
during H2020 (2014-2020)

Or **0.36%** of total

**€2 274**

per researcher FTE (average between 2014-2019 based  
on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

*Not available*

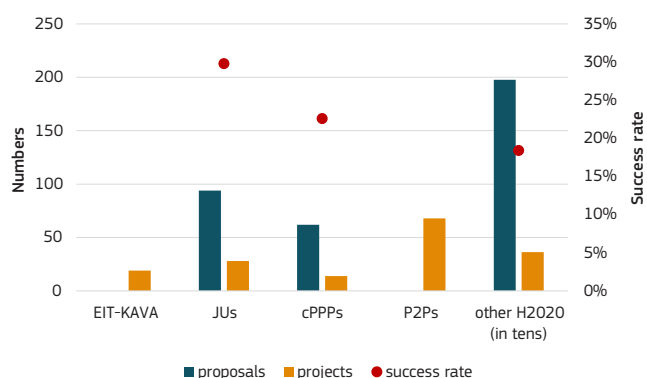


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

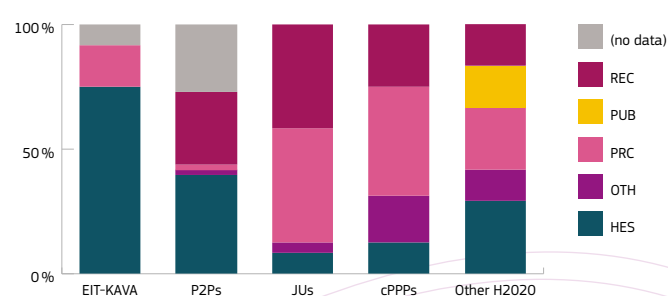
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	30.44 %	0.00 %	0.00 %	7.96 %
Climate action, environment, resource efficiency and raw materials	10.71 %	0.00 %	0.00 %	5.72 %
Europe in a changing world - inclusive, innovative and reflective Societies	0.60 %		6.80 %	9.10 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	3.83 %	67.93 %		15.32 %
Future and Emerging Technologies	5.70 %		0.00 %	4.00 %
Health, demographic change and wellbeing	41.47 %	2.13 %		11.97 %
Information and Communication Technologies		19.04 %	89.25 %	18.26 %
Secure, clean and efficient energy	3.52 %	0.35 %	3.95 %	21.23 %
Smart, green and integrated transport	3.73 %	10.56 %		6.43 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**

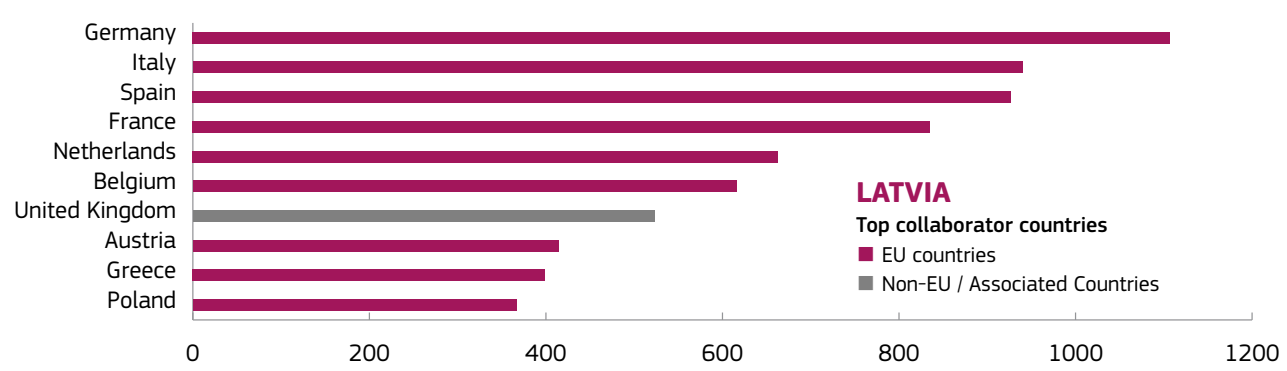


Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)



**FIGURE 3: Top collaborators of Latvian researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda; Showing top-10 collaborator-countries



## KEY HIGHLIGHTS

Lithuania's participation in the new European Partnerships has been designed on the analysis of country research potential and participation in Horizon 2020 co-funded instruments. National funding mechanisms seek to align national research funding with ERA policy priorities as well as ESF and RRF where specially dedicated funding instruments for Horizon Europe acceleration were created.

European Partnerships are planned for funding by ERDF, and projects will have to meet Lithuania's priorities on smart specialisation. Under the Research Development Programme, which is a long-term programme up to 2030, the country's legal and financial efforts will focus on challenges such as strengthening human resources and competencies to develop high-quality science and research-based technologies, building high-level scientific knowledge that enhances the country's competitiveness, building science-intensive businesses and strengthening science and business cooperation, and the development of an entrepreneurial culture in research and study institutions, which will strengthen the potential participation in international R&D programmes.

**31** H2020  
public  
partnerships (\*)

Or  
**31.31%**  
of total  
(99 partnerships)

**35** H2020  
public  
partnerships (\*)  
participations

Or  
**1.62%**  
of total

**0** H2020  
public  
partnerships (\*)  
coordinations

Or  
**0%**  
of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) Excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs.

Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€6 million**

in actual national contributions in public partnerships  
during H2020 (2014-2020)

Or **0.28%** of total

**€690**

per researcher FTE (average between 2014-2019 based  
on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual contributions is the money given by each country to cover for the participation of national researchers in the funded projects. (\*\*) Actual contributions for each researcher is the total actual contributions by a country divided by the number researchers in the country estimated in full-time equivalents (FTE) average between 2015-2019 based on EUROSTAT.

## KEY INTENTIONS FOR THE FUTURE

In Horizon Europe, Lithuania's participation in partnerships is more strategically oriented to national R&D&I priorities – participation is primarily focused on the priority areas of smart specialisation, which are in line with the strategic goal set in the National Progress Plan 'to move towards sustainable economic development based on scientific knowledge, advanced technologies, and innovation and increase the country's international competitiveness':

- health technologies and biotechnology
- new production processes, materials and technologies
- information and communication technologies

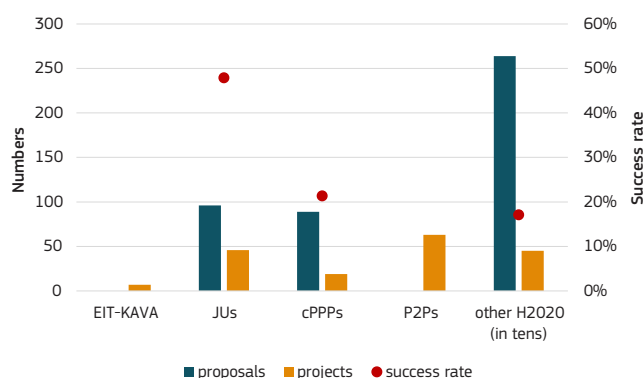


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

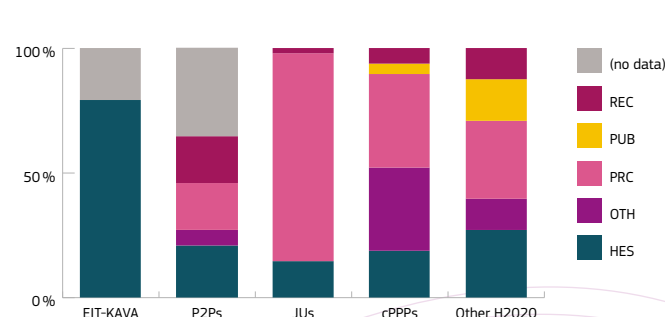
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	71.90 %	0.00 %	0.00 %	10.61 %
Climate action, environment, resource efficiency and raw materials	8.21 %	0.00 %	0.00 %	6.85 %
Europe in a changing world - inclusive, innovative and reflective Societies	4.72 %		5.95 %	16.03 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	11.91 %	6.96 %		9.94 %
Future and Emerging Technologies	0.00 %		0.00 %	1.22 %
Health, demographic change and wellbeing	0.00 %	0.00 %		5.18 %
Information and Communication Technologies		30.06 %	91.07 %	21.23 %
Secure, clean and efficient energy	3.27 %	2.47 %	2.98 %	15.75 %
Smart, green and integrated transport	0.00 %	60.51 %		13.20 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)



## IMPACT OF EU CONTRIBUTION

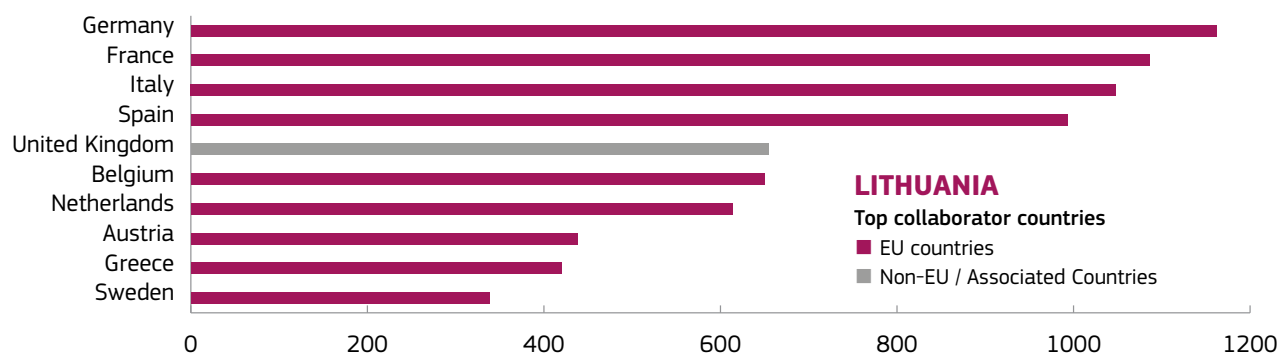
Lithuania’s participation in Horizon 2020 co-funded schemes was designed to align thematic priorities with nationwide science and research programmes and was funded from the national budget. This allowed the reinforcement of local research objectives and strengthened the local research community’s focus on internationalisation.

Using this instrument, the objectives of closer integration to ERA and overcoming the lack of international dimension in national science and research projects are deemed to facilitate the innovation potential of research results.

## COMPLEMENTARY AND CUMULATIVE FUNDING

For Horizon Europe, two ministries (the Ministry of Science, Education and Sport and the Ministry of Energy) have committed to supporting participation in partnerships with approximately EUR 30 million and have ensured the complementarity of national policy goals with global societal challenges.

**FIGURE 3: Top collaborators of Lithuanian researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



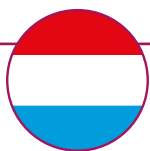
Source: eCorda (showing top-ten collaborator countries)



## SUCCESS STORIES

- **Impact on management:** participation in Horizon 2020 partnerships has resulted in new national-level structures for funding. For example, the Ministry of Energy is planning a dedicated funding tool to co-fund European Partnerships (in the field of clean energy transition).
- **Impact on national administration mechanism:** the Ministry of Education, Science and Sport, together with the dedicated agencies and other sectoral ministries, revised the national coordination mechanism for the new European Partnerships to better fit with overall (budget) planning at the national and EU level.





## KEY HIGHLIGHTS

Horizon 2020 in general has been a springboard for Luxembourg, entering the framework programme as a Widening country and steadily improving its performance. Partnership participation under Horizon 2020 was mainly used to build up collaborative networks, which are now coalescing into projects in other parts of the framework programme. National schemes offer complementary opportunities for international collaborations. Future participation in Horizon Europe partnerships will be based on the national research strategy as well as a critical mass of research in the respective domains.

**21** H2020 public partnerships (\*)

Or  
**21.21%**  
of total  
(99 partnerships)

**21** H2020 public partnerships (\*) participations

Or  
**0.93%**  
of total

**0** H2020 public partnerships (\*) coordinations

Or  
**0%**  
of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) Excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs.

Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€9.47 million**

in actual national contributions in public partnerships during H2020 (2014-2020)

Or **0.43%** of total

**€3 304**

per researcher FTE (average between 2014-2019 based on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

Public partnerships have been used prominently for health research in accordance with significant investment by the government in that area. ICT and material science research are integral parts of Luxembourg's economy and feature a higher degree of private participants. Future priorities include:

- industrial and service transformation
- personalised healthcare
- sustainable and responsible development
- 21<sup>st</sup> century education.

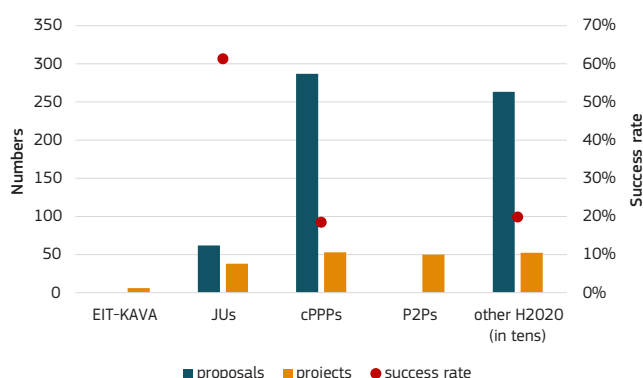


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

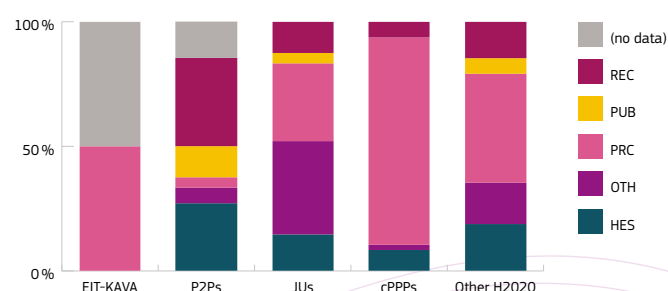
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	28.43 %	0.00 %	1.78 %	12.52 %
Climate action, environment, resource efficiency and raw materials	0.00 %	0.00 %	0.12 %	1.59 %
Europe in a changing world - inclusive, innovative and reflective Societies	6.68 %		20.58 %	15.29 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	3.95 %	0.68 %		3.44 %
Future and Emerging Technologies	0.00 %		0.00 %	4.07 %
Health, demographic change and wellbeing	60.54 %	73.02 %		18.51 %
Information and Communication Technologies		13.03 %	75.95 %	26.63 %
Secure, clean and efficient energy	0.40 %	9.69 %	1.57 %	8.92 %
Smart, green and integrated transport	0.00 %	3.57 %		9.02 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)

Luxembourg has a high overall success rate under Horizon 2020. Participation in the JU Innovative Medicines Initiative has been proven to be of high interest and success among all the partnerships. As can be seen in Figure 2, Luxembourg has an above average participation by the private sector in Horizon 2020, as there is a significant share of specialised private companies active in these fields.



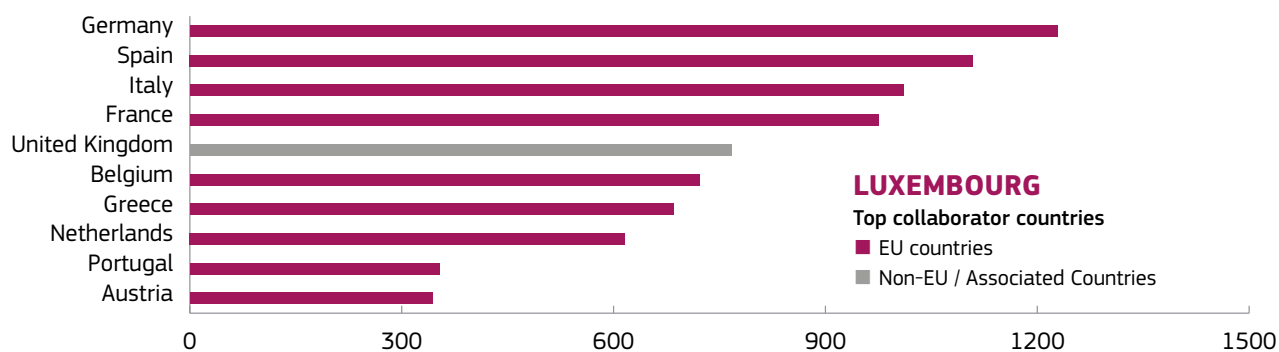
### COMPLEMENTARY AND CUMULATIVE FUNDING

A specific programme was set up to financially incentivise the participation of companies in certain parts of the framework programme. In parallel, public researchers that are the most successful in Horizon 2020 can receive an additional research funding bonus.

### ADDITIONAL INVESTMENTS TRIGGERED

Partnerships are complemented by additional national funding instruments that support bilateral and multilateral RD&I projects, some of which are follow-up projects or initiators of EU-funded projects.

**FIGURE 3: Top collaborators of Luxembourgian researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**

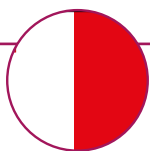


Source: eCorda; Showing top-10 collaborator-countries



## SUCCESS STORIES

- ✦ Overall, participation in Horizon partnerships has contributed to the structuring of the national RD&I landscape. Health-related partnerships, for example, have contributed to the consolidation of that domain, which has been defined as a national priority area only a little over 10 years ago. For example, national flagship projects such as the National Centre of Excellence in Research on Parkinson's Disease (NCER-PD) have been complemented by participation in the JPND and other Horizon 2020 programmes.
- ✦ National strategies such as the Data-Driven Innovation Strategy for the Development of a Trusted and Sustainable Economy as well as the National Research and Innovation Strategy are well aligned with and complement participation in partnerships such as EuroHPC, which has its headquarters established in the country.
- ✦ Other relevant partnerships in the areas of clean steel, hydrogen, energy transition, and process industries are also strongly aligned with key industrial sectors in the country and the national priority of sustainable development.
- ✦ Under EuroHPC, Luxembourg is hosting the MeluXina supercomputer which became operational in 2021.



## KEY HIGHLIGHTS

Throughout Horizon 2020, Malta participated in various partnerships, most notably in the blue economy sector, a strong pillar of the Maltese economy. Other notable areas include agriculture, food, water management and quantum technologies. Malta's participation in the upcoming Horizon Europe Partnerships will also be strategic based on identifying Malta's research and innovation gaps, via consultation with relevant Ministries and stakeholders, whilst also seeking alignment with Malta's most advanced draft of the Smart Specialisation Strategy 2021-2027. Going forward, Malta shall continue strengthening its participation in Horizon Europe partnerships by substantially increasing available funding from the national budget.

**7**  
H2020 public  
partnerships (\*)

Or  
**7.07%**  
of total  
(99 partnerships)

**7** H2020  
public  
partnerships (\*)  
participations

Or  
**0.32%**  
of total

**0** H2020  
public  
partnerships (\*)  
coordinations

Or  
**0%**  
of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) Excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€1.5 million**

in actual national contributions in public partnerships  
during H2020 (2014-2020)

Or **0.07%** of total

**€1 448**

per researcher FTE (average between 2014-2019 based  
on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

In Horizon Europe, Malta shall continue its participation in partnerships with a primary focus on the following priority areas:

- sustainable blue economy
- health systems and technologies
- clean energy transitions
- digital technologies
- high-performance computing
- water management
- agriculture and food systems.

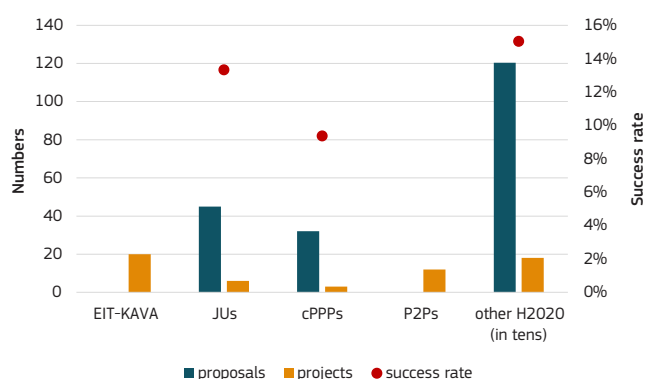


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

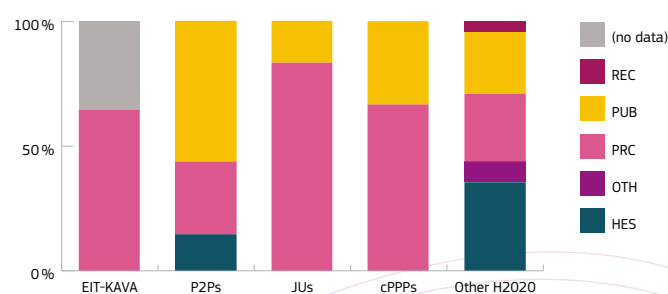
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	0.00 %	0.00 %	0.00 %	3.11 %
Climate action, environment, resource efficiency and raw materials	0.00 %	0.00 %	0.00 %	16.15 %
Europe in a changing world - inclusive, innovative and reflective Societies	0.00 %		23.40 %	27.68 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	94.40 %	0.00 %		15.57 %
Future and Emerging Technologies	0.00 %		0.00 %	2.45 %
Health, demographic change and wellbeing	0.00 %	0.00 %		2.60 %
Information and Communication Technologies		0.00 %	76.60 %	12.28 %
Secure, clean and efficient energy	5.60 %	12.37 %	0.00 %	7.77 %
Smart, green and integrated transport	0.00 %	87.63 %		12.40 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)



### ADDITIONAL INVESTMENTS TRIGGERED

Participation in additional joint calls seems to be a successful mechanism for increasing R&I project funding while supporting priority thematic areas. They have also contributed to the internationalisation of activities and policies, including at the bilateral level outside of the EU. Additional activities such as participation in the development of thematic SRIAs have been an excellent opportunity for including the Maltese R&I priorities in the EU’s research agenda.

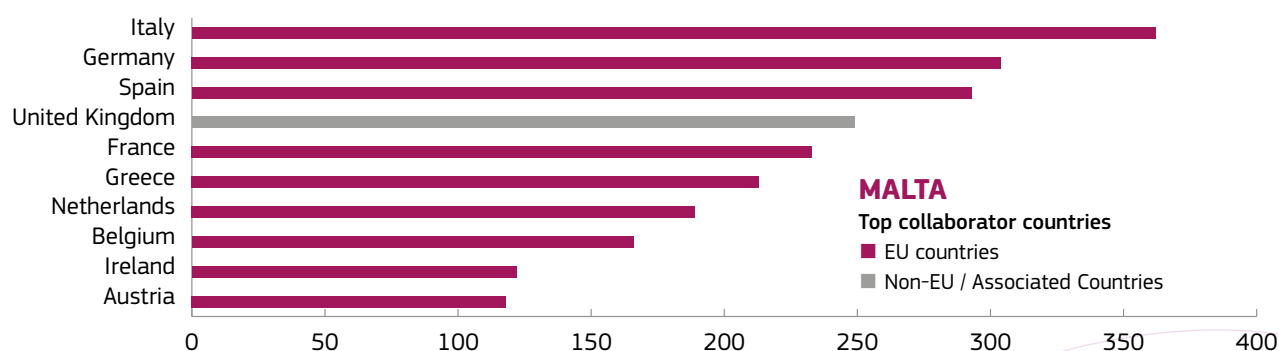
Additional activities also included a bilateral funding programme that was developed through Malta’s active participation in the PRIMA programme, as well as a proposal writing assistance scheme to facilitate the participation of less experienced researchers in PRIMA projects.

### COMPLEMENTARY AND CUMULATIVE FUNDING

The EU contribution in both ERA-NET and the Article 185 initiative PRIMA has leveraged national funding that in turn enabled participation in additional partnership activities. These include additional calls following the initial co-funded call in the case of ERA-NET, and additional bilateral activities in the case of PRIMA.

For Horizon Europe, Malta will be looking into using alternative sources of funding, such as ERDF funding, to top up its national contribution to the partnerships. So far, Malta has committed to participate in seven new partnerships under Horizon Europe, with the participation of five different governmental entities. It will also continue its participation in the PRIMA programme. The following partnerships have been already identified: Clean Energy Transition, Sustainable Blue Economy, Transforming Health and Care Systems, Innovative SMEs, Euro HPC, Water4All, and Key Digital Technologies.

**FIGURE 3: Top collaborators of Maltese researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



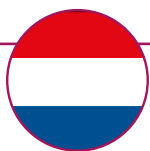
Source: eCorda; Showing top-10 collaborator-countries



## SUCCESS STORIES

- ✦ **Impact on programme management:** during Horizon 2020 and the partnerships carried out under this framework programme, Malta has obtained significant experience in programme management, particularly with respect to implementation, monitoring and related processes. This experience can be used throughout the strategic implementation of the new Horizon Europe partnerships.
- ✦ **Impact on national coordination mechanism:** In 2019, the Malta Council for Science and Technology set up a dedicated Internationalisation unit to deepen international collaboration among local and foreign researchers and stakeholders. This has enabled more dedicated resources for Malta's participation in the upcoming Horizon Europe partnerships. Also, owing to the interest that was shown by local stakeholders in partnerships, Malta will increase its allocated national budget to boost the impact of the research outcomes being generated through the selected partnerships.





## KEY HIGHLIGHTS

Internationalisation is an important part of Dutch national research and innovation strategies. Dutch researchers, organisations and businesses are internationally very active and competitive, and the scientific and innovation challenges they work on are often cross-border. In the past, the Netherlands has invested and actively participated in large public-private partnerships, as well as in the majority of JPIs. The high participation rate of over 80% reflects the Netherlands' close involvement and high level of ambition in the overall partnership landscape. With the start of Horizon Europe, the country underlines the importance of high-impact R&I partnerships closely connected with policy as well as society to collaborate in tackling global challenges.

**80** H2020 public partnerships (\*)

Or  
**80.81%**  
of total  
(99 partnerships)

**110** H2020 public partnerships (\*) participations

Or  
**5.11%**  
of total

**8** H2020 public partnerships (\*) coordinations

Or  
**8.08%**  
of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) Excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€198.75 million**

in actual national contributions in public partnerships during H2020 (2014-2020)

Or **9.14%** of total

**€2 175**

per researcher FTE (average between 2014-2019 based on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

For Horizon Europe, the overall coordination in the Netherlands is much more developed compared to the past. However, decisions about actual participation, roles and budget remains under the responsibility of the sectoral ministries and their agencies or research funders. This ensures a policy-oriented, impact-driven approach, as well as a scientific rationale.

New mechanisms have been set up to integrate decision making about participation in European Partnerships in relevant existing national funding structures. Since the science and innovation base in the Netherlands is very broad, as is reflected in the table below, no predefined thematic focus for participation has been defined.

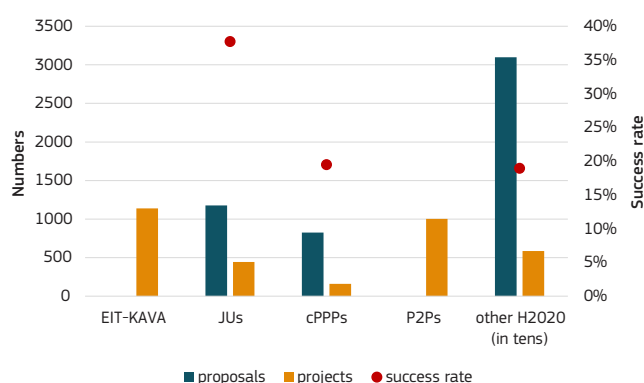


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	3.89 %	0.83 %	1.60 %	8.34 %
Climate action, environment, resource efficiency and raw materials	10.58 %	0.00 %	8.77 %	7.18 %
Europe in a changing world - inclusive, innovative and reflective Societies	6.15 %		3.28 %	5.06 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	5.88 %	10.16 %		8.38 %
Future and Emerging Technologies	1.67 %		1.12 %	4.98 %
Health, demographic change and wellbeing	50.61 %	41.68 %		29.30 %
Information and Communication Technologies		24.51 %	82.90 %	12.99 %
Secure, clean and efficient energy	14.31 %	5.30 %	2.34 %	12.02 %
Smart, green and integrated transport	6.91 %	17.53 %		11.75 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)

The overall success rate of the Netherlands in Horizon 2020 is above the average, which is reflected by the participation in different partnership types (Figure 1). Under Horizon Europe, Dutch participation is more policy-oriented than before, as well as more aligned with existing national R&I funding schemes. Sectoral ministries remain responsible for their thematic partnerships and work closely together on cross-sectoral aspects. The national ministries actively seek co-funding from national level funding sources, like existing subsidy programmes on energy and climate innovations.



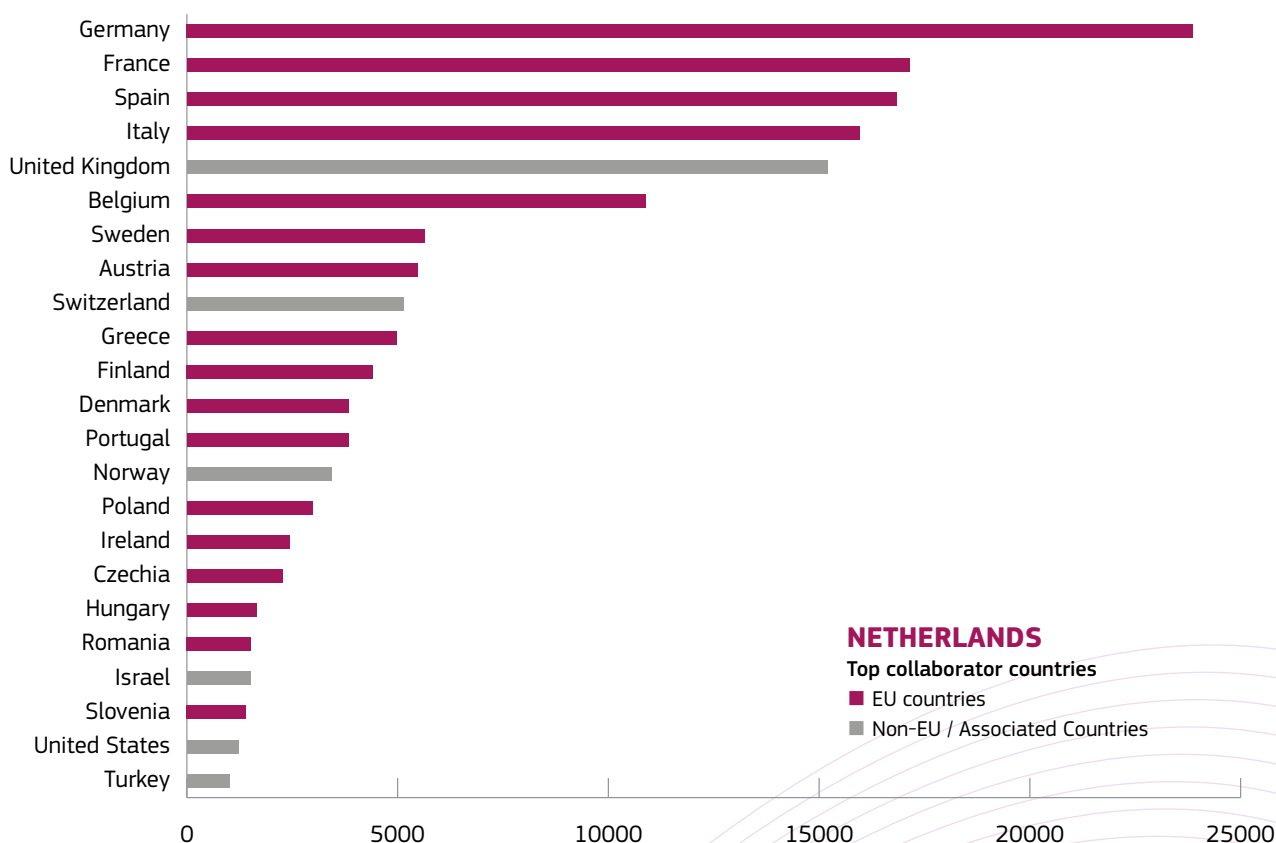
### ADDITIONAL INVESTMENTS TRIGGERED

The Netherlands welcomes the private investments that can be triggered by partnerships. This was one of the findings of the evaluation of Dutch participation in Eurostars-2. Furthermore, the Dutch government has made additional national investments with the goal of preparing and strengthening the position of Dutch participants in some of the public-private partnerships without member state contributions.

### COMPLEMENTARY AND CUMULATIVE FUNDING

Under Horizon 2020, synergies were successfully sought with existing national funding programmes, which aim to strengthen under Horizon Europe. Netherlands seeks programmatic synergies between EU programmes like Horizon and ESIF and national and regional programmes engaging the national and regional stakeholders and addressing partnerships amongst other instruments. Where appropriate and relevant, the Netherlands will explore this possibility of combining different programmes for Horizon Europe.

**FIGURE 3: Top collaborators of Dutch researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCORDA; Showing countries where links >1 000



## SUCCESS STORIES

- ✦ Active Dutch participation in JPIs has significantly broadened and deepened contacts and interactions between ministries and funding bodies of different European countries. JPIs created new and active trans-national communities with the shared interest of fostering research on specific (societal) themes.
- ✦ Based on the past experience, it has become more important for the Netherlands to integrate decision making about participation in European Partnerships under Horizon Europe in relevant existing national funding structures. The main national research funders often fund their participation jointly with sectoral ministries to guarantee alignment with national policies as well as with the R&I communities. The Dutch Research Council has embedded participation in the partnerships within the main national research agendas.
- ✦ Participation in public-private partnerships has triggered private investments and increased cooperation between private and public organisations, which significantly adds to creating and developing local and transnational thematic research and innovation ecosystems in Europe.



## KEY HIGHLIGHTS

Norway is actively engaged in public European R&I partnerships. Norwegian companies and research institutes are also active in industry-driven partnerships. Of the 99 public partnerships launched under Horizon 2020 and 10 JPIs, Norway takes part in 78 initiatives. Promoting collaboration with the EU is emphasised in the government's Long-Term Plan for Research and Higher Education, the government's Strategy for Research and Innovation Cooperation with the EU (Horizon and ERA) and the Action Plan for Internationalisation 2021-2027 by the Research Council of Norway (RCN). The RCN supported 434 projects in the co-funded calls of Horizon 2020 partnerships (2014-2019). The financial contributions to joint calls, normalised by the number of researchers, is one of the highest in Europe.

**78** H2020 public partnerships (\*)

Or **78.78%** of total (99 partnerships)

**83** H2020 public partnerships (\*) participations

Or **3.85%** of total

**3** H2020 public partnerships (\*) coordinations

Or **3.03%** of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) Excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€156.86 million**

in actual national contributions in public partnerships during H2020 (2014-2020)

Or **7.21%** of total

**€4 693**

per researcher FTE (average between 2014-2019 based on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY AREAS ADDRESSED

The national priority areas in the revised Long-Term Plan for Research and Higher Education (2019-2028) are:

- seas and oceans
- climate, the environment and clean energy
- public sector renewal and better public services
- enabling and industrial technologies
- societal security and social cohesion in a globalised world.

Norwegian participation in public partnerships is to a large degree in line with the priority areas, including climate, oceans and public sector/health. Industry-driven partnerships mainly overlap with the enabling and industrial technologies priority, but also include energy and transport.

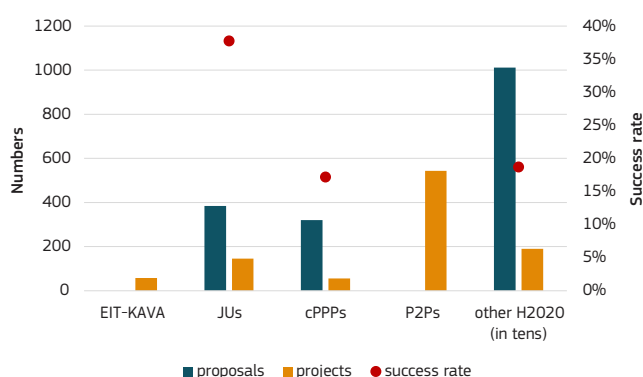


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

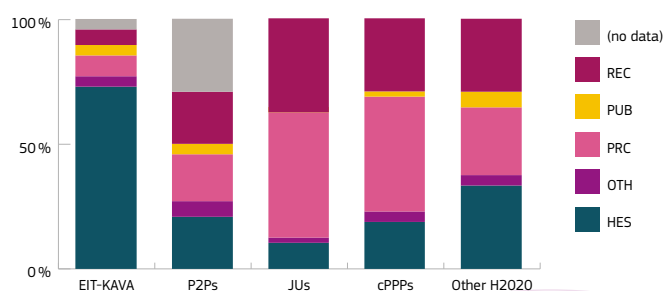
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	11.60 %	0.96 %	6.79 %	8.41 %
Climate action, environment, resource efficiency and raw materials	19.43 %	0.00 %	13.97 %	11.76 %
Europe in a changing world - inclusive, innovative and reflective Societies	2.92 %		8.39 %	6.40 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	19.72 %	28.87 %		9.53 %
Future and Emerging Technologies	0.11 %		0.50 %	2.97 %
Health, demographic change and wellbeing	31.96 %	8.61 %		21.76 %
Information and Communication Technologies		11.48 %	67.01 %	9.61 %
Secure, clean and efficient energy	9.73 %	8.27 %	3.34 %	17.09 %
Smart, green and integrated transport	4.54 %	41.81 %		12.46 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)



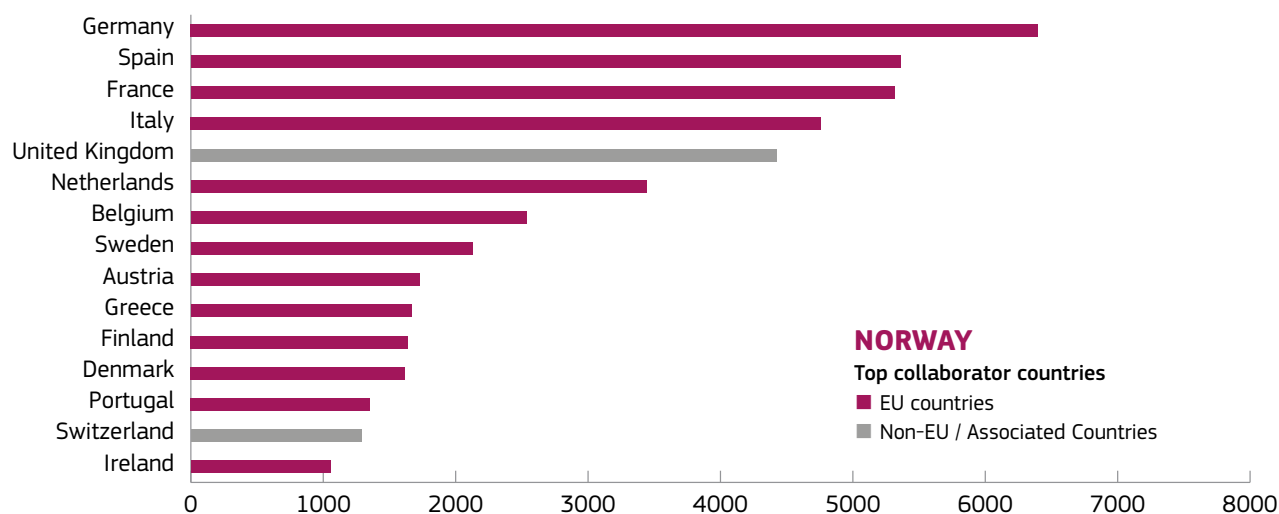
### ADDITIONAL INVESTMENTS TRIGGERED

For the new funding period, the government's strategy for Norwegian participation in Horizon Europe and ERA (2021-2027) states that Norway will have a stronger focus on combining funding from Horizon Europe with national and private funding to strengthen areas that are important to Norwegian research and innovation, society and economy. European Partnerships are especially emphasised. The sectoral ministries in cooperation with in particular the Research Council of Norway are responsible for their sectorial partnerships. The Ministry of Education and Research is responsible for national coordination.

### COMPLEMENTARY AND CUMULATIVE FUNDING

Norway is not a part of the EU's cohesion policy funds but contributes to cohesion through EEA and Norway grants, including support for participation in the ERA. For the period 2021-2027, Norway participation included DIGITAL, COSME, InvestEU and EDF in addition to Horizon Europe. The government's strategy for Norwegian participation in Horizon Europe and ERA (2021-2027) emphasises the need to develop synergies between participation in different EU programmes, including European Partnerships. Norway has so far committed to supporting participation in 14 co-funded and institutionalised partnerships with about EUR 200 million for the period 2021-2027.

**FIGURE 3: Top collaborators of Norwegian researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda; Showing countries where links >1 000



## SUCCESS STORIES

- ✦ Norway has been quite successful in the M-ERA.NET for research and innovation on materials and battery technologies, which supports the European Green Deal. Several projects have been published as success stories.
- ✦ The partnerships have broadened and deepened the collaboration between ministries and European research funding agencies and has contributed to mutual learning and the sharing of best practice.
- ✦ Norwegian participation in industrial partnerships (JU and cPPP) is often based on a collaboration between industry and a research institute (like SINTEF).

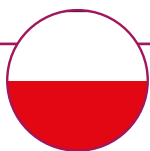
## Impact on alignment

- ✦ Participation in JPI Ocean has been very important to Norway. This cooperation has contributed to the alignment of research policy in this field in Europe. Norway has been very active in this initiative and is also a candidate coordinator for the Blue Economy partnership in Horizon Europe.

## Impacts at national level

- ✦ Participation in partnerships, as well as in Horizon Europe as such, gives access to funding, important networks and large European projects. This is important both for the industry, for research institutions and for important priority areas like energy, ocean and climate.
- ✦ Norway has coordinated a large partnership on CO2 capture and storage. There are Norwegian participants in many of the projects, and several of them have contributed to the government's climate policy.
- ✦ The GPC monitoring report found that two thirds of the investments in joint activities came from seven countries, among these Norway. This report also stated that Norway has improved its research capacity through partnership participation.
- ✦ The active involvement in partnerships' strategic planning on the national level has broadened and deepened contacts and interactions between the funding ministries and RCN as the implementing body.





## KEY HIGHLIGHTS

Decisions on participation in Horizon Europe partnerships are made on the basis of Poland's broad participation in Horizon 2020. Poland, through a number of institutions, was a member of almost three-quarters of all Horizon 2020 partnerships. Compatibility between national and EU framework programmes is enshrined in the Strategy for Responsible Development (SRD) up to 2020 (including the perspective up to 2030). The SRD also defines the goals of Poland's participation in the framework programmes. There is a National Science Policy and Productivity Strategy up to 2031 under development, both with a relationship to EU programmes. Polish coordination of ERA-Net co-funded initiatives contributed to spreading excellence across the European Research Area.

**72** H2020  
public  
partnerships (\*)

Or  
**72.73%**  
of total  
(99 partnerships)

**75** H2020  
public  
partnerships (\*)  
participations

Or  
**3.48%**  
of total

**3** H2020  
public  
partnerships (\*)  
coordinations

Or  
**3.03%**  
of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) Excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€51.07 million**

in actual national contributions in public partnerships  
during H2020 (2014-2020)

Or **2.35%** of total

**€487.4**

per researcher FTE (average between 2014-2019 based  
on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

Poland will participate in all HE pillars and intends to promote inclusiveness in research and the ERA. The largest resources will be allocated to areas related to a healthy society, green economy and innovative technologies and industrial processes. The priority areas are in line with the Strategy for Responsible Development and RIS3 as well as in the proposal for the Productivity Strategy. Poland recognises the importance of digital technologies and technologies that can ensure Europe's security and technological sovereignty: computing, microelectronic, quantum, photonics, digitalisation in manufacturing industry. Social sciences and the humanities are also important.

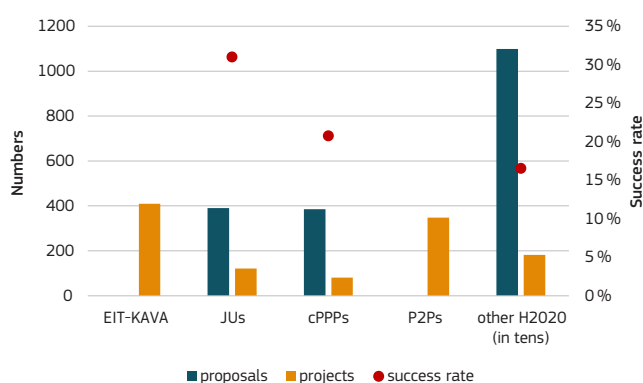


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

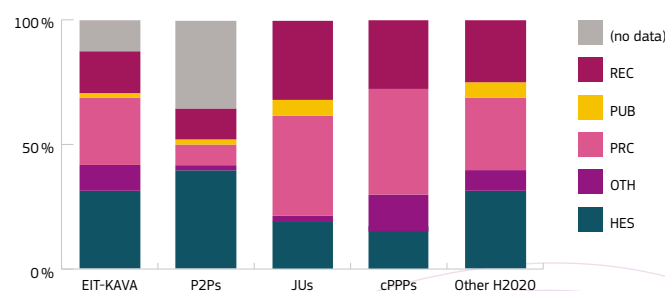
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	17.62 %	1.45 %	9.33 %	12.21 %
Climate action, environment, resource efficiency and raw materials	9.82 %	0.00 %	3.38 %	7.13 %
Europe in a changing world - inclusive, innovative and reflective Societies	3.17 %		2.12 %	10.30 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	24.14 %	17.31 %		6.29 %
Future and Emerging Technologies	4.89 %		2.98 %	4.82 %
Health, demographic change and wellbeing	32.72 %	4.40 %		7.69 %
Information and Communication Technologies		18.00 %	80.01 %	29.30 %
Secure, clean and efficient energy	2.98 %	2.31 %	2.19 %	11.91 %
Smart, green and integrated transport	4.65 %	56.54 %		10.35 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)

For many Polish applicants, participation in Horizon 2020 partnerships was a valuable experience, which allowed them to develop international cooperation links and apply this experience to other parts of the programme. For the funding agencies it was a steppingstone to the development of international cooperation programmes: building trust, increasing visibility, new chances, and better internal management.



### ADDITIONAL INVESTMENTS TRIGGERED

There was a steady increase in the number of entities interested in cooperation in Horizon 2020 partnerships. Thanks to the obligatory participation of enterprises in some of the initiatives, it was also possible to attract the private sector to Horizon 2020.

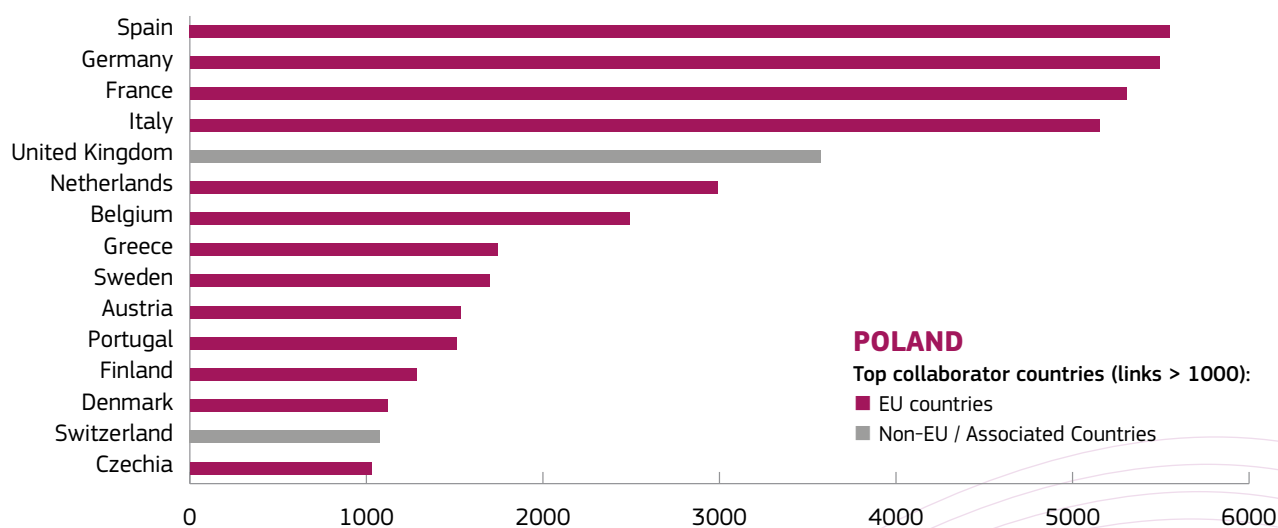
There is an ambition to take advantage of the synergy between national and European instruments. For this reason, Poland has changed the structure of its NCPs and incorporated NCPs into the main funding agency NCBR (National Centre for Research and Development).

Moreover sectoral ministries are involved in the relevant partnerships.

### COMPLEMENTARY AND CUMULATIVE FUNDING

The main complementary funding is provided by two main R&I funding agencies: the National Science Centre (national funding) and the National Centre for Research and Development (both national funding and ERDF and EDF funding). This should be understood not as cumulative funding, but rather as parallel to other programmes. Poland is interested in introducing actual synergies in funding between ERDF and Horizon Europe provided adequate guidelines are developed by the European Commission. ERA-NET Cofund was an important tool for achieving a higher success rate in calls for proposals additional funding from the EU helped fund more collaborative research projects and thus enhance impact of partnerships.

**FIGURE 3: Top collaborators of Polish researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda (showing countries of >1000 links)



## SUCCESS STORIES

- ✦ The success rate of Polish partners in applying to ERA-NETs was higher than that for regular Horizon 2020 calls. This led to a positive impact due to previous experiences on the decision to join European Partnerships in Horizon Europe.
- ✦ A coordination group consisting of representatives of the R&I funding agencies, NCPs and Ministry of Education and Science was established for monitoring the preparation and implementation of partnerships.
- ✦ A working group on the alignment of national and ERDF programmes with Horizon Europe was established at the National Centre for Research and Development (main funding agency).
- ✦ Sectoral ministries were involved in the partnerships planning phase.
- ✦ Inspired by the dialogue with the scientific community, the National Science Centre initiated and has been implementing QuantERA, QuantERA II and CHANSE, and the first ERA-NET Cofund programmes coordinated by an EU 13 country.
- ✦ The National Science Centre coordinated programmes that successfully engaged funding organisations from various regions of Europe, and introduced measures supporting the participation of researchers from less-performing countries in funded projects.
- ✦ The National Science Centre's participation in ERA-NET Cofund programmes was a stepping stone for building bilateral and multilateral initiatives with international partners, as well as the successful application for EU funds, such as MSCA co-fund programmes: Polonez and Polonez Bis.
- ✦ The Polish research community was mobilised to become involved in international consortia within Horizon 2020's ERA-NET Cofund programmes and perform research focused on significant societal challenges and enhance impact of the research results in collaboration with academic and non-academic stakeholders.



## KEY HIGHLIGHTS

Portugal's participation in Horizon 2020 partnerships was fully within the principles and purposes outlined in the Resolution of the Council of Ministers n.º 78/2016, which defines a set of general guidelines for the articulation of the internationalisation policy of higher education and science and technology with other public internationalisation policies.

Portugal's participation in Horizon 2020's partnerships contributed to the financing of R&D investment in areas of strategic importance to the country, and it is envisioned that Portugal's participation in Horizon Europe's partnerships will follow the positive trend.

**62** H2020  
public  
partnerships (\*)

Or  
**62.63%**  
of total  
(99 partnerships)

**72** H2020  
public  
partnerships (\*)  
participations

Or  
**3.34%**  
of total

**2** H2020  
public  
partnerships (\*)  
coordinations

Or  
**2.02%**  
of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) Excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€22.9 million**

in actual national contributions in public partnerships  
during H2020 (2014-2020)

Or **1.05%** of total

**€513**

per researcher FTE (average between 2014-2019 based  
on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

For Horizon Europe, Portugal will continue participating in partnerships with a focus on the following broad strategic areas:

- digitalisation
- climate action, including energy transition
- oceans
- health
- social sciences and humanities.

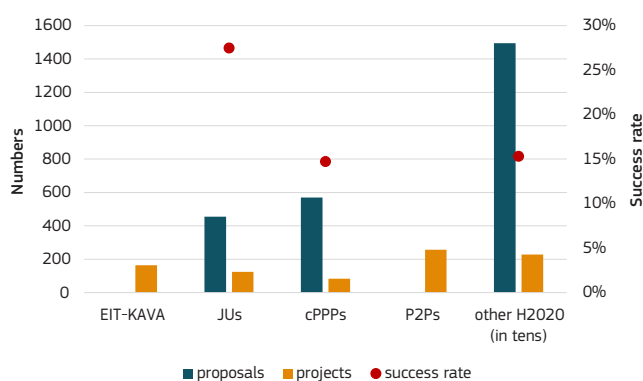


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

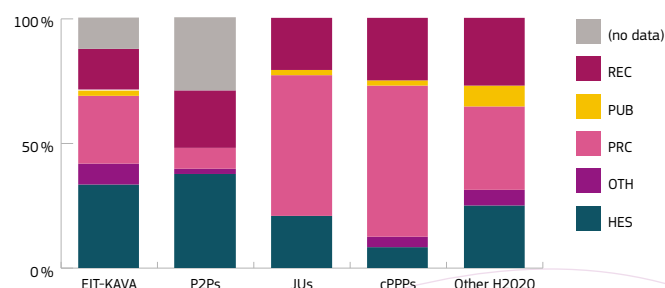
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	4.81 %	2.82 %	5.30 %	12.41 %
Climate action, environment, resource efficiency and raw materials	21.57 %	0.00 %	5.47 %	9.33 %
Europe in a changing world - inclusive, innovative and reflective Societies	1.96 %	0.00 %	10.32 %	9.95 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	25.68 %	25.35 %		9.67 %
Future and Emerging Technologies	1.59 %		0.59 %	5.40 %
Health, demographic change and wellbeing	32.97 %	17.36 %		11.44 %
Information and Communication Technologies		16.82 %	70.46 %	17.64 %
Secure, clean and efficient energy	8.30 %	1.32 %	7.86 %	16.77 %
Smart, green and integrated transport	3.13 %	36.33 %		7.38 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

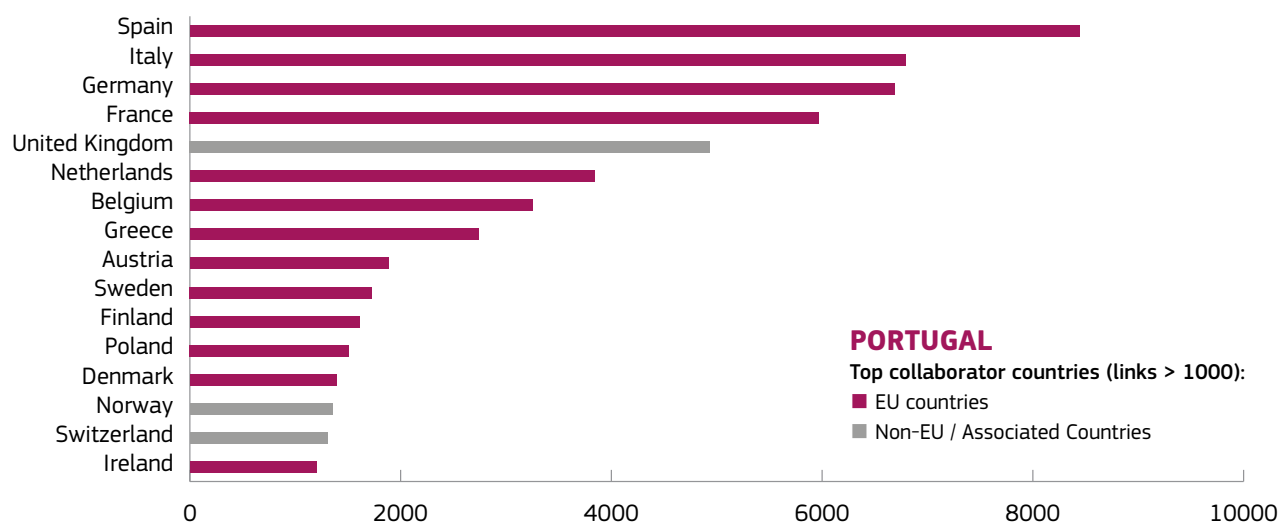
No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)



### ADDITIONAL INVESTMENTS TRIGGERED

Portuguese participation in European Partnerships has contributed to the financing of R&D activities in many different areas, which in many cases resulted in spill over effects and triggered additional complementary investments using other funding opportunities.

**FIGURE 3: Top collaborators of Portuguese researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda; Showing top collaborator-countries (links > 1000)



## KEY HIGHLIGHTS

*Not available*

**64** H2020  
public  
partnerships (\*)

Or  
**64.65%**  
of total  
(99 partnerships)

**70** H2020  
public  
partnerships (\*)  
participations

Or  
**3.25%**  
of total

**0** H2020  
public  
partnerships (\*)  
coordinations

Or  
**0%**  
of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) Excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€34.89 million**

in actual national contributions in public partnerships  
during H2020 (2014-2020)

Or **1.61%** of total

**€1 992**

per researcher FTE (average between 2014-2019 based  
on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

*Not available*



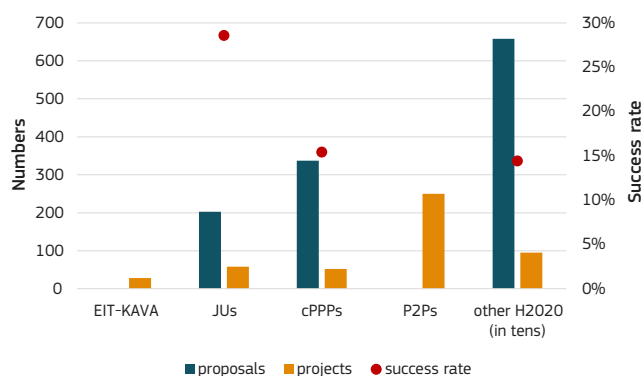


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

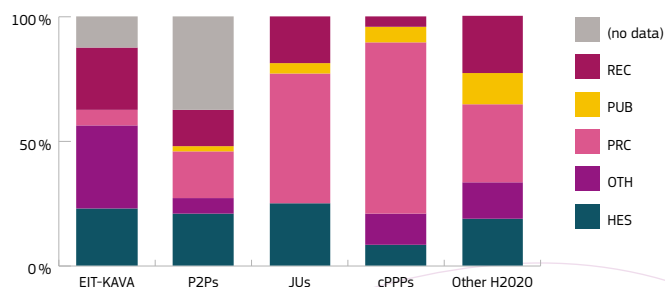
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	32.99 %	0.00 %	1.54 %	4.32 %
Climate action, environment, resource efficiency and raw materials	10.96 %	0.00 %	0.00 %	7.33 %
Europe in a changing world - inclusive, innovative and reflective Societies	0.00 %		36.50 %	19.97 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	13.82 %	57.81 %		8.86 %
Future and Emerging Technologies	2.22 %		1.14 %	2.14 %
Health, demographic change and wellbeing	32.89 %	4.14 %		12.00 %
Information and Communication Technologies		5.25 %	57.13 %	15.38 %
Secure, clean and efficient energy	5.04 %	0.71 %	3.69 %	15.94 %
Smart, green and integrated transport	2.09 %	32.09 %		14.07 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)



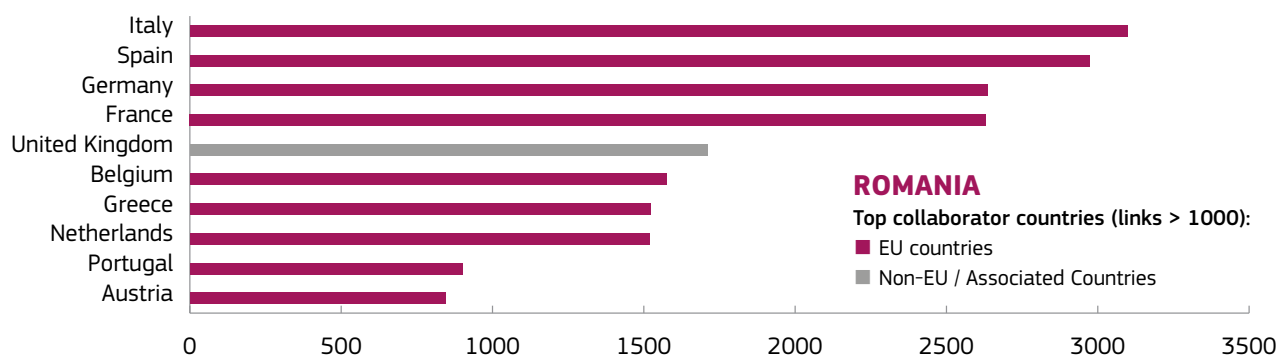
**ADDITIONAL INVESTMENTS AND QUALITATIVE IMPACTS**

*Not available*

**COMPLEMENTARY AND CUMULATIVE FUNDING**

*Not available*

**FIGURE 3: Top collaborators of Romanian researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda; Showing top-ten collaborator-countries



## KEY HIGHLIGHTS

Compared to Horizon 2020, support for Slovak participation in new Horizon Europe partnerships will be less fragmented and focus more on inter-sectoral cooperation. The available funding is expected to increase mainly through EU structural funds, which in Horizon 2020 did not match the interest from potential participants. A significant increase of the interest from the universities, business sector and relevant state authorities that want to participate in new Horizon Europe partnerships has been observed. Many actors are already participating in the preparatory phases. There is a strong national political support for increased participation in Horizon Europe partnerships. There is also an increasing focus on capturing synergies, for example through co-funding the participation of Slovak institutions from EU structural funds during the new programming period.



Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) Excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs.

Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€4.5 million**

in actual national contributions in public partnerships during H2020 (2014-2020)

Or **0.2%** of total

**€296**

per researcher FTE (average between 2014-2019 based on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

Slovak participation in the Horizon Europe partnerships will be aligned with the new updated Slovak smart specialisation strategy, RIS3 SK 2021+, which includes the following priority domains: vehicles for the 21st century, industry for the 21st century, digital Slovakia and creative industry, population health and medical technology, and healthy food and the environment.

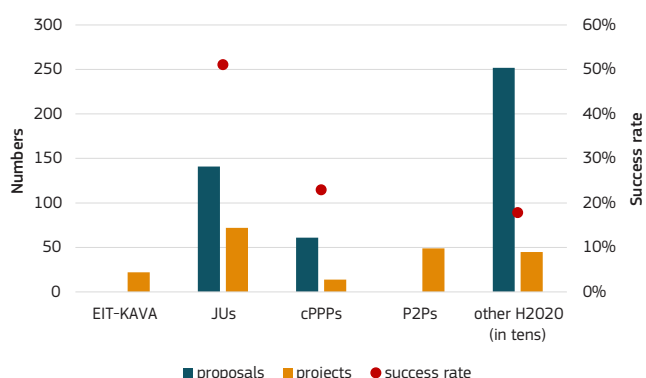


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	22.32 %	0.19 %	13.52 %	8.38 %
Climate action, environment, resource efficiency and raw materials	3.53 %	0.00 %	0.00 %	8.20 %
Europe in a changing world - inclusive, innovative and reflective Societies	0.00 %		8.68 %	16.02 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	0.58 %	74.14 %		11.46 %
Future and Emerging Technologies	9.70 %		0.00 %	2.33 %
Health, demographic change and wellbeing	61.48 %	0.00 %		6.62 %
Information and Communication Technologies		11.17 %	72.52 %	15.00 %
Secure, clean and efficient energy	2.39 %	0.00 %	5.29 %	18.40 %
Smart, green and integrated transport	0.00 %	14.51 %		13.60 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)



### ADDITIONAL INVESTMENTS TRIGGERED

Some Horizon 2020 partnerships were co-funded by the Ministry of Education, Science, Research and Sport of the Slovak Republic (e.g., ENIAC-ECSEL, EUROSTAR52, Neurodegenerative Disease Research), or different state authorities (e.g., EMPIR). The Slovak Academy of Sciences provided support for ERA-NETs.

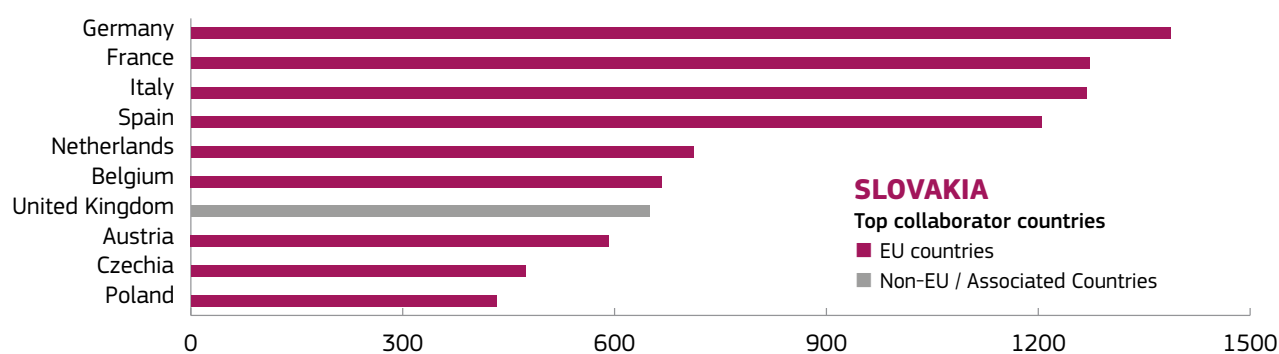
To increase participation in European Partnerships under Horizon Europe, a national programme supporting the preparation of Horizon Europe project proposals and a dedicated call to co-fund the participation of Slovak institutions in European Partnerships were designed. This scheme will be administrated by the Slovak Research and Development Support Agency.

### COMPLEMENTARY AND CUMULATIVE FUNDING

In Horizon 2020 no specific synergies with other EU programmes were supported. To increase the participation of Slovak institutions in Horizon Europe partnerships, the focus will be on synergies with EU structural funds. The participation of Slovak institutions in European Partnerships and the co-funding of partnerships calls will be supported from EU structural funds. ESIF calls are expected to increase the participation of Slovak institutions in Horizon Europe (none were implemented during Horizon 2020).

During Horizon 2020 no ESIF calls were implemented to support the participation in the new programming period. However Slovakia expects ESIF calls to increase the participation of Slovak institutions in Horizon Europe.

**FIGURE 3: Top collaborators of Slovak researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda; Showing the top-10 collaborator countries



### SUCCESS STORIES

- ✦ Support to increase the participation of Slovak institutions in new partnerships was recognised as a priority and was included in all major strategic documents on R&I support including the updated RIS3SK 2021+ Strategy and the Slovak Recovery and Resilience Plan.
- ✦ Impact on national coordination mechanism: Support for the participation in partnerships was endorsed by the Council for the European R&D Policies in Slovakia, which consists of representatives of relevant ministries, the Slovak Academy of Sciences, universities and business associations.
- ✦ However Slovakia are yet to finalise the coordination and monitoring mechanism for partnerships.



## KEY HIGHLIGHTS

Slovenian research performing and research funding organisations along with other institutions have enjoyed the concept of partnerships since FP6's ERA-NETs in. For a small country joining the EU in the fifth wave and which is less known to the European research community, it primarily meant enabled participation, strengthened transnational collaboration and an increased possibility to network. To some extent this led to an increased quality of research activities and of management of research projects, reflected in the improved quality of research projects at the national level. Due to a cumbersome research funding system, the support scheme for addressing grand societal challenges has never been effective and therefore inclusion in the JPIs has always been inadequate.

**42** H2020 public partnerships (\*)

Or **42.42%** of total (99 partnerships)

**42** H2020 public partnerships (\*) participations

Or **1.95%** of total

**0** H2020 public partnerships (\*) coordinations

Or **0%** of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) Excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€13.9 million**

in actual national contributions in public partnerships during H2020 (2014-2020)

Or **0.64%** of total

**€1 519**

per researcher FTE (average between 2014-2019 based on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

The main strategic document, the Resolution on Research and Innovation Strategy of Slovenia (2011-2020), does not prescribe or prioritise specific research fields. Therefore, the decision for various partnership collaborations has mostly been bottom-up, coming from a strong research base. With this approach several different research thematic fields have been supported. This can also be seen from Table 1, where, overall all thematic fields are addressed. The existence of a critical mass in a research field is not a precondition for support. Smaller research groups are equally supported, which has led to high success in the ERC grantees. With the newly adopted *Scientific Research and Innovation Activities Act* (November 2021), research fields are turned towards addressing grand societal challenges: climate change, energy, natural resources, health and aging.

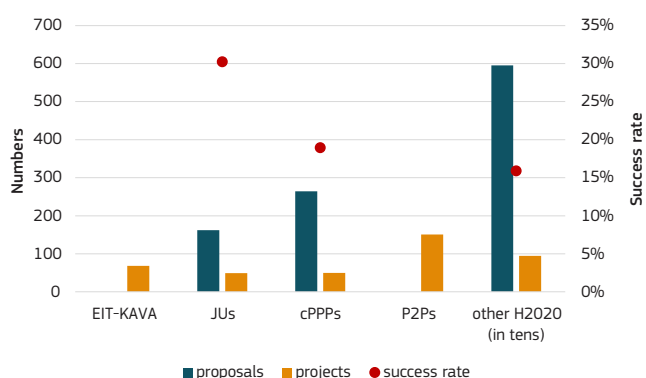


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

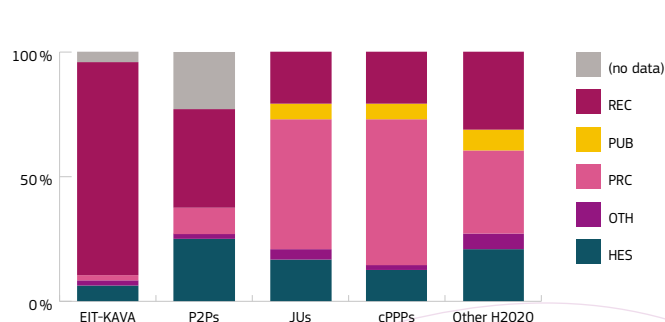
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	21.24 %	0.89 %	0.80 %	14.17 %
Climate action, environment, resource efficiency and raw materials	15.84 %	0.00 %	0.00 %	10.20 %
Europe in a changing world - inclusive, innovative and reflective Societies	3.18 %		21.92 %	7.60 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	15.70 %	30.99 %		7.14 %
Future and Emerging Technologies	3.71 %		0.00 %	2.55 %
Health, demographic change and wellbeing	27.21 %	6.43 %		8.49 %
Information and Communication Technologies		20.28 %	71.18 %	14.77 %
Secure, clean and efficient energy	10.92 %	10.81 %	6.10 %	23.13 %
Smart, green and integrated transport	2.20 %	30.61 %		11.94 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)

Due to the huge decrease of expenditure on research and development from 2014 onwards, Slovenian research performing organisations and other institutions have shifted their way of working and securing funding for R&I projects towards the framework programme. Precisely because of this, a large increase in the number of project proposals can be seen for Horizon 2020.





### ADDITIONAL INVESTMENTS TRIGGERED

Participation in additional joint calls seems to be a successful mechanism for increasing R&I project funding while supporting the priority thematic areas. These have also contributed to the development of internationalisation activities and policies, including at a bilateral level outside the EU. Additional activities, such as the participation in the development of thematic SRIAs, have been an excellent opportunity for including the Slovenian R&I priorities in the EU's research agenda.

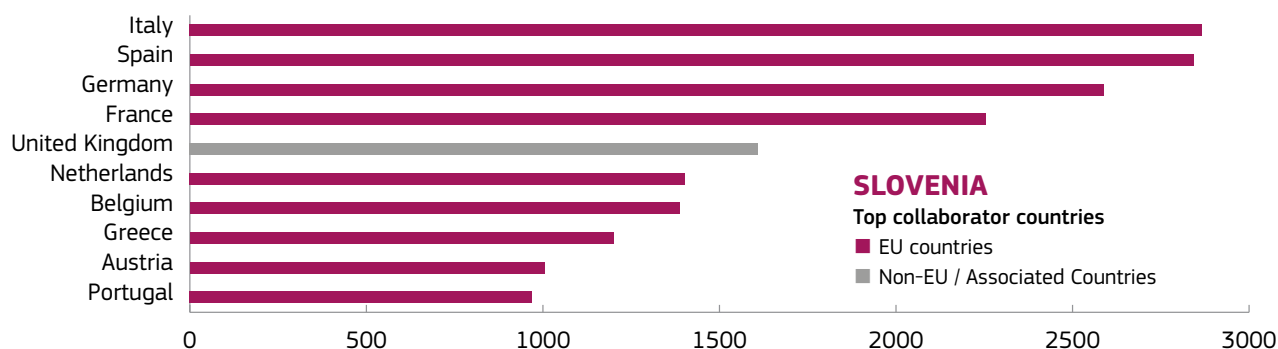
### COMPLEMENTARY AND CUMULATIVE FUNDING

Slovenia is funding its participation in the partnerships mostly from the state budget, except in the case of Eurostars, where the funding is made available through ERDF funds.

LIFE funding was used in some projects as a springboard to Horizon 2020.

Although possible, RRF will not be used for the European R&I partnerships.

**FIGURE 3: Top collaborators of Slovenian researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda; Showing the top-10 collaborator countries



## SUCCESS STORIES

- ✦ Slovenia is a relatively small country with a limited national budget for R&D. Since there are no specific research programmes that address societal challenges, it is difficult to secure advance commitment for partnership calls. On top of that, the lack of sufficient funding and human resources at the ministry continues to be a major barrier to more engaged participation in partnerships.
- ✦ A significant achievement in responding to the great interest of Slovenia's research base in participating in partnerships was the development of a procedure to formalise the decision making process for participation. A group was created involving the Director General of the Science Directorate, the Strategic Programme Committee delegate for Horizon 2020/HEU, relevant other Horizon 2020/HEU programme committee delegates, and the representative from the Research Funding Agency. Decisions are made based on several scoring criteria.
- ✦ Due to the involvement in the partnership landscape, the newly adopted Scientific Research and Innovation Activities Act prescribes that the financing of scientific research and innovation activities shall also be carried out by other ministries in accordance with their competencies.
- ✦ JPIs influenced national policy making with their SRIAs – the effect is noticeable in the strategic aspects of relevant national strategies related to the SRIAs of JPI JPND (dementia control strategy) and JPI Climate (strategic framework for adaptation to climate change).
- ✦ Under the EuroHPC partnership, Slovenia is hosting the Vega supercomputer, which became operational in 2021.
- ✦ Transnational joint calls for the ERA-NET scheme were a successful mechanism for developing great research and innovation collaborations and producing impactful R&I projects on the one hand, and on the other, increasing R&I project funding that increased international cooperation.
- ✦ Partnerships also helped to raise awareness among sectoral ministries on the role of R&I and the opportunities for collaboration.



## KEY HIGHLIGHTS

The participation of Spain in partnerships has experienced a significant increase during the last decade, being at the moment one of the most active countries in the EU.

The integration of the Spanish Research, Technology and Innovation System (SECTI) in the European Research Area, is one of the main goals of the new Spanish State Plan for Scientific, Technological Research and Innovation (PEICTI 2021-2023). It addresses the alignment of the main objectives and promotes the participation of Spanish entities (mainly RPOs and RFOs) in partnerships and joint programming initiatives.

For the Spanish researchers and entities, the participation in joint calls organised by partnerships allows for the less experienced to gain contacts and skills for future participation in Framework Programme calls.

**91** H2020 public partnerships (\*)

Or **92%** of total (99 partnerships)

**170** H2020 public partnerships (\*) participations

Or **8%** of total

**5** H2020 public partnerships (\*) coordinations

Or **5%** of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) Excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofunds, EJPs, Art 185 initiatives and JPIs.

Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€177.1 million**

in actual national contributions in public partnerships during H2020 (2014-2020)

Or **8%** of total

**€1 362**

per researcher FTE (average between 2014-2019 based on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

On the basis of the participation in partnerships, in H2020 calls, as well as the priorities of the PEICTI, Spain is willing to support strategic research areas such as energy, health, ICT, and environment, among others. As the figure above shows, Spain has participated in 92% of the total partnerships, showing the global country's interest in all thematic areas.

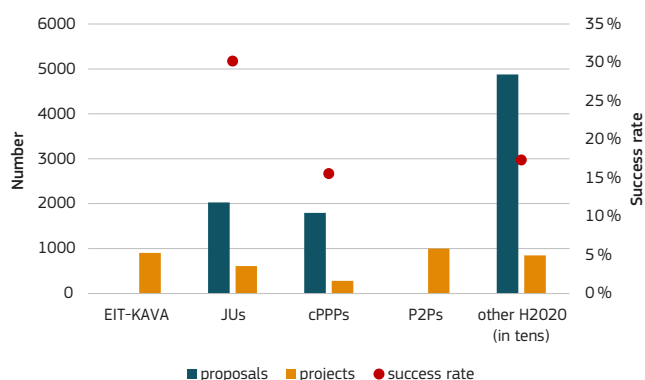


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

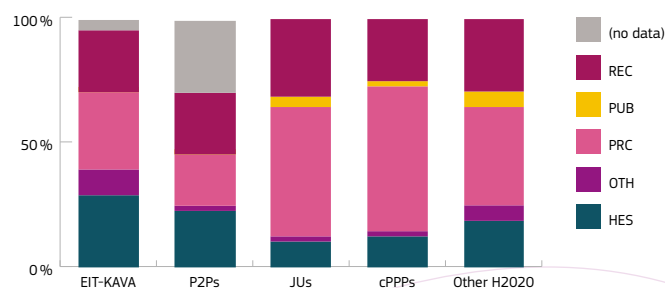
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	15.89 %	2.58 %	5.50 %	13.90 %
Climate action, environment, resource efficiency and raw materials	17.94 %	0.05 %	5.00 %	7.76 %
Europe in a changing world - inclusive, innovative and reflective Societies	1.72 %		7.88 %	5.95 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	27.50 %	14.27 %		7.53 %
Future and Emerging Technologies	2.48 %		1.92 %	6.03 %
Health, demographic change and wellbeing	24.22 %	16.66 %		13.35 %
Information and Communication Technologies		8.41 %	76.49 %	16.52 %
Secure, clean and efficient energy	6.10 %	3.82 %	3.20 %	13.70 %
Smart, green and integrated transport	4.16 %	54.22 %		15.25 %
	100,00%	100,00%	100,00%	100,00%

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; Values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2).



**ADDITIONAL INVESTMENTS AND QUALITATIVE IMPACTS**

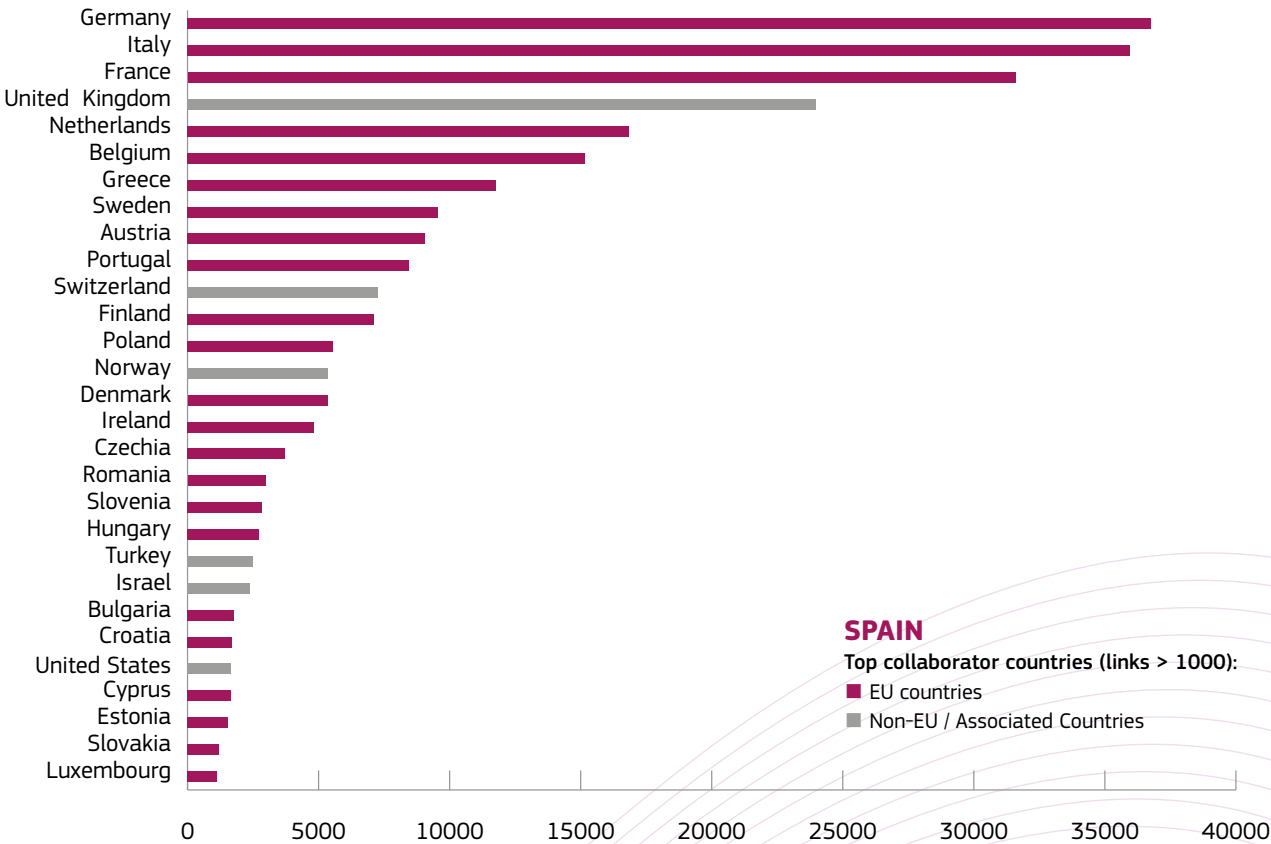
Participation in additional joint calls seems to be a successful mechanism for increasing R&I project funding while supporting the priority thematic areas. They have also contributed to the development of internationalization activities and policies, including at bilateral level outside the EU. Additional activities such as the participation in the development of thematic SRIAs have been an excellent opportunity for including the Spanish R&I priorities in the EU research agenda.

**COMPLEMENTARY AND CUMULATIVE FUNDING**

Funding agencies at National level have not used other EU Funds for cofunding Joint Transnational Calls during the period 2014-2020. Nevertheless, the PEICTI 2021-2023, counts with additional funding from the RRF to promote internationalisation of the STI system.

At regional level, some Smart Specialisation Strategies foresee the use of European Structural and Investment Funds to cofund joint international calls, enhancing the internationalisation of the regional STI systems.

**FIGURE 3: Top collaborators of Spanish researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda (showing countries of >1000 links)



## SUCCESS STORIES

- ✦ Alignment of the PEICTI and the Horizon Europe Programme towards the European Research Area.
- ✦ Creation of a national Joint Programming Working Group, for the coordination of the Spanish participation in joint programming initiatives.
- ✦ Development of the Agencia Estatal de Investigación Dashboard with data on project funding through joint calls.
- ✦ New and simplified national granting processes as a sort of ‘seal of excellence’, for the allocation of funds, by automatically accepting the peer review done during the international evaluation.
- ✦ National funded platforms and infrastructures are aligned with European Research Infrastructures (e.g. Biobank platform with BBMRI-ERIC, platform for clinical research with ECRIN-ERIC, etc.) and European initiatives (Beyond 1 Million Genome Project with IMPACT)
- ✦ Continuation of the participation in joint international calls, beyond the end of EC funded ERANETS. E.g. the 4<sup>th</sup> EULAC STI Call is foreseen to be launched by the end of 2021. Calls started with the FP7 ERANET-LAC. In the 4<sup>th</sup> Call preparation, four H2020 projects have collaborated: EULAC ResInfra, EULAC PerMed, SINCERE and ENIRCH LAC. This multiple project collaboration is another success story.



## KEY HIGHLIGHTS

Sweden has a long history of active and numerous participations in both public and industry-led European Partnerships. The country's high investment in R&I and international collaboration contributes to Sweden being a frontrunner in innovation, a knowledge society, and where R&I promotes a climate-neutral, fair, and resilient society which meanwhile strengthens industrial competitiveness. European Partnerships are a vital instrument contributing to this and a tool for reaching common objectives. In the national strategy for Horizon Europe, partnership funding will be further integrated with the priorities of national R&I funding.

**75** H2020 public partnerships (\*)

Or **75.8%** of total (99 partnerships)

**96** H2020 public partnerships (\*) participations

Or **4.5%** of total

**4** H2020 public partnerships (\*) coordinations

Or **4%** of total

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020) Excluding EIT-KICs, EuroHPC and ECSEL

(\*) Horizon 2020 public-public partnerships include ERA-NET Cofund, EJPs, Art 185 initiatives and JPIs. Partnership participations: number of partnerships a specific country takes part as participant – for certain countries more than one national organisation may take part. Thus the participations may be more than the number of partnerships a country is part of. Total partnership participations: number of partners from a specific country participating with any role (i.e. coordinator, participant, observer, other) in partnerships. Partnership coordinations: number of partnerships a specific country coordinates.

**€174 million**

in actual national contributions in public partnerships during H2020 (2014-2020)

Or **8%** of total

**€2 401**

per researcher FTE (average between 2014-2019 based on EUROSTAT data)

Source: ERA-LEARN database (cut-off date June 2021), H2020 period (2014-2020)

Actual national contributions is the funding given by each country to cover the participation of national science and technology groups in the funded projects of the joint transnational calls launched by the public partnerships. Actual contributions for each researcher are the total actual contributions by a country divided by the number of researchers in the country estimated in full-time equivalents (FTE) average between 2014-2019 based on EUROSTAT data.

## KEY INTENTIONS FOR THE FUTURE

The Swedish national R&I priorities are climate and the environment, health and welfare, digitalisation, skills and working conditions, and a strong and democratic society.

The priorities are reflected rather well in the P2P expenditure in Horizon 2020 as are Sweden's industrial strengths: transport, health, ICT, energy technology, forestry, raw materials and manufacturing. The coming European Partnerships cover these areas well and Sweden is committed to participate in most of these.

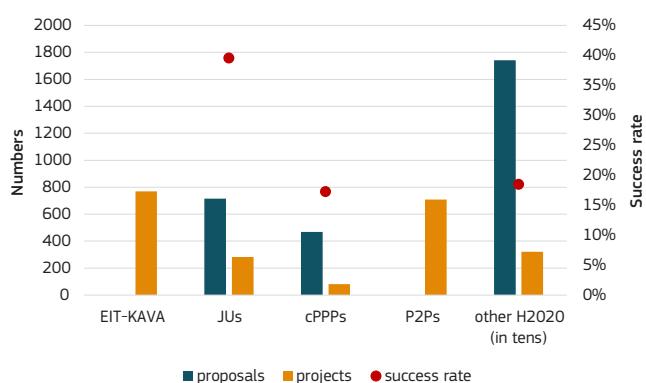


**TABLE 1: Distribution of funding under the different H2020 instruments (P2Ps, JUs, cPPPs and other H2020 projects, i.e. CSAs, RIAs, IAs, etc.) across thematic priorities**

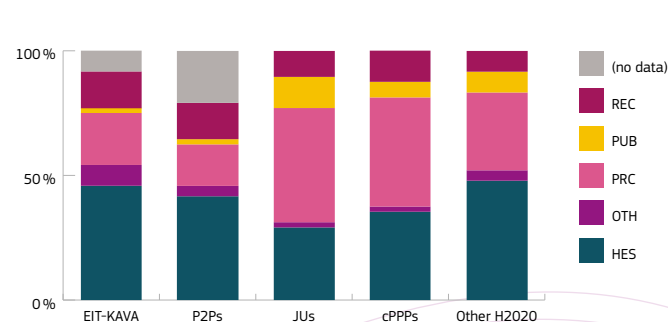
THEMATIC PRIORITIES	P2Ps PROJECTS	JUs PROJECTS	cPPPs PROJECTS	OTHER H2020 PROJECTS
Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, Biotechnology	0.00 %	1.37 %	11.51 %	9.45 %
Climate action, environment, resource efficiency and raw materials	26.41 %	0.00 %	5.76 %	8.43 %
Europe in a changing world - inclusive, innovative and reflective Societies	4.56 %		5.54 %	4.94 %
Food security, sustainable agriculture and forestry, marine and maritime and inland water research	13.14 %	7.84 %		4.90 %
Future and Emerging Technologies	3.43 %		6.17 %	9.72 %
Health, demographic change and wellbeing	30.57 %	24.67 %		19.32 %
Information and Communication Technologies		15.07 %	65.22 %	12.99 %
Secure, clean and efficient energy	7.79 %	1.90 %	5.79 %	11.98 %
Smart, green and integrated transport	14.10 %	49.15 %		18.27 %
	100,00 %	100,00 %	100,00 %	100,00 %

Source: ERA-LEARN database (cut-off date June 2021) based on actual national contributions for P2Ps; eCORDA based on net EU contribution; values are calculated as the share of investments of the specific instrument in the specific theme in the total investments under the specific instrument

**FIGURE 1: Eligible proposals, projects and success rates**



**FIGURE 2: Types of project beneficiaries (%)**



Source: ERA-LEARN database for P2Ps (cut-off date June 2021); eCORDA for EIT-KAVA, JUs, cPPPs, other H2020 projects (RIAs, CSAs, etc.)

No proposal data for P2Ps, EIT-KICs (Figure 1). EIT-KAVA: KIC Added Value Activities; HES: higher education; OTH: other; PRC: private for-profit companies; PUB: public bodies; REC: research organisations (Figure 2)





### ADDITIONAL INVESTMENTS TRIGGERED

European Partnerships have inspired Swedish thematic R&I programmes to tackle societal challenges with national programme committees and strategic R&I agendas.

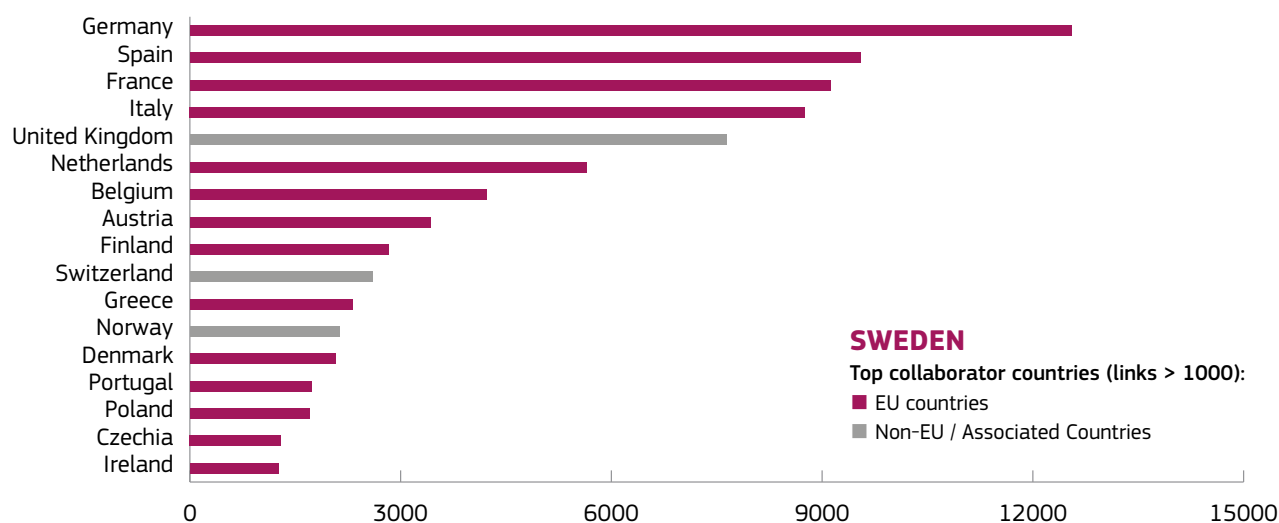
The EU gap-filling contribution has unlocked funding by making it possible to approve additional projects. This, in turn, includes more countries thereby widening the ERA.

### COMPLEMENTARY AND CUMULATIVE FUNDING

Sweden has launched 17 national research programmes and strategic innovation programmes to tackle societal challenges. Strengthening the links to European research and implementing the ERA are among the aims for these programmes that are important instruments for creating synergies between national funding and partnerships.

Synergies between partnerships and other EU funds have not been used to any great extent so far. Sweden plans to leverage synergies under Horizon Europe.

**FIGURE 3: Top collaborators of Swedish researchers under Horizon 2020 projects (including JUs, cPPPs, P2Ps and other H2020 projects)**



Source: eCorda; Showing countries where links > 1 000



## SUCCESS STORIES

- ✦ FP7 inspired Sweden to create an EU-coordination function (EU-sam) to enhance cooperation and synergies between the national funding agencies. EU-sam helps the funding agencies to cover funding gaps, promote multidisciplinary work, provide ERA policy advice to the ministries and to further align national funding with EU funding. Some EUR 20 million is earmarked annually for the national co-funding of partnerships via EU-sam.
- ✦ A total of 28 countries have joined the call to tackle antimicrobial resistance under the umbrella of JPIAMR, which is coordinated by Sweden. JPIAMR has been supported by several actions under Horizon 2020; it has found synergies with other JPIs, and has inspired national R&I programmes in Sweden and policy alignment.
- ✦ Eurostars is a successful instrument for Swedish innovative, R&D performing SMEs. During recent years Swedish project partners have been represented in many of the highest ranked projects and Sweden stands out as one of the countries with the highest number of applications as well as funded projects.
- ✦ In ERA-Net Smart Energy Systems (SES) Joint Call 2018, 23 projects were awarded funding. EU funds enabled Sweden to participate in a large share of the projects, which focused on developing integrated local and regional energy systems to meet the energy challenge. SES's funding budget exceeded EUR 30 million.



## 4. PROFILES OF EUROPEAN PARTNERSHIPS

### HIGHLIGHTS OF THIS CHAPTER

**The landscape of Horizon Europe partnerships and how it has evolved from H2020 is described in Chapter 1.**

BMR data collection – a Common Indicators Survey and partnership fiches – is a new process, the mainly successful completion of which relied on an intensive and interactive dialogue with the European Partnerships and hands-on support from the Expert Group and the Commission.

While the alignment between Partnership Specific Impact Pathways and Key Performance Indicators, and Horizon Europe objectives and other major European objectives is already considered as good, longer-term efforts to establish a more coherent and consistent set of indicators related to key European objectives could ensure an even more solid basis for monitoring and verifying performance and impacts within the partnership landscape and across wider ranges of policies and policy initiatives.

While still somewhat variable in quality, the partnership fiches provide a good overview of and insight into the Horizon Europe partnerships, especially into identified and potential synergies across the partnership portfolio and related European and national initiatives.

### 4.1 READING GUIDE FOR THE PARTNERSHIP FICHES

#### 4.1.1 INTRODUCTION

To facilitate the monitoring of individual performances of European Partnerships, a harmonised format, accessible to a broader readership of policymakers and citizens, was developed, within which partnership-specific content could be presented. This chapter, like the previous one for the individual countries, comprises individual partnership fiches including the following information by means of a 'snapshot':

- **Section 1:** Basic information on the partnership (name, type, partner composition, budget), a short mission and vision statement, the main UN SDGs the partnership contributes to, and the strategy map (also called 'Partnership Specific Impact Pathways' or PSIPs). This explains in a schematic narrative how each partnership is built up from its implemented actions, resources and processes during its lifetime, towards its expected outcomes and impacts both within and beyond its lifetime.
- **Section 2:** A table providing the most relevant partnership-specific KPIs, in accordance with the strategy map presented in section 1.
- **Section 3:** Thematic-inspired qualitative content in the form of past or ongoing success stories or intended/expected results. Up to three examples per partnership are described. The broader theme for this BMR is 'synergies', supported by subthemes relating to the twin transition (green, digital) and resilience.
- **Section 4:** Overview of the partnership members – per type<sup>104</sup> and geographical coverage. In the case of partnerships where the private members are represented by one or more associations (co-programmed European Partnerships and some JUs), the membership structure of the association is provided.

104) Six categories are used in this report: 1) University (university and other higher education organisations); 2) Research (public research organisation, including international research organisation as well as private research organisation controlled by a public authority); 3) SME (small and medium-sized enterprise), 4) Industry (industrial /profit private organisation); 5) Public (public authorities, ministries, research funders); 6) Other (includes, e.g. associations, technology clusters, non-profit organisations, consultancies or project management agencies).



The main objective of the individual partnership fiches within the BMR is to allow the readership to broadly discover the individual partnerships and understand their essential specific objectives in relation to broader societal objectives, as set out by the major EU and global policies (such as, but not limited to, the European Green Deal and UN SDGs). Each partnership fiche includes the interactive links necessary to find more detailed content.

## 4.1.2 METHODOLOGY AND PROCESS

The concept of the partnership fiche was first developed and tested together with a number of ‘pilot’ partnerships<sup>105</sup>. Following this pilot phase, intense interactive dialogues with all partnerships were subsequently set up to develop, in an iterative fashion, content within the agreed harmonised format, at the level of the strategy map (PSIPs) and the KPI table. Typically, several virtual meetings as well as written interactions between the partnership representatives and the assigned Expert Group members took place on virtual platforms, before the finalisation and approval of the content.

## 4.1.3 IMPORTANT NOTES FOR CONTENT INTERPRETATION

The 2022 BMR cycle took place within a context of partnerships’ ongoing negotiations with both the European Commission and partnership internal stakeholders. Thus, some fiches are not yet (fully) developed as the respective partnerships have yet to finalise defining their strategy map, objectives and KPIs.

Furthermore, the timing of the launch of the BMR cycle implied that earlier outputs in terms of defining strategic objectives (e.g. the intervention logic) and KPIs, often using more elaborate and different concepts, needed to be transformed towards broadly accessible (i.e. for non-experts) and more concise content and formats. As a result, essential KPIs often had to be selected from existing larger monitoring systems, leading to discussions within the partnerships or, alternatively, in new partnerships, initially KPIs still had to be defined and/or fine-tuned. These different stages of maturity in terms of the availability of monitoring systems and the associated content, coupled with ongoing negotiation processes, implies that more often than not, KPI tables are not yet complete in terms of content (e.g. targets for 2023, 2025, 2027 still need to be defined, or baselines must be defined and calculated). In other words, it is expected that the current content presented on the individual partnership fiches will be subject to minor, but certain changes (modifications, deletions and additions) towards the next BMR. The definition of KPIs, measurement methods and target setting for partnership-specific indicators requires substantial interactions with stakeholders, often requiring a lead-time of six to nine months to develop a first monitoring system. Therefore, it is expected that the next BMR will contain more stabilised content at the level of both strategy maps and KPI tables.

Finally, it is important to stress that while partnership fiches are fully consistent with legally binding documents (such as, but not restricted to: MoUs, SRIA, SBAs, Annual Activity Reports, etc.) describing joint commitments, rights and obligations between the European Commission and the partnerships (and potentially other legal entities), the content on the partnership fiches itself is not to be considered legally binding, nor exhaustive – e.g. in terms of stated objectives or KPIs (due to some partnerships’ vast area(s) of intervention). Therefore, interested readers are invited to visit either the European Commission and/or individual partnership websites to discover formal documents and/or additional and more detailed information on monitoring and evaluation.

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105) Photonics, Water4All, Driving Urban Transitions, European Open Science Cloud, Innovative Health Initiative.



## 4.2 INDIVIDUAL EUROPEAN PARTNERSHIP FICHES

The information presented below gives a snapshot of both the planned and currently active landscape across Horizon Europe partnerships.

### Pillar II - Global Challenges and European Industrial Competitiveness

#### CLUSTER 1 – HEALTH

Planned to comprise nine European Partnerships, six of which will be co-funded, two institutionalised, and one co-programmed.

Launched European Partnerships covered in this report are:

- 1. Innovative Health Initiative (institutionalised based on Article 187 TFEU)**
- 2. Global Health EDCTP3 (institutionalised based on Article 187 TFEU)**
- 3. Risk Assessment of Chemicals (co-funded)**

Other European Partnerships agreed in the first Strategic Plan 2021-2024:

4. Transformation of Health Care Systems (co-funded)
5. Personalised Medicine (co-funded)
6. Rare Diseases (co-funded)
7. One Health AMR (co-funded)
8. Fostering a European Research Area for Health Research (ERA4Health) (co-funded)
9. Pandemic Preparedness (co-programmed)

Budget (EUR million)	
EU contribution	2 710
Commitments from private partners	1 439.88
Commitment from public partners	711.37

The European Partnerships in this cluster are addressing the following expected impacts for the Horizon Europe Strategic Plan for 2021-2024:

- Living and working in a health-promoting environment
- Tackling diseases and reducing disease burden
- Ensuring access to innovative, sustainable, and high-quality health care
- Unlocking the full potential of new tools, technologies, and digital solutions for a healthy society
- Maintaining an innovative, sustainable, and globally competitive health-related industry.



## CLUSTER 4 – DIGITAL, INDUSTRY, AND SPACE

Planned to comprise 10 European Partnerships, 4 of which will be institutionalised and 6 co-programmed. No co-funded partnerships are planned.

Launched European Partnerships covered in this report:

- 1. Key Digital Technologies (institutionalised, based on Article 187 TFEU)**
- 2. Smart Networks and Services (institutionalised, based on Article 187 TFEU)**
- 3. EuroHPC (institutionalised, based on Article 187 TFEU)**
- 4. Metrology (institutionalised, based on Article 185 TFEU)**
- 5. AI, Data and Robotics (co-programmed)**
- 6. Photonics (co-programmed)**
- 7. Made in Europe (co-programmed)**
- 8. Clean Steel – Low Carbon Steelmaking (co-programmed)**
- 9. Processes4Planet (co-programmed)**

Other European Partnerships agreed in the first Strategic Plan 2021-2024:

10. Globally Competitive Space Systems (co-programmed)

Budget (EUR million)	
EU contribution	8 340
Commitments from private partners	9 151.16
Commitment from public partners	5 245.79

The European Partnerships in this cluster are addressing the following expected impacts for the Horizon Europe Strategic Plan for 2021-2024:

- Global leadership in clean and climate-neutral industrial value chains, the circular economy and climate-neutral digital systems and infrastructures (networks, data centres)
- Industrial leadership and increased autonomy in key strategic value chains with security of supply in raw materials
- Globally attractive, secure, and dynamic data-agile economy
- Open strategic autonomy in digital technologies and in future emerging enabling technologies
- Open strategic autonomy in developing, deploying, and using global space-based infrastructures, services, applications and data
- A human-centred and ethical development of digital and industrial technologies.



## CLUSTER 5 – CLIMATE, ENERGY, AND MOBILITY

Planned to comprise 11 European Partnerships, 2 of which will be co-funded, 4 institutionalised, and 5 co-programmed.

Launched European Partnerships covered in this report:

- 1. Clean Hydrogen (institutionalised based on Article 187 TFEU)**
- 2. Clean Aviation (institutionalised based on Article 187 TFEU)**
- 3. Single European Sky ATM Research 3 (institutionalised based on Article 187 TFEU)**
- 4. Europe's Rail (institutionalised based on Article 187 TFEU)**
- 5. Zero-Emission Road Transport (2ZERO) (co-programmed)**
- 6. Connected, Cooperative and Automated Mobility (CCAM) (co-programmed)**
- 7. Batteries: Towards a competitive European industrial battery value chain (BATT4EU) (co-programmed)**
- 8. Zero-emission Water Transport (co-programmed)**
- 9. People-centric Sustainable Built Environment (Built4People) (co-programmed)**
- 10. Clean Energy Transition (co-funded)**
- 11. Driving Urban Transitions (co-funded)**

<b>Budget (EUR million)</b>	
EU contribution	7 190
Commitments from private partners	10 740
Commitment from public partners	886.28

The European Partnerships in this cluster are addressing the following expected impacts for the Horizon Europe Strategic Plan for 2021-2024:

- Clean and sustainable transition of the energy and transport sectors towards climate neutrality facilitated by innovative cross-sectoral solutions
- More efficient, clean, secure, and competitive energy supply through new solutions for smart grids and energy systems based on more performant renewable energy solutions
- Efficient and sustainable use of energy, accessible for all is ensured through a clean energy system and a just transition
- Towards climate-neutral and environmentally friendly mobility through clean solutions across all transport modes while increasing global competitiveness of the EU transport sector
- Safe, seamless, smart, inclusive, resilient, climate neutral and sustainable mobility services for people and goods thanks to user-centric technologies and services, including digital technologies and advanced satellite navigation services.



## CLUSTER 6 – FOOD, BIOECONOMY, NATURAL RESOURCES, AGRICULTURE, AND ENVIRONMENT

Planned to comprise eight European Partnerships, seven of which will be co-funded, and one institutionalised. No co-programmed partnerships are planned.

Launched European Partnerships covered in this report:

- 1. Circular Bio-Based Europe (institutionalised based on Article 187 TFEU)**
- 2. Rescuing Biodiversity to Safeguard Life on Earth (Biodiversa+) (co-funded)**
- 3. Climate Neutral, Sustainable and Productive Blue Economy (co-funded)**
- 4. Water4All: Water security for the planet (co-funded)**

Other European Partnerships agreed in the first Strategic Plan 2021-2024:

5. Animal Health and Welfare (co-funded)
6. Sustainable Food Systems (co-funded)
7. Agriculture of Data (co-funded)
8. Accelerating Farming Systems Transition: Agroecology living labs and research infrastructures (co-funded)

Budget (EUR million)	
EU contribution	2 046
Commitments from private partners	1 000
Commitment from public partners	960

The European Partnerships in this cluster are addressing the following expected impacts for the Horizon Europe Strategic Plan for 2021-2024:

- Climate neutrality and adaptation to climate change
- Preservation and restoration of biodiversity and ecosystems
- Sustainable and circular management of natural resources; tackling pollution; bioeconomy
- Food and nutrition security for all from sustainable food systems from farm to fork
- Innovative governance models enabling sustainability, environmental observation.





## OTHER PILLARS

Planned to comprise 10 European Partnerships, 1 of which will be co-funded, 8 institutionalised (EIT regulation), and 1 co-programmed.

Launched European Partnerships covered in this report:

- 1. European Open Science Cloud (co-programmed)**
- 2. Innovative SMEs (co-funded)**
- 3. EIT Health (institutionalised based on EIT Regulation)**
- 4. EIT Digital (institutionalised based on EIT Regulation)**
- 5. EIT Manufacturing (institutionalised based on EIT Regulation)**
- 6. EIT InnoEnergy (institutionalised based on EIT Regulation)**
- 7. EIT Climate-KIC (institutionalised based on EIT Regulation)**
- 8. EIT Mobility (institutionalised based on EIT Regulation)**
- 9. EIT Food (institutionalised based on EIT Regulation)**
- 10. EIT Raw Materials (institutionalised based on EIT Regulation)**

<b>Budget (EUR million)</b>	
EU contribution	3 594
Commitments from private partners	No data available (KICs)
Commitment from public partners	1 233.3



# CLUSTER 1 HEALTH



## MISSION AND VISION STATEMENT

The Global Health EDCTP3 Joint Undertaking supports global collaborative research, capacity strengthening, and international initiatives to accelerate the development, evaluation, and implementation of interventions to prevent, identify, and treat infectious diseases and emerging/re-emerging infections in sub-Saharan Africa with the overarching goal to reduce overall mortality and morbidity.

The partnership's general objectives are to:

- reduce the socio-economic burden of infectious diseases in sub-Saharan Africa promoting the development and uptake of new or improved health technologies;
- increase health security in sub-Saharan Africa and globally by strengthening the research and innovation-based capacities for preparedness and response to control infectious diseases.

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 1: Health

**Type of Partnership:** Institutionalised (Art 187 TFEU) – joint undertaking

**Coordinating entity:** EDCTP3 members are represented by the EDCTP Association

**Total estimated budget:** EUR 1.6 bn

**EU commitments:** up to EUR 800 m

**Partners' commitments:** EUR 839 m\*

**Predecessor under Horizon 2020:** EDCTP 1 and EDCTP2

\* Out of which the members of the JU (EDCTP Association) is expected to contribute at least EUR 439 m and contributing partners EUR 400 m

## FIND OUT MORE

<https://www.edctp.org/>

[https://ec.europa.eu/info/research-and-innovation/research-area/health-research-and-innovation/edctp\\_en](https://ec.europa.eu/info/research-and-innovation/research-area/health-research-and-innovation/edctp_en)

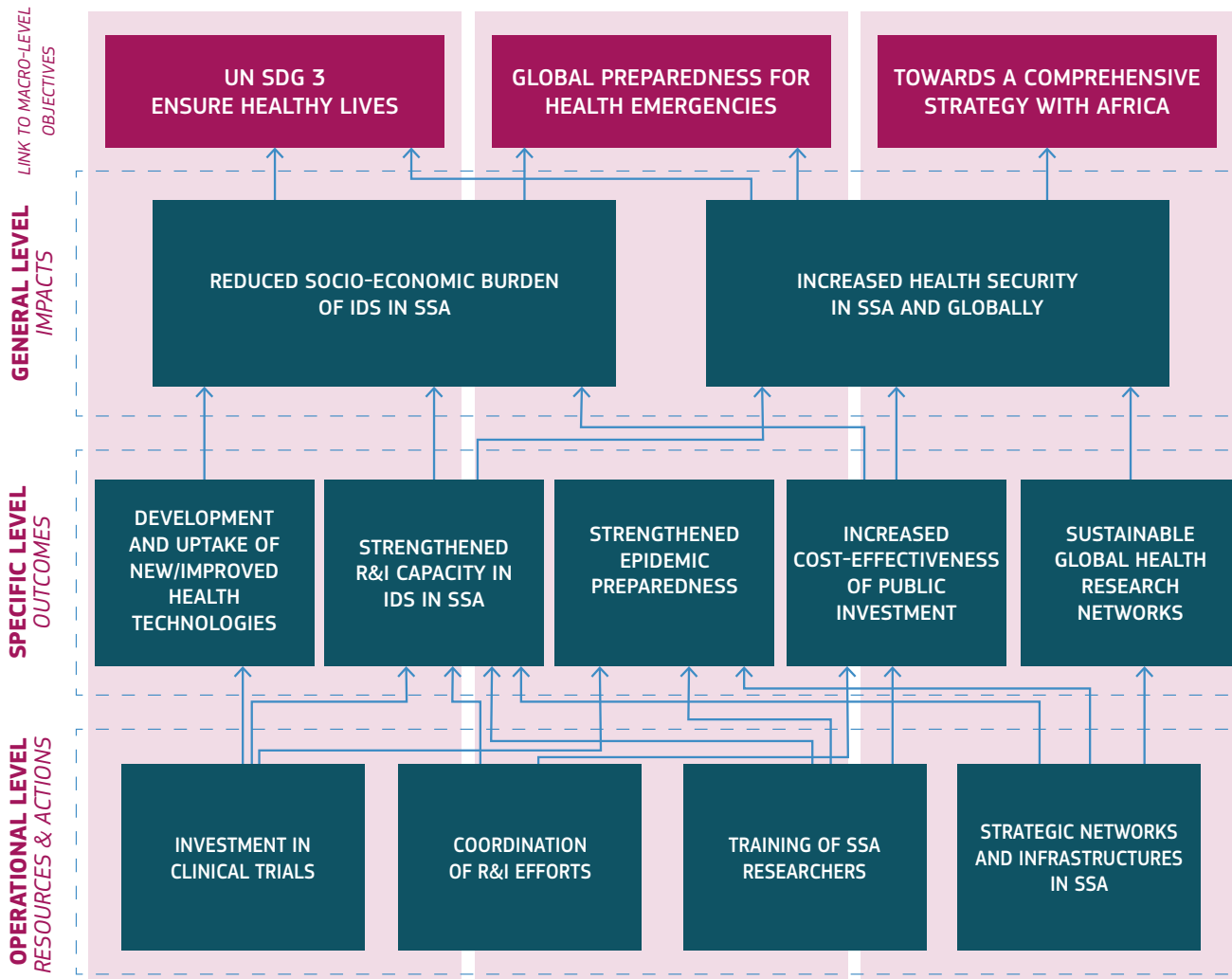
 @EDCTP

 [EC-GLOBAL-HEALTH-EDCTP3@ec.europa.eu](mailto:EC-GLOBAL-HEALTH-EDCTP3@ec.europa.eu)



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**

**PARTNERSHIP VISION: CONTRIBUTE TO SOCIETAL CHALLENGES THROUGH ...**



ID: infectious diseases  
SSA: sub-Saharan Africa


**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Investment in clinical trials	Funding (euro) # of projects (RIA)	EDCTP2	TBD	TBD	TBD	Sustained & increased
Investment in R&I coordination	Funding (euro)	EDCTP2	TBD	TBD	TBD	Sustained & increased
Capacity building in Sub-Saharan Africa (SSA)	Funding (euro) fellowships; funding other capacity building activities <sup>1</sup>	EDCTP2	TBD	TBD	TBD	Strengthened
Strategic partnerships development	# of partnerships	EDCTP2	TBD	TBD	TBD	Strengthened
<b>OUTCOMES</b>						
Development of health technologies	# licensed # advanced	EDCTP2	TBD	TBD	TBD	Increased
R&I capacity in infectious diseases in SSA	# publications external funding (euro)	EDCTP2	TBD	TBD	TBD	Strengthened
R&I epidemic preparedness in SSA	Funding (euro) invested; # projects	EDCTP2	TBD	TBD	TBD	Strengthened
Cost-effectiveness of public investment	# co-funded activities; # of additional activities between Member States	EDCTP2	TBD	TBD	TBD	Increased
Sustainable global health research networks	# of participating countries and institutions; Funding (euro) in third party contributions	EDCTP2	TBD	TBD	TBD	Increased
<b>IMPACTS</b>						
Burden of infectious diseases (IDs) in SSA <sup>2</sup>	Mortality caused by IDs in SSA  Disability-adjusted life years (DALYs) caused by IDs in SSA	WHO Mortality Data <a href="https://www.who.int/mortality/country-profile">Mortality Country profile (who.int)</a>  WHO data on the burden of disease <a href="https://www.who.int/global-health-estimates/leading-causes-of-dalys">Global health estimates: Leading causes of DALYs (who.int)</a>	N/A	N/A	N/A	Reduced
Health security	Average capacity of SSA countries to develop & maintain International Health Regulations (IHR)	As of October 2021, the WHO AFRO region had a 49 % average capacity <a href="https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports">e-SPAR Public (who.int)</a>	N/A	N/A	N/A	Increased

<sup>1</sup> EDCTP funds other capacity building activities aside from fellowships, such as activities in the area of strengthening ethics and regulatory capacity in SSA.

<sup>2</sup> Although the units of measurement selected for this impact do allow measuring whether the burden of IDs have increased/decreased, this burden is multi-factorial and thus the work and investment by EDCTP alone cannot decrease this burden.

General note to the reader: These KPIs have been simplified for the sake of clarity. Further details on the Global Health EDCTP3-specific KPIs can be found in the Strategic Research and Innovation Agenda, available here: [https://ec.europa.eu/info/sites/default/files/research\\_and\\_innovation/research\\_by\\_area/documents/ec\\_rtd\\_edctp3-sria-2022.pdf](https://ec.europa.eu/info/sites/default/files/research_and_innovation/research_by_area/documents/ec_rtd_edctp3-sria-2022.pdf)



## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

Due to its versatility and cross-sectoral integration, the Global Health EDCTP3 should be managed through close collaboration with other programmes and initiatives to create synergies and limit duplications. It is essential to design administrative mechanisms to appropriately address these synergies and complementarities. Synergies will be sought with the following European Partnerships:

- Innovative Health Initiative (IHI)
- One Health AMR
- Animal Health and Welfare
- Transformation of Health Care Systems
- Fostering an ERA for Health Research
- Key Digital Technologies
- High Performance Computing
- Smart Networks and Services.

### SYNERGIES: STORY 1

Partnership with the World Health Organization (WHO): WHO is a key partner for EDCTP and collaboration is happening at strategic and technical levels, with EDCTP staff actively participating in several WHO policy and technical advisory group meetings. EDCTP representatives participate in a variety of committees and working groups established by WHO, including the WHO R&D Blueprint Global Coordination Mechanism, several workstreams coordinated by the WHO Global Malaria Programme to address the double challenge of malaria & COVID-19, and the WHO-AFRO Expert Committee on Traditional Medicine for COVID-19.

### SYNERGIES: STORY 2

EDCTP became an active member of the ESSENCE on Health Research platform in 2020, an initiative that allows donors and funders to identify synergies, establish coherence and increase the value of resources for health research. EDCTP contributed to 1) the ESSENCE Working Group of Review of Investments (WGRI), which is developing a coordination mechanism for reviewing investments in clinical research capacity building in response to the World Bank and Coalition for Epidemic Preparedness and Innovation (CEPI) report *Money and Microbes: Strengthening Research Capacity to Prevent Epidemics*; as well as 2) the publishing and dissemination of a good practice document to guide funders on the best ways to invest in implementation science.

### SYNERGIES: STORY 3

In September 2020, EDCTP became a member-observer of the Global Research Collaboration for Infectious Disease Preparedness GloPID-R network, an alliance bringing together research funding organisations on a global scale to facilitate effective and rapid research to address a significant outbreak of a new or re-emerging infectious disease with epidemic and pandemic potential.

## OVERVIEW OF MEMBERS

*Not available*



## MISSION AND VISION STATEMENT

The Innovative Health Initiative (IHI) is a new joint undertaking under Horizon Europe. It will fund cross-sectoral collaboration in pre-competitive health research and innovation, involving patients, academia, healthcare professionals, healthcare delivery organisations, regulators, and pharmaceutical, medical technology and digital health companies.

The IHI intends to contribute to\*:

- help create an EU-wide health research and innovation ecosystem that facilitates translation of scientific knowledge into innovations;
- foster the development of safe, effective, people-centric and cost-effective innovations that respond to strategic unmet public health needs;
- drive cross-sectoral health innovation for a globally competitive European health industry.

IHI will cover the entire continuum of care, from prevention, diagnostics, to treatment and disease management.

\* IHI general objectives, SBA, article 1.4.1 of the *Framework of the proposal/initiative*, p. 224

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 1: Health

**Type of Partnership:** Institutionalised (Art 187 TFEU) – joint undertaking

**Name of coordinating entity:** The IHI industry partners are COCIR, EFPIA including Vaccines Europe, EuropaBio and MedTech Europe

**Total estimated budget:** EUR 2.4 bn

**EU commitments:** up to EUR 1.2 bn

**Partners' commitments:** EUR 1.2 bn\*

**Predecessor under Horizon 2020:** Innovative Medicine Initiative (IMI1 and IMI2)

\* Out of which the members of the JU are expected to contribute at least EUR 1 bn and contributing partners EUR 200 m.

## FIND OUT MORE

<http://www.ihieuropa.eu/>

[in https://www.linkedin.com/company/innovative-health-initiative/](https://www.linkedin.com/company/innovative-health-initiative/)

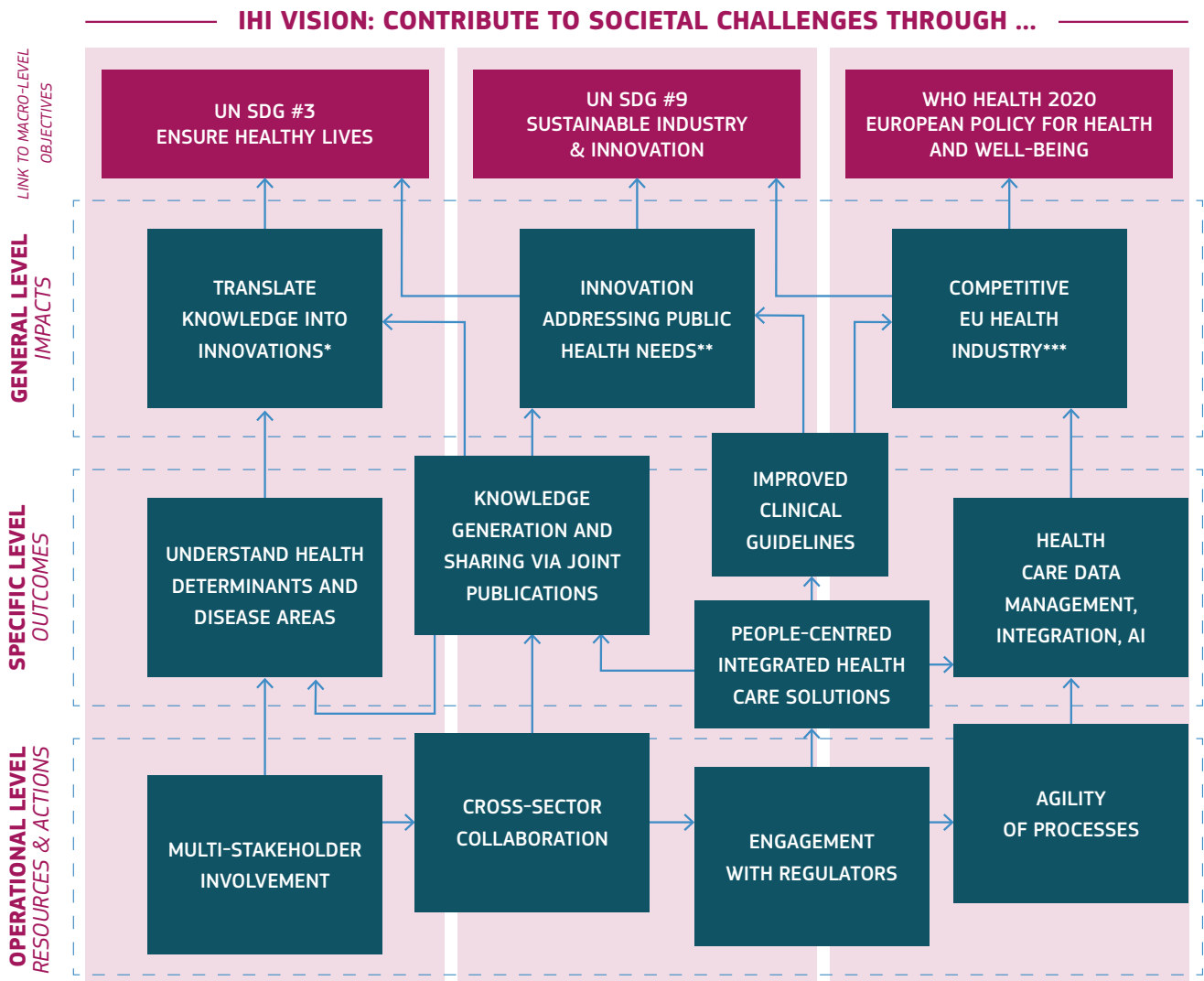
[tw https://twitter.com/IHIEurope](https://twitter.com/IHIEurope)

[yt https://www.youtube.com/c/TheInnovativeHealthInitiative](https://www.youtube.com/c/TheInnovativeHealthInitiative)

[✉ infodesk@ihieuropa.eu](mailto:infodesk@ihieuropa.eu)



PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)



\*IHI General Objective 1: Contribute toward the creation of an EU-wide health research and innovation ecosystem that facilitates translation of scientific knowledge into innovations

\*\*IHI General Objective 2: Foster the development of safe, effective, people-centric and cost-effective innovations that respond to strategic unmet public health needs

\*\*\*IHI General Objective 3: Drive cross-sectoral health innovation for a globally competitive European health industry





## PARTNERSHIP'S KEY PERFORMANCE INDICATORS

KPI NAME	UNIT OF MEASUREMENT	BASELINE <sup>1</sup>	TARGET <sup>2</sup> 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Health care stakeholder involvement	% projects involving > 2 types of stakeholders	50 %	55 %	60 %	65 %	70 %
Cross-sectoriality	% projects with private members from min. 2 technology sectors	25 %	TBD	TBD	TBD	TBD*
Regulator engagement	# projects interacting with regulators <sup>3</sup>	13	0	5	10	20
<b>OUTCOMES</b>						
Multi-stakeholders' collaboration	% publications	65 %	65 %	66 %	67 %	70 %
Public-private collaboration	% publications	65 %	65 %	66 %	67 %	70 %
Project outputs for use in clinical practice and health R&D&I	# new tools, biomarkers, taxonomies	100	10	50	120	150
Integrated health care solutions	# examples of people-centred, integrated project outputs	N/A	0	3	7	10
Value assessment of integrated solutions	# methodologies submitted to health care authorities and organisations	N/A	0	2	3	5
New or improved clinical guidelines	# contributing projects	13	0	5	10	20
Health data management	# common standards, protocols and frameworks	N/A	0	3	7	10
Data integration demonstration	# pilots	N/A	0	5	10	20
AI feasibility in healthcare	# pilots	N/A	0	1	2	3
<b>IMPACTS</b>						
Knowledge to innovation translation	# sustainable networks, collaborations, infrastructures, biobanks, collaborative platforms	10	0	4	7	15
Strategies to address unmet public health needs (WHO list)	% projects developing new or improved methodologies across disciplines	N/A	90 %	90 %	90 %	90 %
Globally competitive EU health care industry	# examples of cross-sector health innovation activities (e.g. spin-offs)	N/A	0	5	10	20



<sup>1</sup> Baselines are derived (where possible) from the Innovative Medicines Initiative (IMI2) as predecessor to IHI

<sup>2</sup> Reporting methodology: cumulatively reporting from the beginning of IHI until 31/12/2030

<sup>3</sup> In this document, the term 'regulators' refers to the different bodies involved in the processes regulating medical products (e.g., scientific assessment, production of scientific guidelines, scientific advice to manufacturers, granting/refusal/suspension of marketing authorisations, post-market surveillance, withdrawing/recalling of devices put on the market, authorisation and oversight of clinical trials). It includes the European Commission, National Competent Authorities (NCA), the Medical Device Coordination Group (MDCG), and the European Medicines Agency (EMA). Notified Bodies, while designated to perform a regulatory function (verification of medical device/in-vitro diagnostics conformity), cannot be considered as regulators in the strict sense of this definition. However, the potential input and expertise of Notified Bodies may still be relevant for the design and implementation of the activities of the proposed initiative.

There are difficulties in setting up baselines as some of the activities are relatively new or without a good reference (e.g. cross-sectoral collaborations). For the totally new activities, baselines are simply set to zero. As the first call will only be launched later in 2022, we expect that the targets for most indicators in 2023 will be zero.

The causal link between the activities of the partnership and the expected impact (e.g. competitiveness of industry) is difficult to establish; such impacts are very much multifactorial and an initiative like this one can only make a partial contribution, which is reflected in the monitoring framework. In addition, the development timelines for healthcare innovation are relatively long, especially due to regulatory requirements. That means most impacts will likely only become apparent after the end of the partnership. The proposed indicators are still under discussion and will be updated once the final agreement is reached.

\*TBD – the decision will be taken by the Governing Board in March 2022

## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

### TRIALS@HOME – DIGITAL HEALTH PROJECT

In 2020, the IMI2 Trials@Home consortium collaborated with ECSEL JU (predecessor to KDT JU) to help define an ECSEL call for technology developers who could develop/fine-tune their devices to meet the exact needs of the Trials@Home remote clinical trials. The collaboration included a public information campaign and a brokerage event.

The IMI2 **conect4children (c4c)** project and the European Joint Programme on Rare Diseases (EJP RD) have established a Joint Steering Committee in order to coordinate activities, promote synergies and avoid redundant work. With respect to the United States, c4c is working with iACT (the Institute for Advanced Clinical Trials for Children) on specific activities (a confidential disclosure agreement with iACT has been executed relating to collaboration in global interoperability and education). iACT is an independent non-profit organisation in the United States formed by the Critical Path Institute (C-Path).

IHI plans to explore **future synergies** with the planned European Partnership on Transforming Health and Care Systems (THCS) which will be of particular importance as it may provide input for identifying scientific priorities, notably regarding unmet public health needs. Solutions proposed in the context of IHI could enable organisational innovations developed in the THCS partnership.

## OVERVIEW OF MEMBERS

*Not available*

## Partnership for the Assessment of Risks from Chemicals



### MISSION AND VISION STATEMENT

Partnership for the Assessment of Risks from Chemicals (PARC) will establish an R&I hub of excellence to support EU and national chemical risk assessment and management with new data, knowledge, methods, networks and skills to address current and emerging chemical safety challenges.

PARC will facilitate the transition to next generation RA to better protect human health and environment. PARC will address end-users' needs to anticipate and respond to the challenges and priorities of the new European policies.

By promoting a high-level network of expertise on chemical assessment at national and EU level, PARC will enable the EU's Chemicals Strategy for Sustainability Towards a Toxic-Free Environment (CSS).

### KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 1: Health

**Type of partnership:** Co-funded

**Name of coordinating entity:** French Agency for Food, Environmental and Occupational Health & Safety (ANSES)

**Total estimated budget:** EUR 400 m

**EU commitments:** EUR 200 m

**Partners' commitments:** EUR 200 m

**Predecessor under Horizon 2020:** HBM4EU initiative 'co-ordinating and advancing humanbiomonitoring (HBM) in Europe'

### FIND OUT MORE

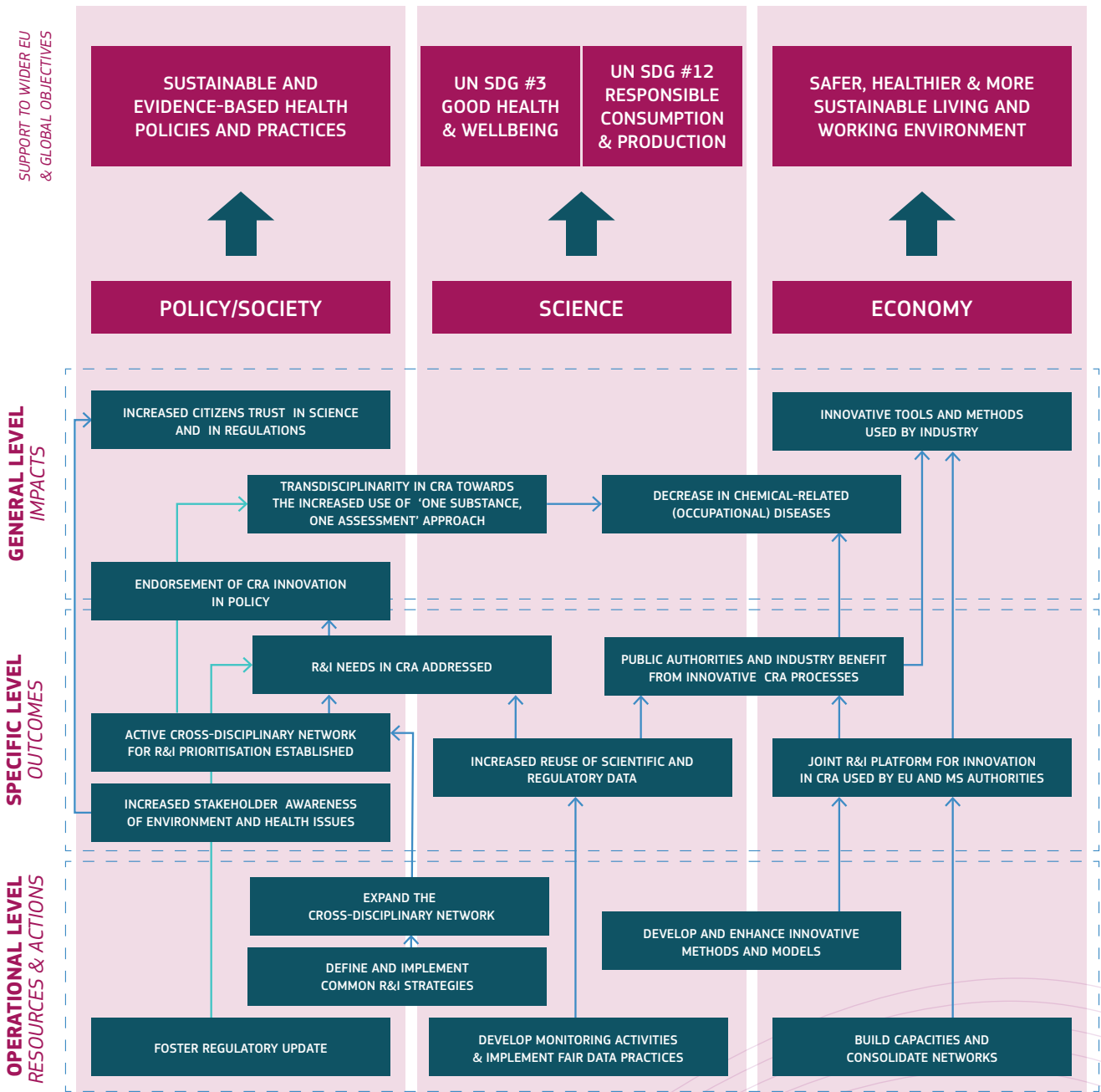
<https://www.anses.fr/>

✉ [parc@anses.fr](mailto:parc@anses.fr)



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**

**ADDRESS CURRENT, EMERGING AND NOVEL CHEMICAL SAFETY CHALLENGES AND ENABLING THE TRANSITION TO THE NEXT-GENERATION RISK ASSESSMENT**



CRA: Chemical Risk Assessment



**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Cross-disciplinary network	Number of partners involved in the PARC	HBM4EU	↑	↑	↑	All CRA disciplines are involved
Common R&I strategies	Number of projects/ activities approved for implementation	0	↑	↑	↑	TBD
FAIR data practices	Proportion of datasets developed that are FAIR/partially FAIR	0	↑	↑	↑	100 %
Capacities and resources	Number of entities in the risk assessment network catalogue	TBD	↑	↑	↑	Sufficient coverage at EU level
<b>OUTCOMES</b>						
Active cross-disciplinary network for R&I prioritisation	% of countries that are actively involved in the network	28 countries	→ or ↑	→ or ↑	→ or ↑	100 % of countries that stay actively involved
Stakeholder awareness	number of activities that target stakeholders	0	↑	↑	↑	100 % of stakeholders that are aware and stay actively involved in CRA
Reuse of scientific and regulatory data	number of data set generated by PARC and reused	0	↑	↑	↑	TBD
Use of innovative CRA processes by public authorities	Number of public authorities which uses PARC output	0	↑	↑	↑	100 % of public authorities involved in PARC indicate benefit from PARC activities
<b>IMPACTS</b>						
Endorsement of CRA innovation in policy	Number of citations of PARC outputs/results in policy documents	0	↑	↑	↑	100 % of PARC policy recommendations considered by policymakers
Citizen trust in science and regulations	Number of activities that target citizens	0	↑	↑	↑	TBD
Support toward 'one substance one assessment' approach	Number of activities that contribute to 'one substance, one assessment' approach	0	↑	↑	↑	TBD

The contribution of PARC to the defined outcomes and wider impacts, and the activities implemented to maximise these, will be followed closely throughout the partnership to measure its performance and ultimately to provide a robust justification for the long-term sustainability of PARC's activities. PARC's impact pathway is defined in its monitoring frame to provide a qualitative and quantitative-based indication of the scale and significance of PARC's contribution to the expected outcomes and impacts. The initial set of indicators, including baselines and clear targets, will be further developed and revised regularly, with PARC's different boards and stakeholders, to ensure their relevance for evaluating the progress of the partnership's key, useful and impactful results and focus of the relevant target groups to maximise this impact and exploitation. The table above highlights some of the indicators at the impact, outcome and operational level.

## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

### SYNERGIES: STORY 1

PARC will continue the development of monitoring capacity acquired in HBM4EU<sup>1</sup> by extending the HBM platform created and enhancing the collaboration between the teams working in the field of HBM and those in charge of environmental monitoring. PARC will also pursue the development of HBM in the EU in close collaboration with the European Human Exposome Network (EHEN)<sup>2</sup> cluster of Horizon 2020 research and innovation action on the exposome. For the environment, PARC will collaborate with the NORMAN network<sup>3</sup> which has recognised experience in emerging contaminants. PARC will build knowledge acquired in other large scale projects funded under previous research framework programmes, such as:

- EU-ToxRisk<sup>4</sup>, an integrated European flagship programme driving mechanism-based toxicity testing & risk assessment;
- The European Cluster to Improve Identification of Endocrine Disruptors (EURION)<sup>5</sup> of eight Horizon 2020 projects, designed to develop new testing and screening tools for endocrine disruptors.

<sup>1</sup> <https://www.hbm4eu.eu/>

<sup>2</sup> <https://www.humanexposome.eu/>

<sup>3</sup> <https://www.norman-network.net/>

<sup>4</sup> <http://www.eu-toxrisk.eu/>

<sup>5</sup> <https://eurion-cluster.eu/>

### SYNERGIES: STORY 2

PARC will strengthen interactions between the research community, risk assessors at EU and national regulatory level and other chemical risk assessment stakeholders (industry, NGO, citizens, etc.). The National Hubs (NHs) network will act as fora for discussion between chemical risk assessment stakeholders and provide crucial opportunities to cooperate and create synergies with all actors involved in chemical risk assessment.

The NHs will allow the harnessing of all available expertise on the ground and guarantee a close feedback loop between PARC and national programmes. These NHs are of utmost relevance to disseminate PARC interests and outputs, and to raise citizens' awareness.

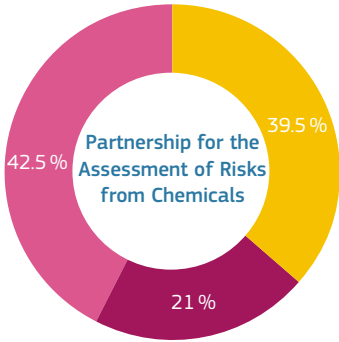
### SYNERGIES: STORY 3

The partnership has been designed to deliver outputs corresponding to the needs of end-users. To do so, it will ensure close collaboration between EU and national chemical risk assessment and management authorities. Concretely, a Science to Policy dialogue (S2PD) and interface will be implemented to build a joint R&I risk assessment hub of excellence to address chemical safety challenges. This S2PD will allow to identify the priorities in terms of risk assessment and risk management and to facilitate the uptake of PARC results contributing to create a sustainable engagement of the chemical risk assessment community on joint R&I priorities.



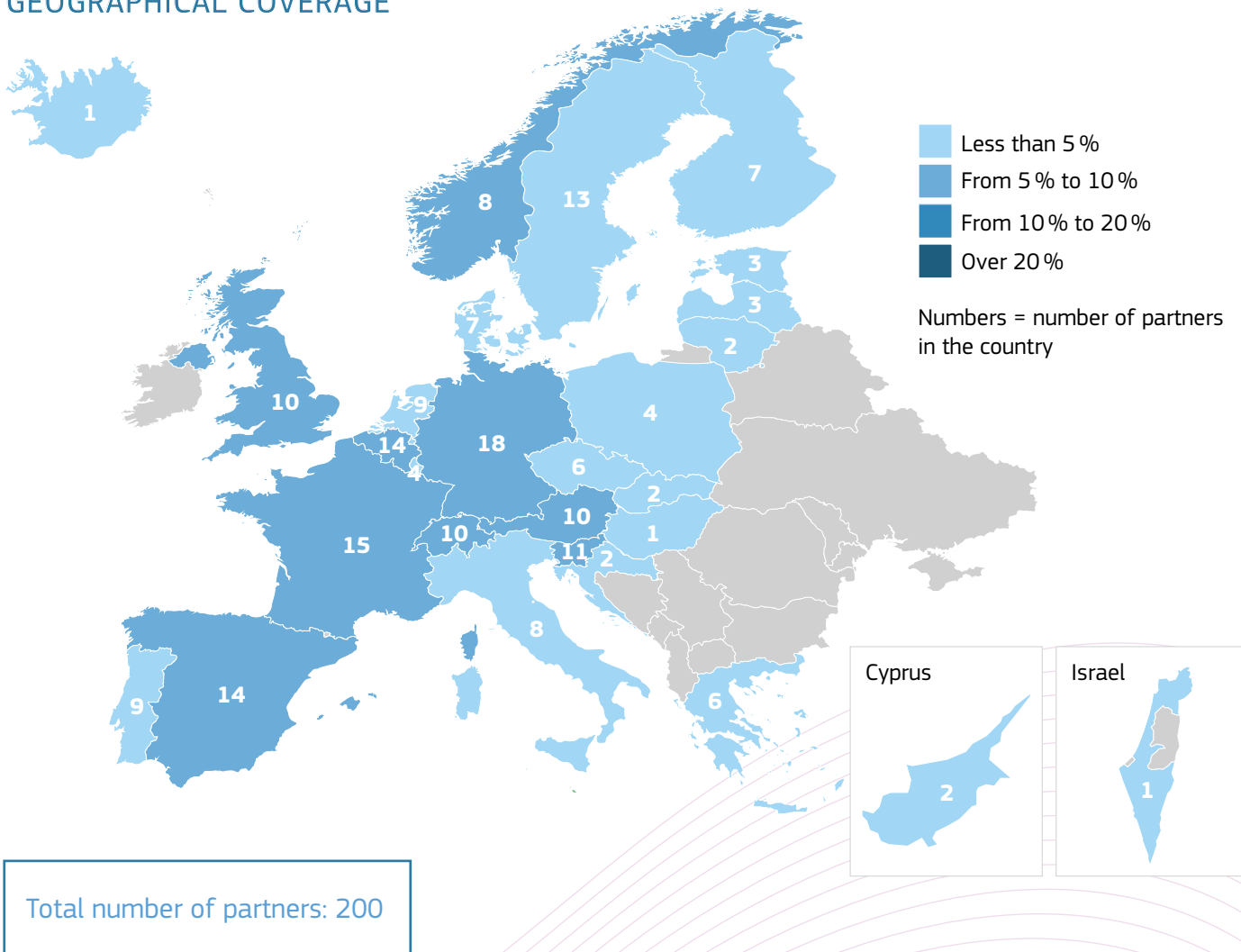
## OVERVIEW OF MEMBERS

### MEMBERS PER TYPE



- UNIVERSITY** University and other higher education organisations
- RESEARCH** Public research organisation (including international research organisation as well as private research organisation controlled by a public authority)
- PUBLIC** Research funders, ministries, regions, cities

### GEOGRAPHICAL COVERAGE





# **CLUSTER 4 DIGITAL, INDUSTRY, AND SPACE**





## MISSION AND VISION STATEMENT

Key Digital Technologies (KDT) Joint Undertaking encompasses electronic components, their design, manufacture and integration in systems and the software that defines how they work. The overarching objective of this partnership is to support the digital transformation of all economic and societal sectors and the European Green Deal, as well as support research and innovation towards the next generation of microprocessors. Together with the Declaration on a European Initiative on processors and semiconductor technologies signed by 20 Member States, an upcoming alliance on microelectronics, and a possible new Important Project of Common European Interest under discussion by Member States to foster breakthrough innovation, this new partnership will help boost competitiveness and Europe's technological sovereignty.

The new KDT partnership aims to:

- Provide innovative electronic components and systems, software and smart integration to digital value chains, providing secure and trusted technologies tailored to the needs of user industries and citizens. This will help reinforce Europe's potential to innovate.
- Develop and apply these technologies to address major global challenges in mobility, health, energy, security, manufacturing and digital communications. This will contribute to and strengthen Europe's scientific and technological bases.
- Better align R&I and industrial policies for a joint approach in mastering these drivers of innovation.
- Further reading:
  - Strategic Research and Innovation Agenda: [https://www.kdt-ju.europa.eu/sites/default/files/2021-12/2021\\_ECS-SRIA-final\\_1501.pdf](https://www.kdt-ju.europa.eu/sites/default/files/2021-12/2021_ECS-SRIA-final_1501.pdf)
  - Annual Activity Report 2020 (ECSEL): <https://www.kdt-ju.europa.eu/sites/default/files/2021-06/ECSEL%20GB%202021.157%20-%20Annex%20AAR%202020.pdf>

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 4: Digital, industry and space

**Type of partnership:** Institutionalised (Art 187 TFEU) – joint undertaking

**Coordination entity:** Private members are represented by the AENEAS and INSIDE Associations. The Participating States and the Commission are represented by the Public Authorities Board

**Total estimated budget:** EUR 6.1 bn

**EU commitments:** EUR 1.8 bn

**Partners' commitments:** EUR 2.5 bn (private sector) + EUR 1.8 bn (participating countries)

**Predecessor under Horizon 2020:** The Electronic Components and Systems for European Leadership (ECSEL) JU



**FIND OUT MORE**

[www.kdt-ju.europa.eu](http://www.kdt-ju.europa.eu)

[in https://www.linkedin.com/company/kdt-ju/](https://www.linkedin.com/company/kdt-ju/)

[https://twitter.com/KDT\\_JU](https://twitter.com/KDT_JU)

✉ [enquiries@kdt-ju.europa.eu](mailto:enquiries@kdt-ju.europa.eu)

**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**

*Not available*

**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

*Data not available*

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
<b>OUTCOMES</b>						
<b>IMPACTS</b>						

The KDT JU fiche is not complete due to the recent Chips Act proposal of the European Commission and the expected impact on the KDT JU. For more information, please refer to: [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_22\\_729](https://ec.europa.eu/commission/presscorner/detail/en/ip_22_729).

**SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES**

*Not available*

**OVERVIEW OF MEMBERS**

*Not available*



## MISSION AND VISION STATEMENT

The Smart Networks and Services (SNS) partnership targets a reinforced European leadership in the development and deployment of next generation network technologies, connected devices and services. It will provide solutions beyond the technological improvements of connectivity platforms, bringing unique new service capabilities with wider economic implications. Thus, it will also focus on the full digitisation of European society including vertical industries (e.g., automotive, health, Industry 4.0, maritime, broadcasting and media, public safety, transport, utilities, etc.) and public administrations. The aim is to progress towards the technological and business realisation of the 6G vision and ensure a clear European voice on 6G around the world. The vision is the massive digitalisation of societal and business processes through intelligent connectivity across the human, physical and digital worlds.

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 4: Digital, industry and space

**Type of partnership:** Institutionalised (Art 187 TFEU) – joint undertaking

**Coordinating entity:** 6G Smart Networks and Services Industry Association (6G-IA)

**Total estimated budget:** EUR 1.8 bn

**EU commitments:** EUR 900 m

**Partners' commitments:** Up to EUR 900 m

**Predecessor under Horizon 2020:** a new partnership that builds on the results of the 5G cPPP

## FIND OUT MORE

<https://6g-ia.eu/>

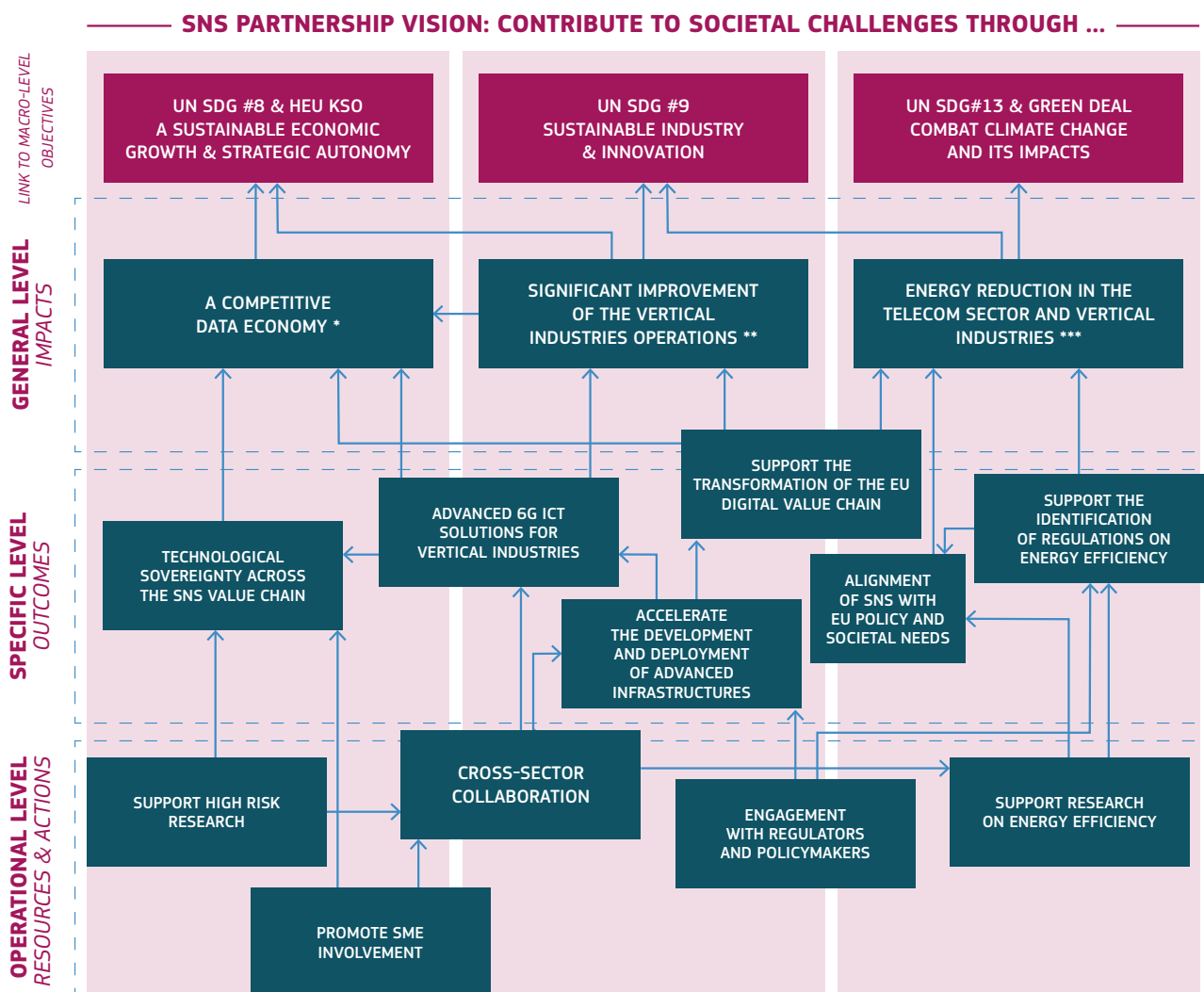


Private partner's contact address: [Office@6g-ia.eu](mailto:Office@6g-ia.eu)

European Commission contact address: [CNECT-E1-SNS@ec.europa.eu](mailto:CNECT-E1-SNS@ec.europa.eu)



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**



\*SNS Objective 1 (SBA): advance European technological and scientific excellence to support European leadership to shape and master 6G systems by 2030

\*\*SNS Objective 2 (SBA): prepare the European smart networks and services supply industries for the longer-term opportunities emerging from the development of vertical markets for 5G and later 6G infrastructures and services in Europe

\*\*\*SNS objective 3 (SBA): accelerate the development of energy-efficient network technologies with the aim of significantly reducing the energy and resource consumption of the whole digital infrastructure by 2030 and decreasing the energy consumption of key verticals industries supported by smart networks and services technologies

**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
SME innovation and participation	% participation	N/A	20 %	20 %	20 %	20 %
Rapid diffusion	# of end-user workshops & webinars [cumulative]	0	25	60	90	125
High risk research funding	% of total	0	50 %	40 %	30 %	N/A
Standardisation contributions	# of standards development organisations [cumulative]	0	50	350	750	1000
Share on family patents	% of patent families	0	15 %	15 %	15 %	15 %
	Patent grant rate		60 %	60 %	60 %	60 %
Scientific excellence	# of publications [cumulative]	0	100	400	700	1000
Collaboration and synergies with other partnerships	# collaborations [cumulative]	0	2	5	6	6
<b>OUTCOMES</b>						
Development of energy efficient networks	White papers [cumulative]	GeSI report on energy consumption by 2030	1	2	3	>3
Technological solutions consensus building	White papers [cumulative]	0	1	2	3	N/A
Advanced 6G solutions for verticals	White papers [cumulative]	0	3	6	10	N/A
<b>IMPACTS</b>						
A competitive data economy	% market share for the communication network	40 %	N/A	N/A	N/A	N/A
Programme-level consensus on 6G KPIs	White papers [cumulative]	NetworldEurope SRIA	1	2	3	N/A
Uptake of digital solutions within verticals	# of large-scale trials [cumulative]	0	3	6	10	>10
Energy efficiency of cellular telecommunication networks	% increase	Legacy cellular systems (4G)	N/A	N/A	N/A	N/A

- KPIs for resources processes and activities 2, 4, 6, 7; outcomes 1, 2, 3; and impact 2, 3 consider cumulative numbers during the lifetime of the SNS partnership.
- Funding for high-risk research is expected to decrease as after 2025 the standardisation process for 6G networks is expected to be fully active.
- Market share by EU headquartered companies is currently set at a baseline of 40% for the communications market. The targets for the following years are expected to be set by 2023 as until then no 6G results will be available by the projects and their adoptions at a market level will take longer.
- Setting up the 6G KPIs is an ongoing process. As a baseline, the KPIs from Networld Europe SRIA as well as ongoing efforts from 5G PPP ICT-52 projects will be considered (not currently available).
- For impact KPI 1 the relevant target values for market share in sectors such as cloud computing and, IoT will be delivered by end of 2023.
- For impact KPI 4 the target values will be defined in 2023.

## **SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES**

### **SYNERGIES: STORY 1**

In 2021 the 6G-IA has collaborated with the AENEAS industrial association, (Key Digital Technologies - KDT partnership) and under the context of the COREnect (European Core Technologies for future connectivity systems and components) project. The target was to identify potential opportunities for maximising the opportunities for the European micro electronic industry to successfully contribute to the mid-term 6G standardisation discussion. In addition, the SNS community has contributed with input in the Electronics Components and Systems (ECS) Strategic Research and Innovation Agenda (SRIA) and presented potential topics in the Visions of ECS beyond a 2023 workshop. Moreover, 6G-IA is currently working on identifying how these topics can be mapped in envisioned 6G architecture, as developed by the 5G PPP Hexa-X project.

### **SYNERGIES: STORY 2**

In 2020 6G-IA and the CCAM partnership collaborated to clarify the activities of the two partnerships and the scope of their activities. In 2021 the communication link between the two partnerships was re-established to coordinate on activities of common interest (e.g., SDA for CEF2). SNS will additionally explore future synergies with Photonics, HPC and AI, Data and Robotics partnerships. The SNS proposal indicated that biennial workshops will be organised with the related partnerships to exchange information about key findings, opportunities, etc. Moreover, collaboration with these partnerships is expected to take place for the preparation of future SRIAs and WPs.

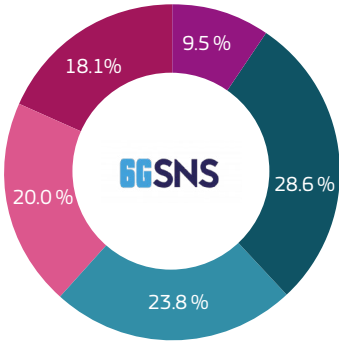
### **SYNERGIES: STORY 3**

SNS plans to explore future synergies with key vertical sectors by leveraging existing partnership agreements with industry fora in such domains as automotive, transportation, media, manufacturing, public safety, cybersecurity and satellites. Partnership agreements are intended to be extended to further sectors such as health and utilities. Partnership agreements allow a better understanding among ICT stakeholders and vertical industries. The goal is to identify functional requirements from the vertical industries and candidate ICT solutions that can address them through appropriate 6G validation trials.



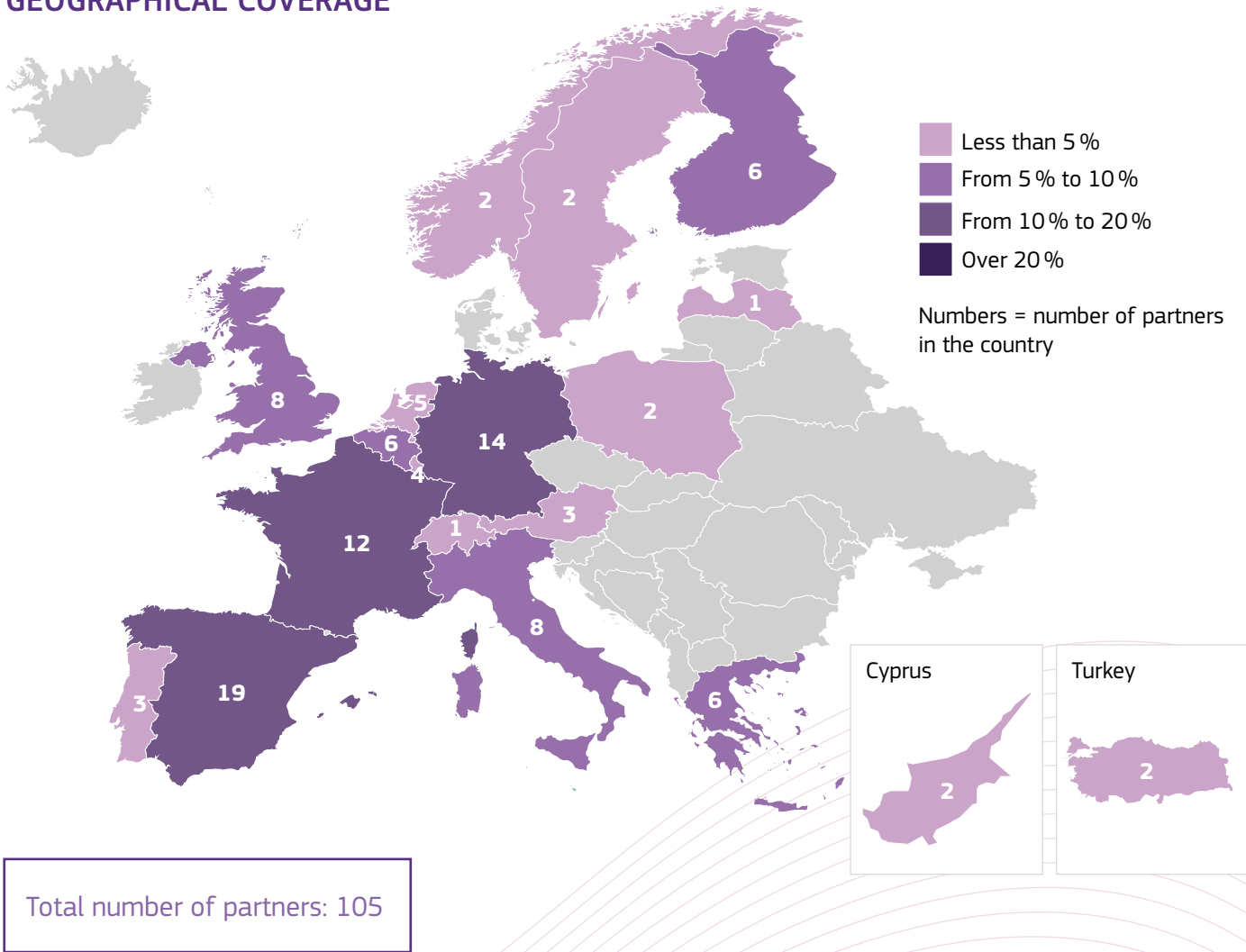
**OVERVIEW OF MEMBERS**

**MEMBERS PER TYPE**



- INDUSTRY** Other Industrial and/or profit Private organisation
- UNIVERSITY** University and other higher education organisations
- RESEARCH** Public research organisation (including international research organisation as well as private research organisation controlled by a public authority)
- SMEs**
- OTHERS** Non-profit, associations, state companies etc.

**GEOGRAPHICAL COVERAGE**





## MISSION AND VISION STATEMENT

The Metrology partnership will bring together the measurement science community and stakeholders to deliver on global challenges, including health and climate, support the European Green Deal, and underpin innovation in industry through collaborative research.

The Metrology partnership aims to support accelerating the transition towards a green, climate neutral and digital Europe, as well as strengthen the resilience, competitiveness, and economic growth of European industry.

The Metrology partnership's goals include the development of an excellent and coordinated metrology system at the European level, helping to bridge the investment gap between Europe and its global competitors. This involves the establishment of European metrology networks in highly competitive areas and engagement with stakeholders to ensure state-of-the-art metrology capabilities are widely taken up by innovators. Increasing and coordinating the role of metrology in the design and implementation of regulation and standardisation aims at fostering evidence-based decision making and underpinning public policies.

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 4: Digital, industry and space

**Type of partnership:** Institutionalised (Art 185 TFEU)

**Coordinating entity:** EURAMET e.V.

**Total estimated budget:** EUR 687 m

**EU commitments:** EUR 300 m

**Partners' commitments:** EUR 387 m

**Predecessor under Horizon 2020:** The partnership builds on the progress achieved under the European Metrology Research Programmes.

## FIND OUT MORE

[www.euramet.org](http://www.euramet.org)

[www.euramet.org/partnership](http://www.euramet.org/partnership)

[www.metpart.eu](http://www.metpart.eu)

<https://www.linkedin.com/company/euramet>

<https://twitter.com/euramet>

✉ [Info@effra.eu](mailto:Info@effra.eu)

☎ +49 531 592 1960

📠 +49 531 592 1969

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38116 Braunschweig, Germany





**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**

*Not available*

**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

*Data not available*

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
<b>OUTCOMES</b>						
<b>IMPACTS</b>						

A working group has been set up in February 2022 that is developing a robust monitoring framework for the Metrology partnership, in line with its strategic research and innovation agenda. It is expected to be published on the partnership's website in June 2022.

## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

Metrology is a cross-cutting discipline, and EURAMET and the Metrology partnership therefore foster strong collaboration between other partnerships, programmes and initiatives to serve stakeholders and their needs.

Below are a few examples of such collaborations

### METROLOGY FOR DIGITAL TRANSFORMATION

In a joint open consultation event in November 2021, stakeholders in the digital field shared their visions on the digital transformation and related measurement science needs with Europe's metrology community.

EURAMET's European partners involved included: the European Factories of the Future Research Association (EFFRA) and the Made in Europe partnership, the Artificial Intelligence, Data and Robotics Association (represented by Adra), the European Open Science Cloud (EOSC) and the International Data Spaces Association (IDSA).

Discussions ranged on topics from the role of data quality for industry and science and sensor networks in industry, to how to support quality and confidence in AI.

The feedback from partners and stakeholders and the [outcomes of the panel discussion](#), helped guide the development of the 2022 call for needs related to Metrology support for digital transformation within the European Partnership on Metrology.

[Read more >>](#)

### METROLOGY FOR CLEAN HYDROGEN

Representatives of EURAMET and the Metrology partnership have been [appointed as members of the Clean Hydrogen partnership's Stakeholder Group](#) at the beginning of 2022. The 13 members of the stakeholder group' were selected from more than 60 applications. The group will serve as an advisory body for the Clean Hydrogen Joint Undertaking, which will provide input on the strategic and technological priorities to be addressed by Clean Hydrogen.

Concrete synergies include discussions on possible research topics between EURAMET's [European Metrology Network for Energy Gases](#) and Hydrogen Europe and Hydrogen Europe Research.

### METROLOGY FOR QUANTUM TECHNOLOGIES

To ensure close cooperation and foster synergies there are several links between the Metrology Partnership and the EU's Quantum Technologies Flagship initiative.

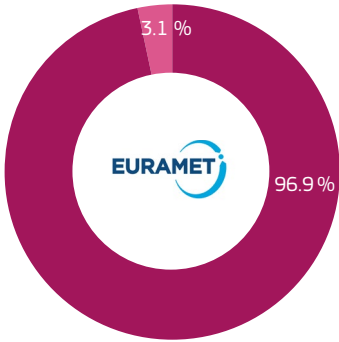
A representative of EURAMET's [European Metrology Network for Quantum Technologies](#) is member of the flagship's strategic research agenda working group and representatives of the flagship are members of the EURAMET network's stakeholder council.

A framework partnership agreement details the collaboration of both communities and their members' involvement in calls and projects.



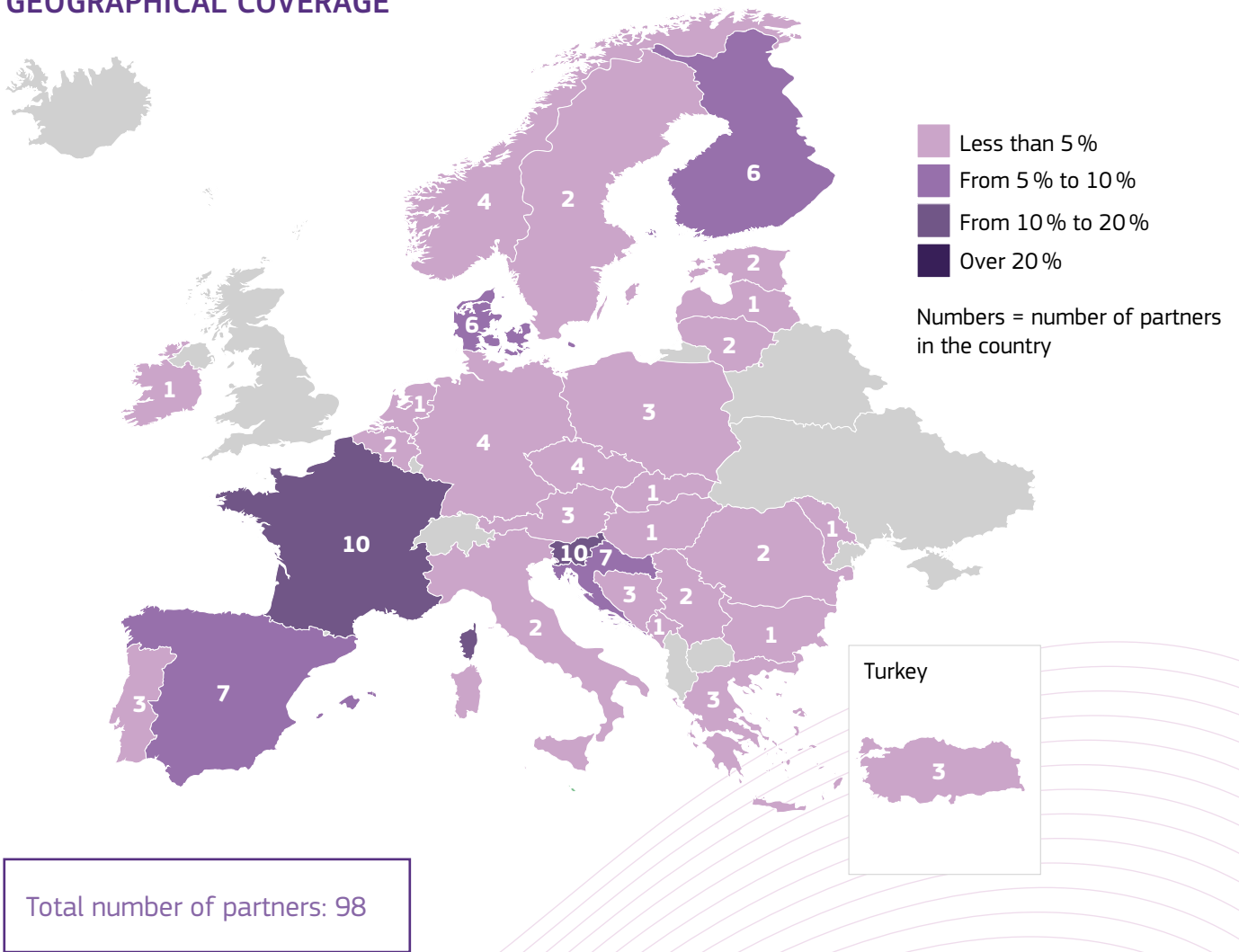
**OVERVIEW OF MEMBERS**

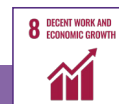
**MEMBERS PER TYPE**



- UNIVERSITY** University and other higher education organisations
- RESEARCH** Public research organisation (including international research organisation as well as private research organisation controlled by a public authority)

**GEOGRAPHICAL COVERAGE**





## MISSION AND VISION STATEMENT

The European High Performance Computing Joint Undertaking (EuroHPC JU) aims to:

- develop, deploy, extend and maintain in the EU a world-leading federated, secure and hyper-connected supercomputing, quantum computing, service and data infrastructure ecosystem;
- support the development and uptake of demand-oriented and user-driven innovative and competitive supercomputing systems based on a supply chain that will ensure components, technologies and knowledge limiting the risk of disruptions and the development of a wide range of applications optimised for these systems;
- widen the use of that supercomputing infrastructure to a large number of public and private users, and support the twin transition and the development of key skills for European science and industry.
- EuroHPC JU contributes to safeguarding the interests of the EU when procuring supercomputers and supporting the development and uptake of high-performance computing technologies, systems and applications.

It will enable a co-design approach for the acquisition of world-class supercomputers, while safeguarding the security of the supply chain of procured technologies and systems.

It will contribute to the EU's strategic autonomy, support the development of technologies and applications reinforcing Europe's high-performance computing supply chain and promote their integration in supercomputing systems that address a large number of scientific, societal, environmental and industrial needs.

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 4: Digital, industry and space

**Type of partnership:** Institutionalised (Art 187 TFEU) – joint undertaking

**Total estimated budget:** About EUR 7.06 bn

**EU commitments:** About EUR 3.08 bn

**Partners' commitments:** About EUR 900 m (private sector members) + EUR 3.08 bn (participating states)

**Predecessor under Horizon 2020:** EuroHPC-JU is a successor to the Joint Undertaking set up in 2018

## FIND OUT MORE

[EuroHPC Joint Undertaking Multi Annual Strategic Plan \(MASP 2021 - 2027\)](#)



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**

*Not available*

**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

*Data not available*

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
<b>OUTCOMES</b>						
<b>IMPACTS</b>						

Up until EuroHPC JU obtained the capacity to implement its own budget, it remained under the responsibility of the European Commission. EuroHPC JU's KPIs are still under preparation, as the JU only became autonomous in September 2020 and is currently implementing the new founding regulation (EC/2021/1173), which involves setting up its new governance structure and advisory bodies, incorporating the new programmes (HORIZON, DIGITAL and CEF2) into its work programme, and launching its new calls.



## **SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES**

### **SYNERGIES WITH OTHER EU FUNDING STREAMS (RRF, CEF, DEP, ERDF)**

EuroHPC JU is pooling EU funding with national contributions for the procurement of supercomputers and for the R&I activities to develop high-performance computing technologies and software. The EU contribution comes from Horizon Europe and Digital Europe Programme (DEP) and we expect that some participating states will also use RRF and ERDF funds. In addition, programmes like CEF2 will support the federation of supercomputers.

### **SYNERGIES BETWEEN PARTNERSHIPS, BOTH WITHIN AND ACROSS PILLARS/CLUSTERS**

The existing cooperation with Key Digital Technologies Joint Undertaking will be strengthened with the Commission proposal for the European Chips Act\* and the possible new responsibilities for both JUs in this respect. In particular both JUs will investigate possible opportunities and synergies in high-performance computing microprocessor innovation and development which could be used in future supercomputing infrastructures.

\* [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_22\\_729](https://ec.europa.eu/commission/presscorner/detail/en/ip_22_729)

## **OVERVIEW OF MEMBERS**

*Not available*



## MISSION AND VISION STATEMENT

The AI, Data and Robotics (ADR) partnership brings together industry, academia and the European Commission to pursue innovative solutions on a large scale, pooling efforts, resources and investments to generate long-term positive impact, boost European competitiveness and technological sovereignty, as well as create jobs and growth.

The general objectives of the co-programmed European Partnership are:

- secure European's sovereignty over AI, data and robotics technologies and know how (position and control perspective dimension);
- establish European leadership in AI, data and robotics technologies with high environmental, social and economic impact (with focus on technology and innovation dimensions);
- reinforce Europe's strong and global competitive position in AI, data and robotics (market dimension).

The partnership will boost Europe's competitiveness, societal well-being and environmental leadership, as leading the world in researching, developing and deploying value-driven trustworthy AI, data and robotics based on European fundamental rights, principles and values.

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 4: Digital, industry and space

**Type of partnership:** Co-programmed

**Coordinating entity:** The private members of the partnership are represented by the AI, Data and Robotics Association asbl (Adra)

**Total estimated budget:** EUR 2.6 bn

**EU commitments:** EUR 1.3 bn

**Partners' commitments:** Up to EUR 1.3 bn

**Predecessor under Horizon 2020:** The partnership builds on the successes of two contractual PPPs on Big Data Value and Robotics, expanding to the whole AI community

## FIND OUT MORE

<https://adr-association.eu/>

[in https://www.linkedin.com/company/adr-association/](https://www.linkedin.com/company/adr-association/)

[t https://twitter.com/Adra\\_eu](https://twitter.com/Adra_eu)

[✉ info@adr-association.eu](mailto:info@adr-association.eu)



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**

*Not available*

**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

*Data not available*

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
<b>OUTCOMES</b>						
<b>IMPACTS</b>						

Adra was founded in May 2021 by five renowned associations that joined forces to lay the foundation of an effective European AI, data and robotics ecosystem. Since December 2021 Adra has been in the process of recruiting new members, to allow the general assembly to elect its first board of directors and become fully operational. To ensure a wider balance and representation beyond the five founding associations, definition of the formal KPIs has been deferred to the elected board and will be featured in the next report.





## **SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES**

### **SYNERGIES WITH OTHER HORIZON EUROPE PARTNERSHIPS**

Advanced AI, data and robotics are essential technologies that are increasingly deployed as core components for many applications and solutions across a variety of vertical market sectors. In this respect, they have the potential to generate many socio-economic opportunities, and are key to help solving some of the critical challenges the world faces. Adra is engaging with other partnerships and missions through its 18 directors, who are all associated to at least one partnership or mission. Through its members the ADR partnership is eager to engage with other Horizon Europe partnerships that oftentimes represent the user-side of the technology components developed in the ADR partnership.

### **SYNERGIES WITH OTHER EU FUNDING INSTRUMENTS**

Adra is anchored in European R&I in AI, data and robotics technology. Yet, especially in AI, data and robotics this is a highly dynamic eco-system that includes technology providers, technology users, fundamental research, applied research, large industry, SMEs, start-ups, scale-ups, deep-tech, regions, Member States etc. In particular we intend to develop synergies with the Digital Europe Programme (DEP), and the European Recovery and Resilience Facility.

### **SYNERGIES BETWEEN DIFFERENT TYPES OF STAKEHOLDERS**

AI, data and robotics affects nearly all industry sectors, and has a profound impact on modern society and individual citizens. The enormous and highly dynamic European AI, data and robotics ecosystem is also being inherently complex due to its holistic nature. Many stakeholders, including industry, research, and policymakers at the European and national levels, operate from diverse historic backgrounds. However, to be effective and efficient at the European and global levels, an all-inclusive collaboration is required in technology education, in matching technology with needs, for fair and feasible regulation, and for international technology standardisation. The scale and the inherent complexity make it difficult to impose a one-size-fits-all approach. For the partnership to overcome the heterogeneity, there is a strong need for support and coordination to create a unified community around ADR topics beyond that achieved by each single domain.

## **OVERVIEW OF MEMBERS**

*Data not available*



## MISSION AND VISION STATEMENT

The Made in Europe (MiE) partnership is a platform that brings together leading actors from European manufacturing ecosystems to boost them towards global leadership in technology, towards circular industries and flexibility.

Europe has a competitive, green, digital, human-centric manufacturing sector. With reinforced global position in terms of competitiveness, productivity, and technology leadership, Europe ensures excellent solutions, consumer satisfaction, high quality, environmental and social sustainability, and is the leading solution provider in production technology, digitalisation, resource efficiency, and the circular economy. The European workforce develops new skills to address these needs.

As a platform for national and regional manufacturing technology initiatives, creating economies of scale, common understanding, and alignment of objectives, the partnership brings together leading actors from European industrial ecosystems – academia, industry, NGOs, and the public sector. The partnership aims to:

- ensure european leadership and manufacturing excellence
- achieve circular and climate-neutral manufacturing
- master the digital transformation of manufacturing industry
- create attractive, added-value manufacturing jobs.

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 4: Digital, industry and space

**Type of partnership:** Co-programmed

**Coordinating entity:** European Factories of the Future Research Association (EFFRA)

**Total estimated budget:** EUR 1.8 bn

**EU commitments:** Up to EUR 900 m

**Partners' commitments:** Up to EUR 900 m

**Predecessor under Horizon 2020:** Factories of the Future PPP (Factories of the Future | EFFRA)

## FIND OUT MORE

<https://www.effra.eu/>

[in https://www.linkedin.com/company/effra/](https://www.linkedin.com/company/effra/)

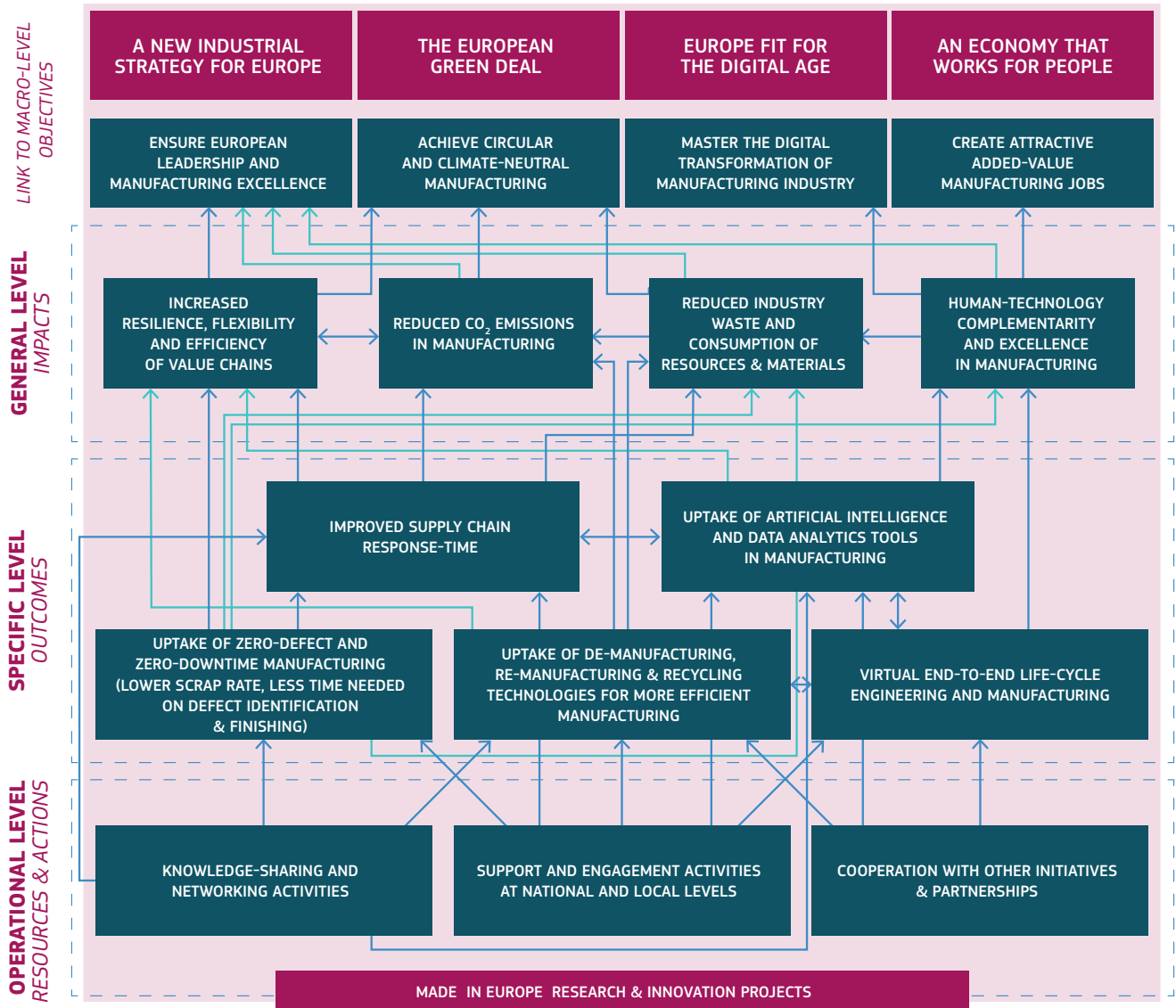
[https://twitter.com/EFFRA\\_Live](https://twitter.com/EFFRA_Live)

✉ [Info@effra.eu](mailto:Info@effra.eu)



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**

**MADE IN EUROPE PARTNERSHIP'S VISION:  
EUROPE HAS A COMPETITIVE, GREEN, DIGITAL, HUMAN-CENTRIC MANUFACTURING SECTOR**





**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Knowledge-sharing and networking activities	# of activities	0	8	15	25	
Support and engagement activities at national and local levels	# of activities	0	3	10	18	
Cooperation with other initiatives & partnerships	# of activities	0	4	8	16	
<b>OUTCOMES</b>						
Scrap rate through zero defect and zero downtime manufacturing	# of demonstrators with 20% reduction	0	N/A	15	35	50
Time needed for defect identification & finishing	% reduction	N/A	N/A	5%	10%	
Uptake of de-manufacturing, re-manufacturing and recycling technologies for more efficient manufacturing	# of demonstrators		3	15	35	50
Supply chain response-time	# of demonstrators showing reduction of response-time	0		15	35	50
Artificial intelligence (AI) and data analytics tools' uptake	# of demonstrators	0	5	15	60	80
Virtual end-to-end life-cycle engineering and manufacturing	# of demonstrators	0		10	30	40
<b>IMPACTS</b>						
Human and technology complementarity	# of demonstrators	N/A		10	20	30
Manufacturing CO <sub>2</sub> emissions	# of companies showing targeted (60-70%) reduction	1990 levels		at least 70	at least 150	at least 200
Industrial waste	# of companies showing targeted (10-20%) reduction	2020		at least 50	at least 150	at least 250

## **SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES**

### **COOPERATION WITH EIT MANUFACTURING**

The European Factories of the Future Research Association (EFFRA) and EIT Manufacturing (supported by European Institute of Innovation and Technology) have been in touch for the past 12 months and elaborated a cooperation framework aiming at higher TRL levels and the exploitation of results. The cooperation is intended to make the support available to industry stakeholders more effective, extending it across entire project cycles and beyond, and the impact from the joint R&I initiatives more significant and lasting.

One of the first results of this cooperation is already visible in the form of the joint Innovate Together call: the collaboration focuses on innovation activities aiming to support tested and demonstrated exploitable results coming out from Factories of the Future projects to accelerate their market deployment.

### **COOPERATION WITH NATIONAL AND REGIONAL FUNDING AGENCIES**

EFFRA is working together with regional funding agencies and other actors to identify synergies and complementarities between MiE and national/regional initiatives and to organise dissemination and awareness-raising activities. The overall aim is to anchor Made in Europe activities at the regional level.

Moreover, EFFRA cooperates with the Vanguard Initiative.

### **COOPERATION WITH OTHER PARTNERSHIPS**

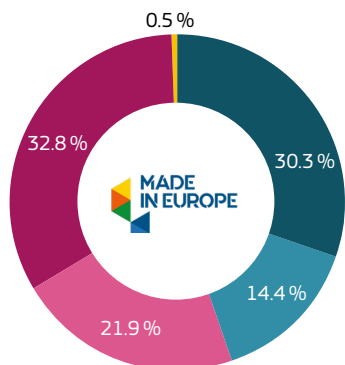
Cooperation with the Photonics and the AI, Data and Robotics partnerships, the Metrology partnership and as well as the KDT partnership is taking place; there are also interactions with other partnerships such as Clean Aviation and 2Zero and others. Although manufacturing is not at the centre of these partnerships, they relate to manufacturing, which is why an analysis of the overlaps between the SRIAs is taking place, including coordination of calls and even the presentation of joint calls.

So far three coordinated calls have been published.



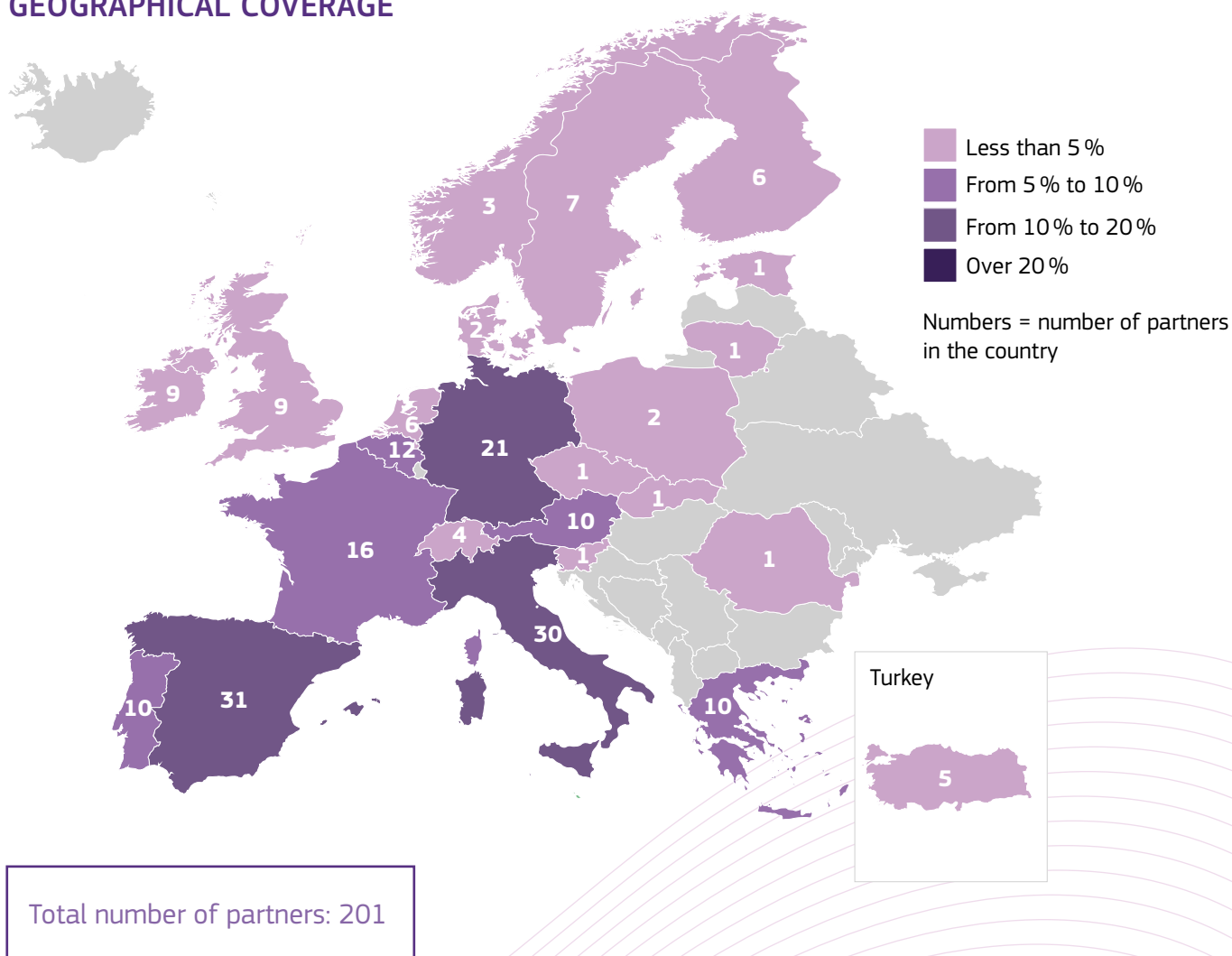
## OVERVIEW OF MEMBERS

### MEMBERS PER TYPE



- INDUSTRY** Other Industrial and/or profit Private organisation
- UNIVERSITY** University and other higher education organisations
- RESEARCH** Public research organisation (including international research organisation as well as private research organisation controlled by a public authority)
- PUBLIC** Research funders, ministries, regions, cities
- SMEs**

### GEOGRAPHICAL COVERAGE





## MISSION AND VISION STATEMENT

Photonics is a technology that is an essential building block for the digital transformation and for a green and healthy future in Europe. The new Photonic partnership aims to speed up photonic innovations for a digital, green and healthy future in Europe, securing Europe's technological sovereignty, raising the competitiveness of Europe's economy and ensuring long-term job and prosperity creation. A holistic approach and strong links to applications are key elements.

The main objectives of the Photonics21 partnership are threefold: (1) Foster a focused, continuous and synergetic development of key photonics technologies, components and systems in Europe; (2) Push for the rapid diffusion into the various sectors that critically depend on innovative photonics solutions; and (3) Provide a framework for the shaping of ecosystems to address changes of value creation.

For more information, please refer to:

- MoU - Final\_MoU\_Photonics\_C\_2021.pdf ([photonics21.org](http://photonics21.org))
- SRIA (Photonics Strategic Research and Innovation Agenda by Barbara - Flipsnack),
- Proposal (European Partnership for Photonics | European Commission ([europa.eu](http://europa.eu))).

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 4: Digital, industry and space

**Type of partnership:** Co-programmed

**Coordinating entity:** Photonics21 Association\* represents more than 3000 members and 1700 affiliations. Board of Stakeholders consists of members coming from 18 countries, 50% of them representing private companies.

**Total estimated budget:** EUR 680 m

**EU commitments:** EUR 340 m

**Partners' commitments:** Up to EUR 340 m

**Predecessor under Horizon 2020:** Photonics cPPP

\* c/o Anne De Moor BV, Rijvisschestraat 124, 9050 Ghent (Zwijnaarde), Belgium.



**FIND OUT MORE**

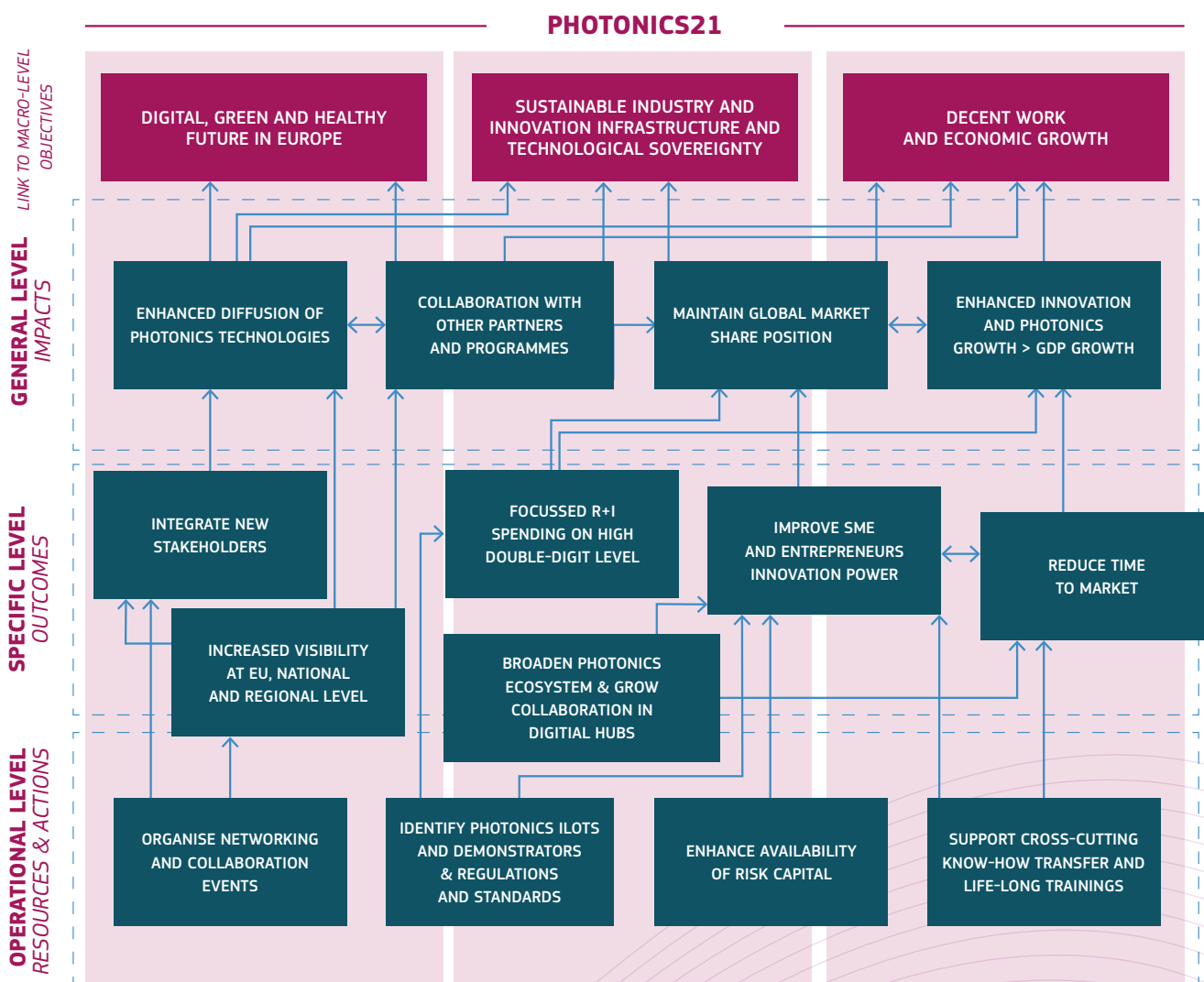
[www.photonics21.org](http://www.photonics21.org)

[https://www.photonics21.org/download/ppp-services/photonics-downloads/Photonics\\_leaflet.pdf](https://www.photonics21.org/download/ppp-services/photonics-downloads/Photonics_leaflet.pdf)

✉ [secretariat@photonics21.org](mailto:secretariat@photonics21.org)

Photonics21 Secretariat  
 c/o VDI Technologiezentrum GmbH  
 VDI-Platz 1, 40468 Duesseldorf, Germany

**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**







**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
SME Innovation support	Development of digital and photon hubs	TBD	TBD	TBD	TBD	TBD
Rapid diffusion	# of end-user workshops	2/year	>2	>2	>2	>2
Industry participation	% industry in Horizon Europe calls	50%	N/A	N/A	N/A	>50%
<b>OUTCOMES</b>						
Stakeholder integration upstream/downstream	# new workshop attendees	New	TBD	TBD	TBD	>30%
Collaboration and synergies other programmes	# collaborations	New	TBD	TBD	TBD	min. 2 per WP
Cross-cutting digital innovation hubs	# common events and actions	New	TBD	TBD	TBD	Increase
Access to risk capital	Satisfaction rate	EIB study	Improve			
<b>IMPACTS</b>						
Photonics gross added-value growth (GDP)	GDP multiple	2x in 2019	> Global GDP (CAGR 2020-2026)			
Employment growth	CAGR % growth	2% (vs 1% Industry)	Keep			
EU global market share	% market share EU	#2	N/A	N/A	N/A	#2

More detailed information on the partnership's activities, performance and impacts is found in the market and activity reports available here [Photonics Downloads](#) | [Photonics21](#)

## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

Considering the challenges, the global economy and societies are currently facing, Horizon Europe and the Photonics partnership are situated in a complex and challenging environment. The way we live and work together is facing fundamental changes: digitisation and the increased convergence of different technologies that goes with it; a new and just questioned global innovation dynamic; the request for more national and technical sovereignty; a tightening resource scarcity and uncertain supply chains - all challenges that call for changing business models. For photonics as a key technology and its broad community in science and industry, this means working even more closely with other key technologies and value-chain partners to find the best solutions to the challenges of the Green Deal, technological sovereignty, digitisation, and competitiveness, which are also the focus of the European Commission.

### FOSTERING SYNERGIES WITH OTHER PARTNERSHIPS

The European Partnership on Photonics will place a particular focus on identifying both the cooperation needs and opportunities for synergies with other disciplines, major European platforms and EU public private partnerships. As photonics is a key enabling technology, there is considerable scope for multilateral collaboration to address the socio-economic challenges of application-oriented partnerships.

To reach this goal, Photonics21 has already engaged in discussions with several other partnerships under Horizon Europe, setting up workshops in autumn 2021 for identifying thematic opportunities for future joint cooperation agreements and calls.



### **SUPPORTING PHOTONICS SMES: SYNERGIES WITH PHOTON HUB AND FINANCING INNOVATION**

The Photonics partnership will foster synergies with Photon Hub, a pan-European initiative bringing together more than 500 photonics experts from 15 Member States with the aim of supporting companies regarding photonics orienteering, training and reskilling, deep technology innovation support, business and investment coaching, as well as guidance to regional support.

Furthermore, the Photonics partnership will encourage photonics start-ups to participate in the newly established activities of the European Innovation Council and will advise them of financing opportunities and actively promote their participation in investment events. Access to venture capital for photonics start-ups and entrepreneurs will be created by holding an annual European Photonics Venture Forum. The Photonics partnership will also help to generate potential leads for the EIB to invest in photonics, furthering access to capital for SMEs in the later growth phase.

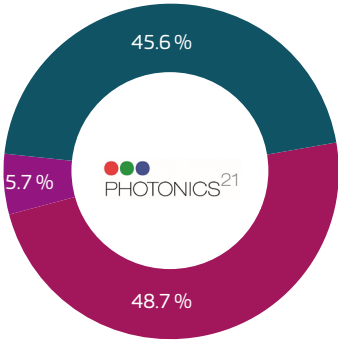
### **FOSTERING SYNERGIES WITH THE NATIONAL AND REGIONAL ADVISORY BOARD (FORMER MIRROR GROUP)**

The efficient coordination of photonics investment and public initiatives at the European, national and regional level is a major challenge for Europe and has so far been insufficiently successful. At the Member State level, the partnership had already established the Photonics21 Mirror Group, which is made up of representatives of national ministries coordinating national priorities and investments in photonics. As a result of this activity, five joint transnational photonics calls on different photonics subjects have been implemented under the ERANET co-funded partnership and the EUREKA programme scheme. The partnership will now take this activity to the next level to trigger new joint cross-Member State calls in photonics, and to enable a close alignment with Horizon Europe's Photonics partnership investments and an efficient preparation and coordination of new joint calls.



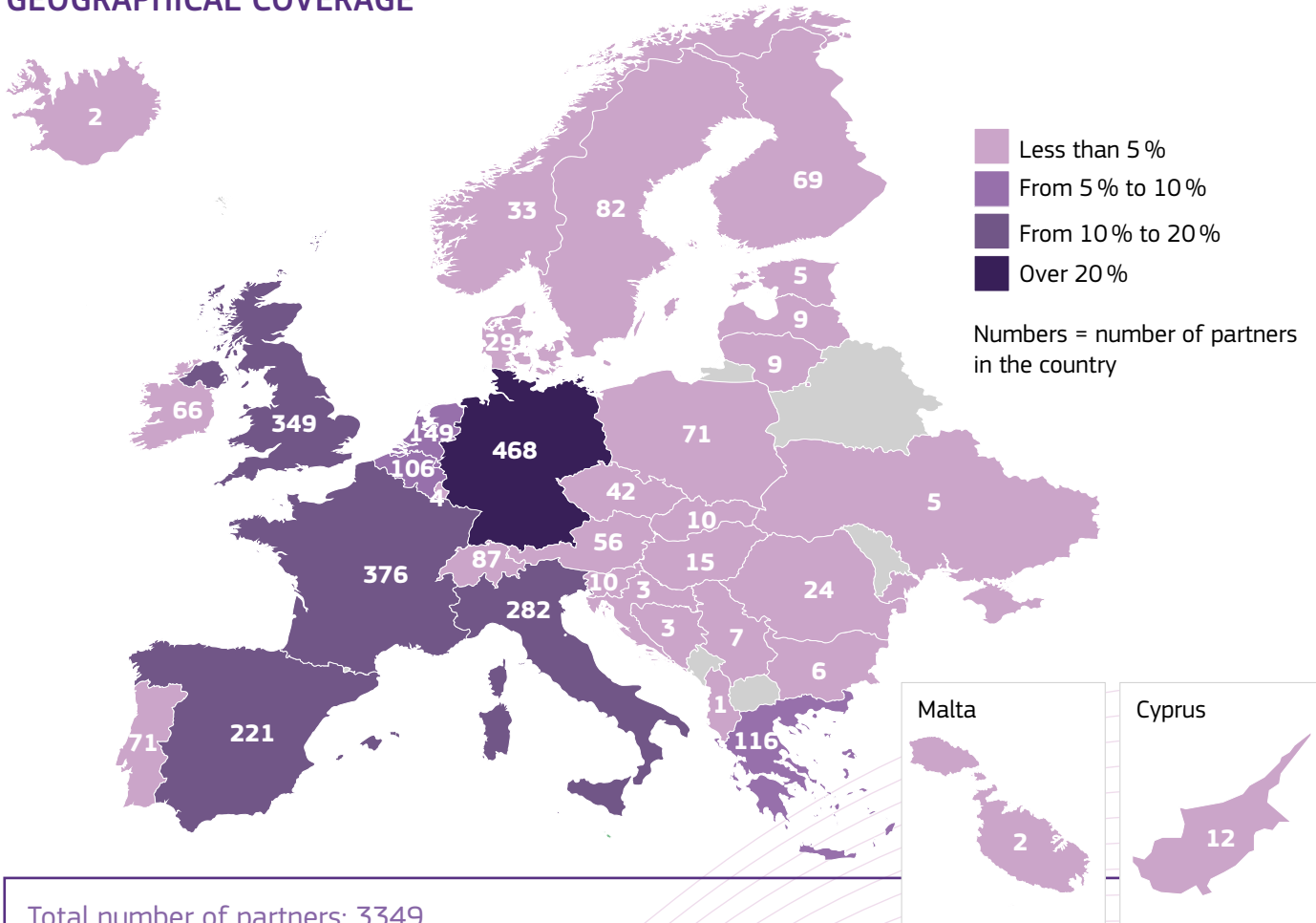
## OVERVIEW OF MEMBERS

### MEMBERS PER TYPE



- INDUSTRY** Other Industrial and/or profit Private organisation
- RESEARCH** Public research organisation (including international research organisation as well as private research organisation controlled by a public authority)
- OTHERS** Non-profit, associations, state companies etc.

## GEOGRAPHICAL COVERAGE



Total number of partners: 3349

79.9% of the partners are represented in the map.

Other partners that do not fit to the map are from Afghanistan, Algeria, Argentina, Armenia, Australia, Azerbaijan, Bangladesh, Botswana, Brazil, Canada, Chile, China, Colombia, Cote d' Ivoire, Dalarn, Egypt, Fiji, French Guiana, Ghana, Guinea-Bissau, Hong Kong, India, Iran, Israel, Japan, Jordania, Korea (Republic), Korea, (Democratic People's Republic of), Mexico, Moldova, Morocco, New Zealand, Nigeria, Oman, Pakistan, Peru, Phillipinen, Reunion, Saudi Arabia, Serbia, Singapoore, Sri Lanka, Syrian Arab Republic, Tunesia, Turkey, USA, Uzbekistan, Vietnam and Zambia.



## MISSION AND VISION STATEMENT

The Clean Steel Partnership (CSP) is aligned with the EU's goal and policies to achieve climate neutrality by 2050 – the European Green Deal, the Clean Planet for All strategy and the Paris Agreement. It will thus contribute to fighting climate change and moving towards climate neutrality by 2050.

CSP will develop lean CO<sub>2</sub> technologies, and test these at large scales until 2030. These technologies are required to reduce CO<sub>2</sub> from EU steel production by 80-95% compared to 1990 levels, ultimately leading to climate neutrality.

CSP will ensure a coordinated, sustainable approach across stakeholders, technologies, production routes and countries.

CSP nurtures the long-term vision of supporting the European leadership in the transformation of the steel industry into a climate neutral sector while preserving the competitiveness and viability of the EU steel industry making sure that EU production will be able to meet the growing demand for steel products.

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 4: Digital, industry and space

**Type of partnership:** Co-programmed

**Coordinating entity:** European Steel Technology Platform (ESTEP)

**Total estimated budget:** EUR 1.7 bn

**EU commitments:** EUR 700 m

**Partners' commitments:** Up to EUR 1 bn

**Predecessor under Horizon 2020:** The Clean Steel Partnership is a new partnership

## FIND OUT MORE

<https://www.estep.eu/>

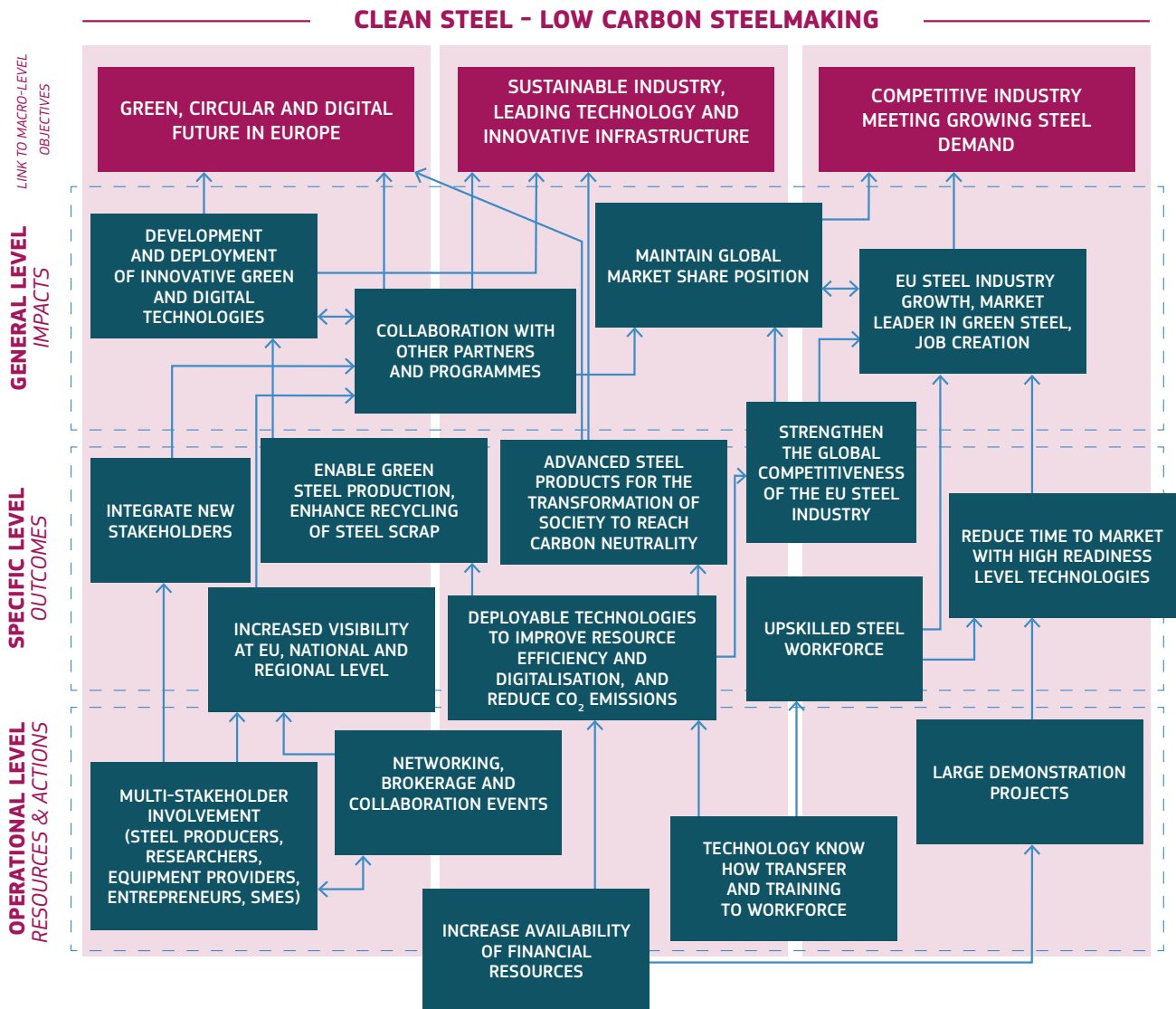


[secretariat@steelresearch-estep.eu](mailto:secretariat@steelresearch-estep.eu)

[sg@estep.eu](mailto:sg@estep.eu)



PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)





**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Steel industry involvement – financial	% of project budget to steel producers (average)	new	>50 %	>50 %	>50 %	N/A
Steel industry involvement – inclusiveness	% of CO <sub>2</sub> represented by CSP project partners <sup>1</sup>	new	>50 %	>60 %	>85 %	>95 %
R&D collaboration science-EU steel companies	# external research stays funded by the Partnership	new	N/A	>5 in 4 technology fields	N/A	>10 in 3 technology fields
Joint calls with other partnerships	# joint calls	new	N/A	Min 2	N/A	Min 5
<b>OUTCOMES</b>						
Energy use per tonne	%	TBD	N/A	-5 % at TRL7	N/A	-10 % at TRL8
CO <sub>2</sub> capture for CCU/CCS	% capture rate	TBD	N/A	90% at TRL 6	N/A	95 % at TRL 8
Scrap recycling	% low quality scrap input share	TBD	N/A	+25 % at TRL 6	N/A	+50 % at TRL8
Breakthrough in technology building blocks	% projects TRL7	TBD	N/A	Min. 50 %	N/A	Min. 85 % (Min. 75 % TRL8)
Upskilled labour force	# dedicated programmes	0	N/A	Min. 1	N/A	Min. 3
<b>IMPACTS</b>						
EU market share clean steel products	% of clean steel out of total EU steel demand	N/A	N/A	Acceptance of definition of clean steel and its products	TBD	Start of roll-out of clean steel and its products
Global market share EU technology providers	% growth	2020	N/A	+5 %	N/A	+10 %
Gross Added Value clean steel production	% growth	2020	N/A	+1 %	N/A	+2 % in 2030
CO <sub>2</sub> emission reduction	t CO <sub>2</sub> e / t CO <sub>2</sub> e_1990	1990	N/A	N/A	N/A	-55 % in 2030

<sup>1</sup> This % indicates the share of CO<sub>2</sub> from CSP project partners in the overall CO<sub>2</sub> emissions of the steel industry in the EU

## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

### SYNERGIES: STORY 1

Additionality of the the Clean Steel Partnership's is envisaged to be realised through a high degree of openness and transparency, and seek to attract all relevant stakeholders to participate in the wider framework. This is done via various measures, such as yearly workshops, a dedicated online presence, and thematic and networking events. Thereby, the partnership will ensure the broad and representative participation of players in the EU steel value chain and those connected to it.

In 2021, ESTEP organised two brokerage events for CSP's members in view of the 2021 calls for funding applications for Horizon Europe and the Research Fund for Coal and Steel frameworks. Focus group workshops on low carbon and energy efficiency, and the circular economy took place.

### SYNERGIES: STORY 2

Enablers and support actions on behalf of the CSP will include the creation of synergies with EU and national programmes that enable the upskilling of the steel workforce, activities aiming at fostering R&D&I collaboration between EU companies participating in the clean steel value chain, as well as broader initiatives supporting the creation of a new market for clean steel products.

A way forward will be the launch of several multi-partner projects (targeting at least three beneficiaries and engaging at least three EU Member States) to achieve the objectives of the CSP.

Due to the collaboration among steel producers, reasonable synergies are expected compared to the company-by-company approach, thus reducing the investment need.

### SYNERGIES: STORY 3

For the partnership to foster additionality, it will collaborate with other partnerships and programmes, for example:

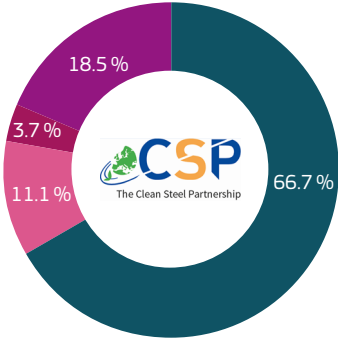
- Processes4Planet: CSP and Processes4Planet have been working closely to align R&D objectives and plans (joint declaration);
- Clean Hydrogen: setting the objectives to accelerate the market entry of nearly-zero GHG-emission hydrogen-based technologies across energy, transport, and industrial end-users (joint declaration);
- Artificial Intelligence, Data and Robotics;
- Made in Europe.





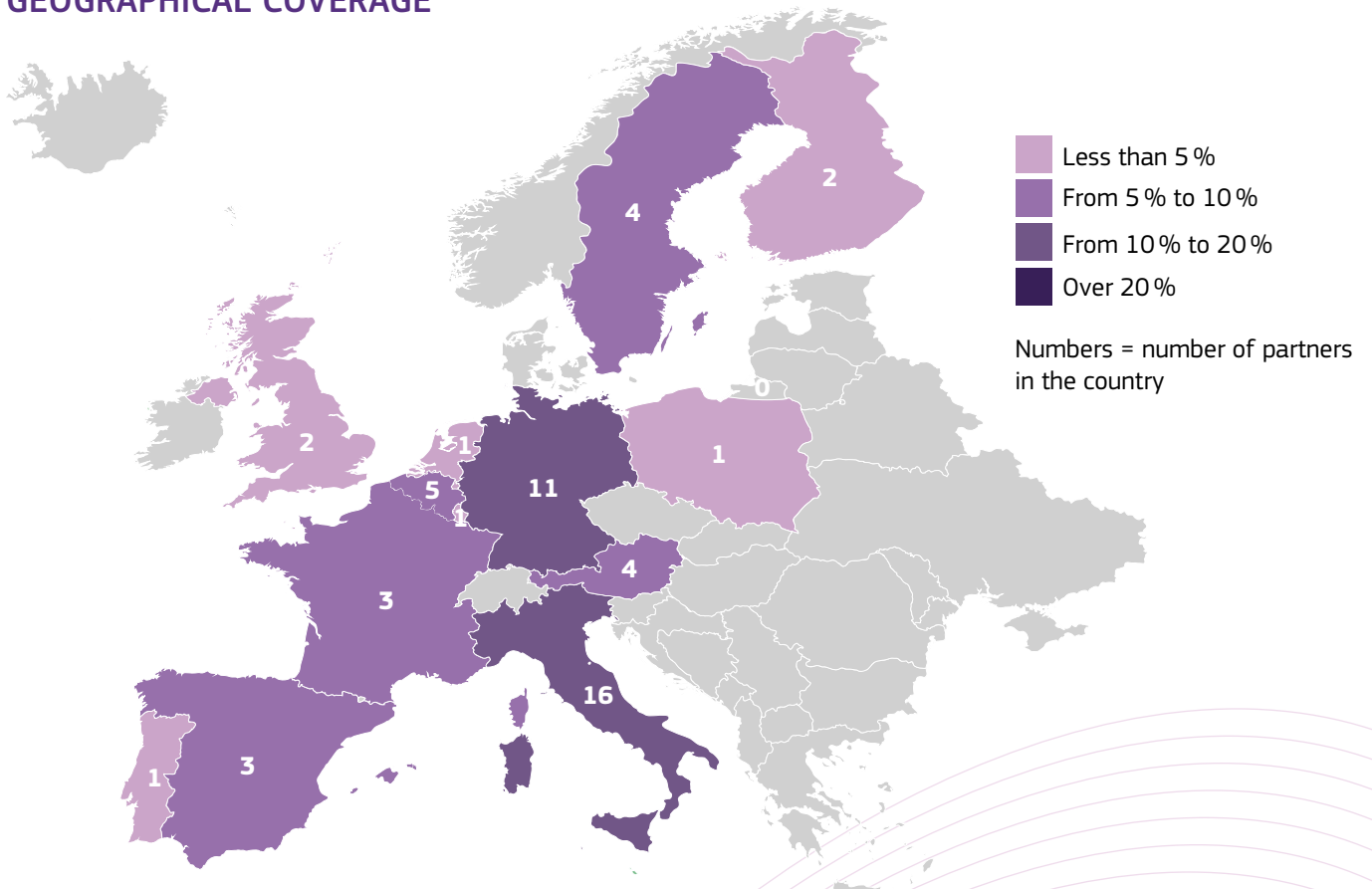
**OVERVIEW OF MEMBERS**

**MEMBERS PER TYPE**



- INDUSTRY** Other Industrial and/or profit Private organisation
- UNIVERSITY** University and other higher education organisations
- RESEARCH** Public research organisation (including international research organisation as well as private research organisation controlled by a public authority)
- OTHERS** Non-profit, associations, state companies etc.

**GEOGRAPHICAL COVERAGE**



Total number of partners: 54



## MISSION AND VISION STATEMENT

Processes4Planet is a cross-sectorial R&I partnership that aims at **transforming the European process industries to achieve the overall climate neutrality at the EU level by 2050** by developing and deploying climate neutral solutions and bringing technological and non-technological innovations to readiness for subsequent deployment.

The partnership aims to:

- **close the energy and feedstock loops through** sustainable circular business models, innovations, cross-sectoral collaboration and engagement with local ecosystems.
- **achieve a global leadership** in climate neutral and circular solutions, accelerating innovation and unlocking public and private investment.

P4Planet represents companies, associations, SMEs, research and technology organisations, NGOs, regions, etc. from ten process industry sectors.

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 4: Digital, industry and space

**Type of partnership:** Co-programmed

**Coordinating entity:** Private members are represented by A.SPIRE. The Commission's contacts are DG RTD E3 and DG GROW.

**Total estimated budget:** EUR 2.6 bn

**EU commitments:** Up to EUR 1.3 bn

**Partners' commitments:** Up to EUR 1.3 bn

**Predecessor under Horizon 2020:** SPIRE cPPP

## FIND OUT MORE

<https://www.aspire2050.eu/p4planet/about-p4planet>

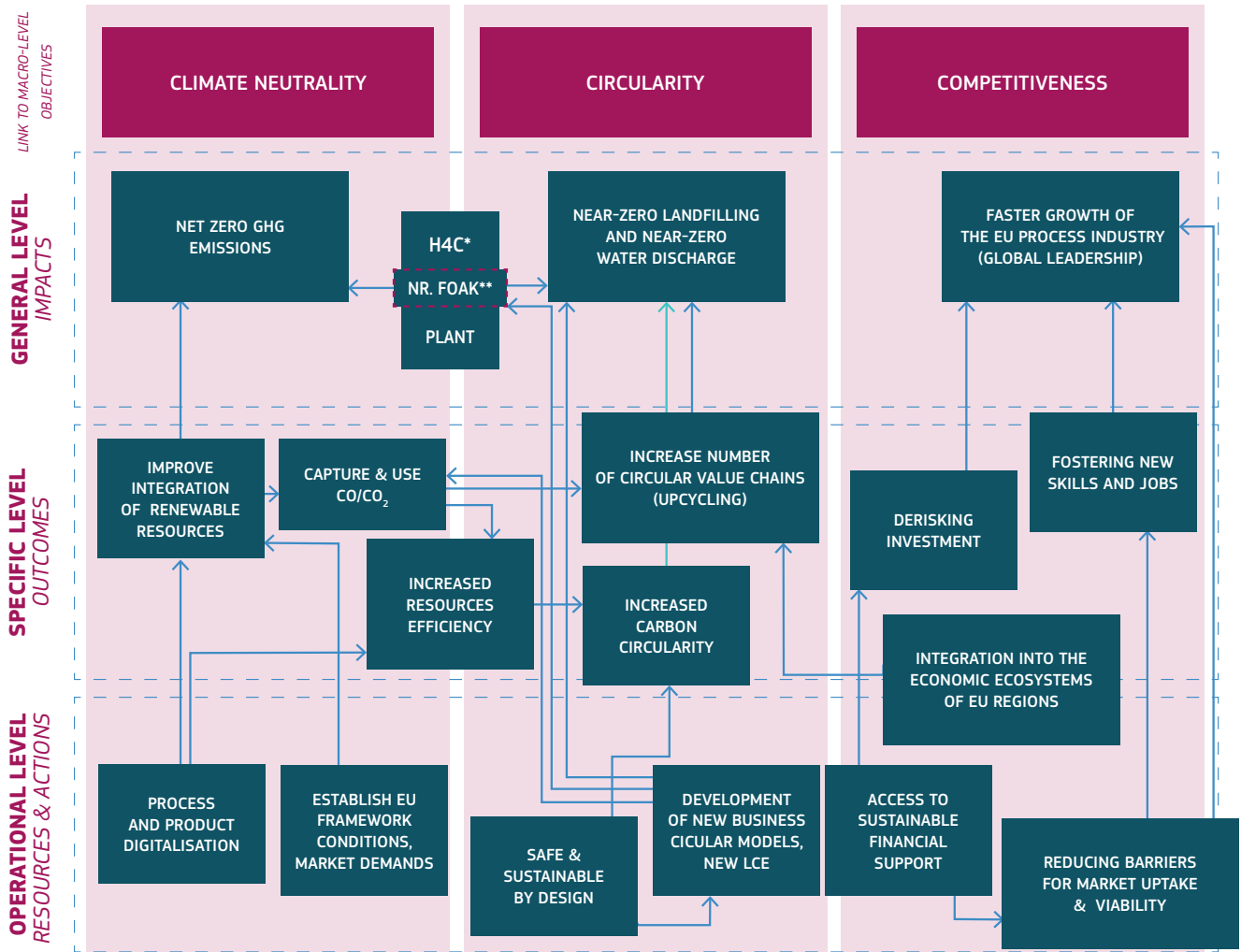


[info@aspire2050.eu](mailto:info@aspire2050.eu)



PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)

**PROCESSES4PLANET VISION:  
CONTRIBUTE TO SOCIETAL CHALLENGES THROUGH ...**



\*H4C: Hubs for Circularity  
\*\*FOAK: First-of-a-kind



**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME*	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Private investment <sup>8</sup>	Leverage factor	2	N/A	5	6	10
Significant innovations <sup>9</sup>	#	5	N/A	12	14	60
CAPEX & OPEX reduction <sup>10</sup>	Millions €	0 (P4Planet)	As per project	As per project	As per project	As per project
New skills and job profiles <sup>12</sup>	#	0 (P4Planet)	N/A	>2	>3	20
<b>OUTCOMES**</b>						
CO <sub>2</sub> eq emission (1) integration of renewables /efficiency <sup>1</sup>	%	1990 levels	N/A	-60	-70	-100
(2) CO <sub>2</sub> Capture and Use <sup>2</sup>	%	1990 levels	N/A	-60	-70	-100
Waste volume <sup>3</sup>	%	1990 levels	N/A	-40	-50	-75
Secondary materials use intensity <sup>4</sup>	%	1990	N/A	+40	+50	+80
Water reused/recycled <sup>5</sup>	%	< 5 %	N/A	+40	+50	+90
H4C establishment <sup>6</sup>	#	0	N/A	7	15	> 45
<b>IMPACTS***</b>						
CO <sub>2</sub> eq emission (1) integration of renewables /efficiency <sup>1</sup>	% of CO <sub>2</sub> emission reduction At 50 % IL**** At 90 % IL	TBD	TBD	TBD	TBD	-50 -90 -100
(2) CO <sub>2</sub> Capture and Use <sup>2</sup>	At 100 % IL					
Waste volume <sup>3</sup>	% of waste reduction At 50 % IL At 90 % IL At 100 % IL	TBD	TBD	TBD	TBD	-50 -90 -100
Secondary materials use intensity <sup>4</sup>	% of secondary materials used At 50 % IL At 90 % IL At 100 % IL	TBD	TBD	TBD	TBD	+50 +90 +100
Water reused/recycled <sup>5</sup>	% of water re-used At 50 % IL At 90 % IL At 100 % IL	TBD	TBD	TBD	TBD	+50 +90 +100
First-of-a-kind plants (TRL 9) <sup>7</sup>	# of FOAKs at TRL9	0	2	4	15	> 90
Process industry growth <sup>8-10</sup>	GDP %	Faster than EU-27 GDP growth				

\* Footnote numbers refer to KPI numbers in MoU between P4Planet and EC

\*\* Outcomes based on demonstrators at TRL 7

\*\*\* Measured on a relevant number of FOAKs (First Of A Kind) at TRL9 (50 % implementation, 90 % implementation, 100 % implementation)

\*\*\*\* Implementation Level

Processes4Planet KPIs are defined in SRIA 2050 and the partnership's guidance document. In both documents, it is specified that the baseline of the KPIs will take as a reference the levels of 1990. No amounts were included. A methodology on how to effectively assess the progress towards these KPIs will be developed in 2022. The specific baseline amounts will be included during this process.

Portfolio analysis will be developed regularly based on the results of the periodic monitoring and of the surveys launched by A.SPIRE. This will consider what challenges are to be encountered to achieve the objectives, which innovation programmes need to be phased out and which new ones to be phased in.

The reporting will be based on the data gathered through two biennial surveys. One survey will target industry and collect data on industry contributions. The second survey will target Processes4Planet's projects and their related in-kind contributions and investments.

The two last Progress Monitoring Reports (PMRs) of SPIRE cPPP can be found [here](#). Each PMR includes success stories. These can also be found in the last SPIRE projects brochure [here](#). A 2020 trends report can be found [here](#).

## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

### SYNERGIES: STORY 1

SPIRE cPPP and BBI JU have collaborated during Horizon 2020 to ensure a good alignment of their work programmes and to identify opportunities to maximise the cross-fertilisation of results of the projects. This has included:

- 2012-2020: joint working group with regular meetings (two to three times per year) to share experiences, reporting methodologies, analysis of projects etc.;
- 2012: signature of the document *SPIRE PPP & BIO PPP: Joint Narrative and Docking Points* (annexed);
- 2018: signature of the document *BBI JU and SPIRE team up for synergy of actions*, which can be found [here](#).

### SYNERGIES: STORY 2

P4Planet and Clean Steel have set up discussions already at the stage of their SRIAs development. The actions have included:

- regular meetings between A.SPIRE, ESTEP and EUROFER to reach alignments;
- signature of the joint declaration in 2019 by A.SPIRE, EUROFER and ESTEP on Circular and Carbon Neutral Industry and Clean Steel-Low Carbon Steelmaking proposed partnerships for Horizon Europe, which can be found [here](#);
- steel sector is part of A.SPIRE 10 sectors - this allows for regular conversations and to identify on the spot when alignments across the work programmes are needed. The further set up for the collaboration along Horizon Europe is under discussion.

### SYNERGIES: STORY 3

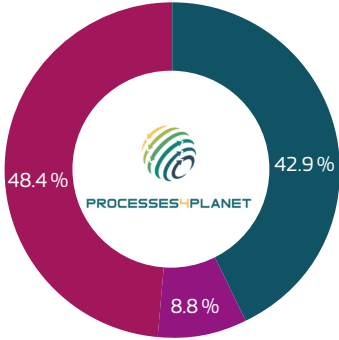
P4Planet and Clean Hydrogen have set up discussions already at the stage of their SRIAs development. The actions have included:

- regular meetings between FCH JU and A.SPIRE, and with their respective units at DG RTD, along with alignments in the SRIAs and in the work programmes;
- participation of A.SPIRE in the Clean Planet Inter-partnership Assembly;
- a joint document on the collaboration of P4Planet and Clean Hydrogen during Horizon Europe is under joint development and discussion.



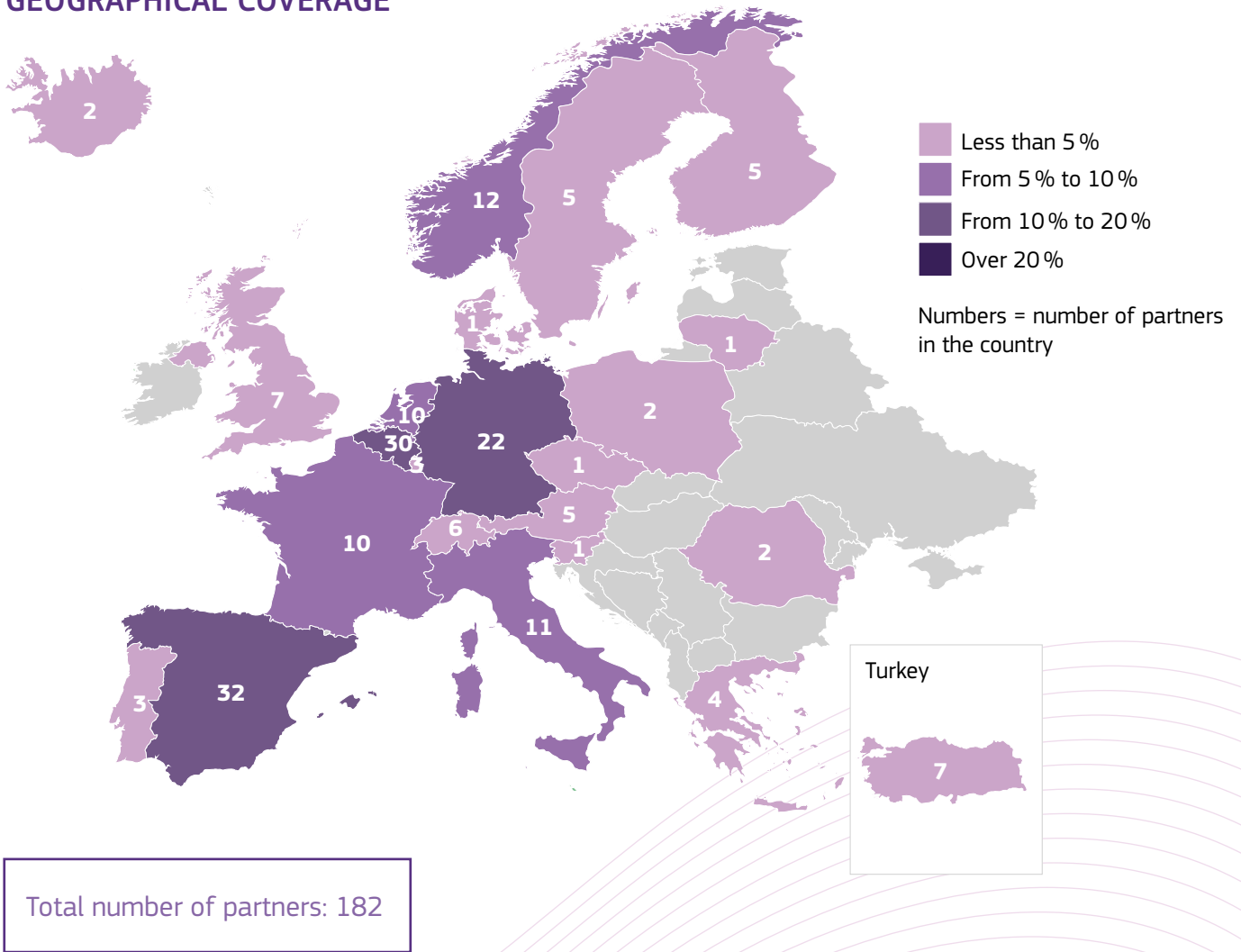
**OVERVIEW OF MEMBERS**

**MEMBERS PER TYPE**



- INDUSTRY** Other Industrial and/or profit Private organisation
- RESEARCH** Public research organisation (including international research organisation as well as private research organisation controlled by a public authority)
- OTHERS** Non-profit, associations, state companies etc.

**GEOGRAPHICAL COVERAGE**





# **CLUSTER 5 CLIMATE, ENERGY, AND MOBILITY**



## MISSION AND VISION STATEMENT

The Clean Hydrogen Joint Undertaking (JU) aims to support a sustainable hydrogen economy, contributing to the EU's climate goals. Clean Hydrogen JU's mission is to facilitate the transition to a greener EU society through the development of hydrogen technologies.

The Clean Hydrogen JU will contribute to the European climate neutrality goal by producing noticeable, quantifiable results towards the development and scaling up of hydrogen applications. The focus of Clean Hydrogen JU's research and innovation activities will primarily be the production of clean hydrogen, as well as the distribution, storage and end-use applications of low-carbon hydrogen in hard to abate sectors.

## KEY FACTS AND FIGURES

<b>Horizon Europe Pillar and Cluster:</b>	Pillar II – Cluster 5: Climate, energy and mobility
<b>Type of partnership:</b>	Institutionalised (Art 187 TFEU) – joint undertaking
<b>Coordinating entity:</b>	Governing Board of the Clean Hydrogen Partnership
<b>Total estimated budget:</b>	At least EUR 2 bn
<b>EU commitments:</b>	Up to EUR 1 bn
<b>Partners' commitments:</b>	At least EUR 1 bn
<b>Predecessor under Horizon 2020:</b>	Fuel Cell and Hydrogen (FCH) 2 Joint Undertaking

## FIND OUT MORE

<https://clean-hydrogen.europa.eu>

<https://ec.europa.eu/newsroom/chju/newsletter-archives/36192>

[in https://www.linkedin.com/feed/update/urn:li:activity:6877283838180098049](https://www.linkedin.com/feed/update/urn:li:activity:6877283838180098049)

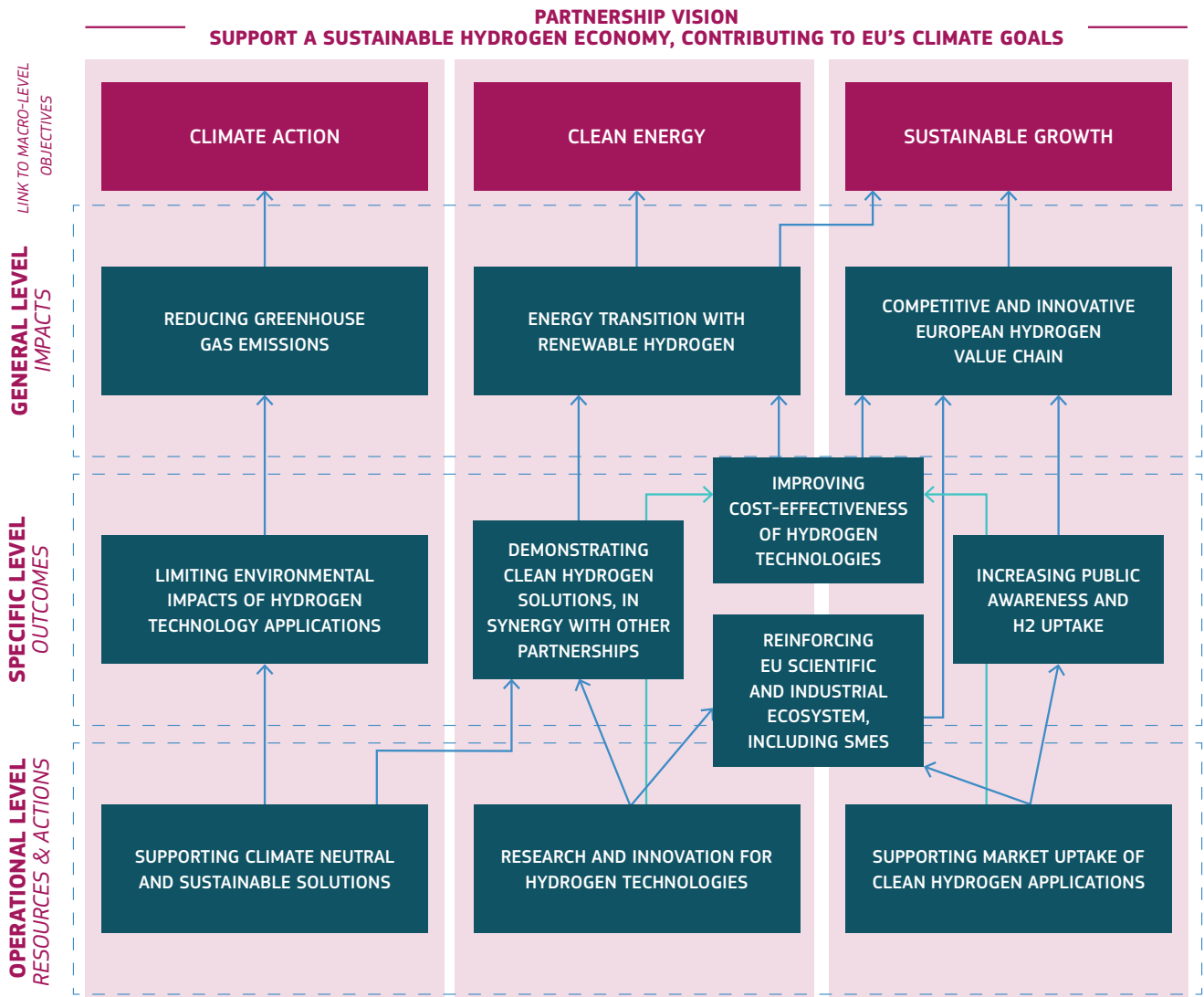
[t https://twitter.com/CleanHydrogenEU/status/1471516281497014280](https://twitter.com/CleanHydrogenEU/status/1471516281497014280)

✉ [info@clean-hydrogen.europa.eu](mailto:info@clean-hydrogen.europa.eu)





**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**





**PARTNERSHIP'S Key Performance Indicators**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
1. Supporting sustainable solutions	% of budget (2 indicators)	2.5*	20	35	50	
2. Early research projects	% of budget	10*	10	10	10	
3. Demonstration projects	# of projects	43*	20	40	60	
4. Education and training	# of projects	4*	2	4	6	
5. Monitoring technology progress	Qualitative indicator	N/A	N/A	N/A	N/A	
6. Supporting EC in H2 market uptake	Qualitative indicator	N/A	N/A	N/A	N/A	
<b>OUTCOMES</b>						
7. Environmental impact and sustainability	TBD	TBD	TBD	TBD	TBD	
8. Capital cost of hydrogen applications	€/kilowatt (2 indicators)	TBD	TBD	TBD	TBD	
9. Research and Innovation Synergies	# of projects	5*	5	10	20	
10. Public perception of hydrogen	Qualitative indicator	N/A	N/A	N/A	N/A	
11. Total persons trained	# of persons	4 163*	1 000	3 000	6 000	
12. Patents and publications	# of patents / publications	12*/289	17/350	20/400	25/450	
13. Promoting cross-sectoral solutions	# of projects	15*	10	15	25	
<b>IMPACTS</b>						
14. Expected avoided emissions	Million tonnes of CO <sub>2</sub> -eq	TBD	N/A	N/A	N/A	TBD (2030/2050)
15. Deployment of electrolyzers	Gigawatt	1	4	6	10	40 (2030)
16. Market uptake of clean hydrogen	Mt of clean hydrogen consumed	0.155	0.7	1	2	10 (2030)
17. Total cost of hydrogen at end-use	€/kg	8	6.5	5.5	4.5	3 (2030)
18. Size of private hydrogen sector	Qualitative indicator	N/A	N/A	N/A	N/A	

The work on the KPIs is under progress. After their approval from the Clean Hydrogen Partnership's governing board, it is expected that a robust and transparent methodology will be developed with the help of experts in 2022. This especially applies for all elements of the table labelled 'TBD' (to be determined). The methodology will be published on the Clean Hydrogen Partnership's website. For economy of space, some of the KPIs were merged in the table above. More detailed information on the partnership's KPIs, activities, performance and impacts can be found in the partnership's Strategic Research and Innovation Agenda and activity reports, which are available on the partnership's website.

\* Baseline refers to the achievement over the lifetime of the predecessor partnership (FCH 2 JU).

## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

### HYDROGEN VALLEYS: PROVIDING INSIGHTS IN THE EMERGING HYDROGEN ECONOMY

Since 2014, FCH JU has pursued the concept of hydrogen valleys, a defined geographical area where several hydrogen applications are combined and integrated within an FCH ecosystem. Hydrogen valleys are the most synergetic type of projects, involving different types of stakeholders (public and private partners, large companies and SMEs, private companies, and research institutions). They often combine various sources of funding: private, national, regional and EU funding streams, of which the JU funding is just a small share. Prime examples of these hydrogen valleys are the three recent projects of FCH JU: HEAVENN\*, Green Hysland\*\* and BIGHIT\*\*\*. The Clean Hydrogen JU will continue to support hydrogen valleys as one of its main activities.

\*<https://heavenn.org/>

\*\*<https://greenhysland.eu/>

\*\*\*<https://www.bighit.eu/>

### FCH JU & CEF: COOPERATING FOR THE FUTURE

In 2017, FCH JU supported at the time the largest deployment project of fuel-cell buses in Europe, introducing new bus fleets into urban bus operations on a large scale. To further support the deployment and operation of the buses, it is essential to also provide or fund the required refuelling infrastructure for the buses.

This was achieved by the successful cooperation with the Connecting Europe Facility programme (CEF) and its project MERHLIN, through the parallel funding of seven hydrogen refuelling stations – complementarily to the JIVE deployment of 144 buses.

The successful cooperation in the JIVE-MERHLIN projects has paved the way for further possible synergies between the Clean Hydrogen JU and other EU funding streams.

### COLLABORATION ON HYDROGEN ACROSS EUROPEAN PARTNERSHIPS

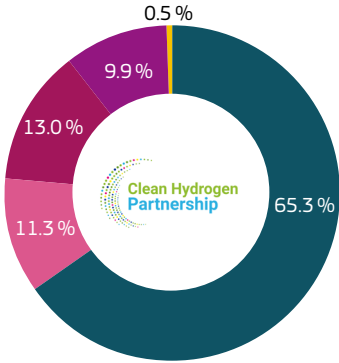
The Clean Hydrogen JU aims to establish structured collaboration with many other European Partnerships, since hydrogen can be deployed as a fuel, energy carrier and for storing energy. The most relevant identified European Partnerships are Towards Zero-emission Road Transport, Zero Emission Waterborne Transport, Europe's rail, clean aviation, processes for the planet and clean steel. Towards this goal, the Clean Hydrogen JU in close cooperation with other end-use partnerships, developed common roadmaps, aiming to better coordinate the planned activities per partnership in the context of R&D in hydrogen technologies. This common planning aims to prevent overlaps, enable synergies and lead to more visible impacts of hydrogen technologies in the context of the Horizon Europe Programme. This effort will be supported by the stakeholders group\*, which will promote the cooperation and synergies between partnerships in the domain of hydrogen. The stakeholders group is set up as an official advisory to the Clean Hydrogen JU's governing board, made up of representatives from all sectors along the hydrogen value chain, as well as from other partnerships.

\* [https://www.clean-hydrogen.europa.eu/about-us/organisation/stakeholders-group\\_en](https://www.clean-hydrogen.europa.eu/about-us/organisation/stakeholders-group_en)



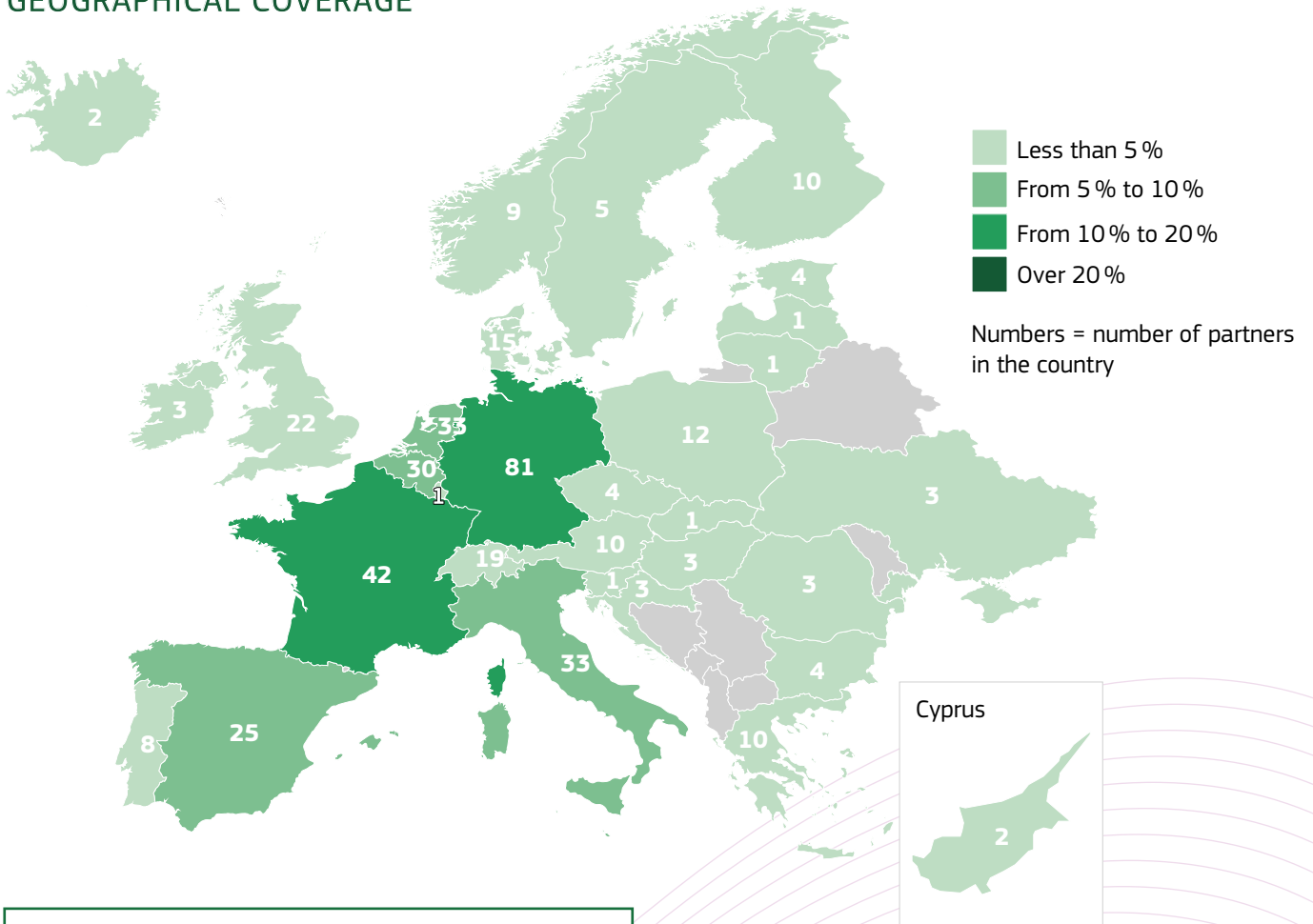
**OVERVIEW OF MEMBERS**

**MEMBERS PER TYPE**



- INDUSTRY** Other Industrial and/or profit Private organisation
- UNIVERSITY** University and other higher education organisations
- RESEARCH** Public research organisation (including international research organisation as well as private research organisation controlled by a public authority)
- PUBLIC** Research funders, ministries, regions, cities
- OTHERS** Non-profit, associations, state companies etc.

**GEOGRAPHICAL COVERAGE**



**Total number of partners: 415**  
 92.8 % of the partners are represented in the map  
 Other partners that do not fit to the map are from Australia, Canada, Japan, Morocco, Turkey and United States .



## MISSION AND VISION STATEMENT

The Clean Aviation Joint Undertaking (CAJU) will develop disruptive new aircraft technologies to support the European Green Deal and climate neutrality by 2050. These technologies will deliver net greenhouse gas (GHG) reductions of no less than 30%, compared to 2020 state-of-the-art.

The technological and industrial readiness will allow the deployment of new aircraft with this performance no later than 2035, enabling 75% of the world's civil aviation fleet to be replaced by 2050.

The aircraft developed will enable net CO<sub>2</sub> reductions of up to 90% when combined with the impact of sustainable 'drop-in' fuels, or zero CO<sub>2</sub> emissions in flight when using hydrogen as an energy source.

## KEY FACTS AND FIGURES

<b>Horizon Europe Pillar and Cluster:</b>	Pillar II – Cluster 5: Climate, energy and mobility
<b>Type of Partnership:</b>	Institutionalised (Art 187 TFEU) – joint undertaking
<b>Total estimated budget:</b>	EUR 4.1 bn
<b>EU commitments:</b>	Up to EUR 1.7 bn
<b>Partners' commitments:</b>	At least EUR 2.4 bn
<b>Predecessor under Horizon 2020:</b>	Clean Sky 2 Joint Undertaking

## FIND OUT MORE

<https://clean-aviation.eu/>

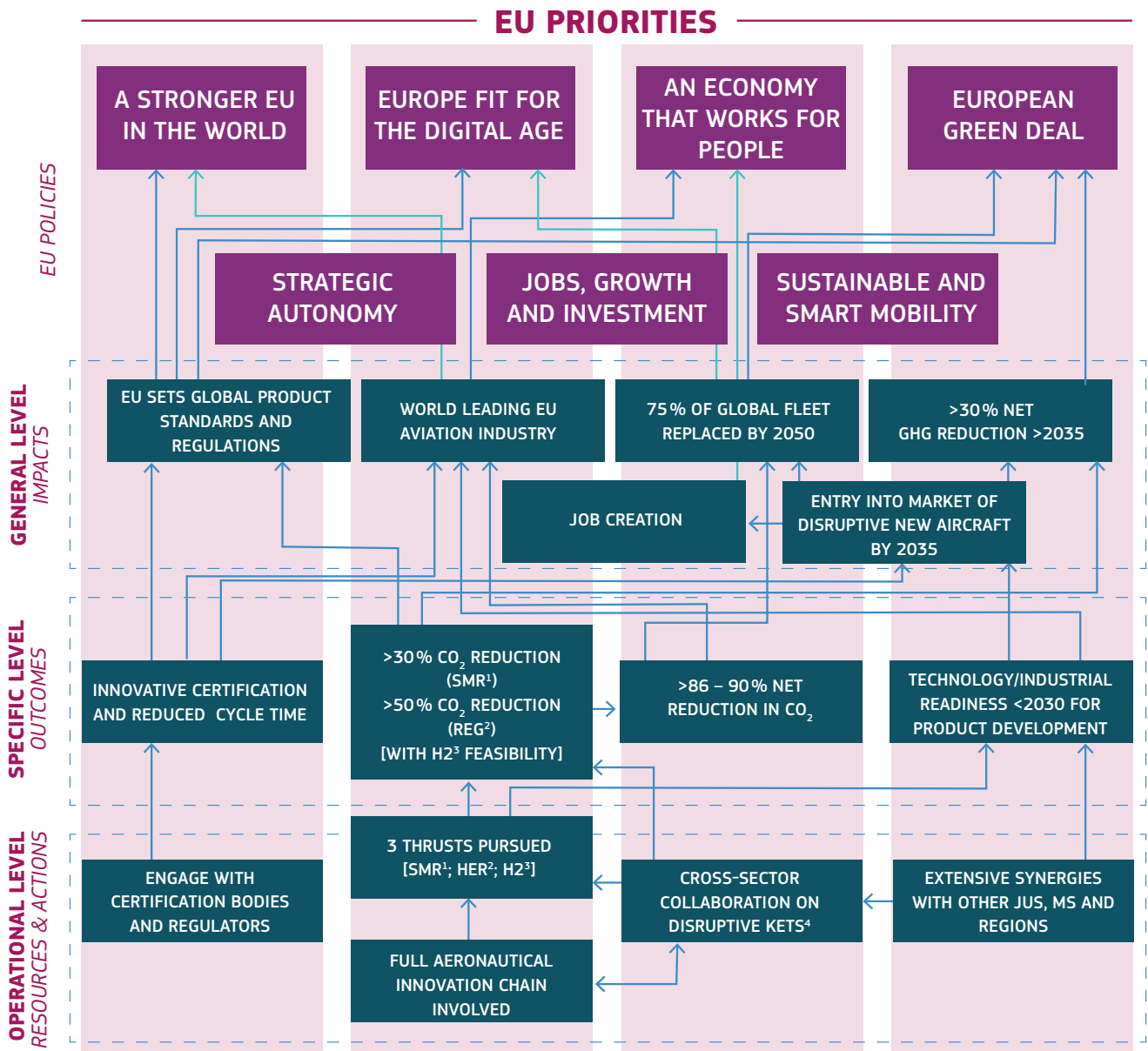


[info@clean-aviation.eu](mailto:info@clean-aviation.eu)

[RTD-CLEAN-AVIATION@ec.europa.eu](mailto:RTD-CLEAN-AVIATION@ec.europa.eu)



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**



<sup>1</sup>SMR: ultra-efficient Short-Medium Range aircraft; <sup>2</sup>HER: Hybrid-Electric Regional aircraft; <sup>3</sup>H<sub>2</sub>: disruptive technologies to enable Hydrogen-powered aircraft; <sup>4</sup>KETS: Key Enabling Technologies



**PARTNERSHIP'S Key Performance Indicators**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	TARGET >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Newcomers (cross-over from non-aeronautical domains)	# and funding (euro)	N/A	TBD	TBD	TBD	TBD
Country participation (EU 27 and associated countries)	#	H2020 evaluation for first year level	TBD	TBD	TBD	TBD
Collaboration and Synergies <ul style="list-style-type: none"> <li>• within Horizon Europe</li> <li>• within other EU Budget</li> <li>• with national programmes</li> <li>• regional programmes [RIS3]</li> </ul>	# and funding leveraged	H2020 evaluation or first year level	TBD	TBD	TBD	@ end of programme: >€100 m <sup>(1)</sup>
Leverage effect from private sector contribution	# (defined as private sector contribution divided by the EU contribution)	H2020 evaluation or first year level	TBD	>0.41	>1.0	>1.41 (@ end of programme)
<b>OUTCOMES</b>						
Technology Readiness Levels	Critical technologies reaching TRL6 by 2030	H2020 evaluation or first year level	0	0	TBD	TBD
Demonstrated CO <sub>2</sub> emissions reduction potential <ul style="list-style-type: none"> <li>• from SMR <sup>(2)</sup></li> <li>• from HER <sup>(3)</sup></li> </ul>	%	2020 state-of-the-art technology	N/A	N/A	N/A	(> 2035) >30 % >50 %
<b>IMPACTS</b>						
Net GHG emissions reduction	%	compared to 2020 state-of-the-art	N/A	N/A	N/A	>30 % (>2035)
Market deployment of CA solutions	# solutions (manufacturing ready)	TBD	Minimum 2 new aircraft (order by 2030, delivery by 2035)			
Fleet renewal	% (of the global fleet)	TBD	TBD	TBD	TBD	75 % (>2050)
Time To Market Reduction (TTMR)	%	2020 certification processes	TBD	TBD	TBD	30 % (2030)
Cost reduction of certification	%	2020 certification processes	TBD	TBD	TBD	30 % (2030)
EU aeronautics leadership	Global market share in leading technologies	2020 market share	EU aeronautics maintains its 2020 global market share			

<sup>1</sup> with 3 JUs, 2 Cluster R&I WP areas

<sup>2</sup> SMR: Short-Medium Range aircraft

<sup>3</sup> HER: Hybrid Electric Regional aircraft



## **SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES**

The challenge of transforming air transport towards climate neutrality is huge. Meeting this challenge will require a level of R&I that goes well beyond today's programmes. The sector currently estimates that it will take at least EUR 12 bn in R&I effort in the timeframe of Horizon Europe. Beyond this massive effort, policy instruments and public / public-private financing instruments will also be essential to close the gap from research outcomes towards implementation in the fleet by 2050. The overall funding level required for R&I will require strong synergies from regional and national to EU level, and across a wide array of funding and financing sources in the EU's Multiannual Financial Framework.

### **REGIONS**

Clean Sky 2 has developed synergies with the Regions and European Structural Investment Funds (ESIF) through Memorandum of Understandings (MoUs) with national and regional authorities aligning objectives with regional strategies and Regional Strategy for Research and Innovation for Smart Specialisation (RIS3). Eighteen MoUs have been signed with Member States/Regions, and twelve Clean Sky Synergy Labels have been awarded to complementary activities. More than fifty projects have been supported by ESIF with a budget above EUR 50 million.

The Clean Aviation JU will also develop synergies with national and regional authorities on the basis of the RIS3 and utilising the European Regional Development Fund (ERDF) Operational Programmes in place or under preparation for 2021-2028. At least EUR 100 million plus involving the top 30-40 regions with relevant RIS3 will be targeted.

### **EU RECOVERY FUND**

The CAJU plans to leverage recovery plans and NextGenEU funding as made available to the Member States and where earmarked for innovation. Active discussions are underway with Member States such as France, Spain, Italy, Germany and the Netherlands.

### **NATIONAL INNOVATION PROGRAMMES**

The CAJU plans to develop an innovation architecture spanning the major national R&I programmes in Member States and Associated Countries. Participation by national authorities will be by mutual agreement and based on the significance of the national efforts and budget available and the commitment to align roadmaps and programmes so as to achieve practical synergies in technology development, both in terms of content and timing (as related to the ambition of the Clean Aviation SRIA and SBA Objectives). Together with the NextGenEU funds at least 100% leverage, i.e., a further EUR 1.7 billion will be targeted through this collaboration and joint programming.

### **FUNDING AND SYNERGIES WITHIN HORIZON EUROPE**

Within Pillar II of Horizon Europe, synergies with other proposed Partnerships are most notably (but not exclusively) with the **Clean Hydrogen Partnership** (fuel cells, as well as hydrogen as a potential fuel source) and the **European Battery Alliance**. The exacting standards needed for aerospace applications seem unnecessary for other sectors; yet once they are established the spin-off to other sectors is substantial. We believe the performance levels of fuel cells and batteries that can be unlocked through an aeronautics programme linked to Clean Aviation can allow Europe not to follow or catch up, but to leapfrog Asia. Other synergistic effects are evident with the proposed Partnership for Air Traffic Management i.e., **SESAR 3**. The partnership will need to have effective and efficient means to draw key results from the **collaborative research programme for aeronautics** under the control of the relevant Cluster 5 Clean Planet Directorate and unit.

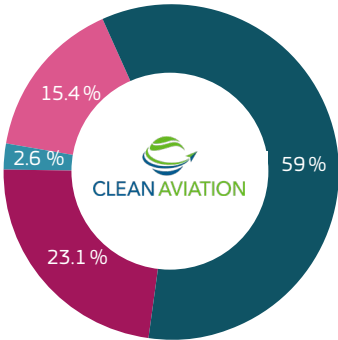
Outside the cluster, more opportunities exist with **Key Digital Technologies**, other research instruments related to digital technologies, the **Made for Europe** partnership, and the **Space Initiative**, especially when it concerns hydrogen related technologies.





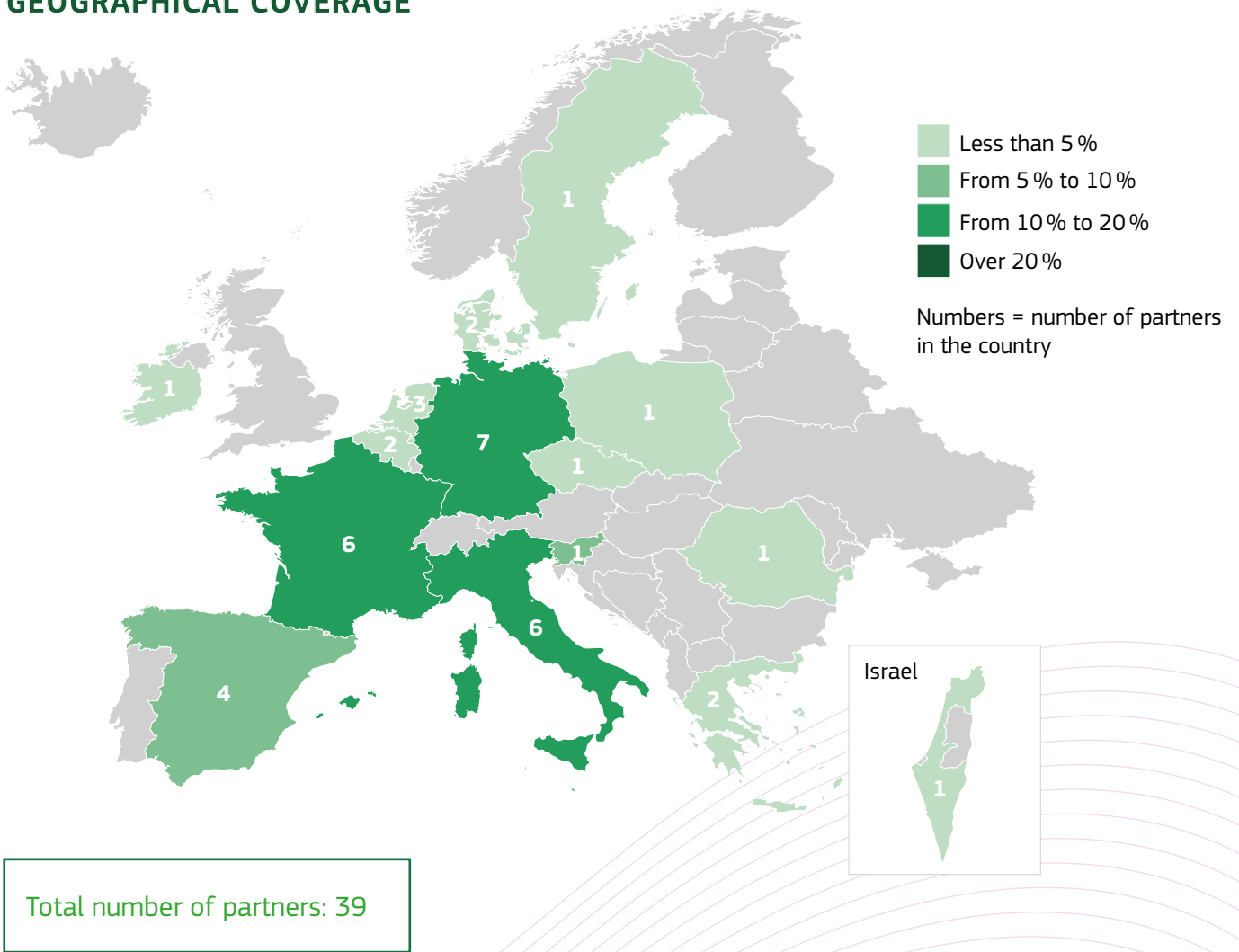
**OVERVIEW OF MEMBERS**

**MEMBERS PER TYPE**



- INDUSTRY** Other Industrial and/or profit Private organisation
- UNIVERSITY** University and other higher education organisations
- RESEARCH** Public research organisation (including international research organisation as well as private research organisation controlled by a public authority)
- SMEs**

**GEOGRAPHICAL COVERAGE**





## MISSION AND VISION STATEMENT

The Single European Sky ATM Research 3 (SESAR 3) Joint Undertaking (aims to accelerate through research and innovation the delivery of an inclusive, resilient and sustainable digital European sky.

- Sustainable – establishes Europe as the most efficient and environmentally friendly sky in which to fly in the world.
- Resilient – enables flexible, scalable, safe and secure air traffic management (ATM) that can withstand disruptions in the aviation system.
- Inclusive – integrates and connects all types of air vehicles and users, including civil and military, manned and unmanned.
- Accelerate – reduces time to market through focused and agile R&I, supporting faster transition to deployment through an extended innovation life cycle.

SESAR 3 JU brings together the EU, Eurocontrol, and more than 50 organisations covering the entire aviation value chain, including airports, airspace users of all categories, air navigation service providers, drone operators and service providers, the manufacturing industry and the scientific community. The partnership also works closely with regulatory and standardisation bodies, notably EASA and EUROCAE, as well as key stakeholders such as professional staff organisations, the space and military communities and global partners.

SESAR 3 JU builds upon the experience of the SESAR JU and continues its coordination role in ATM technology in the EU to further integrate the R&I capacity in Europe.

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 5: Climate, energy and mobility

**Type of partnership:** Institutionalised (Art 187 TFEU) – joint undertaking

**Total estimated budget:** EUR 1.6 bn\*

**EU commitments:** EUR 600 m

**Partners' commitments:** EUR 1 bn\*\*

**Predecessor under Horizon 2020:** SESAR Joint Undertaking

\* In addition, to meet its obligations defined in the Single Basic Act, the Digital European Sky programme will also benefit from funding for its digital sky demonstrators from the Connecting Europe Facility (in coordination with CINEA) to the value of at least EUR 200 million.

\*\* Out of which the private members will make a total contribution of at least EUR 500 m and Eurocontrol will make a total contribution of up to EUR 500 m.

## FIND OUT MORE

[www.sesarju.eu](http://www.sesarju.eu)

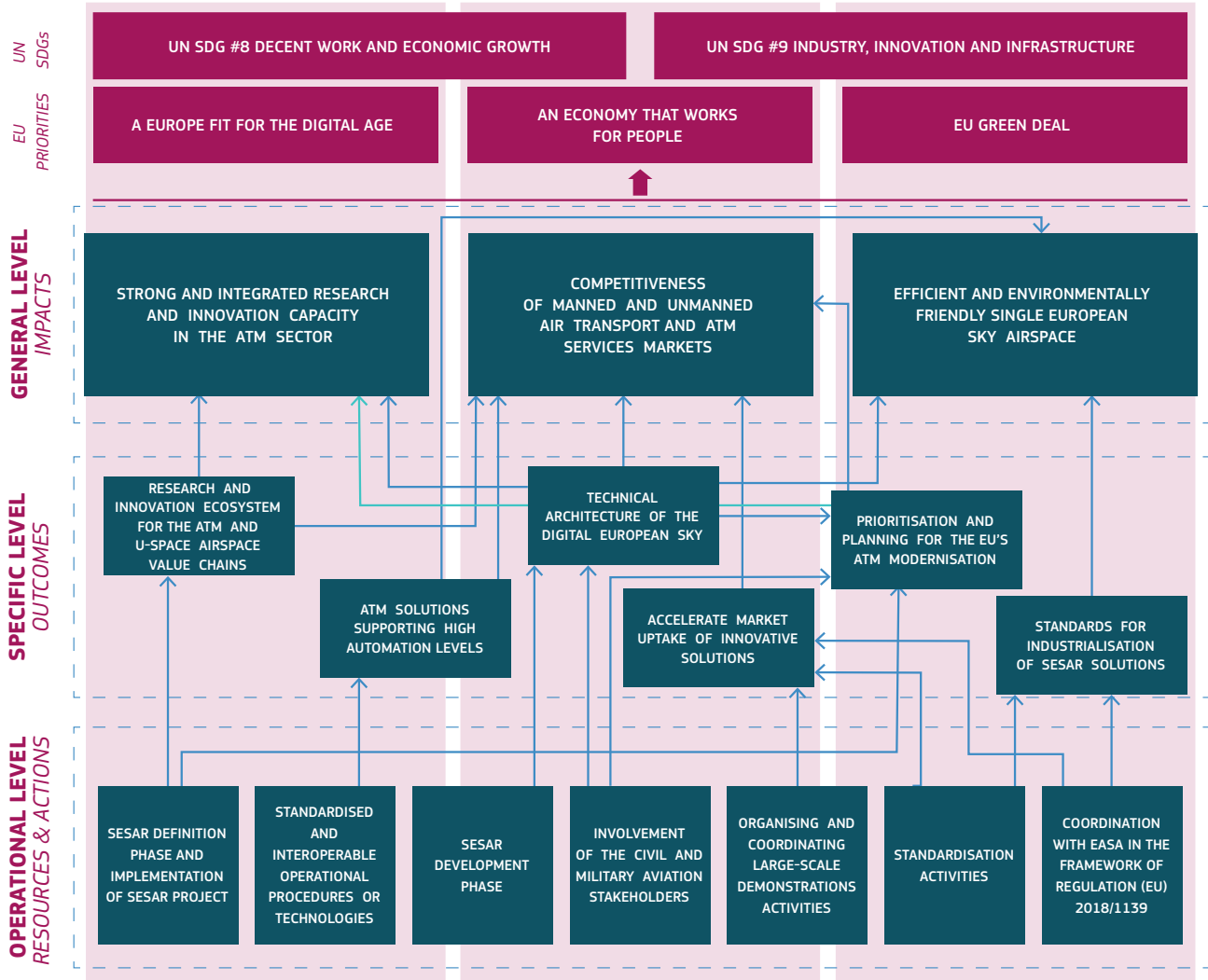
✉ [info@sesarju.eu](mailto:info@sesarju.eu)

☎ +32 2 507 80 00



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**

**ACCELERATE THROUGH RESEARCH AND INNOVATION THE DELIVERY OF AN INCLUSIVE, RESILIENT AND SUSTAINABLE DIGITAL EUROPEAN SKY**





## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Signed grants (Digital European Sky programme)	#	0 (2021)	70	135	167	175
Joint calls <sup>1</sup>	#	1 (2021)	2	2	2	TBD
Complementary funding (HE, national, ERDF, CEF,...)	€	€60 m (2021)	€171 m	n/a	TBD <sup>2</sup>	TBD
<b>OUTCOMES</b>						
Solutions delivered* ready for industrialisation or deployment (Digital European Sky programme)	#	0 (2021)	30	40	75	115
Solutions available for deployment against ambitions of the ATM Master Plan (SESAR 1, SESAR 2020, Digital European Sky programme)	%	37 (2019)	51	68	86	100
Solutions with supporting standards & regulations* (Digital European Sky programme)		0 (2021)	TBD	TBD	TBD	TBD
Share of solutions in deployment in min. 20% of EU MS <sup>3</sup> (Digital European Sky programme)	%	0 (2021)	TBD	TBD	TBD	TBD
<b>IMPACTS</b>						
Accidents (Safety)	% reduction	-36.5%		TBD		-51% <sup>4</sup>
Capacity	% increase (peak hourly throughput)					
<ul style="list-style-type: none"> <li>● airports</li> <li>● TMA**</li> <li>● en route</li> </ul>		21.4%		TBD		10% <sup>5</sup>
		27.7%		TBD		47% <sup>6</sup>
		48.8%		TBD		49% <sup>7</sup>
Punctuality (flights departing < 3min of scheduled time)	% increase	4.3%		TBD		10% <sup>8</sup>
Fuel savings	Kilograms per flight	147.4		TBD		250-500 <sup>9</sup>
ATCO productivity***	% increase	74.8%		TBD		97.7% <sup>10</sup>
Technology cost reduction per flight	% reduction	30.8%		TBD		43.4% <sup>11</sup>

\*TRL6

\*\* Terminal Maneuvering Area

\*\*\* Air Traffic Control

1) Cumulative

2) Pending confirmation through future CEF programme's approval

From 3) to 11): Pending update of the performance ambition of the ATM Master Plan



## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

### MAXIMISING SYNERGIES ACROSS HORIZON EUROPE

SESAR 3 JU will put in place measures to maximise its impact using all possible synergies with other European Partnerships and related national activities. Beyond the involvement in the overall coordination of Horizon Europe, SESAR 3 JU will, in particular, focus on capturing synergies across the following two clusters.

**Synergies within the Climate, energy and mobility cluster:** in this thread, SESAR 3 JU will reach out to other mobility JUs with the aim of building consolidated roadmaps and action plans for climate neutral mobility solutions. This will also address common sectorial issues such as multimodality transport, automated vehicles and the decarbonisation of the sector. In particular, a specific coordination with the European Partnership for Clean Aviation is believed to be essential for the aviation sector.

**Synergies with the Digital, industry and space cluster:** considering that the digital transformation of aviation is at the core of the SESAR 3 JU's goals, it strongly echoes the ambition of the digital, industry and space cluster. It is in many ways complementing this cluster by addressing aviation-critical applications. Therefore, it is essential to put in place synergies with all relevant digital initiatives outside of the climate, energy and mobility cluster. For example AI, cybersecurity and high-performance computing are cross-sectorial issues that require deep coordination, especially for the development of use cases and the application of European standards. In addition, the partnership will contribute to the achievement of European space policy. According to the European ATM Master Plan, satellite CNS services are considered essential enablers of the digital European sky. Therefore, the partnership will build on the achievements of SESAR 2020 in the space domain to further engage space actors in the innovation ecosystem.

### COHERENCE AND SYNERGIES IN RELATION TO MAJOR NATIONAL (SECTORIAL) POLICIES, PROGRAMMES AND ACTIVITIES

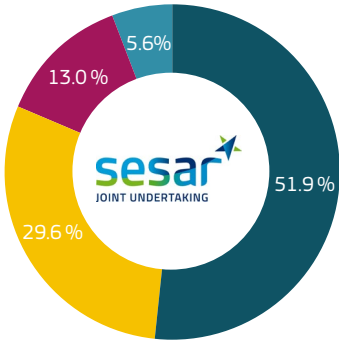
To help repair the economic and social damage caused by the COVID-19 pandemic to the aviation sector, SESAR 3 JU will exploit all possible synergies in relation to major national (sectorial) policies, programmes and activities (such as those that will be part of the EU stimulus package, the Recovery and Resilience Facility, to ensure maximum levels of complementarity and impact). It will aim to leverage local investments and complement R&I needs by looking at the wider European goals and applications.

SESAR 3 JU will explore opportunities for coordination with national and regional initiatives and consult widely through the newly established states' representatives group.



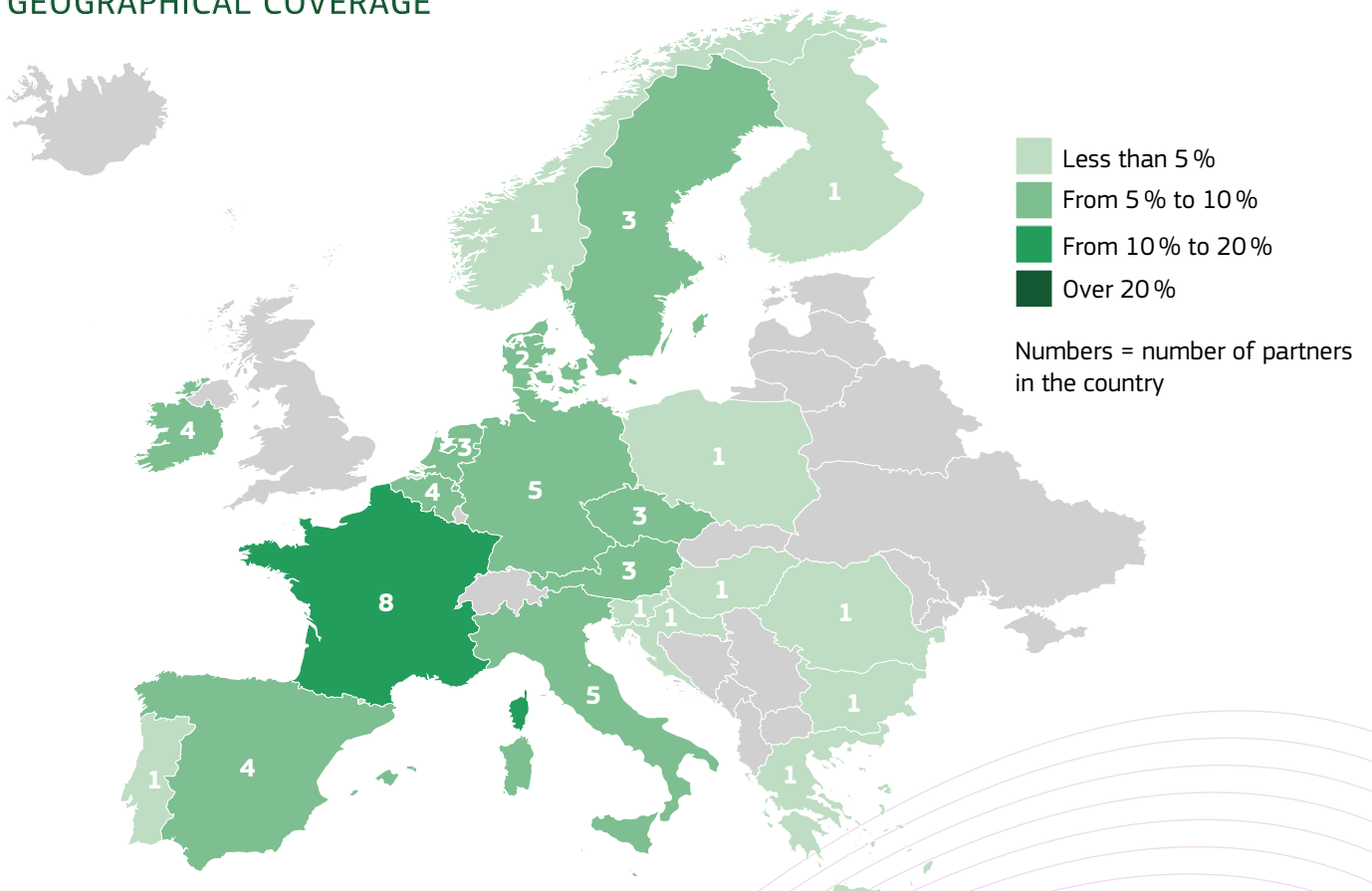
**OVERVIEW OF MEMBERS**

**MEMBERS PER TYPE**



- INDUSTRY** Other Industrial and/or profit Private organisation
- RESEARCH** Public research organisation (including international research organisation as well as private research organisation controlled by a public authority)
- PUBLIC** Research funders, ministries, regions, cities
- SMEs**

**GEOGRAPHICAL COVERAGE**



Total number of partners: 54



## MISSION AND VISION STATEMENT

The Europe's Rail (EU-Rail) Joint Undertaking will contribute to the achievement of the Single European Railway Area, to a fast transition to a more attractive, user-friendly, competitive, affordable, efficient and sustainable European rail system, and to the development of a strong and globally competitive European rail industry, with an integrated system approach, research, development and demonstrations of innovative technologies and operational solutions (enabled by digitalisation and automation) for future deployment to deliver on EU policies such as the Green Deal objectives, a Europe fit for the digital age, and an economy that works for people and a stronger Europe in the world.

## KEY FACTS AND FIGURES

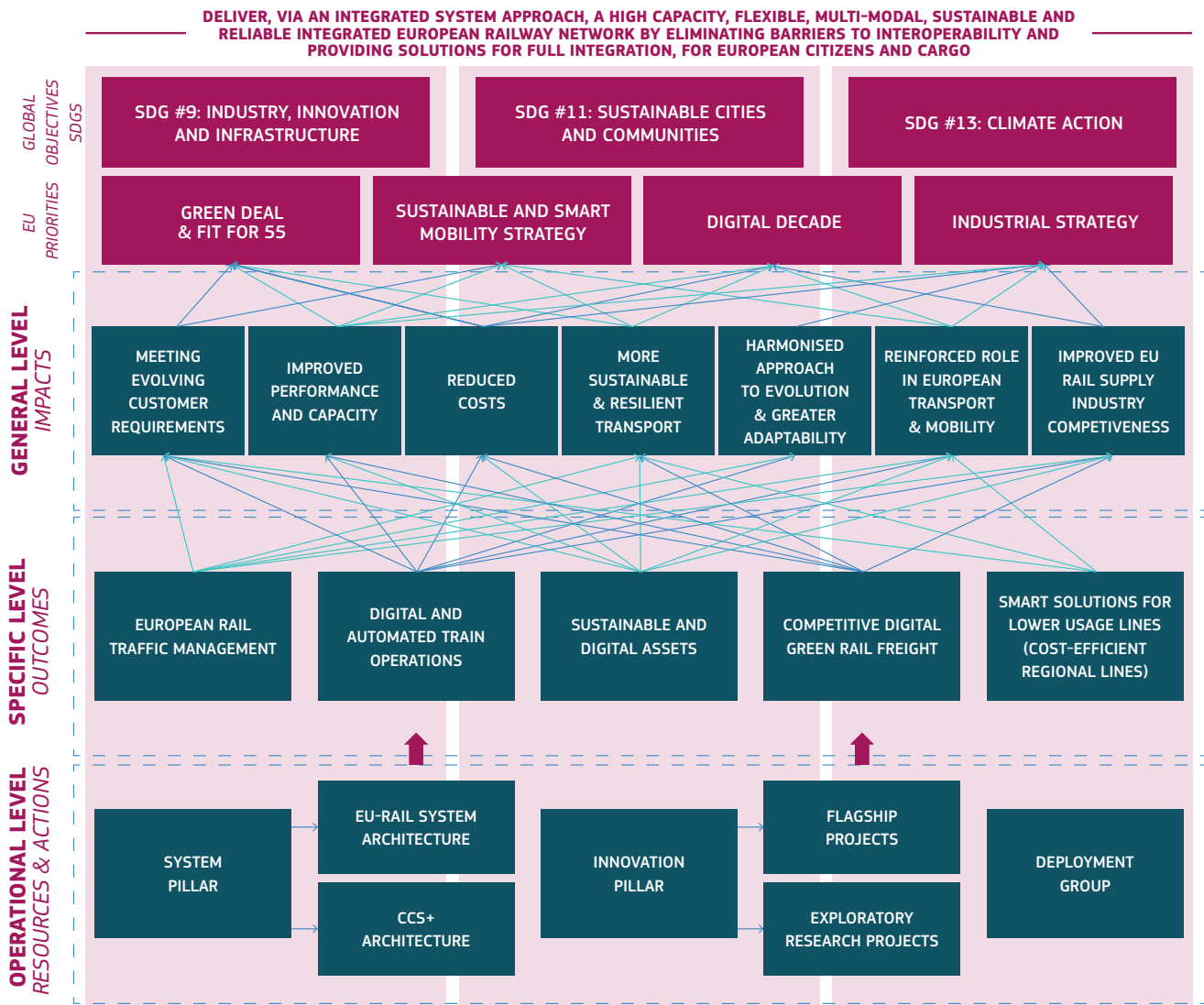
<b>Horizon Europe Pillar and Cluster:</b>	Pillar II – Cluster 5: Climate, energy and mobility
<b>Type of partnership:</b>	Institutionalised (Art 187 TFEU) – joint undertaking
<b>Total estimated budget:</b>	EUR 1.2 bn
<b>EU commitments:</b>	Up to EUR 600 m
<b>Partners' commitments:</b>	EUR 600 m
<b>Predecessor under Horizon 2020:</b>	Shift2Rail Joint Undertaking

## FIND OUT MORE

<https://rail-research.europa.eu>  
<https://shift2rail.org/about-europes-rail/europes-rail-ju-members/>  
<https://rail-research.europa.eu/about-europes-rail/contact/>



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**







**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

*Data not available*

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
<b>OUTCOMES</b>						
<b>IMPACTS</b>						

A number of KPIs have been identified for each flagship area (reflecting the five outcomes of the PSIPs table). KPIs are available from the draft master plan and Multi-Annual Work Programme: <https://shift2rail.org/about-europes-rail/europes-rail-reference-documents/europes-rail-key-documents/>. A selection of these will be used as a reference baseline of the state of the art in 2020 (including results from S2R), and will allow a more focused transformation of the operational work delivered with projects' technical and operational results into more tangible societal impact qualifications. The societal impact measurement methodology will be developed in the first two years of the functioning of the joint undertaking on the basis of the technical and operational KPIs provided here. The calculations of the impact will be provided after each round of demonstrators that is in 2025, 2027 and 2031.



## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

### CREATION OF A EUROPEAN ECOSYSTEM

Europe's Rail Joint Undertaking will establish an ecosystem that will facilitate interaction between stakeholders and makes co-operation within and across value chains more efficient. This will ensure that research is translated into market focused innovation through demonstration and deployment. In addition, the launch of large scale projects and demonstrators will also support the fast transfer of the innovation to the market. These projects, such as demonstrations would bring together technology suppliers and users. Finally and overall, the work to be performed by the partnership will also contribute to supporting the establishment of the Single European Railway Area, one of the key targets of the European Commission.

### COOPERATION AND SYNERGIES

EU-RAIL will put in place measures to maximise its impact using synergies with other European, national and regional programmes and activities. Beyond the involvement in the overall coordination of Horizon Europe, EU-RAIL will in particular focus on capturing synergies across the following:

**Synergies within the Climate, energy and mobility cluster:** the JU will reach out to other mobility JUs with the aim to build, where possible, consistent projects and demonstrators for climate neutral mobility solutions. This may also address shared areas of intervention such as multi-modal transport, automation in vehicles and other assets, decarbonisation, the use of alternative fuels, etc. In particular, a specific coordination with the European Partnership for Clean Hydrogen, as well as with the Battery co-programmed partnership appear to be of key relevance.

**Synergies with the Digital, industry and space cluster:** considering the key expectations coming from the digital transformation of rail, there are major expectations on how this cluster would contribute with rail-critical applications. Artificial intelligence, cyber-security and high-performance computing are cross-sectorial issues that require deep coordination especially for the development of use cases and the application of European standards. In addition, European space policy appears of key relevance, considering the ambition to introduce more and more satellite-based solutions for localisation or data transmission. Here also, synergies with EUSPA will be continued building upon the past experience.

**Coherence and synergies in relation to major national (sectorial) policies, programmes and activities:** it is estimated that around 15% of the EU stimulus package, the Recovery and Resilience Facility (RRF) will be invested in different areas of national rail systems. There is a need to ensure maximum levels of complementarity and impact, including focusing on future-proof investments. This will require the leveraging of local, regional and national investments to complement the research and innovation activities performed at the EU-RAIL level and vice versa. In this respect, the EU-RAIL state representatives group is expected to play a key role.

### COOPERATION WITH THIRD COUNTRIES AND OTHER ORGANISATIONS

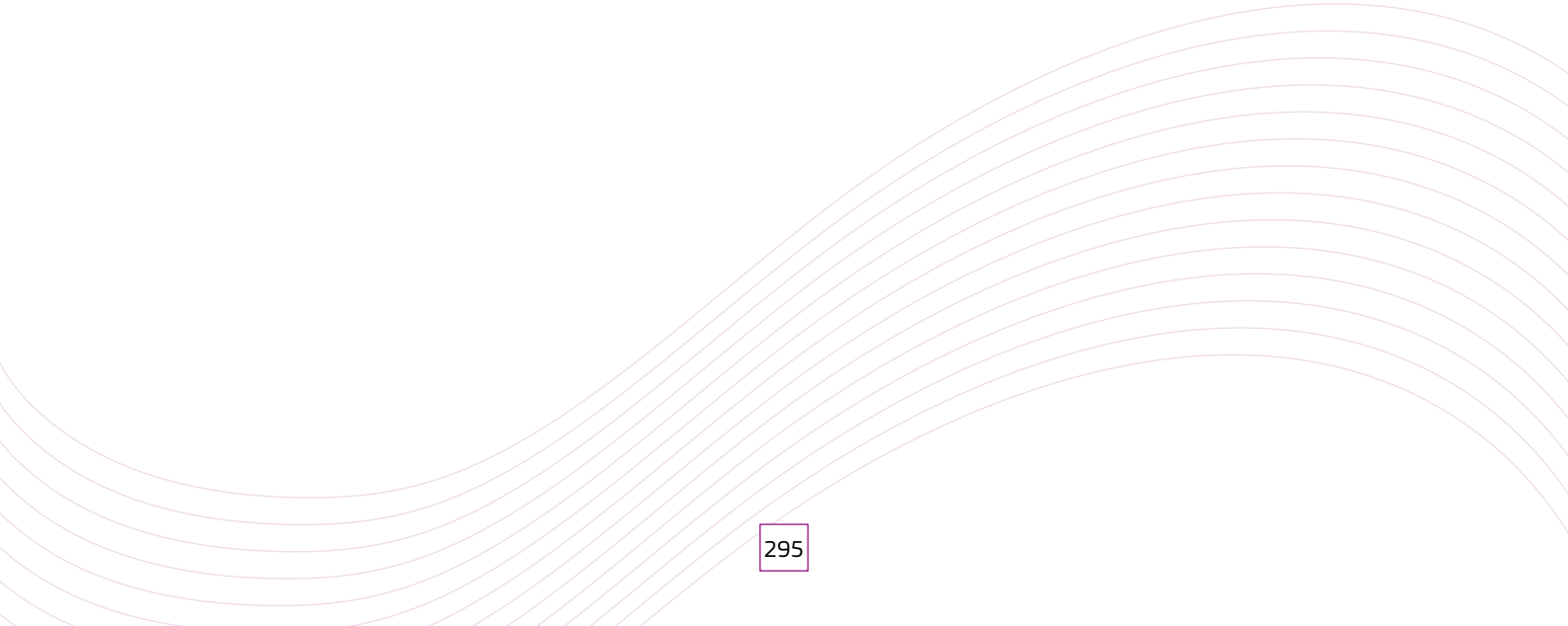
In accordance with EU-RAIL's regulation, in carrying out its activities EU-RAIL shall seek a geographically balanced involvement of members and partners in its activities. It shall also establish the necessary international connections in relation to rail research and innovation, in line with the Commission's priorities. In this respect EU-RAIL strategy will be to conduct outreach activities with international partners pursuant to its strategy for cooperation with Third Countries and/or international organisations. In particular the strategy aims to contribute to the competitiveness of the European rail industry at the global level. EU-RAIL will continue the cooperation set up by the S2R JU with a number of key international partners, such as the Federal Railroad Administration (FRA), American Public Transportation Association (APTA), Federal Transit Administration (FTA) in the US, the Canadian Urban Transit Research and Innovation Consortium (CUTRIC), Gulf countries, India and in the near future, Australia.

In line with the policy priority of the Commission in terms of international relations on rail as well as keeping in mind the aforementioned objectives, it is expected that exchanges will take place with Australia, ASEAN, Japan and Mexico. The collaboration with the EU's neighbouring countries, in particular the Western Balkans, will continue and enhances further opportunities to explore for joint activities and large scale demonstrations.



**OVERVIEW OF MEMBERS**

*Data not available*





## MISSION AND VISION STATEMENT

The Towards Zero-emission Road Transport (2Zero) partnership will set an ambitious research programme to accelerate the development of zero tailpipe-emission road transport in Europe with a system approach. It will develop a common vision and deliver a multi-stakeholders roadmap for a climate-neutral and clean road transport system. It will improve air quality, the mobility safety of people and of goods, and hence ensure future European leadership in innovation, production and services. By paving the way to a climate-neutral road transport system, the partnership will make a key contribution to the success of the European Green Deal.

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 5: Climate, energy and mobility

**Type of partnership:** Co-programmed

**Coordinating entity:** EGVIafor2Zero AISBL and DG RTD - Future Urban and Mobility Systems Unit

**Total estimated budget:** EUR 1.23 bn

**EU commitments:** EUR 615 m

**Partners' commitments:** Up to EUR 900 m

**Predecessor under Horizon 2020:** The European Green Vehicles (2014-2020) and European Green Cars (2009-2013) cPPPs.

## FIND OUT MORE

[www.2Zeroemission.eu](http://www.2Zeroemission.eu)

[in https://www.linkedin.com/company/2zeroemission/?viewAsMember=true](https://www.linkedin.com/company/2zeroemission/?viewAsMember=true)

[@2Zeroemission](https://twitter.com/2Zeroemission)

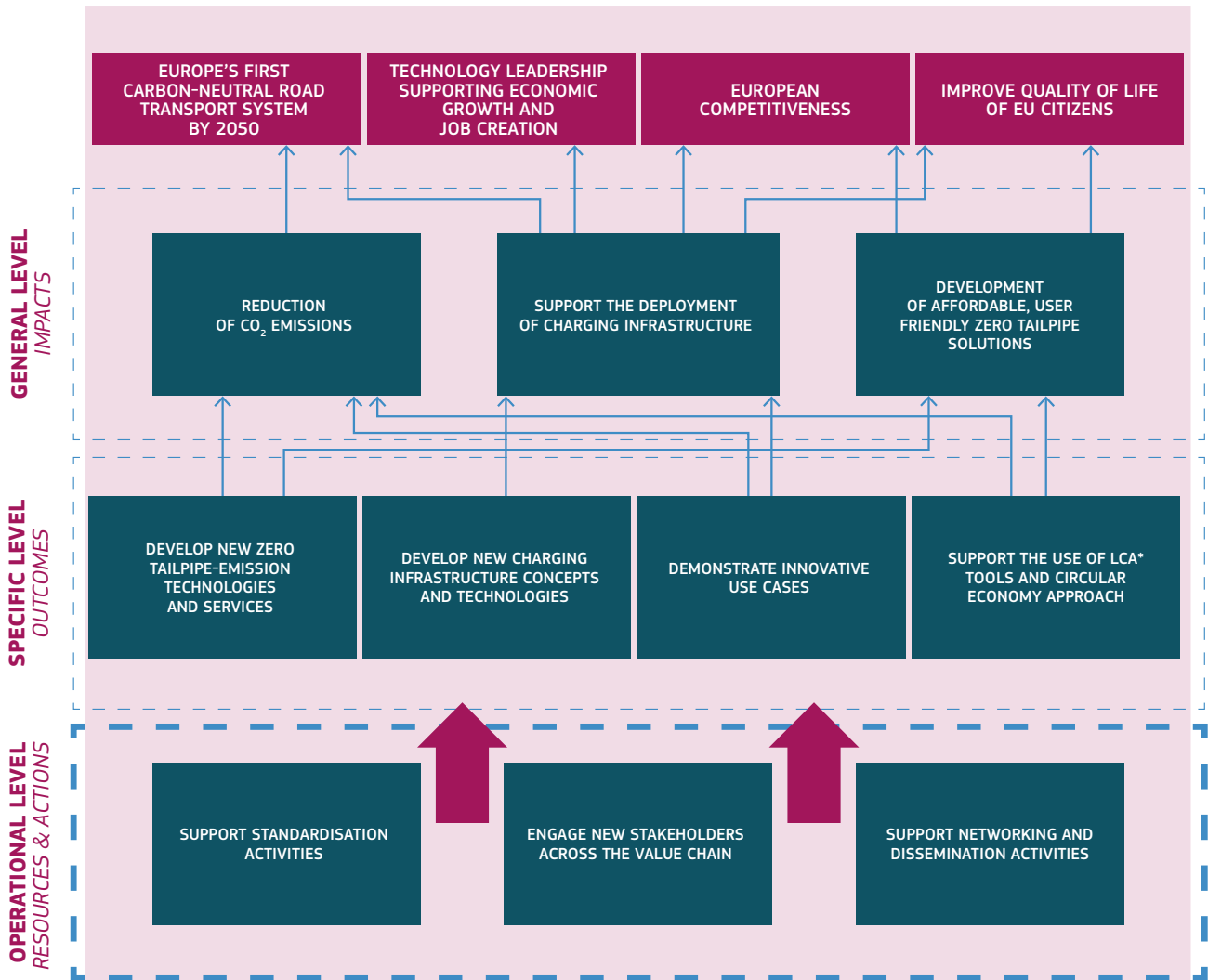
[yt https://www.youtube.com/channel/UCMVUHiygzYPsmIEz2Z4kKXQ](https://www.youtube.com/channel/UCMVUHiygzYPsmIEz2Z4kKXQ)

[✉ info@2zeroemission.eu](mailto:info@2zeroemission.eu)



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**

**ACCELERATE THE DEVELOPMENT OF ZERO TAILPIPE-EMISSION ROAD TRANSPORT IN EUROPE WITH A SYSTEM APPROACH**



\*Life Cycle Assessment



**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Share of funding going to SMEs	%	TBD				TBD
IPR generated in funded projects	#	TBD				TBD
Events organised by the Association	#	TBD				TBD
<b>OUTCOMES</b>						
GHG of mobility of people and goods	tonCO <sub>2</sub> eq /pkm or tkm and toe/pkm and toe/tkm	2020				Reduction of GHG and energy intensity of mobility by 30 % for personal mobility and 25 % for freight by 2030
Reduction of development time and effort		2020				Estimated 20 % decrease of development time and effort including via digitalisation
Improvement of charging efficiency demonstrated	%	2020				At least 25 % reduction of energy losses during charging (considering both charger and vehicle) by 2030 for all types of chargers
Number of (public and private) transport operators implementing zero-tailpipe business models and use cases for freight transport and people mobility	#	2020				30 passenger transport and freight transport and logistics use cases demonstrated in projects over the lifetime of the partnership
Reduction of CO <sub>2</sub> emissions from road transport for all types of vehicles	% CO <sub>2</sub> emission at fleet level	1990				Contribution to the overall target of 55 % reduction of CO <sub>2</sub> emission in 2030 (public target)
Number of (publicly available) electric recharging and hydrogen refuelling stations available in the EU in 2030	#	2020				Contribution to achieve 3 m public charging points in 2030 (public target)



## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

### SYNERGIES AMONG STAKEHOLDERS

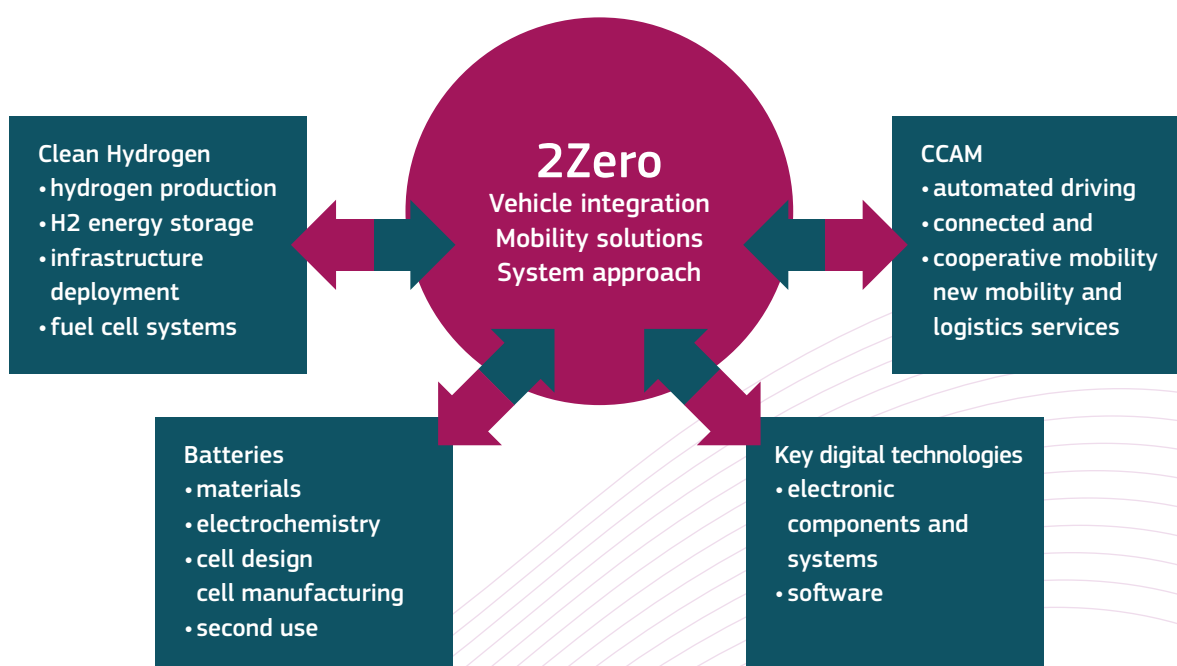
To implement a system approach, the 2Zero partnership extended its membership beyond the traditional automotive value chain and included new stakeholders, such as end users (both for freight transport and people mobility) as well as stakeholders from the energy sector such as major grid players. By involving roughly equal numbers of industry players and members from the research side, the 2Zero partnership is truly a success story of cooperation between different type of stakeholders, within projects, and at the overall partnership level.

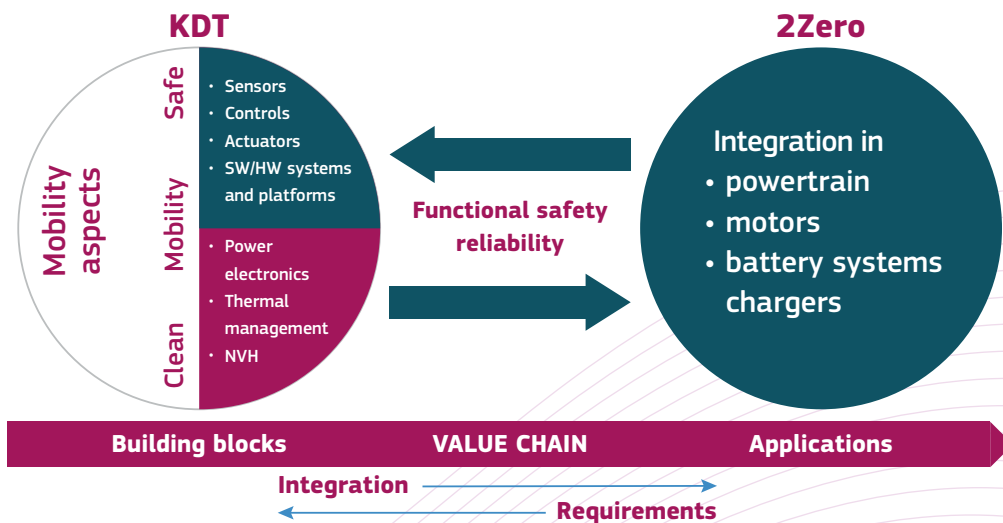
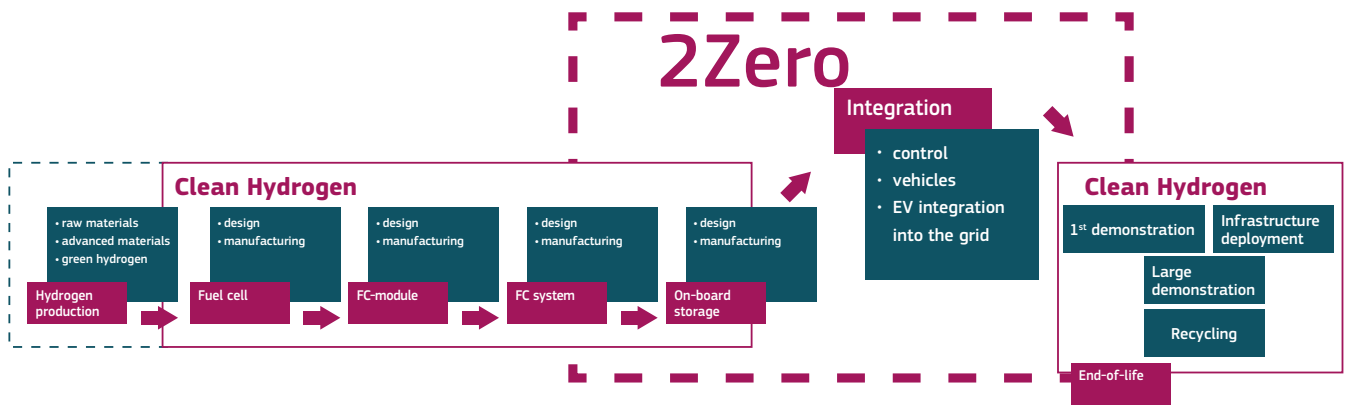
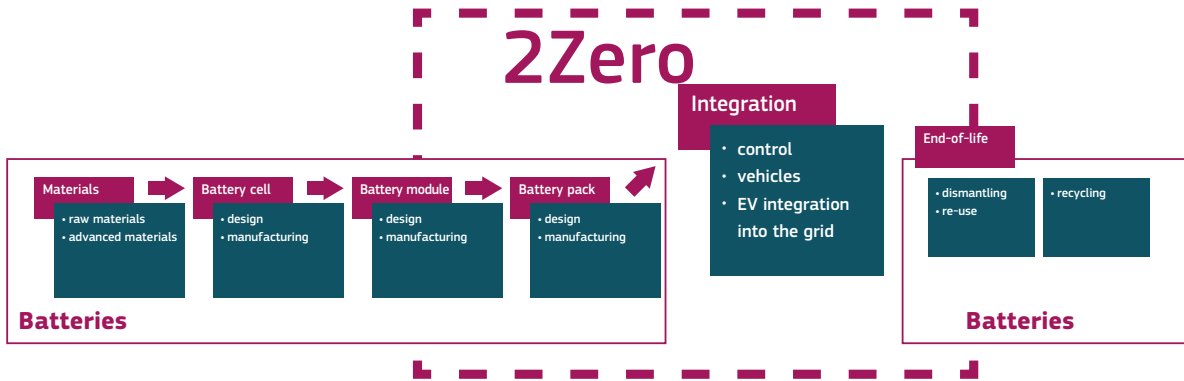
### SYNERGIES WITH OTHER PARTNERSHIPS

The 2Zero partnership does not aim at working in an isolated silo; the coordination with other partnerships and sectors will be essential for success in the transition towards a carbon neutral road transport system. Specific attention will be paid to ensure constant links, exchanges of information and the integration of results of the enabling technologies partnerships, such as Clean Hydrogen, Batteries for Europe and the Key Digital Technologies. While these partnerships should develop the necessary building blocks, the 2Zero partnership will ensure a smooth and timely integration at the vehicle level. A close cooperation will also be established with the CCAM partnership to accelerate the transition to the 2030 mobility system (see images below).

### SYNERGIES WITH MEMBER STATES

Acting at the European level is the main task of the partnership; however, a lot of initiatives also occur at the national level. The 2Zero partnership intends to rely on the soon to be launched States Representatives Group (SRG) to ensure a better alignment with the relevant national and regional policies and programmes. The main objectives will be to explore synergies, avoid duplication of funding and activities, and maximise the large-scale deployment of innovations supported by the 2Zero partnership to accelerate the transition to a carbon neutral road transport system.



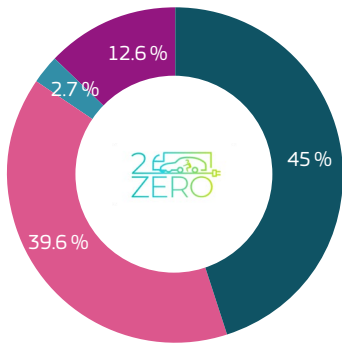






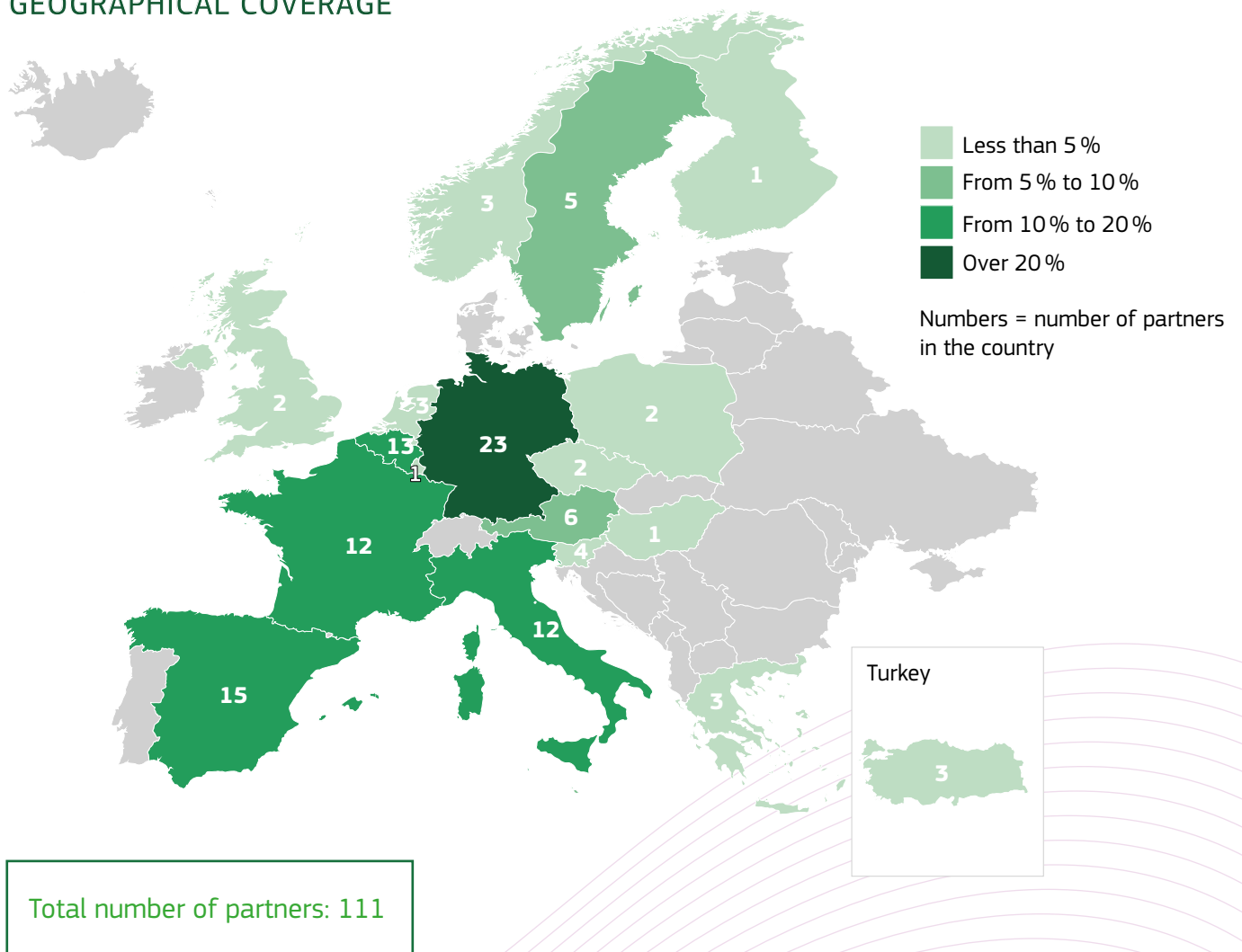
## OVERVIEW OF MEMBERS

### MEMBERS PER TYPE



- INDUSTRY** Other Industrial and/or profit Private organisation
- UNIVERSITY** University and other higher education organisations
- SMEs**
- OTHERS** Non-profit, associations, state companies etc.

### GEOGRAPHICAL COVERAGE





## MISSION AND VISION STATEMENT

The Connected, Cooperative and Automated Mobility (CCAM) partnership's vision is to ensure European leadership in safe and sustainable road transport through automation.

The four main goals are: 1) increase safety in road transport; 2) reduce negative impacts from road transport on environment; 3) ensure leadership through targeted knowledge and capacity building; 4) strengthen competitiveness of European industries.

Advancing CCAM is a multi-stakeholders effort, involving public and private stakeholders across industries and value chains, among others: industry players, public authorities and road operators, mobility and logistic services, representative bodies, regulatory bodies, and the research community.

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 5: Climate, energy and mobility

**Type of partnership:** Co-programmed

**Coordination entity:** CCAM Association

**Total estimated budget:** Up to EUR 1 bn

**EU commitments:** Up to EUR 500 m

**Partners' commitments:** Up to EUR 500 m

## FIND OUT MORE

[www.ccam.eu](http://www.ccam.eu)

[https://www.ccam.eu/wp-content/uploads/2021/11/FINAL\\_MoU\\_CCAM.pdf](https://www.ccam.eu/wp-content/uploads/2021/11/FINAL_MoU_CCAM.pdf)

<https://www.ccam.eu/wp-content/uploads/2022/01/CCAM-Partnership-SRIA-FINAL-2021.pdf>

[in www.linkedin.com/company/ccam-association](https://www.linkedin.com/company/ccam-association)

[www.twitter.com/CCAM\\_EU](https://twitter.com/CCAM_EU)

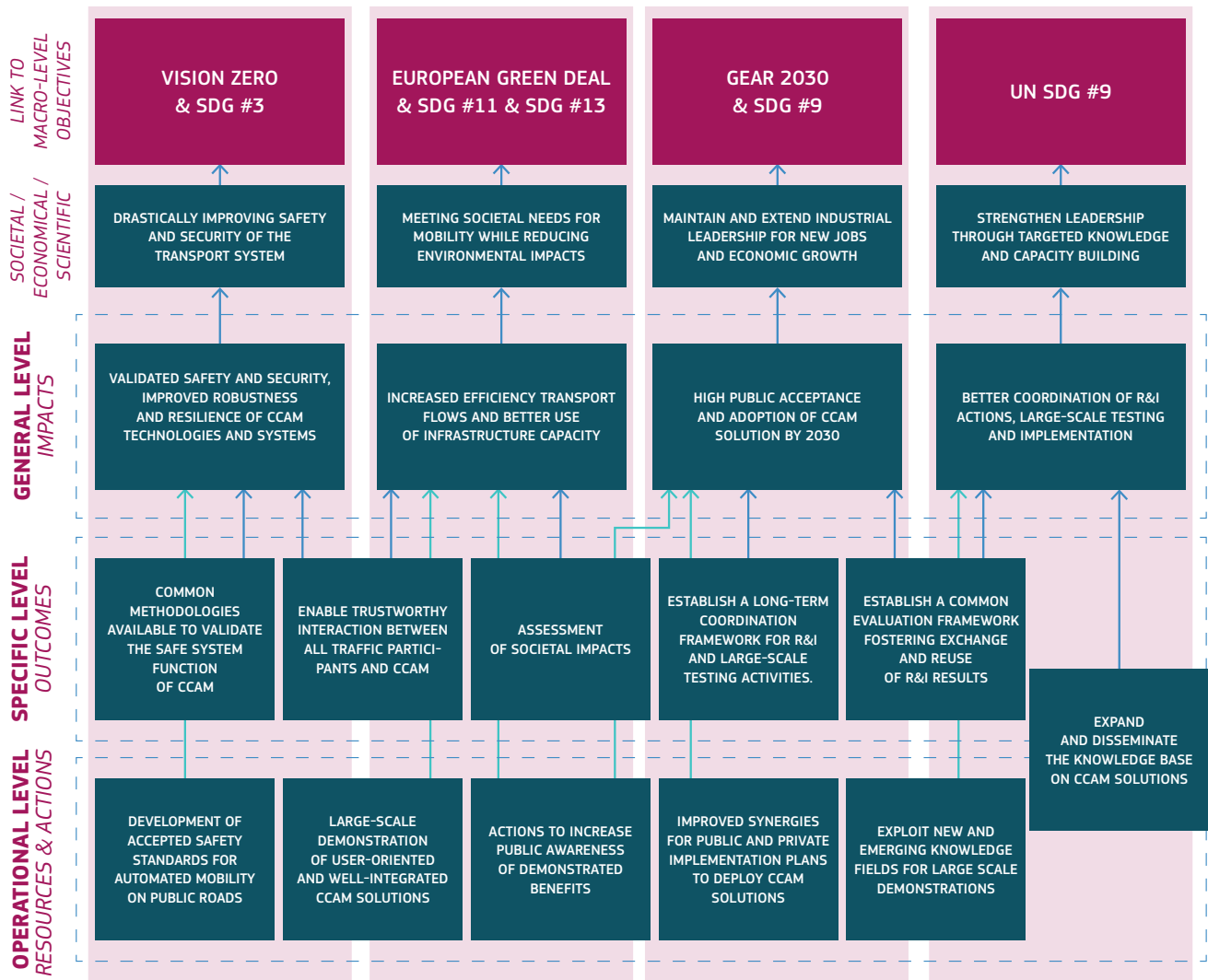
<https://www.youtube.com/channel/UCYxhgBhC8ZAPoZIPHbce2hw>

[secretariat@ccam.eu](mailto:secretariat@ccam.eu)



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**

**CCAM PARTNERSHIP VISION: TO ENSURE EUROPEAN LEADERSHIP IN SAFE AND SUSTAINABLE ROAD TRANSPORT THROUGH AUTOMATION**





**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME*	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Safety standards acceptance	# demonstrators applying	0	N/A	N/A	N/A	3 or more in 2028
CCAM large-scale demonstration	# demonstration sites	0	N/A	N/A	N/A	Minimum 30 in 2030
Public awareness of CCAM benefits	% willingness to use	47 %	N/A	N/A	N/A	75 %
Knowledge expansion and dissemination	# projects in the knowledge database	300	Minimum 400 by 2030 and increase of underrepresented countries			
<b>OUTCOMES</b>						
Methodology for safety validation	#	fragmented	fragmented	fragmented	1	1
Secure & trustworthy interaction of CCAM	# incidents / 1 mio km driven	TBD	N/A	N/A	N/A	10% reduction / year in demonstrators
Public acceptance	Survey 2025 and 2030	H2020 survey	N/A	Increase	N/A	Increase
Active member involvement	%		75% of actors in large-scale demos are CCAM members			
	%	18/27	75% of EU MS actively involved in CCAM SRG			
<b>IMPACTS</b>						
Fatal and severe accidents under test	#	TBD	0	0	0	0
Traffic flow efficiency under test	Traffic flow condition**: <ul style="list-style-type: none"> <li>● Travel Time Index, or</li> <li>● Congestion Variability Index, or</li> <li>● Congested road/kms, or</li> <li>● Peak hour traffic speed</li> </ul>	TBD before the test	N/A	N/A	N/A	Improvement
CCAM partners investment in R&I	% of increase	TBD in 2022	N/A	10%	N/A	25%
Best practice sharing	# CCAM projects in conferences	0	TBD	TBD	TBD	all

\* This is just a selection of the main CCAM Partnership KPIs. Should you wish to access the full list, please refer to the CCAM SRIA at [https://www.ccam.eu/wp-content/uploads/2021/12/CCAM-Partnership-SRIA-v1.4\\_FINAL\\_VER\\_-ELECTRONIC-17032022.pdf](https://www.ccam.eu/wp-content/uploads/2021/12/CCAM-Partnership-SRIA-v1.4_FINAL_VER_-ELECTRONIC-17032022.pdf)

\*\* Traffic flow condition: the ideal indicator to measure the impact depends on the demonstrated use case, and it could be a combination of the indicators listed.

## **SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES**

### **MULTI-STAKEHOLDER COOPERATION**

The lack of a common long-term vision and strategy targeting systemic solutions, as well as little interaction among the large cross-sectoral value chain has been a barrier for developing CCAM solutions. The CCAM partnership brings together public and private stakeholders – vehicle manufacturers, local and regional authorities, road operators, service providers, telecom industry etc. – into a common ecosystem in order to develop synergetic effects for their investment plans to advance vehicle and infrastructure technologies.

### **INTERACTION WITH OTHER PARTNERSHIPS**

The CCAM partnership is seeking interaction and coordination with other complementary Partnerships (e.g. 2Zero and Driving Urban Transitions) and partnerships addressing enabling technologies for CCAM (Key Digital Technologies, AI, Data and Robotics, Smart Networks and Services, High Performance Computing, Photonics). This coordination will be facilitated for example through alignment groups or institutional meetings, joint expert workshops, and joint conferences.

The CCAM partnership identifies synergies with the objectives of the mission on climate-neutral and smart cities by implementing large-scale demonstrations of automated mobility systems and services within cities. In the current preparatory work for the work programme 2023, a joint topic was developed, building on the solutions from CCAM and 2Zero and which aims to support the climate neutrality ambitions of cities.

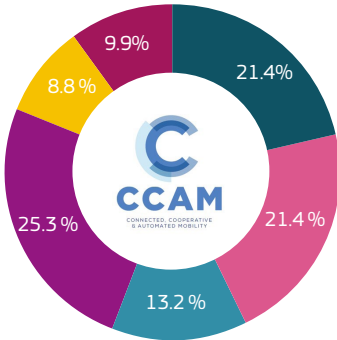
### **COORDINATING WITH NATIONAL PROGRAMMES**

The CCAM partnership board at its first meeting in July 2021 agreed to set up the CCAM States Representatives Group (SRG). According to the memorandum of understanding for the co-programmed European Partnership for Connected, Cooperative and Automated Mobility (CCAM): 'This group should advise and actively support the achievement of objectives of the Co-Programmed European Partnership and ensure complementarity with national policies, priorities and programmes.' The idea is, through the SRG, to bring different EU Member States and Horizon Europe Associated Countries together and streamline national research agendas with the CCAM SRIA. The first meeting of the CCAM SRG took place on 25 November 2021 with representatives from 18 countries.



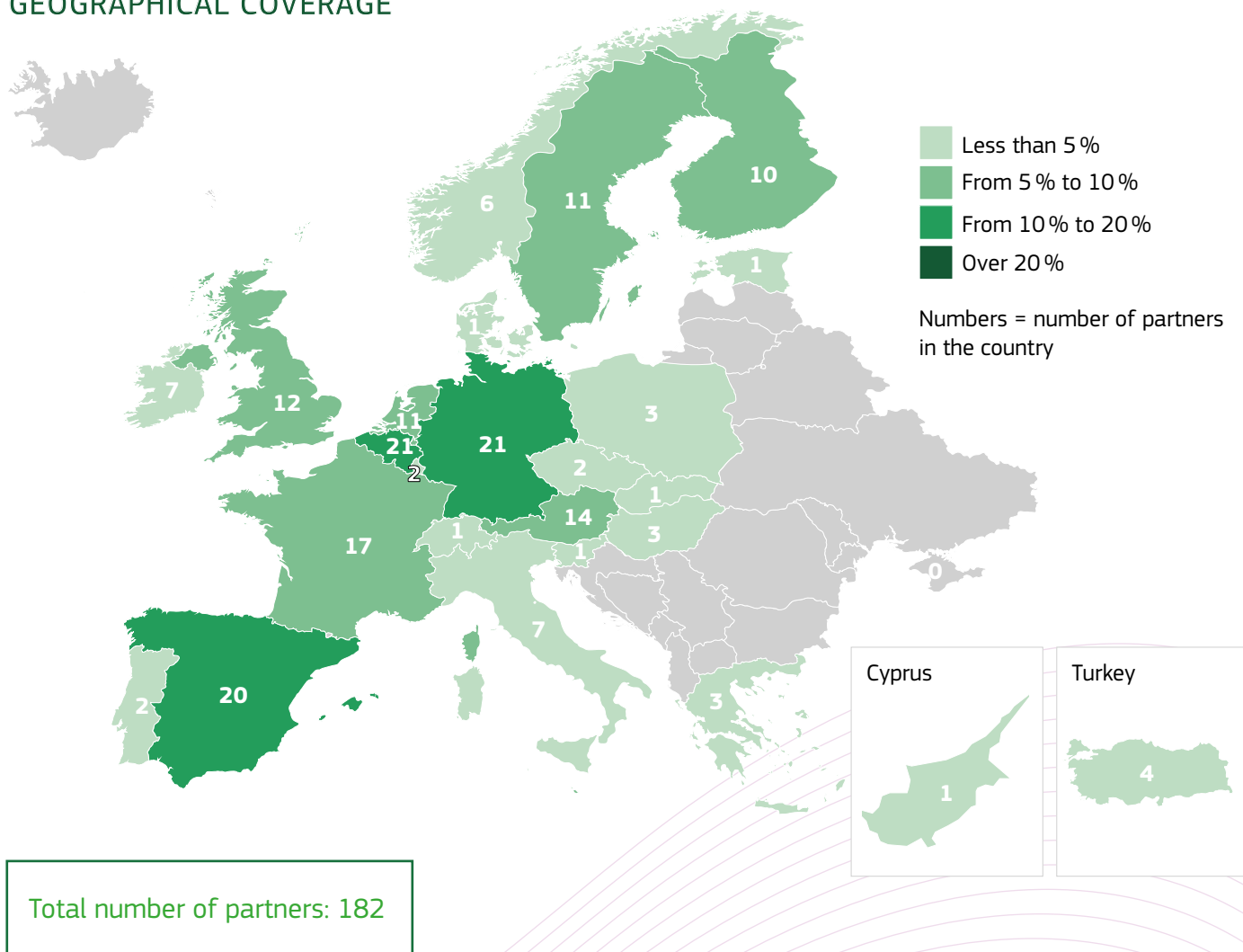
## OVERVIEW OF MEMBERS

### MEMBERS PER TYPE



- INDUSTRY** Other Industrial and/or profit Private organisation
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- SMEs**
- OTHERS** Non-profit, associations, state companies etc.

### GEOGRAPHICAL COVERAGE





## MISSION AND VISION STATEMENT

The vision of the European Partnership for Batteries (BATT4EU) is to establish by 2030 in Europe the best-in-the-world innovation ecosystem to boost a competitive, sustainable and circular European battery value chain and to drive the transformation towards a carbon-neutral society.

By pooling Europe's resources and knowledge, only a partnership – a long-lasting and coordinated effort involving industry, research and the public sector – can bring predictability to the EU battery value-chain stakeholders.

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 5: Climate, energy and mobility

**Type of partnership:** Co-programmed

**Coordinating entity:** Batteries European Partnership Association (BEPA)

**Total estimated budget:** EUR 1.85 bn

**EU commitments:** EUR 925 m

**Partners' commitments:** EUR 925 m

**Predecessor under Horizon 2020:** This is a new partnership

## FIND OUT MORE

[www.bepassociation.eu](http://www.bepassociation.eu)

[in https://www.linkedin.com/company/bepa-batteries-european-partnership-association](https://www.linkedin.com/company/bepa-batteries-european-partnership-association)

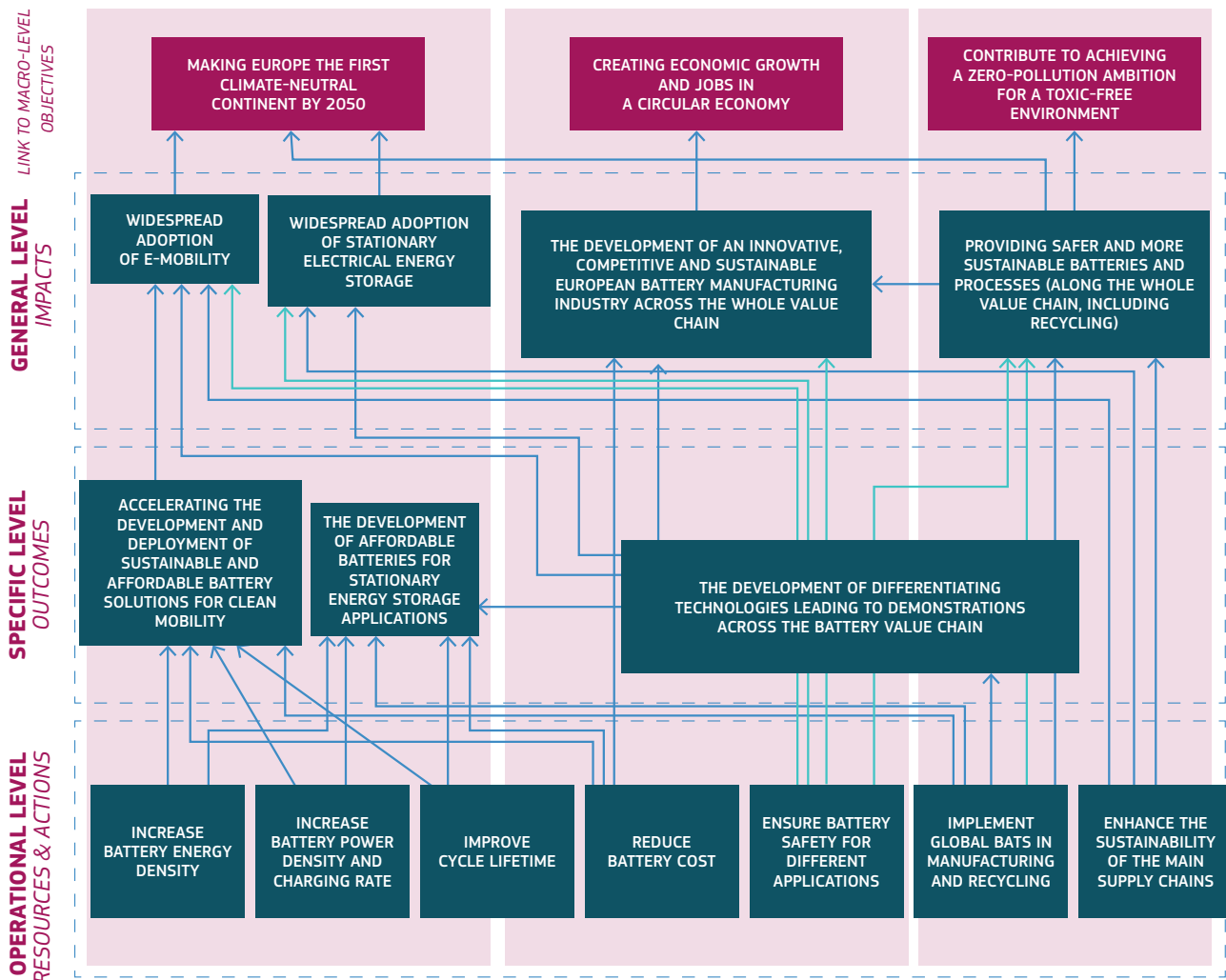
[t https://mobile.twitter.com/bepa\\_eu](https://mobile.twitter.com/bepa_eu)

[✉ info@bepassociation.eu](mailto:info@bepassociation.eu)



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**

**BATT4EU'S VISION IS TO ESTABLISH BY 2030 IN EUROPE THE BEST IN THE WORLD INNOVATION ECOSYSTEM TO BOOST A COMPETITIVE, SUSTAINABLE AND CIRCULAR EUROPEAN BATTERY VALUE CHAIN AND TO DRIVE THE TRANSFORMATION TOWARDS A CARBON-NEUTRAL SOCIETY**







**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Joint demonstration projects with other Partnerships	# of design to cost (dct)	0		2 dct		5 dct
	of design to energy (dte)			2 dte		5 dte
	of design to power (dtp)			1 dtp		3 dtp
Availability of updated/ new standard methodologies	#	TBD	N/A	N/A	N/A	TBD
Demonstration projects for stationary electricity storage	# of projects	0		3		8
New cell chemistries and archit	# of projects (TRL 4 or higher)	0		TBD		TBD
Development of innovative process technologies	# raw materials processing	0	N/A	3	N/A	6
	# recycling			3		6
<b>OUTCOMES</b>						
Battery performance	Gravimetric & volumetric energy densities at cell level	For BEV in 2019: 250 Wh/kg, 500 Wh/L	N/A	N/A	N/A	+60% compared to 2019 baseline
	Gravimetric & volumetric energy densities at cell level	Depends on application sector. For BEV in 2019: 750 W/kg, 1500 W/L	N/A	N/A	N/A	At least +30% compared to 2019 baseline
	Cycle life at cell level	Depends on application sector. For BEV in 2019: 1000 cycles at 80% DoD	N/A	N/A	N/A	At least x2 compared to 2019 baseline
	Cost at cell level (€/ kWh)	Depends on application sector. For BEV in 2019: 125€/ kWh	N/A	N/A	N/A	- 60% compared to 2019 baseline
Supply Chain Sustainability	CO <sub>2</sub> equivalent per manufactured kWh	TBD	N/A	N/A	N/A	TBD
Recycling efficiency	of Li-ion batteries in %	TBD	N/A	N/A	N/A	TBD



IMPACTS						
Widespread adoption of e-mobility	Numbers of registrations in EU of personal vehicles (PV) and commercial vehicles (CV), both electrically chargeable vehicles (ECV).	Baseline (2019 figures): <ul style="list-style-type: none"> <li>• PV 3,0% ECV share</li> <li>• CV 1,2% ECV share</li> </ul>	N/A	<ul style="list-style-type: none"> <li>• PV 20% ecv share</li> <li>• CV 2% ecv share (in total)</li> </ul>	N/A	<ul style="list-style-type: none"> <li>• PV: 50% ecv share</li> <li>• CV: 20% ecv share</li> </ul>
Widespread adoption of stationary electrical energy storage	Battery electricity stationary storage capacity Installed in Europe.	4GW/7GWh	N/A	15 GW / 30 GWh	N/A	40 GW / 100 GWh
EU Battery manufacturing capacity competitive with respect to the rest of the world	New battery cell manufacturing plants.	26 GWh		200 GWh/yr		400GWh (by 2028)
% of improvement of environmental impact in terms of CO <sub>2</sub> and toxic material	Reduction of CO <sub>2</sub> per kWh.	TBD		TBD		TBD

1) Measurement of the TRLs achieved at the end of EU-funded demonstration projects (for BtM and/or FtM applications), qualitative analysis of the work

2) Some objectives TBD in function of future regulations

3) Depends on application sector.

Batt4EU will monitor 19 KPIs in total over the course of Horizon Europe. In this table a selection is shown to show progress towards the general, specific and operational objectives. More information can be found in the [SRIA](#). Although the battery value chain supports many end-uses, the KPIs are generally focused on one type of application (road transport, for example). This is for ease of measurement and follows the argument that progress in one application is indicative of progress across the board.

KPIs for the uptake of battery use are of course contingent on investments on related infrastructure (grid updates, charging infrastructure), which are beyond the scope of the Batt4EU partnership.

Sustainability KPIs are generally still to be defined, as we don't want to anticipate similar KPIs which will be put forward in the update of the Battery Regulation.



## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

### JOINT CALL WITH THE 2ZERO PARTNERSHIP

In the lead-up to the 2021-22 Work Programme, BEPA and EGVIafor2Zero, the private-sector association within the 2ZERO partnership, were both interested in a call to establish an LCA-methodology for their respective scopes. After consultation with the European Commission, experts from BEPA and EGVIafor2Zero worked together to define a call scope that is beneficial for both partnerships. The joint call now focuses on developing a commonly accepted LCA for zero-emission vehicles and their batteries, but the approach should also apply to other applications of the same types of battery cells (e.g. industrial and stationary). The joint call was taken up in the [2021-22 Work Programme as HORIZON-CL5-2021-D5-01-04](#).

### BATTERY INNOVATION DAYS

BEPA is tasked within the partnership with bringing together stakeholders and disseminating information about the state of play of battery research in Europe. For example, BEPA teamed up with ETIP Batteries Europe and the Battery2030+ initiative to jointly organise a two-and-a-half-day conference called the Battery Innovation Days. The two IPCEI consortia joined this initiative later.

The first Battery Innovation Days took place 23-25 November 2021 and is set to be a yearly fixture.

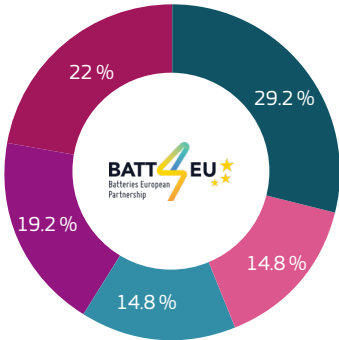
### ALIGNING EFFORTS BETWEEN THE BATTERIES INDUSTRY AND ITS VALUE CHAIN

In order to streamline the process of priority-setting for the 2023-24 Work Programme for Batt4EU, BEPA has worked closely with the ETIP Batteries Europe and the Battery 2030+ initiative to use their expertise and efforts in developing technology roadmaps. Leaders of the working groups of these initiatives have presented their technology roadmaps to the members of the BEPA working groups and highlighted several areas of interest. These suggestions were then taken into account by BEPA in drafting the input to the Work Programme in order to align better with the latest technological developments and industry needs.



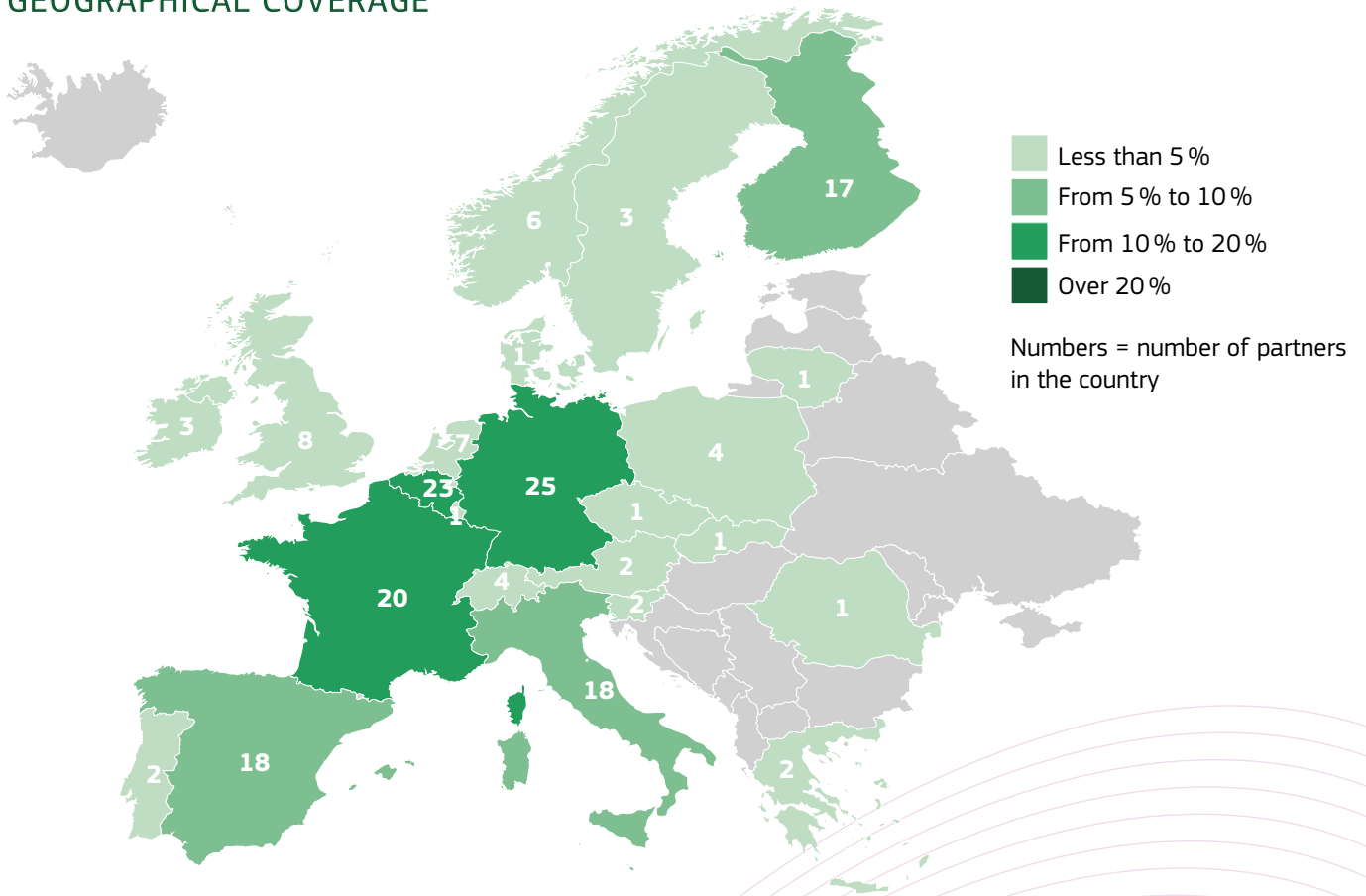
**OVERVIEW OF MEMBERS**

**MEMBERS PER TYPE**



- INDUSTRY** Other Industrial and/or profit Private organisation
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- SMEs**
- OTHERS** Non-profit, associations, state companies etc.

**GEOGRAPHICAL COVERAGE**



**Total number of partners: 182**  
 93.4 % of the partners are represented in the map  
 Other partners that do not fit to the map are from Canada, China, Turkey and the United States.



## MISSION AND VISION STATEMENT

The Zero-emission Waterborne Transport (ZEW) partnership will provide and demonstrate zero-emission solutions for all main ship types and services before 2030, which will enable zero-emission waterborne transport before 2050.

In addition, the partnership will:

- implement economically viable European new technologies and concepts regarding zero-emission waterborne transport, to strengthen the competitiveness of European industries and provide the capability to re-enter markets;
- facilitate the development and implementation of relevant regulations and policies at the national and international levels, including the development of standards;
- facilitate the uptake of zero-emission waterborne transport technologies.

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 5: Climate, energy and mobility

**Type of partnership:** Co-programmed

**Coordinating entity:** Waterborne Technology Platform

**Total estimated budget:** EUR 3.8 bn

**EU commitments:** EUR 530 m

**Partners' commitments:** EUR 3.3 bn

**Predecessor under Horizon 2020:** This is a new partnership

## FIND OUT MORE

<https://waterborne.eu/>

[in https://www.linkedin.com/company/waterbornetp/](https://www.linkedin.com/company/waterbornetp/)

[t https://twitter.com/WaterborneTP](https://twitter.com/WaterborneTP)

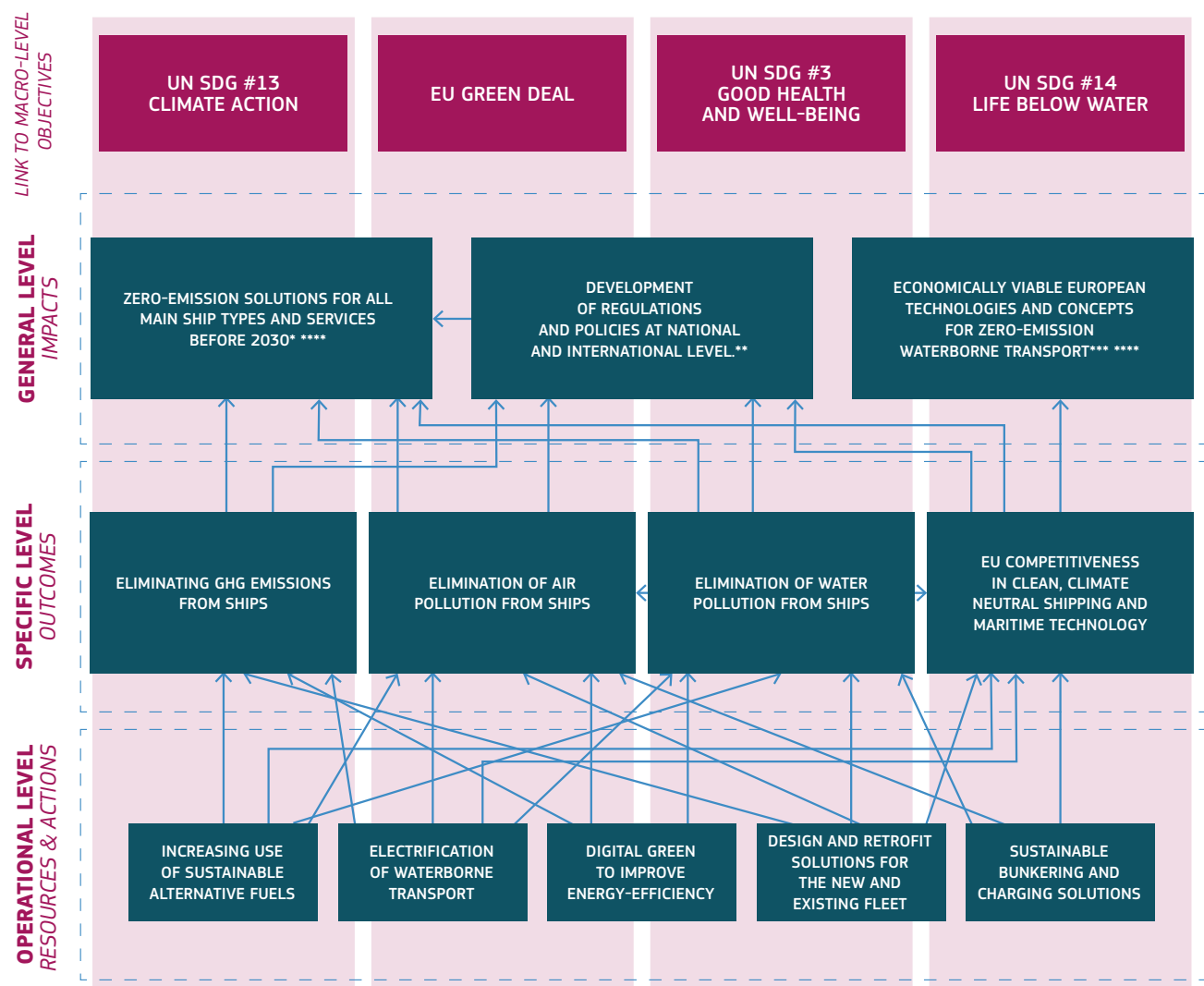
✉ [info@waterborne.eu](mailto:info@waterborne.eu)

☎ +32 2 230 2791



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**

**PARTNERSHIP VISION: REALISING ZERO-EMISSION WATERBORNE TRANSPORT FOR THE BENEFIT OF FUTURE GENERATIONS**



\*Objective (S01): deployable technological solutions applicable for the decarbonization and the elimination of other harmful emissions of main ship types and services  
 \*\*Objective (S03): development and implementation of regulations and policies at national and international level, including the development of standards;  
 \*\*\*Objective (S02): implementation of economically viable European new technologies and concepts regarding zero-emission waterborne transport, to strengthen the competitiveness of European industries in growing green ship technology markets  
 \*\*\*\* Objective (S04): uptake of innovative zero-emission waterborne transport technologies and solutions within the European waterborne sector.



**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES*</b>						
Solutions using sustainable alternative fuels	# of deployable solutions	NEW	TBC	TBC	TBC	20
Electrified autonomy for commercial shipping	% (150nm-200nm)	NEW	TBC	TBC	TBC	100 % demonstrated by 2030
Fuel consumption for large scale shipping	% reduction target (55 %) achieved	2008 emissions	TBC	TBC	TBC	100 % demonstrated by 2030
Bunkering of alternative fuels and electricity	# of projects	NEW	TBC	TBC	TBC	5 projects by 2030
Zero-emission and climate-resilient inland waterway vessels	# of solutions	NEW	TBC	TBC	TBC	15 solutions demonstrated by 2030
Coastal and inland air pollution	# of solutions demonstrating reduction	NEW	TBC	TBC	TBC	25 solutions demonstrated by 2030
Water pollution (incl. underwater noise)	# of projects demonstrating reduction	NEW	TBC	TBC	TBC	5 projects
<b>OUTCOMES**</b>						
Competitiveness of European industries	# of solutions	NEW	TBC	12	50	70
Regulations, standards and policies	# of contributions towards relevant bodies	NEW	TBC	N/A	N/A	20
Uptake of ZEWT*** technologies and solutions	# of solutions	NEW	TBC	N/A	N/A	50

\* For the ZEWT partnership, the SRIA indicates that the intermediate targets are reported as of the year Y+3 (2024), Y being the start of the partnership.

\*\* Taking into account the long investment cycle for ships, it is too early to define concrete impacts within the time horizon, given the long investment cycle for ships

\*\*\* ZEWT = Zero Emission Waterborne Transport

In the [Strategic Research and Innovation Agenda](#), targets are described in more detail. The monitoring starts in the third year following the start of the partnership, thereby 2024. A number of targets are only set for the end of the partnership, due to the fact that the development of the solutions targeted takes a number of years. In addition, the co-programmed partnership on Zero-emission Waterborne Transport does not have a predecessor, resulting in the fact that often the baseline is indicated as new.



## **SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES**

### **SYNERGIES: STORY 1**

A first synergy that is building up is the involvement and cooperation of the broader waterborne transport sector, throughout the EU. Recently, the major ship owning companies (e.g. Maersk, CMA CGM) joined the partnership in the broader discussions on RD&I and the transition towards zero-emission waterborne transport. This is a step change concerning the involvement of the broader sector. This reinforced cooperation will ensure that the technologies developed are in accordance with customer needs and will have a quick(er) market roll-out.

### **SYNERGIES: STORY 2**

Another synergy that is building up concerns the cooperation of ZEWT with other partnerships, in particular Clean Hydrogen and BATT4EU. An MoU had recently been signed between private associations (members of both partnerships) with the former, and another MoU is under discussion with the latter. Moreover, frequent exchanges between the ZEWT and Clean Hydrogen representatives regarding the next calls for hydrogen-related projects for waterborne transport are taking place regularly. The overall aim is to establish a strong cooperation between the three partnerships, ensuring strong RD&I support for waterborne transport research and avoiding duplications.

### **SYNERGIES: STORY 3**

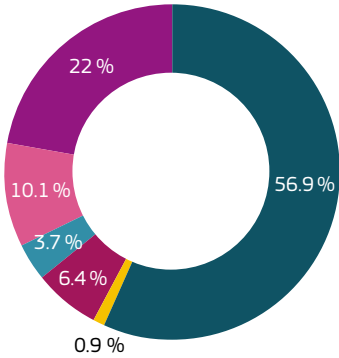
The members are also working on synergies with other EU funding programmes, particularly the Innovation Fund. This is seen as an essential tool to help bring ZEWT's results to market. Several actions have already been taken in this direction by the partnership, such as organising a dedicated workshop on the new Innovation Fund calls (autumn 2022). Moreover, some of the members have already been preselected for funding from the first Innovation Fund call, showcasing the importance of synergies between the initiatives.





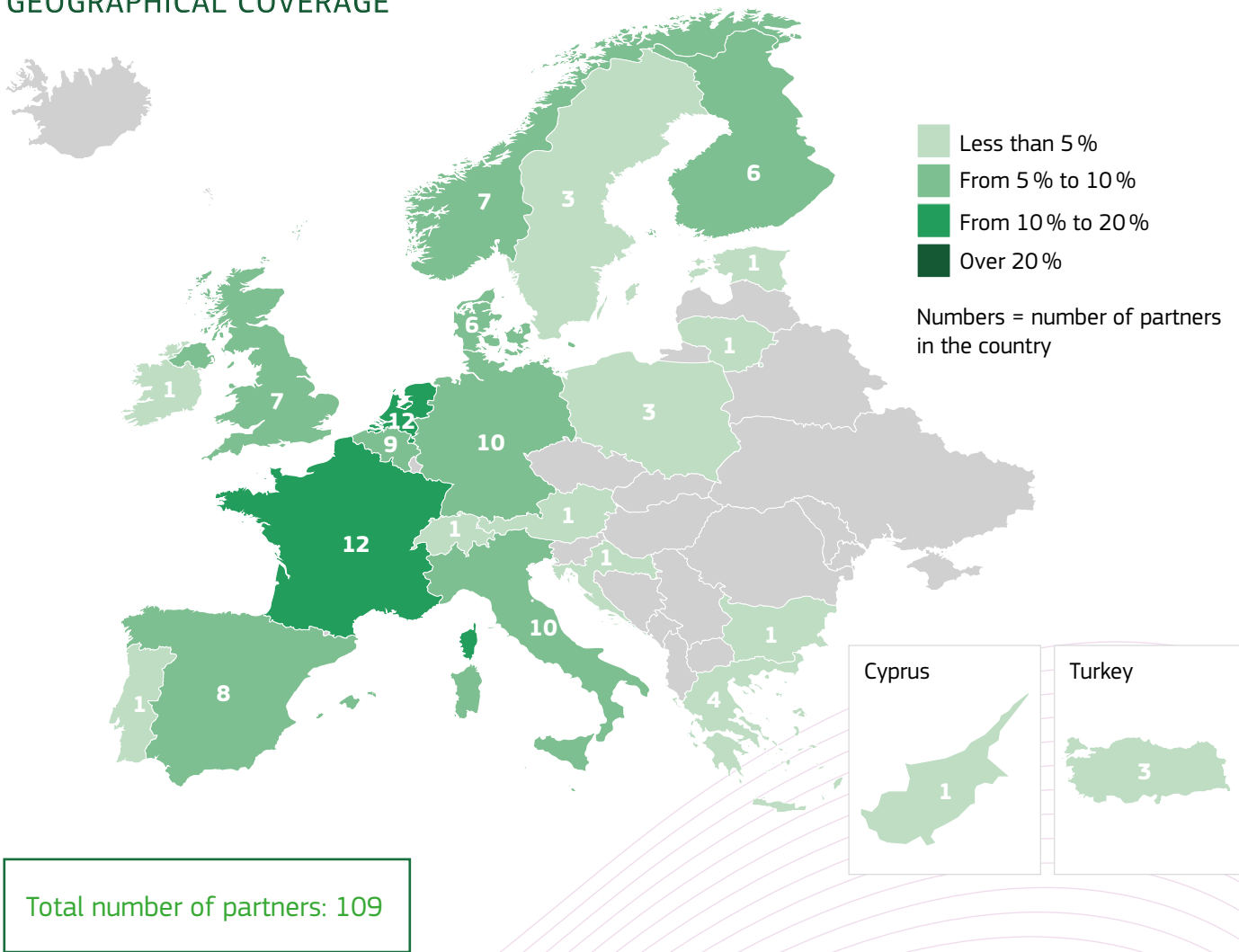
**OVERVIEW OF MEMBERS**

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**GEOGRAPHICAL COVERAGE**



## PEOPLE-CENTRIC SUSTAINABLE BUILT ENVIRONMENT



### MISSION AND VISION STATEMENT

The People-centric Sustainable Built Environment (Built4People) partnership brings together the whole value chain to accelerate people-centric innovation in the built environment towards sustainability. The three general objectives are:

- scientific – generate holistic innovation towards sustainability;
- economic – revitalise the sector through decarbonisation and sustainability transitions;
- societal – induce lasting behavioural change towards sustainable living.

The partnership will contribute to achieving the 2030 energy targets, leveraging on the European Renovation Wave strategy, the EU Circular Economy Action Plan and the Affordable Housing Initiative in line with the ambitions of the European Green Deal Action Plan and the new European Bauhaus initiative.

### KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 5 Climate, energy and mobility

**Type of partnership:** Co-programmed

**Coordinating entity:** ECTP and WGBC

**Total estimated budget:** EUR 780 m

**EU commitments:** EUR 380 m

**Partners' commitments:** EUR 400 m

**Predecessor under Horizon 2020:** Energy-efficient Buildings (EeB) cPPP

### FIND OUT MORE

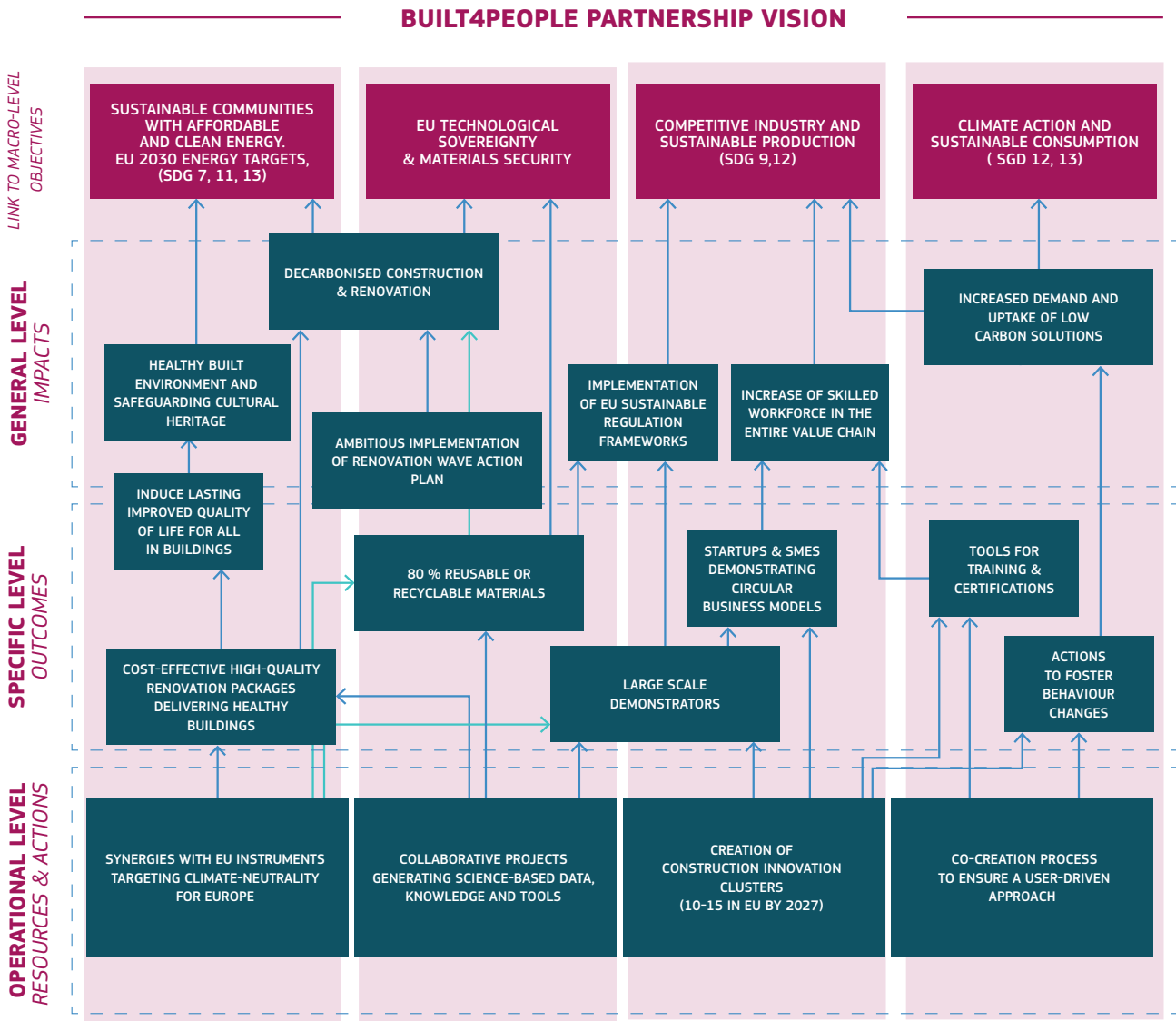
[www.ectp.org](http://www.ectp.org)

<https://www.worldgbc.org/our-regional-networks/europe>

✉ [secretariat@ectp.org](mailto:secretariat@ectp.org)



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**





**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Established innovation clusters	#	N/A	3	6	10-15	
Inclusion of building users and occupants	# involved in demonstration	N/A	TBD	TBD	600*	
<b>OUTCOMES</b>						
Low carbon solutions & renovation packages	#	TBD	TBD	TBD	100**	
Certification & verification tools	# developed	TBD	TBD	TBD	20***	
Training capacity (in hours per year)	#	TBD	TBD	TBD	3000****	
<b>IMPACTS</b>						
New skills creation	#	N/A	TBD	TBD	30*****	
Sustainable & healthy neighbourhoods	% of B4P projects with demonstrated impact	N/A	TBD	TBD	30%*****	
Healthy built environment	% of B4P projects with demonstrated health, social and wellbeing	N/A	TBD	TBD	90%*****	
Safeguarding cultural heritage	% of B4P projects that demonstrate improved outcomes for heritage buildings	N/A	TBD	TBD	15%*****	

\* Target assumptions: 60 projects, each involving average 10 users per project

\*\* Target assumptions: 60 projects, 1-2 new solutions or packages per project

\*\*\*Target assumptions: 60 projects, one-third develop training or a new certification tool

\*\*\*\*Target assumptions: 60 projects, each delivering average annual training capacity to roll out relevant new content to 50 people per annum

\*\*\*\*\*Target assumptions: average new jobs / skills per project: 0.5-1, anticipating ≈ 60 projects considering a whole B4P budget of EUR 380 million.

\*\*\*\*\*Target assumptions: 30% of projects will demonstrate health impacts, including at neighbourhood level

\*\*\*\*\* Target assumptions: given the people-centric nature of the partnership, all projects should be aiming to hit this, hence a high target is appropriate – but recognises that some projects may not achieve their stated goals

\*\*\*\*\*Target assumptions: 10-15% of projects address heritage buildings

More detailed information on the partnership's activities, performance and impacts is found in activity reports available here

Baselining exercises will be done during 2022 by a dedicated working group. Data from the predecessor partnership, EeB cPPP, will be used as much as is relevant to calculate the baseline and will then be further complemented with other sources as necessary.



## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

### CREATING THE BUILT ENVIRONMENT SECTOR ECOSYSTEM

Built4People's predecessor EeB cPPP had a strategic positioning during 2014–2020 and established synergies with several European initiatives. These included SET-Plan and the European Innovation Partnership on Smart Cities and its sustainable built-environment action cluster. In addition it built collaboration with complementary European associations. This resulted in the creation of a European built environment ecosystem with a wide stakeholder base from a scattered industry, providing an EU barometer of R&I priorities for the sector. Built4People will build on these synergies and strengthened it with WGBC's European regional network.

[Link to common indicators #2, #11](#)

### SYNERGIES CREATED WITH THE SET-PLAN

Built4People intends to collaborate closely with Member States and Associated Countries through the newly created states' representative group (SRG). The aim is to facilitate alignment between the SRIA partnership and the relevant national programmes and policies.

One specific priority will be to support the objectives of the EU policy framework on buildings, building on the work carried out in the SET-Plan and its [implementation working group 5](#) (energy-efficient buildings). The SET-Plan IWG5 chair is invited as an observer to the board of the partnership in order to support the alignment of the specific objectives and anticipated outputs of the Built4People partnership with the IWG5 implementation plan and contribute to the SET-Plan's objectives on renovation.

[Link to common indicators #10, #13](#)

### SYNERGIES WITH OTHER EUROPEAN PARTNERSHIPS

Built4People intends to develop synergies with 4 other Horizon Europe partnerships:

- Clean Energy transition (CET)
- Driving Urban Transitions (DUT)
- Process4Planet (P4P)
- Made in Europe (MiE)

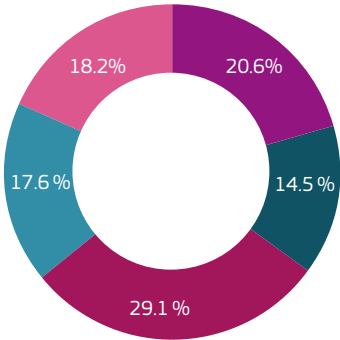
Alignment with P4P and the MiE will be considered in relation to the transformation of the building sector (construction 4.0), industrialisation and mass customisation, the supply chains and the integration of the waste streams of different industrial sectors and the development of circular economy models, new RES energy generation and energy efficiency. Links with the CET and DUT partnerships will be built on interactions with the SET-Plan.

[Link to common indicator #8](#)



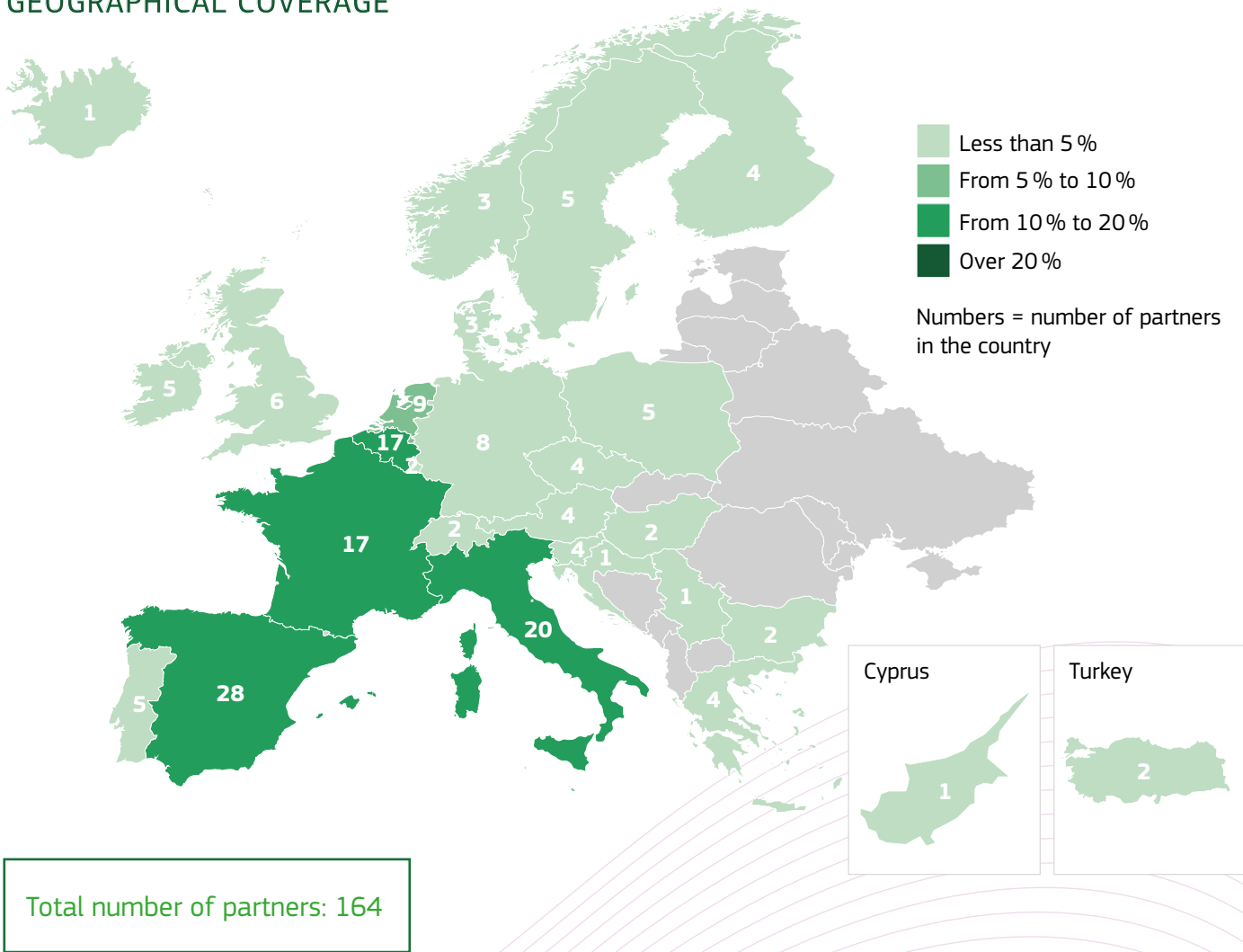
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**GEOGRAPHICAL COVERAGE**



**CLEAN ENERGY  
TRANSITION****MISSION AND VISION STATEMENT**

The Clean Energy Transition (CET) partnership is a transformative research, development and innovation funding programme that fosters the acceleration of the clean energy transition in all its dimensions. It supports Europe in becoming the first climate-neutral continent and making the EU the front runner in clean energy innovation and implementation. The CET partners, from 32 Member States and Associated Countries, endorsed this common vision that will translate into three main goals: 1) joint programming and funding; 2) renewable energy technology development, demonstration and integration (for fuels, carbon capture and storage, power, heating, and cooling) and system change (e.g. energy infrastructures); 3) innovation ecosystem fostering capacity building, faster market diffusion, upscaling, replication and enabling of the clean energy transition.

**KEY FACTS AND FIGURES**

**Horizon Europe Pillar and Cluster:** Pillar II – Climate, energy and mobility

**Type of partnership:** Co-funded

**Coordinating entity:** Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology

**Total estimated budget:** EUR 791.2 m

**EU commitments:** EUR 210 m

**Partners' commitments:** EUR 581.2 m

**Predecessors:** Solar-ERA.NET, DemoWind, GEOTHERMICA, OCEANERA-NET, Smart Cities and Communities, the Joint Programming Platform Smart Energy Systems (including the calls Smart Grids Plus, Integrated Regional Energy Systems, Enerdigit, and the JPP SES & GEOTHERMICA Joint Call 2021), BESTF3, ACT, CSP

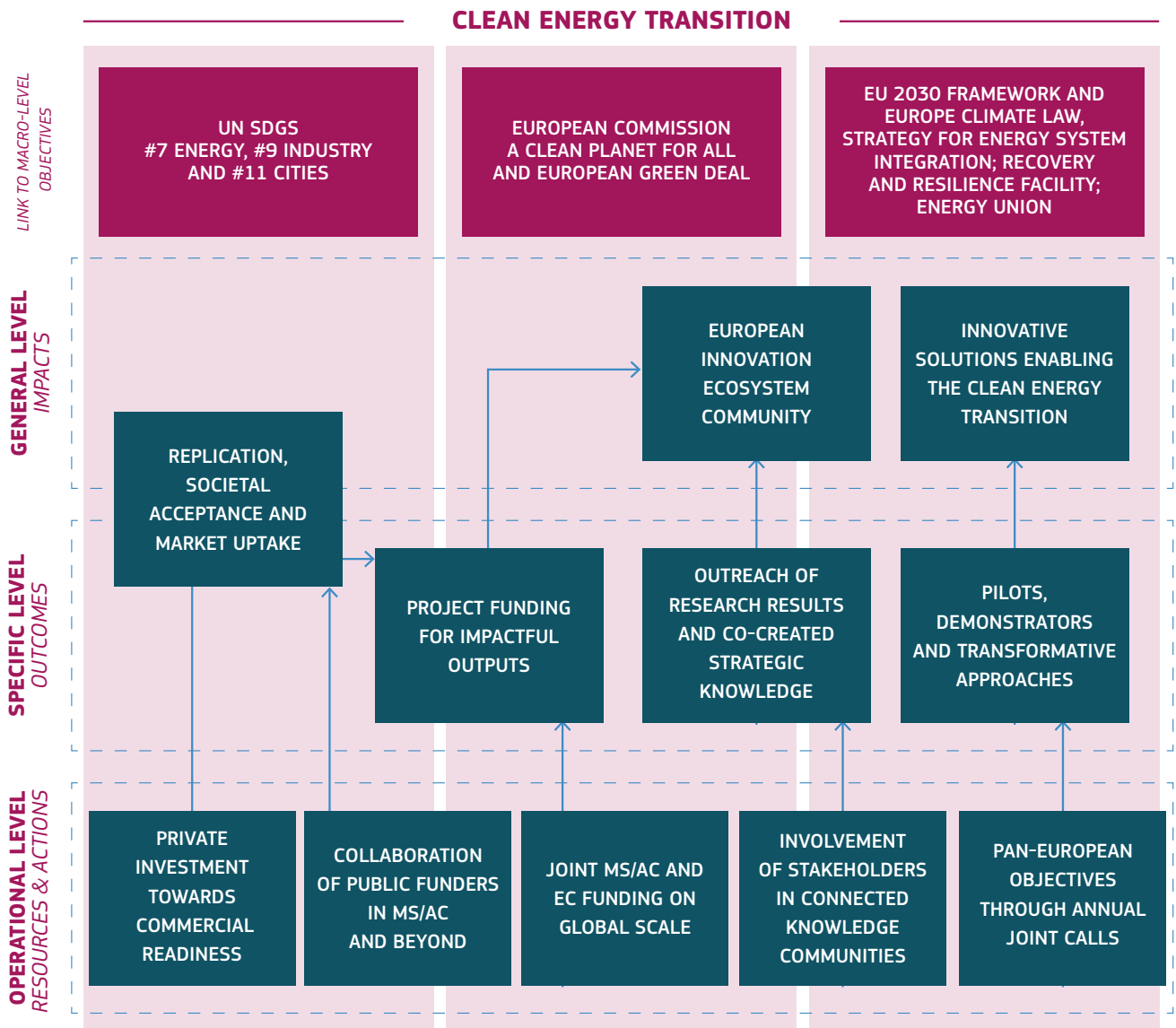
The partnership comprises of 70 national and regional RD&I programme owners and managers from 32 countries (26 EU Member States, 5 Associated Countries and one associated partner). The partnership's research priorities are collected in the [Strategic Research and Innovation Agenda \(SRIA\)](#) published in November 2020.

**FIND OUT MORE**

*Not available*



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**







## PARTNERSHIP'S KEY PERFORMANCE INDICATORS

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Joint MS/AC and EC funding on global scale	Annual financial (€/year) contribution to joint call (allocated and contracted)	Proposal budget for third party fund for 2 years/joint calls	€100 m /year	Keep level	Keep level	
Involvement of stakeholders in connected knowledge communities	# and type of stakeholders and geographical distribution	TBD	100 new R&I teams in knowledge community/year 33 % of KC members from hands-on practitioners	Keep level	Keep level	
Private investment towards commercial readiness	Private investments mobilised in projects in €/year		Target: 30-100 m €/year			
Collaboration of public funders in MS/AC and beyond	# of CETP partners and countries	Baseline: 70 partners in 32 countries	Keep level	Keep level	Keep level	
Pan-European objectives in annual joint calls	Percentage of joint thematic priorities addressed through annual call topics	TBD	Annual call cover at least 70% (5 challenges) of the challenges in the SRIA	Keep level	Keep level	
<b>OUTCOMES</b>						
Pilots, demonstrators and transformative approaches	# of projects	TBD	# of projects cover at least 2 layers of the 3-layer-research model			
Project funding for impactful outputs	# of projects contributing to at least 1 CETP SRIA challenge	TBD	Each project on average contributes to min. 1 CETP SRIA challenge.			
Outreach of research results and co-created strategic knowledge	# of communication interactions	TBD	5% increase in communication Interactions/year	5% increase	5% increase	
Replication, societal acceptance and market uptake	# and type of impact partners and geographical distribution	TBD	20 Impact Partners in 2024 from 70% of the CETP countries, 2 Impact Partners in each country – 64 Impact Partners in 2027			
<b>IMPACTS</b>						
European innovation ecosystem community	# and type of joint activities with other European Partnerships and R&I Initiatives	TBD	Concrete joint actions each year with 2 other partnerships and R&I initiatives	Keep level	Keep level	
Innovative solutions enabling the clean energy transition	# of demonstrated solutions	TBD	40 projects per call (assumption €120 m contracted in projects with €3 m average budget per project)	Keep level	Keep level	

**Resources:** KPI – provide joint MS/AC and EC funding on global scale: based on the initial budget for the first two calls 2022 and 2023 – KPI – enhanced collaboration of public funders in MS/AC and beyond: baseline based on initial commitments of partners – Other KPI targets based on estimations from experiences of former ERA-Nets

**Outcomes:** KPI – developed and demonstrated solutions: uses model according to the Joint Programming Platform Smart Energy Systems – KPI – project funding for impactful outputs: target based on CETP SRIA challenges – KPI – increased outreach of research results and co-created strategic knowledge: baseline needs to be calculated based on the traffic on former ERA-Net websites – Other KPIs based on estimations from experiences of former ERA-Nets

**Impacts:** KPI – innovative solutions enabling the clean energy transition: based on experiences of former ERA-Nets



## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

### COOPERATION WITH OTHER PARTNERSHIPS

CET has identified interfaces with 11 European partnerships in various clusters and already initiated interactions with some of them. The cooperation will be established and pursued on two levels: (1) strategy development, aiming at identifying gaps in specific R&I areas of common interest, as well as avoiding overlaps and exploiting synergies; (2) implementation through identification of joint activities in the context of the annual work programmes, such as coordinated calls between partnerships, knowledge exchange, regular meetings, and joint outreach activities.

The European Partnerships identified as relevant for CET are:

**cluster 5 – climate, energy and mobility:** Clean Hydrogen, Built4People, European Industrial Battery Value Chain, Driving Urban Transitions to a Sustainable Future;

**cluster 4 – digital, industry and space:** Smart Networks and Services, Clean Steel - Low Carbon Steelmaking, Process4Planet;

**cluster 6 – food, bioeconomy, natural resources, agriculture and environment:** Circular Bio-Based Europe; EIT Climate-KIC, EIT InnoEnergy (see figure below).

The CSA on support to the activities of the European Geological Services is also relevant for the same kind of cooperation.

Indicator #8

### SYNERGIES WITH NON-EU R&I PARTNERSHIPS AT THE GLOBAL LEVEL – GLOBAL LEADERSHIP

International cooperation in RD&I is essential for tackling global challenges, such as climate change. Collaboration within RD&I projects can anchor European technology and solution providers in global value chains. CET's international activities and outreach will continue existing relationships previously established within ERA-Nets, which engaged with Mission Innovation (MI), a global initiative catalysing a decade of action and investment in research, development and demonstration to make clean energy affordable, attractive and accessible for all. CET partners will establish the Joint Call Facility of MI and actively invite MI partners from outside Europe to participate in CET's joint calls. Two MICalls have already been implemented as a pilot by the Joint Programming Platform Smart Energy Systems with non-EU partners from India, Israel, Morocco, Turkey and the United Kingdom. CET also foresees an effective cooperation with the relevant International Energy Agency (IEA) Technology Collaboration Programmes (TCPs) to boost joint activities and connect their knowledge community with the wider IEA international network and groups of experts from regions outside Europe. Link to common indicators #10, #13



**CLUSTER DIGITAL, INDUSTRY AND SPACE**

Smart Networks and Services  
Clean Steel  
Process4Planet  
Geological Service for Europe

**EIT**

EIT Climate-KIC and  
EIT InnoEnergy

Clean Energy  
Transition  
Partnership

**CLUSTER CLIMATE, ENERGY AND MOBILITY**

Clean Hydrogen  
Built4People  
Industrial Battery Value Chain  
Driving Urban Transition

Circular Bio-Based Europe

**CLUSTER FOOD, BIOECONOMY, NATURAL RESOURCES,  
AGRICULTURE AND ENVIRONMENT**



## DRIVING URBAN TRANSITIONS TOWARDS A SUSTAINABLE FUTURE



### MISSION AND VISION STATEMENT

The Driving Urban Transitions towards a Sustainable Future (DUT) partnership steps up the game to tackle urban challenges. We enable local authorities and municipalities, business and citizens to translate global strategies into local actions. We develop the skills and tools to make urban change happen and boost urgently needed urban transformations.

DUT addresses the urban dimension across all SDGs with SDG 11 (sustainable cities and communities) and its subgoals as the main entry point. More information can be found in JPI Urban Europe (2019:12) Strategic Research and Innovation Agenda 2.0\*.

\* <https://jpi-urbaneurope.eu/wp-content/uploads/2019/02/SRIA2.0.pdf>

### KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Climate, energy and mobility

**Type of partnership:** Co-funded

**Coordinating entities:** Austrian Ministry for Climate Action / Austrian Research Promotion Agency

**Total estimated budget:** EUR 435 m

**EU commitments:** EUR 130 m

**Partners' commitments:** EUR 305 m

**Predecessor under Horizon 2020:** Joint Programming Initiative Urban Europe

### FIND OUT MORE

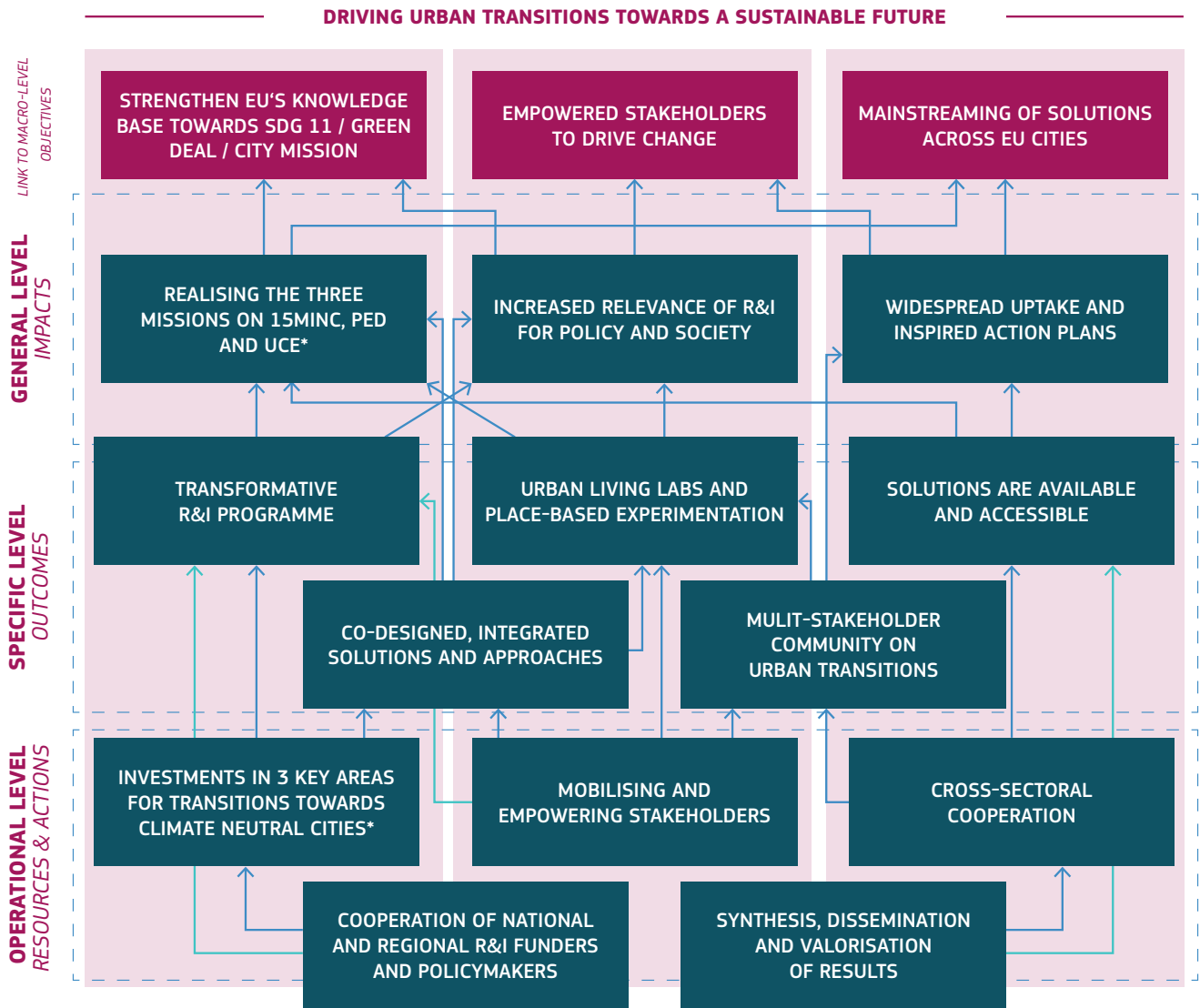
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**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**



\* 15 Minute Cities, Positive Energy Districts and Urban Circular Economies



**PARTNERSHIP'S Key Performance Indicators**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Country engagement	# countries # national/regional partners	60 partners 27 countries				Keep / mobilise new (international) countries
Transdisciplinary projects	# project # and type of beneficiaries	110 571	50	150	300	400 2 800 (min. 50% non-research organisations).
Establishment of new urban living labs	# of urban living labs	150+	70	200	350	500 ULLs (min. 10 per participating country)
Stakeholder mobilisation formats	# and type (incl. AGORA events)	18 community building measures				23 community building measures
Evidence-based policy-making and mainstreaming	# activities and type	18 ULTs (2018-2021), 50 policy recommendations (2015-2020) 4 newsletters/year	10 ULTs	20 ULTs	30 ULTs	35 ULTs 200 policy recommendations (2022-2032)
<b>OUTCOMES</b>						
Average budget for joint calls	Euro per ERA-NET (annual call)	25 Mio EUR allocated 18 Mio EUR contracted	Ambition >2027: EUR 50 m allocated EUR 45 m contracted			
Stakeholder mobilisation	# and geographical spread	approx. 500	700	1 500	2 500	3 000 (incl. stakeholder balance)
Joint activities with other EPs	# and type	JPI Urban Europe joint activities	Min. 3 joint activities per year			
Interactions with wider community	# newsletter subscribers # followers	5 000 2 000		Increase by 30%		Double by 2032
<b>IMPACTS</b>						
DUT transition pathways	# and type of activities and achievements	PED programme portfolio	Continuous and balanced portfolio of activities and achievements in each of the TPs			
Multi-stakeholder community	Share of stakeholders	65% research 21% local public authorities 10% businesses 4% civil society actors	40% research 30% local public authorities, 20% businesses 10% civil society actors			
SDGs / Green Deal contribution	% of projects and activities	Example ERA-NET Smart Urban Futures	All funded projects contribute towards the SDGs and the Green Deal; 80% of events are related to Green Deal priorities			

The baseline refers to the achievements of JPI Urban Europe and is based on the established monitoring framework and its indicators. Therefore indicators relating to specific European Commission policies such as the Green Deal are not covered yet and the given baselines must be considered as estimates. More details on the achievements of JPI Urban Europe can be found at the JPI Urban Europe dashboard, <https://jpi-urbaneurope.eu/explore/>

ULTs refers to Urban Lunch Talks, a webinar series introduced in 2018 to support dissemination and community building.



## **SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES**

### **SYNERGIES WITH EUROPEAN AND INTERNATIONAL POLICY AGENDAS**

JPI Urban Europe (JPI UE) is aligning its strategic research and innovation agenda with relevant European and international policy agendas, to join consultation processes around these agendas and to provide evidence from research and innovation activities towards the implementation of the agendas. For instance, JPI UE is a permanent observer to the Urban Agenda of EU (UAEU) and contributed to the development process of the New Leipzig Charter. Exchanges with the UAEU partnerships allowed to consider the defined policy needs in the JPI UE priority setting. The recent ENSUF synthesis report includes a mapping of concrete outputs from projects towards UN's 2030 SDGs, <https://jpi-urbaneurope.eu/wp-content/uploads/2021/09/ENSUF-Synthesis-Report-AIT-FINAL-211103.pdf>.

### **SYNERGIES WITH OTHER EUROPEAN INITIATIVES AND PARTNERSHIPS**

Focusing on the complexity of urban transformation, JPI Urban Europe (and DUT) offer manifold entry points for cooperation with sectoral oriented initiatives and partnerships. Over the last years co-operation with the nine other joint programming initiatives has taken place to regularly develop common positions and organise joint events, e.g. JPI Urban Europe organised, in cooperation with all JPIs, the conference 10 years Joint Programming in 2018. Joint workshops with FACCE, Water JPI or JPI Climate allowed the identifying of common issues and the alignment of agendas. Dialogues were established with CETP, Biodiversa, EIT Urban Mobility or Food Systems to exchange on strategic issues and priorities.

### **SYNERGIES WITH STAKEHOLDER COMMUNITIES**

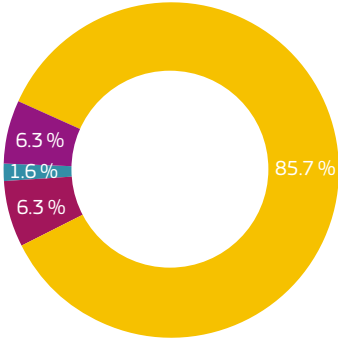
Co-design is one of the key principles of JPI Urban Europe. Various formats have been established to mobilise and engage stakeholders in agenda setting and knowledge production. For instance, a bottom-up multi-stakeholder community was initiated and is further developed: interactive AGORA dialogues were organised mobilising more than 500 stakeholders in 8 events; the webinar series Urban Lunch Talks offers space for reflexions and has attracted 1 400 participants from 45 countries since 2018. To fully exploit the synergies across stakeholder groups, urban living labs are strongly supported as they allow urban stakeholders to engage in local experimentation and the co-creation of solutions in projects. So far more than 150 urban living labs have been funded.





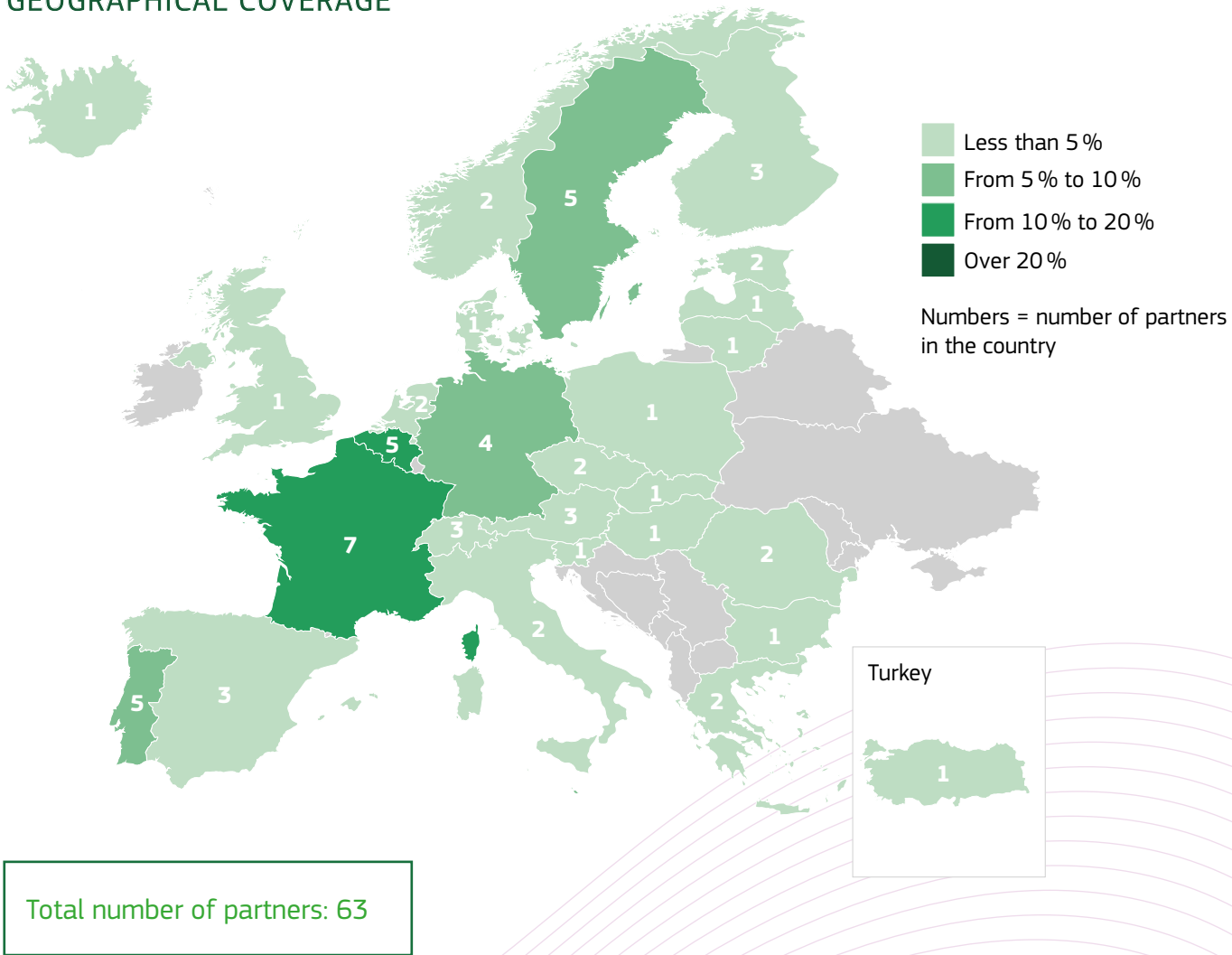
**OVERVIEW OF MEMBERS**

**MEMBERS PER TYPE**



- RESEARCH** Public research organisation (including international research organisation as well as private research organisation controlled by a public authority)
- PUBLIC** Research funders, ministries, regions, cities
- SMEs**
- OTHERS** Non-profit, associations, state companies etc.

**GEOGRAPHICAL COVERAGE**





**CLUSTER 6**  
**FOOD, BIOECONOMY,**  
**NATURAL RESOURCES,**  
**AGRICULTURE, AND**  
**ENVIRONMENT**



**Circular  
Bio-based  
Europe**  
Joint Undertaking



## MISSION AND VISION STATEMENT

The main role of the Circular Bio-based Europe Joint Undertaking (CBE JU) is to bring together various actors from bio-based industries, ranging from farmers to scientists, to solve the technological, regulatory and market challenges of the sector.

Three main objectives have been set for this partnership\*:

- (a) accelerate the innovation process and development of bio-based innovative solutions;
- (b) accelerate market deployment of the existing mature and innovative bio-based solutions;
- (c) ensure a high level of environmental performance of bio-based industrial systems.

The CBE JU will contribute to reach the EU's ambitious climate targets by shifting from non-renewable fossil raw materials and minerals to innovative, sustainable and circular bio-based production processes. It will foster a sustainable economic transition, creating jobs and economic growth in regions across Europe, while delivering significant contributions to the European Green Deal objectives by moving towards climate neutrality, resource efficiency and zero pollution.\*\*

The Circular Bio-based Europe Joint Undertaking builds on the achievements of its predecessor, the Bio-Based Industries (BBI) Joint Undertaking while enlarging its scope and addressing the remaining challenges of Europe's bio-based industries by involving a wider range of stakeholders including the primary sector as well as providers of waste, residues and side streams, regional authorities and investors to prevent market failures and unsustainable bio-based processes.

\* CBE JU general objectives, SBA article 46.1

\*\* BIC – Vision: [The circular bio-society in 2050](#)

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 6: Food, bioeconomy, natural resources, agriculture and environment

**Type of Partnership:** Institutionalised (Art 187 TFEU) – joint undertaking

**Coordinating entities:** The Bio-based Industries Consortium (BIC) and DG RTD

**Total estimated budget:** EUR 2 bn

**EU commitments:** up to EUR 1 bn

**Partners' commitments:** at least EUR 1 bn

**Predecessor under Horizon 2020:** Bio-Based Industries Joint Undertaking

## FIND OUT MORE

<https://www.bbi.europa.eu/about/circular-bio-based-europe-joint-undertaking-cbe-ju>

<https://bi Consortium.eu/bio-based-industries-consortium>

[in https://www.linkedin.com/company/cbe-ju/](https://www.linkedin.com/company/cbe-ju/)

[https://twitter.com/CBE\\_JU](https://twitter.com/CBE_JU)

✉ [info@cbe.europa.eu](mailto:info@cbe.europa.eu)



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**

*Not available*

**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

*Data not available*

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
<b>OUTCOMES</b>						
<b>IMPACTS</b>						

Based on the KPIs and impacts that have been set and used to monitor the performance of the previous partnership\*, a robust system\*\* will be set for the new partnership as part of the Strategic Research and Innovation Agenda (SRIA), which is still under preparation.

After the adoption of the SRIA from Circular Bio-based Europe's governing board, the SRIA will be published on our website.

\* BBI JU specific KPIs, BBI JU Annual Activity Report 2020 section 1.3.3

\*\* Executive summary: Study on BBI JU project portfolio and KPIs validation

## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

### SYNERGIES WITH OTHER HORIZON EUROPE PARTNERSHIPS

Since 2016, BBI JU and SPIRE have been jointly exploring collaborative ways of maximising their impacts, and established a joint working group with the objective of ensuring complementarities, coherence and mutual understanding at different levels. The collaboration effort enabled full alignment of strategic agendas and work plans, while emphasising further complementarity and striving for synergy between topics.

In the future, the collaboration between CBE and the new Processes4Planet co-programme partnership will continue to support the transition of the European process industries towards climate neutrality and circularity.

### SYNERGIES WITH OTHER EU FUNDING INSTRUMENTS

Dedicated partnership agreements\* have been established with key funding organisations to explore alternative funding support to the awarded proposals. A memorandum of understanding has been signed with the European Bank for Reconstruction and Development and the European Circular Bio Economy Fund, and an advisory services agreement with the European Investment Bank. These agreements have been used in the framework of the BBI JU Synergy Label and will be further used in CBE to reduce the risk for research and innovation investment for bio-based companies and projects.

\* [Partnership agreements with BBI JU | Circular Bio-based Europe Joint Undertaking \(CBE JU\) \(europa.eu\)](#)

### SYNERGIES BETWEEN DIFFERENT TYPES OF STAKEHOLDERS

To enhance and consolidate the participation of the primary sector in the bio-based sector and its value chains as a whole, a series of actions have been initiated by the BBI JU and will continue in the new partnership. A dedicated study on the participation of the agricultural sector was conducted first to better understand its participation in the BBI JU initiative. An action plan was then developed and recently revised\* to ensure the involvement of primary sector in the CBE initiative and to contribute to rural development, by providing new and diversified incomes to primary producers while creating high skilled jobs.

\* [CBE JU Action Plan](#)

## OVERVIEW OF MEMBERS

*Not available*



## MISSION AND VISION STATEMENT

The European Biodiversity Partnership (Biodiversa+) is part of the European Biodiversity Strategy for 2030. It aims to build a bridge between science, policy and practice, focusing on five main objectives: (1) plan and support research and innovation on biodiversity; (2) establish a transnational network of harmonised biodiversity monitoring schemes; (3) produce knowledge for deploying nature-based solutions and valuation of biodiversity in the private sector; (4) science-based support for policymaking and implementation; (5) strengthen the relevance and impact of pan-European research on biodiversity in a global context. In line with the post-2020 Global Biodiversity Framework, Biodiversa+ will thus implement an ambitious programme to support the general vision that nature in Europe is back on a path of recovery by 2030, and that by 2050 people are living in harmony with nature.

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 6: Food, bioeconomy, natural resources, agriculture and environment

**Type of Partnership:** Co-funded

**Coordinating entities:** Belgian Science Policy Office/Belspo – Belgium, DG RTD and DG ENV

**Total estimated budget:** EUR 802 m

**EU commitments:** EUR 165 m

**Partners' commitments:** EUR 191 m + EUR 445 m in kind\*

\* incl. EUR 251 million for research as non-eligible; EUR 187 million for biodiversity monitoring and EUR 7 million for other activities as eligible.

## FIND OUT MORE

[www.biodiversa.org](http://www.biodiversa.org)

[in https://www.linkedin.com/company/biodiversa3](https://www.linkedin.com/company/biodiversa3)

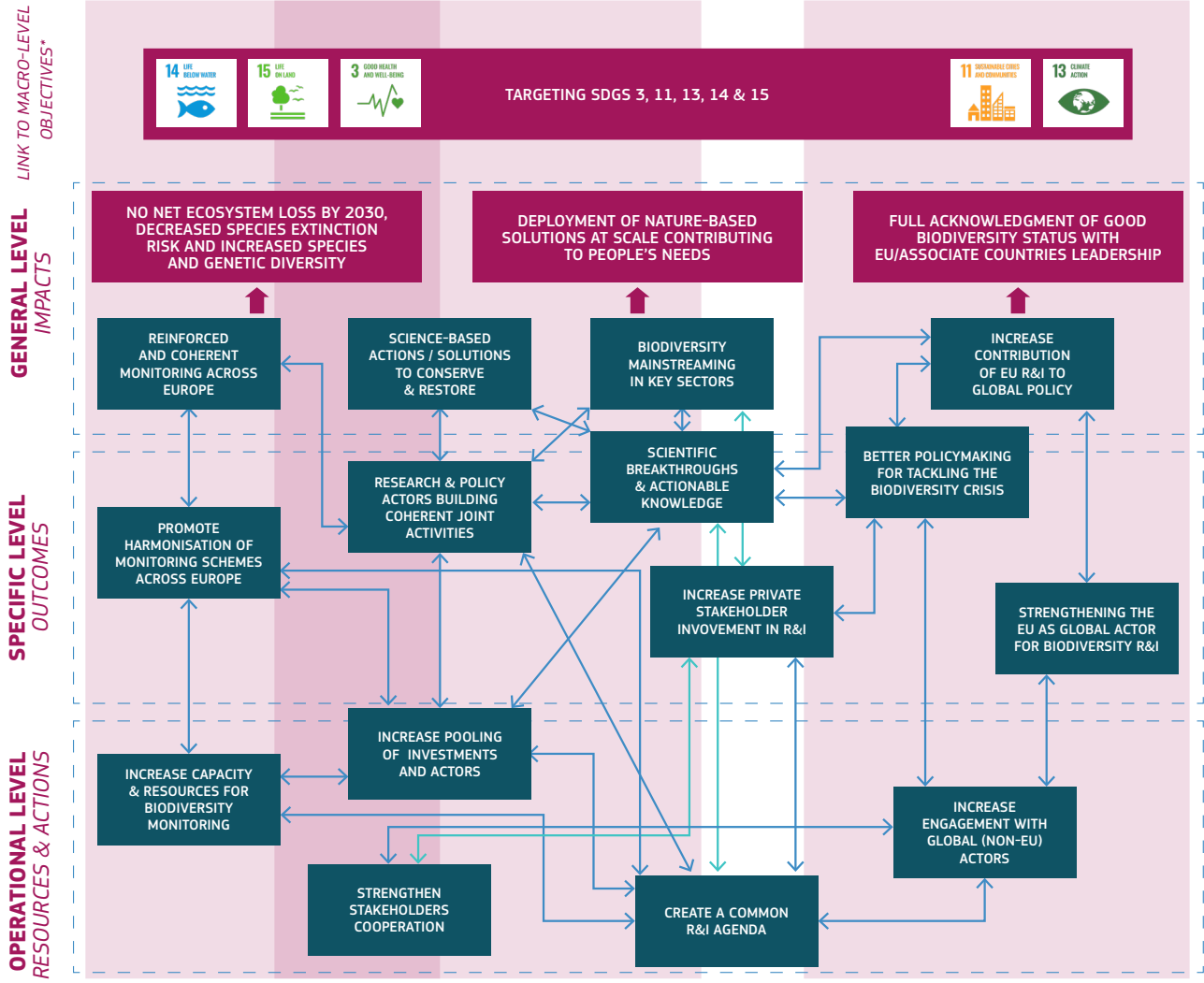
[@BiodivERsA3t](https://twitter.com/BiodivERsA3t)

✉ [contact@biodiversa.org](mailto:contact@biodiversa.org)



PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)

EUROPEAN BIODIVERSITY PARTNERSHIP VISION:  
CONTRIBUTE TO SOCIETAL CHALLENGES THROUGH ...



\* post-2020 Global Biodiversity Framework



**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Joint call funding	€ (cumulative)	€42 m / joint call	€84 m	€168 m	€252 m	N/A
Monitoring capacity and resources	# of policy actors engaged	18	20	22	24	TBD
Global network engagement	# of international networks/initiatives	4	8	10	12	TBD
<b>OUTCOMES</b>						
Scientific breakthroughs	# of Q1 journal publications	20 per project	0	TBD	TBD	3 600 (by 2035)
Stakeholder involvement	average # of stakeholders per funded project	10	12	12	14	14
Shared monitoring priorities	# priorities implemented	6 pre-identified in 2022	N/A	2	6	TBD
Global policy contribution	# joint activities feeding global policy (cumulative)	2/ year	4	10	15	TBD
<b>IMPACTS</b>						
Joint R&I activities	# topical flagship programmes (cumulative)	2 in 2022	4	6	8 (max 10)	TBD
Joint research & implementation workshops Biodiversa+ / LIFE	# (cumulative)	1 per 2 yrs	1	2	3	TBD
Availability of harmonised monitoring schemes	#	N/A	N/A	2	6	TBD
Private sector contribution	# joint calls for research proposals (cumulative)	1 per 2 yrs	1	2	4	TBD
Uptake of nature-based solutions	# of success stories	N/A	2	4	7	TBD
EU leadership in biodiversity R&I	# of participating ministries and agencies of non-European countries	6 per call	8	10	12	TBD

- Some activities are new, hence so are the baselines (no good reference yet);
- Baselines for which a value is indicated, are based on the BiodivERSA experience taking into account the upscaling under Biodiversa+ as well as the activities already foreseen in the 1st annual workplan of Biodiversa+;
- Impacts related to Biodiversa+ funded research will only become available after a few years;
- Individual impacts of Biodiversa+ on policy processes are difficult to assess as the latter is an aggregate effect determined by many external circumstances;
- Beyond 2027, for now TBD (unsure & need more time to assess);
- Some KPIs will remain stable (same average per year), some will steadily increase as capacity and collaborations are built up, and some might be a bit heterogenous (targets moving over the years) depending on the flagship programmes we will launch.





## **SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES**

### **SYNERGIES: STORY 1**

Biodiversa (the predecessor of Biodiversa+) launched 10 calls for research proposals of which 3 with other bodies, most notably Water-JPI, FACCE-JPI and the Belmont Forum for a total budget of EUR 60 million.

### **SYNERGIES: STORY 2**

Through direct dialogue, and via relevant discussion fora, Biodiversa+ will ensure coherence and collaboration with other relevant partnerships (Accelerating Farming Systems Transitions; Water4All; Sustainable and Productive Blue Economy; Driving Urban Transitions, possibly also Circular Bio-based Europe; and Animal Health and Welfare) while designing and rolling out its flagship programmes. This will allow the partnership to tackle issues at the interface between biodiversity loss and other societal challenges. Partnerships can cover similar topics, but approach them from a different, complementary angle. Also, amongst the six joint calls, at least two will be developed in strong connection with other partnerships.

### **SYNERGIES: STORY 3**

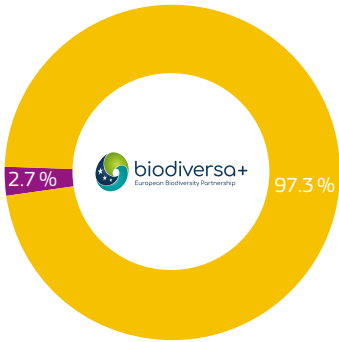
Biodiversa+ will ensure that, for the first time, environmental policy actors (ministries of environment and environmental protection agencies) will be systematically mobilised as key partners in carrying out biodiversity research and innovation, along with ministries of research, funding agencies and foundations. It will also promote better coordinated collaboration than currently observed between national/local biodiversity monitoring schemes and R&I actors, as well as tighter links between R&I and private actors.



## OVERVIEW OF MEMBERS

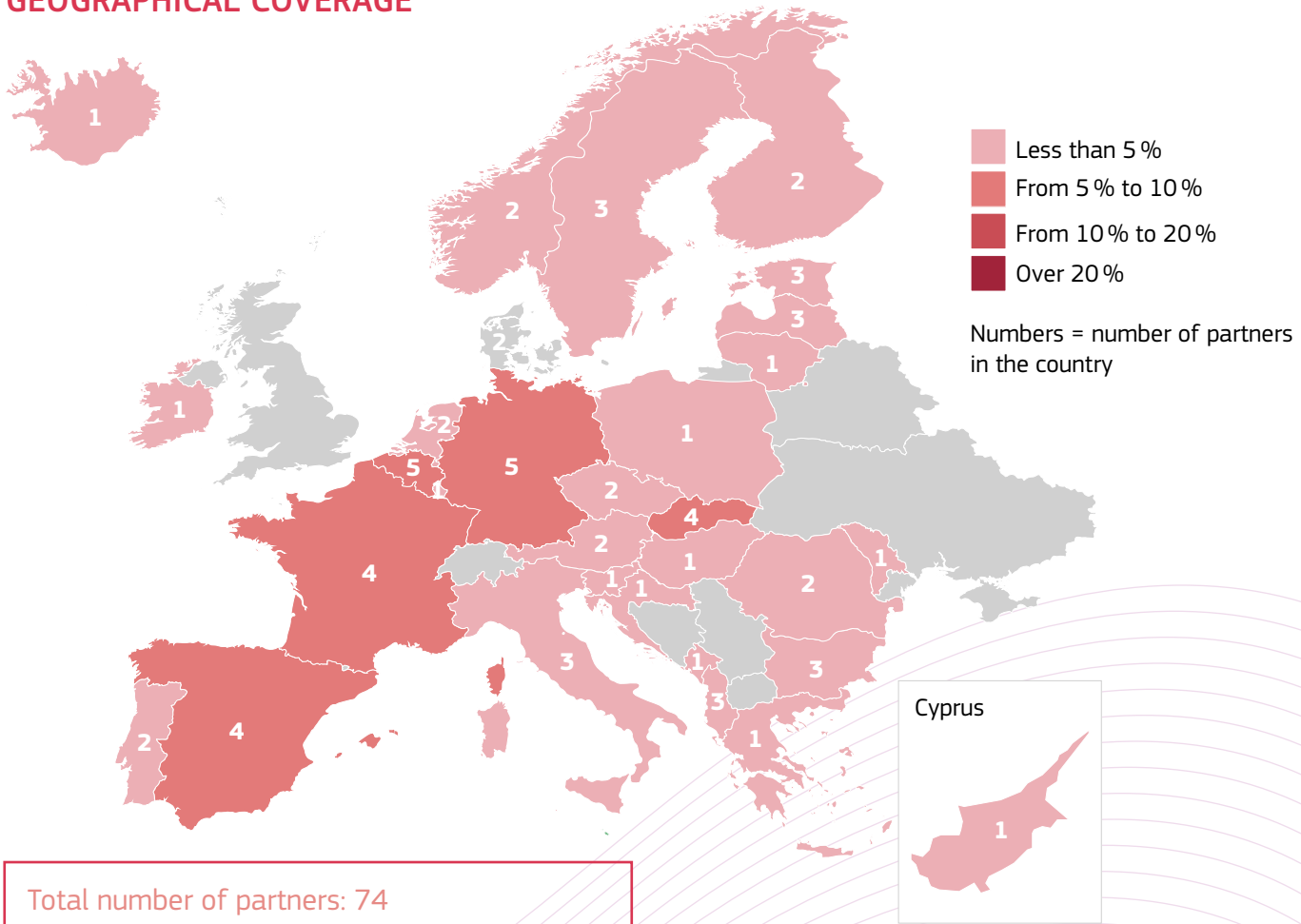
Biodiversa+ is composed of 74 members from 37 countries (incl. ministries in charge of research and of the environment, funding agencies or foundations, environment protection agencies).

## MEMBERS PER TYPE



- PUBLIC** Research funders, ministries, regions, cities
- OTHERS** Non-profit, associations, state companies etc.

## GEOGRAPHICAL COVERAGE



Total number of partners: 74  
 93.2 % of the partners are represented in the map.  
 Other partners that do not fit to the map are from Israel, Morocco, South Africa, Tunisia, and Turkey.

## A climate neutral, sustainable and productive BLUE ECONOMY



### MISSION AND VISION STATEMENT

A climate neutral, sustainable and productive Blue Economy (SBEP) partnership will enable a just and inclusive transition to a climate-neutral, sustainable and productive blue economy for key intervention areas for healthy oceans and the wellbeing of citizens in harmony with nature. By mobilising relevant stakeholders from the quadruple helix to co-create and co-deliver knowledge-based solutions / innovative governance models combining financial and in-kind resources, SBEP targets the Green Deal and Digital Europe objectives as well as contributes to the Global Earth Observing System. Integration of the sea-basins initiatives and strategies will ensure that impact is delivered at local level as well as internationally.

### KEY FACTS AND FIGURES

<b>Horizon Europe Pillar and Cluster:</b>	Pillar II – Cluster 6: Food, bioeconomy, natural resources, agriculture and environment
<b>Type of Partnership:</b>	Co-funded
<b>Coordinating entities:</b>	Italian Ministry of University and Research / The Research Council of Norway
<b>Total estimated budget:</b>	EUR 490.72 m
<b>EU commitments:</b>	EUR 150 m
<b>Partners' commitments:</b>	EUR 340.72 m

### FIND OUT MORE

<https://www.jpi-oceans.eu/climate-neutral-sustainable-and-productive-blue-economy>

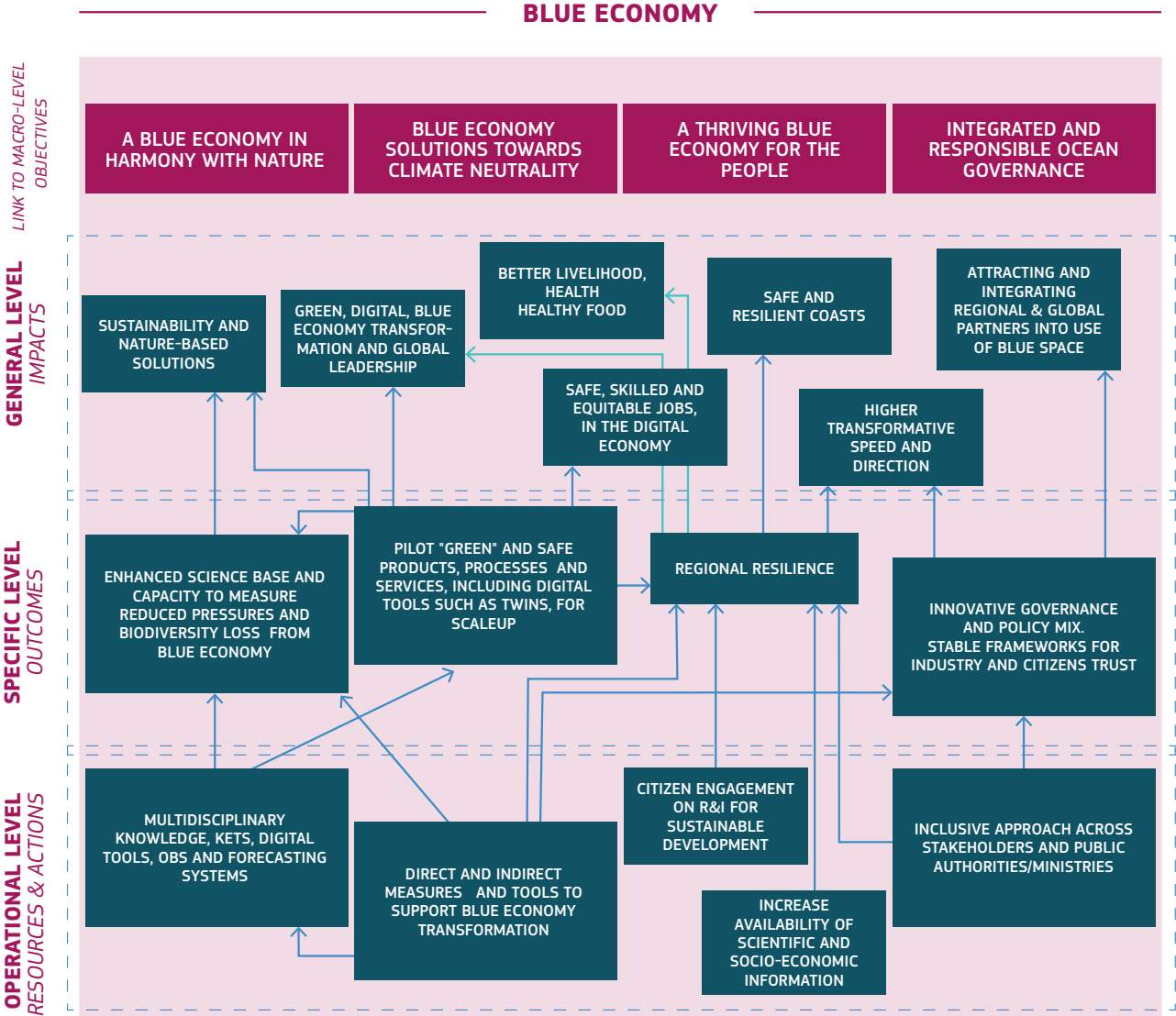


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**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**





**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Capital access	# of national funds	TBD	TBD	TBD	TBD	N/A
Stakeholder co-design	# of 4-helix all 5 regions/All-Atlantic participation	TBD		+ 5 %	24	TBD
Collaborations w/ other ERA actions	#	0	Effective structures in place		> 10	N/A
Sustainable innovation access	# Innovative business models/ taxonomy systems	TBD	TBD	TBD	TBD	N/A
<b>OUTCOMES</b>						
Green / digital inventions	# pilots	International, EU, national indexes	TBD	TBD	>15	20 pilots
Digital ocean synergies	# synergies	European Oceans Obs System	Up to 5 synergies, 80 % FAIR data 80 % of Essential Ocean Variables parameters included			
Resilience	# Nature-based solutions	TBD	TBD	TBD	TBD	N/A
Structured ERA community	# of involved entities # of upscaled outputs (EU-13) # publications	H2020	2030: EU-13 sea-bordering parties fully involved and policy priorities aligned			
Capacity building	# programmes # academic degrees	TBD	TBD			
<b>IMPACTS</b>						
Citizens' wellbeing	Sectoral performance	International, EU, national indexes	>2027: 20 % increase in valorisation of food and feed from aquatic sources + 15 % reduced carbon footprint + early warning systems to protect citizens			
Employment	Number (FTE)	EU indexes	>2027: # doubled to 10 million			
Investment	% increase	TBD	TBD	TBD	+ 25 %	N/A
Internal market and export growth	% increase	International, EU, National indexes	TBD	TBD	TBD	+ 5 %
Policy uptake	% of results	Conventions/ Directives	TBD	50 % of results	80 % of results	N/A



## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

### SEA-BASINS AND ATLANTIC OCEAN INTEGRATION DEEPENING (*INTENDED*)

Sea-basins and Atlantic Ocean initiatives have delivered in the last years via SRIAs notable key results for the blue economy, including better cooperation and capacity building. The governance structures of such initiatives differ from basin to basin and in some of the regions, conventions or the European Commission are also playing a major role. Furthermore, the Horizon Europe mission Restore our Ocean and Waters will address regional lighthouses. Via structured coordination among relevant sea basin programmes, strategies and initiatives, including macro regional strategies, the Sustainable Blue Economy Partnership (SBEP) intends to contribute to such integration as added value for co-creation, in order to generate impact at the local level. By supporting the implementation of these strategies, and at the same time contributing to the EU internationalisation and global cooperation strategy, this approach will guarantee alignment and strengthen the ERA beyond Europe.

### CONNECTED PARTNERSHIPS AND INITIATIVES (*INTENDED*)

From the outset of the SBEP's intervention areas, coordination will be made with relevant European co-funded and co-programmed partnerships as well as Joint Programming Initiatives to foster alignment and exchange praxis as well as avoiding duplication.

#### Key partners include:

- Joint Programming Initiatives: Healthy and Productive Seas and Oceans and Connecting Climate Knowledge for Europe;
- Partnerships: Rescuing biodiversity to safeguard life on earth, Zero Emission Waterborne Transport, Clean Energy Transition, Water Security for the Planet, and Safe and Sustainable Food Systems for People, Planet and Climate;
- Open Science Cloud: Artificial Intelligence, Data and Robotics, EIT Digital, EIT Raw Materials, and the European Partnership on Innovative SMEs.

Joint scoping exercises or assessment of projects' results are example of possible coordinated actions.

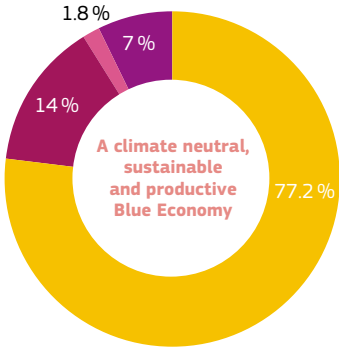
### FOLLOW-UP OF ERANET COFUNDS (*INTENDED*)

Following up key building blocks of the blue economy, ERA will ensure higher impact. In this regard the achievements of the ERANET MarTERA on maritime technologies, the Blue Bioeconomy Cofund and the OceanERA will be taken up by SBEP.



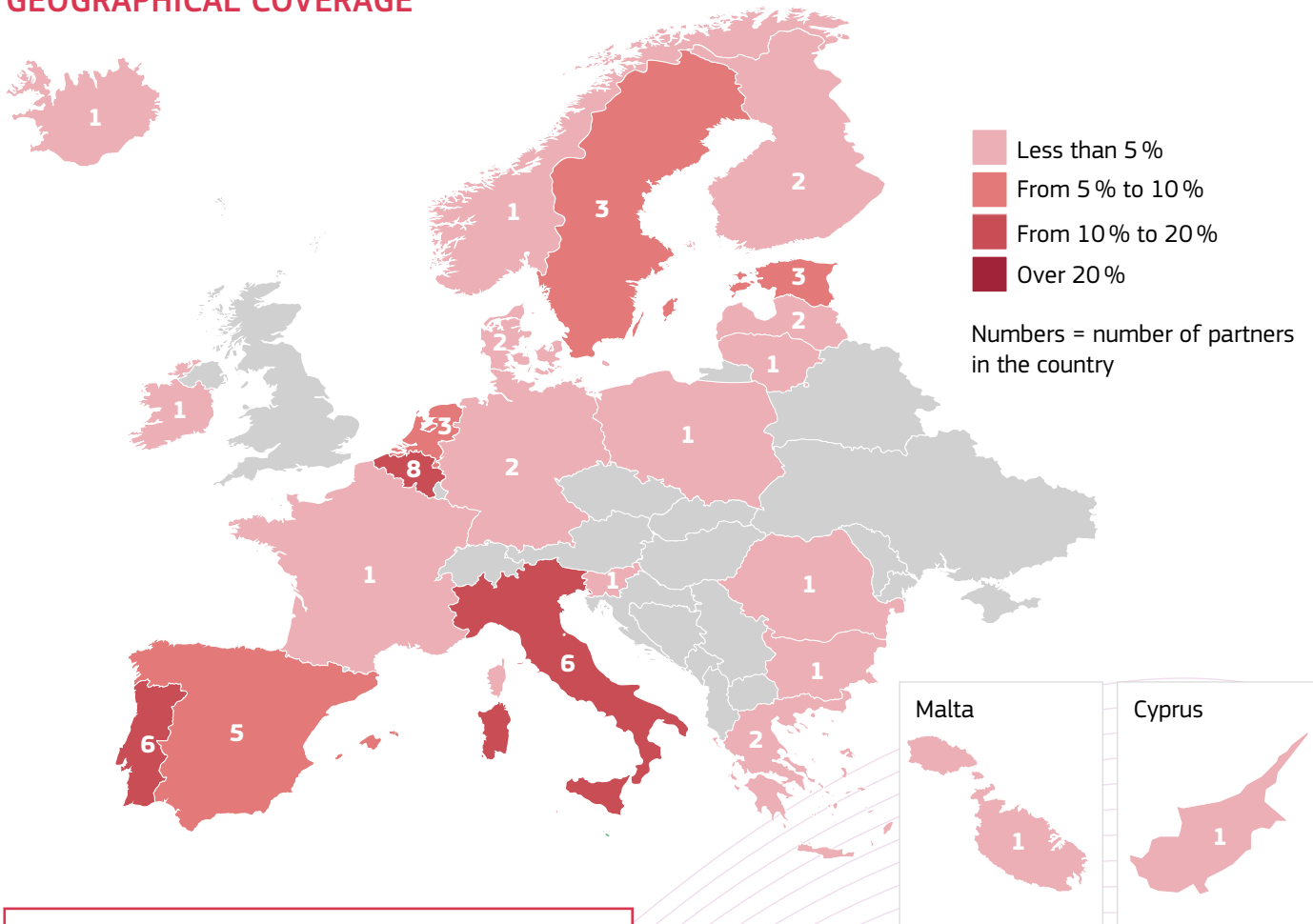
**OVERVIEW OF MEMBERS**

**MEMBERS PER TYPE**



- UNIVERSITY** University and other higher education organisations
- RESEARCH** Public research organisation (including international research organisation as well as private research organisation controlled by a public authority)
- PUBLIC** Research funders, ministries, regions, cities
- OTHERS** Non-profit, associations, state companies etc.

**GEOGRAPHICAL COVERAGE**



**Total number of partners: 57**  
 96.4% of the partners are represented in the map.  
 Other partners that do not fit to the map are from Faroe Islands and Turkey.



## MISSION AND VISION STATEMENT

Water Security for the Planet (Water4All) partnership aims at boosting the systemic transformations and changes across the entire research and water innovation pipeline, fostering matchmaking between problem owners and solution providers to ensure water security for all in the long term.

The Water4All consortium gathers research funders, innovation funders, authorities in charge of the environment, networks representing the water economic sector, and research operators. Water4All runs and promotes a holistic approach to freshwater R&I, connecting actors from research to decision making and field implementation, including a process which includes citizens. We are striving for a more integrated and informed approach to address water challenges, and an increased uptake of innovative solutions.

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar II – Cluster 6: Food, bioeconomy, natural resources, agriculture and environment

**Type of Partnership:** Co-funded

**Coordinating entities:** Agence Nationale de la Recherche (ANR)

**Total estimated budget:** EUR 420 m

**EU commitments:** EUR 126 m

**Partners' commitments:** EUR 294 m

**Predecessor under Horizon 2020:** Water4All builds on the **Water Joint Programming Initiative (Water JPI)**, and also on a number of ERA-NETs (Water Works, Aquatic Pollutants)

## FIND OUT MORE

[www.anr.fr](http://www.anr.fr)

The Water JPI resources can be used for now and will reference the Water4all accounts later on.

[www.water4all-partnership.eu](http://www.water4all-partnership.eu)

[f](https://www.facebook.com/Water-JPI-517792798284596/) <https://www.facebook.com/Water-JPI-517792798284596/>

[in](http://linkedin.com/groups/8455262) <http://linkedin.com/groups/8455262>

[t](https://twitter.com/WaterJPI) <https://twitter.com/WaterJPI>

[y](https://www.youtube.com/channel/UCIR880cyeg5v87KzLzeVlkQ) <https://www.youtube.com/channel/UCIR880cyeg5v87KzLzeVlkQ>

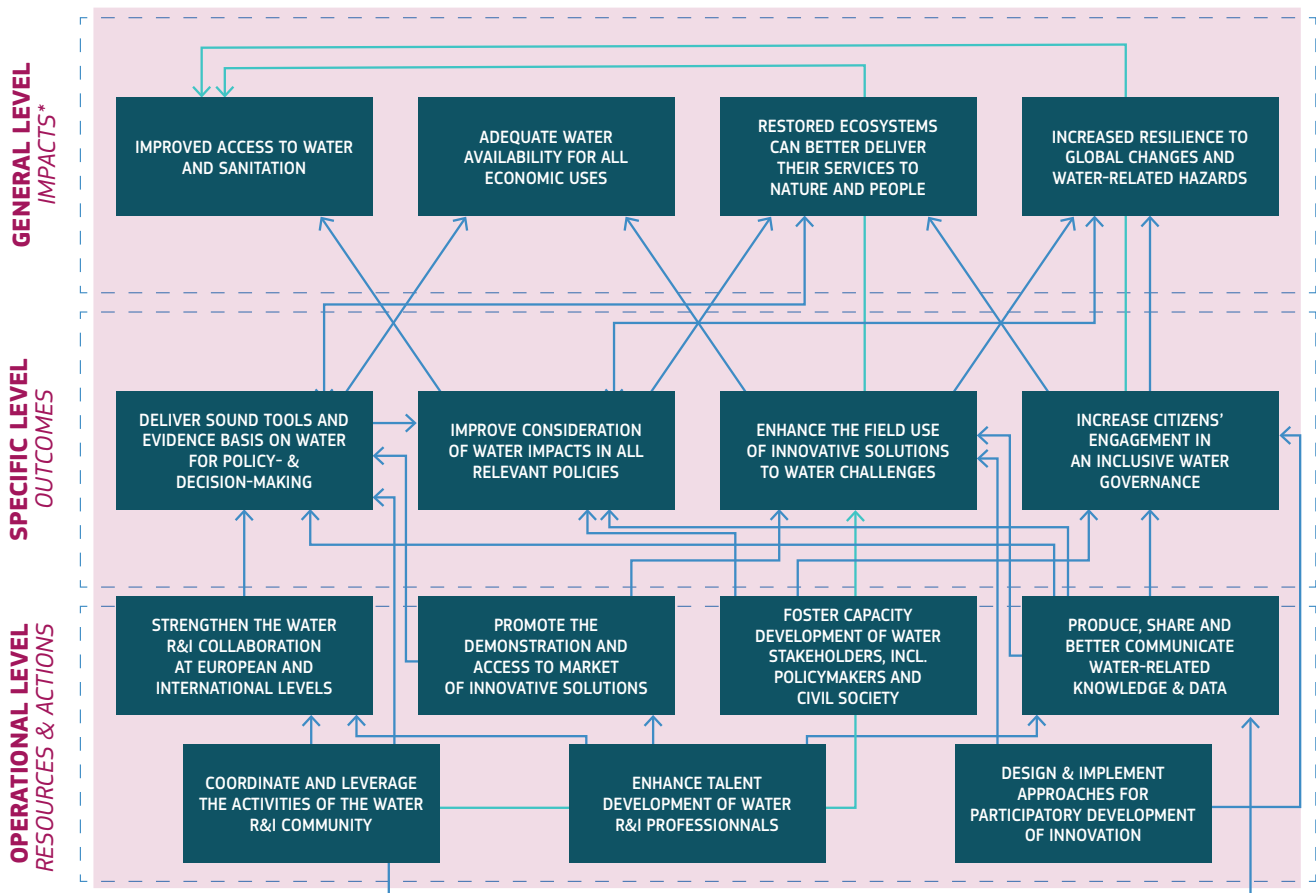
[✉ Water4all@agencerecherche.fr](mailto:Water4all@agencerecherche.fr)





**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**

**SDG6: CLEAN WATER AND SANITATION  
WATER SECURITY FOR ALL ...**



\* The targeted long-term impacts refer to the components of water security proposed by UN-Water (2013) for the sustainable development agenda: [https://www.unwater.org/app/uploads/2017/05/unwater\\_poster\\_Oct2013.pdf](https://www.unwater.org/app/uploads/2017/05/unwater_poster_Oct2013.pdf)



**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Partnership composition	# participants (per type and country)	20	74 organisations 28 countries	TBD	TBD	-
Newcomers	# in supported projects	TBD	TBD	TBD	TBD	-
Joint calls	# (cumulated)	7 calls in 10 years	2	4	6	-
Coordinated activities	# of European Partnerships	4	TBD	TBD	TBD	-
Innovative solutions presented	# in central web portal	N/A	N/A	TBD	TBD	-
Social media outreach	# of followers	TBD	TBD	TBD	TBD	-
Researchers upskilled	#	N/A	TBD	TBD	TBD	-
Individuals benefiting from capacity & knowledge building	#	N/A	TBD	BD	TBD	-
Citizen / end-users contribution to R&I	% of funded projects	N/A	TBD	TBD	TBD	-
<b>OUTCOMES</b>						
Water data delivery in a transnational platform	# countries participating	N/A	N/A	TBD	TBD	-
Contributions to public policy & strategic documents	Qualitative (success stories)	N/A	N/A	TBD	TBD	TBD
Integration of water challenges in policies & regulations	Qualitative study (sector-based survey)	N/A	TBD	N/A	TBD	TBD
Uptake of research-produced tools by SMEs	# of pre-commercial prototypes	N/A	N/A	N/A	TBD	-
Demonstrated inclusive water governance	# of case studies	N/A	TBD	TBD	TBD	-
<b>IMPACTS</b>						
Population access to drinking water	% (EU)	94 %	N/A	N/A	N/A	TBD
Population access to sanitation	% (EU)	73 %	N/A	N/A	N/A	TBD
Level of water stress	% (withdrawal vs resources)	8.51 %	N/A	N/A	N/A	TBD
Permanent water area	km <sup>2</sup> (lakes and rivers)	520 881	N/A	N/A	N/A	TBD
Economic loss from water-related hazards	% of GDP	0.25 %	N/A	N/A	N/A	TBD

- Water4All's complete monitoring template will be included in the final Strategic Research and Innovation Agenda, to be published in early 2022.
- Formal endorsement of the targets by the Governing Board should happen at the kick-off meeting early 2022. Most targets are therefore marked 'TBD'.
- Many baselines are not available because the related data was not monitored so far, or because the partnership precisely creates new activities to fill a gap.
- The first research projects funded through the calls will start in 2023. The transfer and uptake of results can hardly start before 2025: several indicators only make sense beyond 2025. We mark 'N/A' where we don't think it is possible to have a meaningful value; some 'TBD' may also eventually be turned into 'N/A' for this reason. Indicators for the outcomes and, most of all, impacts, also make sense in the medium-term and will mostly be used for the later years of monitoring.



## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

### JOINT ACTIVITIES

Water JPI has sought since its launch in 2011 synergies with other initiatives in order to enhance societal impact and avoid the duplication of efforts in thematic areas of common interests. This strategic objective has translated in shared efforts to influence EU agenda setting with other JPIs, joint calls for projects and additional activities e.g. common strategic research agendas, Transfer Projects and TAP actions. Collaborations with other initiatives include three joint transnational calls, respectively with the FACCE JPI (2016, 21 projects funded), the EraNet Biodiversa (2020, 22 projects funded), the JPIs AMR and Oceans (2020, 18 projects funded).

### COOPERATION WITH NON-EU COUNTRIES

International cooperation has been a priority for Water JPI since its inception. Israel joined the initiative in its early stages and South Africa has been a full member since 2017. Joint calls have been launched in collaboration with Brazil, Canada, Egypt, Morocco, South Africa, Taiwan, Tunisia and Turkey, joining resources towards addressing specific and common water challenges.

Strategic alliances with other initiatives and countries such as Australia, India, the United States and Vietnam could serve Water4All in the development of strategic agendas or the identification of joint actions. Water4All's international activities will build on the main lessons and practices described in the upcoming Water JPI's international cooperation strategy.

### ALIGNMENT

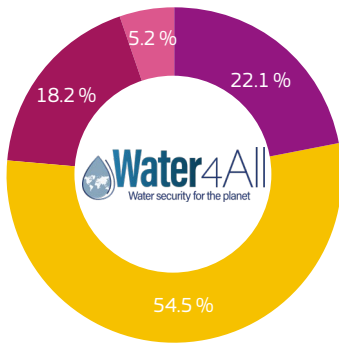
Water JPI arose as a process whereby partner states agreed on a common vision to address major challenges and enable the alignment of national priorities. Members succeeded in the development in 2016 of a common strategic research and innovation agenda that has been recently updated and that outlines key RD&I areas for the sustainable management of water resources. Alignment activities have also allowed the launch of joint processes of research practices and project management as well as the identification of collaboration barriers. The set-up of mirror groups in some member countries has contributed to the better alignment of national strategies with Water JPI's priorities\*.

\* [http://www.waterjpi.eu/mapping-agenda/strategic-research-and-innovation-agenda-sria/waterjpi\\_sria2025\\_web.pdf](http://www.waterjpi.eu/mapping-agenda/strategic-research-and-innovation-agenda-sria/waterjpi_sria2025_web.pdf)



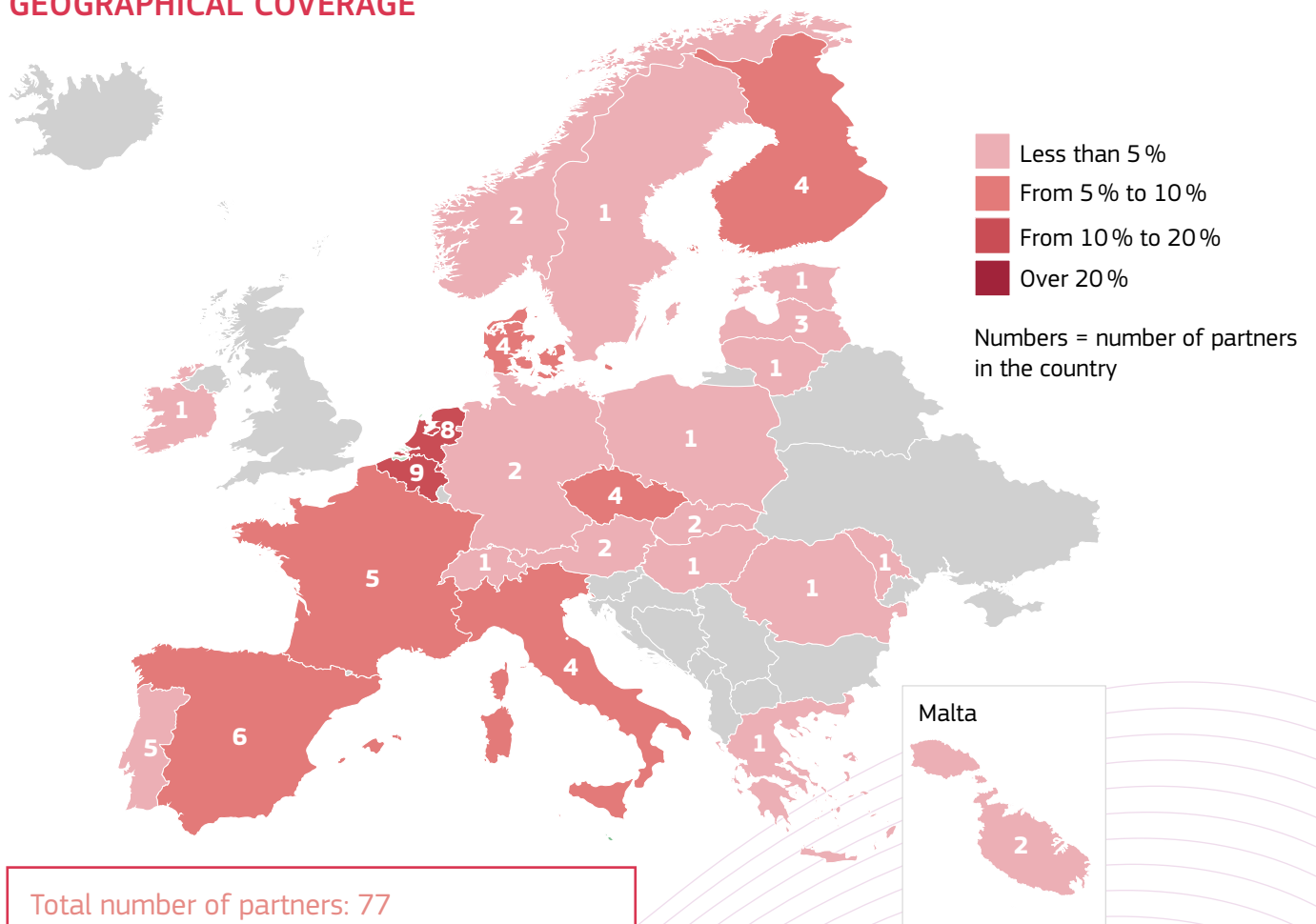
## OVERVIEW OF MEMBERS

### MEMBERS PER TYPE



- UNIVERSITY** University and other higher education organisations
- RESEARCH** Public research organisation (including international research organisation as well as private research organisation controlled by a public authority)
- PUBLIC** Research funders, ministries, regions, cities
- OTHERS** Non-profit, associations, state companies etc.

### GEOGRAPHICAL COVERAGE



**Total number of partners: 77**  
 93.5% of the partners are represented in the map.  
 Other partners that do not fit to the map are from Israel, South Africa and Turkey.



# OTHER PILLARS

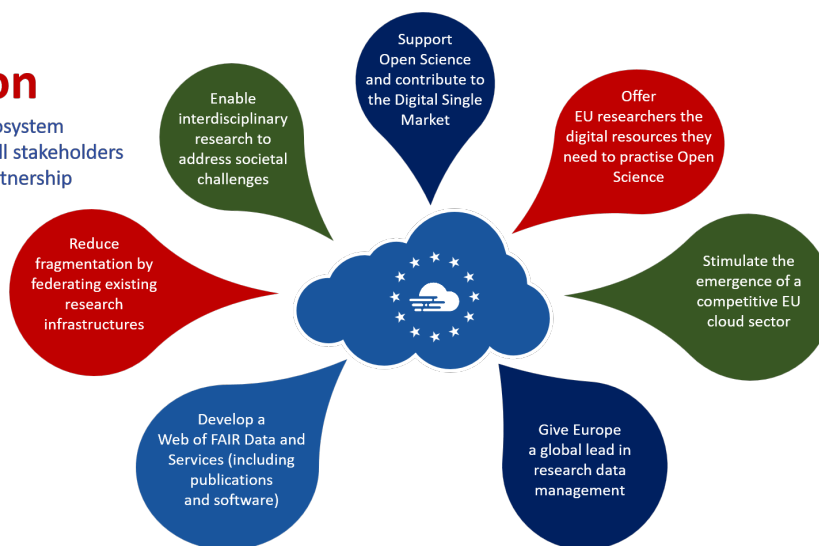


## MISSION AND VISION STATEMENT

European Partnership for the European Open Science Cloud (EOSC) was established in 2021 to provide a wide framework for R&I alignment, not only at the EU, but also at national, community and institutional levels. The creation of a ‘web of FAIR data’ as the backbone of the EOSC serves all disciplines, domains and societal sectors that make use of data and data sharing. The relevant documents, including the Memorandum of Understanding, can be found on the EOSC Association website: <https://eosc.eu/documents>

## The Vision

Building the EOSC ecosystem collaboratively with all stakeholders through the EOSC Partnership



## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar I – Research infrastructures

**Type of Partnership:** Co-programmed

**Coordinating entities:** EOSC Association and the European Commission

**Total estimated budget:** EUR 990 m

**EU commitments:** EUR 490 m

**Partners’ commitments:** EUR 500 m

**Predecessor under Horizon 2020:** New partnership



**FIND OUT MORE**

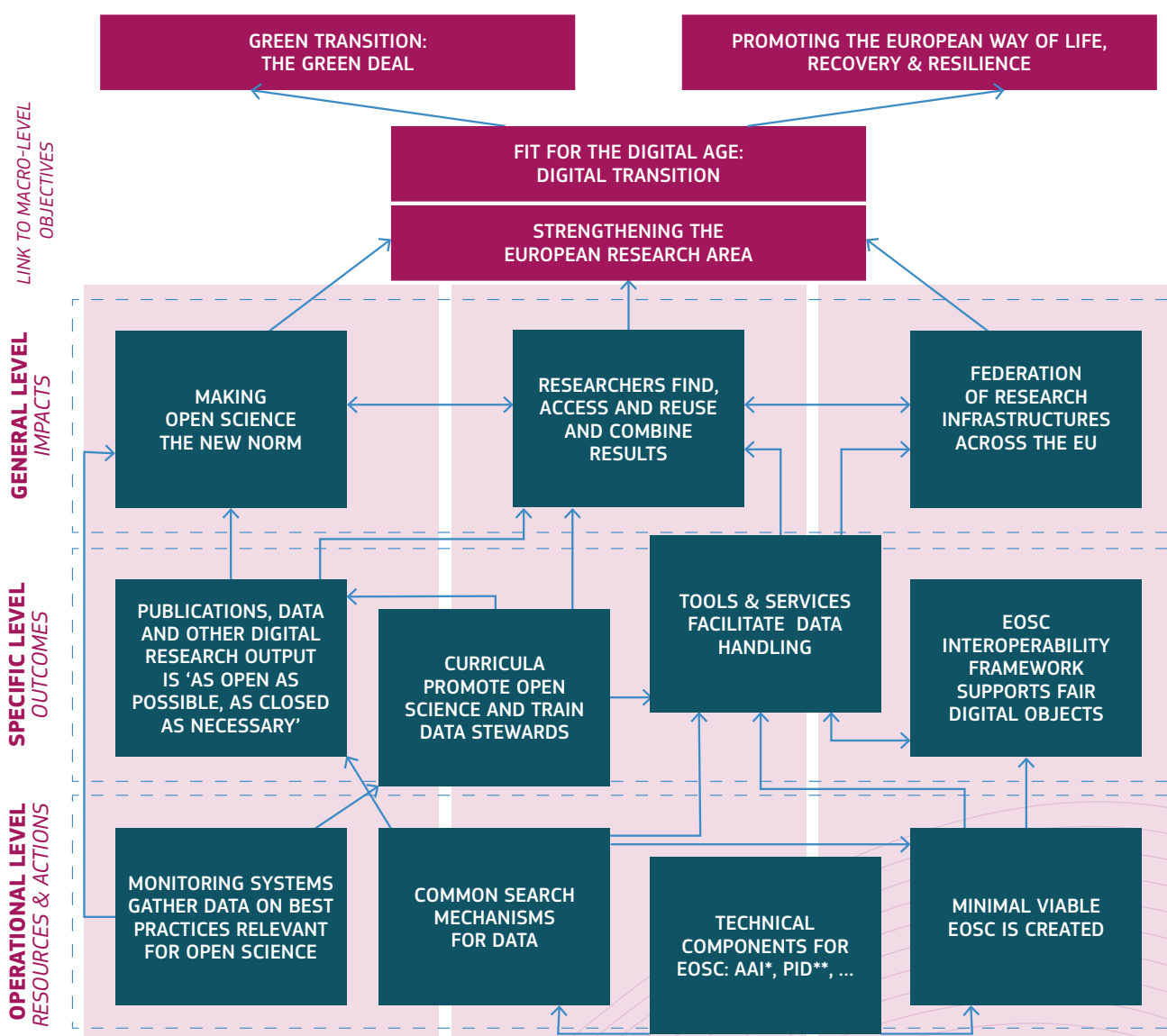
<https://eosc.eu/>

[in https://www.linkedin.com/company/80728224info@eosc.eu](https://www.linkedin.com/company/80728224info@eosc.eu)

<https://twitter.com/eoscassociation>

**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**

**EOSC PARTNERSHIP CONTRIBUTIONS TO SOCIETAL CHALLENGES**



\* AAI: Authentication and Authorization Infrastructure  
 \*\* PID: Persistent Identifiers



## PARTNERSHIP'S KEY PERFORMANCE INDICATORS

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Immediate open access availability of publications from EOSC members	% of publication record	N/A	70 % of total publication record by 2023	80 % of total publication record by 2025	85 % of total publication record by 2027	>95 % of total publication record
(European) Data stewards curricula recognition within national education systems	# of national education systems	N/A	5	10	15	>90 % of the EOSC-A member systems
Implementation of policies requiring data sharing and incentivise re-use.	% of EOSC research funding members	N/A	70 %	75 %	80 %	100 %
<b>OUTCOMES</b>						
Availability of pan-European infrastructures for preservation, management and sharing of research software	#	TBD	TBD	3	2	1 (the ambition is to integrate all the then existing infrastructure)
Percentage of the active data spaces that take up data management practices, including the FAIR data principles.	%	0	Qualitative: a number starting	50 %	75 %	>90 %
<b>IMPACTS</b>						
Number of geographically spread observer organisations that have joined EOSC from outside EU MS/AC	#	TBD	10	15	20	25
Number of interconnections with clouds and commons from outside the EU	#	TBD	2	4	6	8





## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

Due to the horizontal nature of the EOSC partnership it is relevant for all other partnerships, for all R&I activities in Horizon Europe, for all national developments in the domain of open science and for world-wide development to enhance data interoperability and open science. For the EOSC partnership this leads to many (possible) synergies.

### WORLD-WIDE

In Europe EOSC addresses the global challenge that research faces in the context of more and more data-intensive science. This challenge cannot be fully addressed by either the EU alone or by any Member State or Associated Country in isolation. Thus, it is imperative to work synergistically with the developments in the other regions of the world.

At this moment EOSC plays the most prominent role in the international sphere, and cooperates, for example, with Global Open Research Commons (GORC), Global Open Science Cloud (GOSC), Open Science Commons Executives Roundtable (OSCER) and Council for National Open Science Coordination (CoNOSC).

### EUROPEAN

Many building blocks for EOSC, e.g., the science and regional clusters, with experience in developing national components, will be used to promote effective synergies at the regional and/or community levels. [EOSC Future](#) will help in bridging the e-infrastructures and Research Infrastructures communities, to seamlessly integrate existing data and services.

The [European strategy for data](#) recognises EOSC as the nucleus for a science, research and innovation data space, which will progressively be articulated with the nine new sectoral data spaces foreseen in the strategy\*. These new data spaces will build on the ongoing EOSC experiences gained with the research community. Therefore, there is huge opportunity for EOSC as a frontrunner in data-interoperability to serve the new data spaces with their specific research data. This will create synergies between EU policies, given the role of EOSC in the renewed ERA, the European data strategy and, more widely, the European data economy.

\* Building upon the EOSC experience, EC announces creation of nine Common European data spaces | [EOSC Secretariat](#)

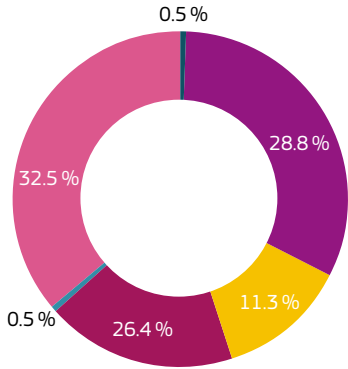
### NATIONAL

For EOSC it will be essential to develop the right synergies between national and EU funding streams as well as a higher level of coherence in the funding from different parts of EU research funding and across the three pillars of Horizon Europe. Several European countries are investing significantly in their data infrastructure. The essential ingredients are proper research data management, the education and employment of data stewards, and standards. Ultimately, the pan-European EOSC will also positively influence the planning of institutional and national infrastructures by developing synergies and compatibility schemes with other existing infrastructures, improving the quality of the integrated research landscape, and increasing researchers' ability to provide science-based solutions to complex societal challenges.



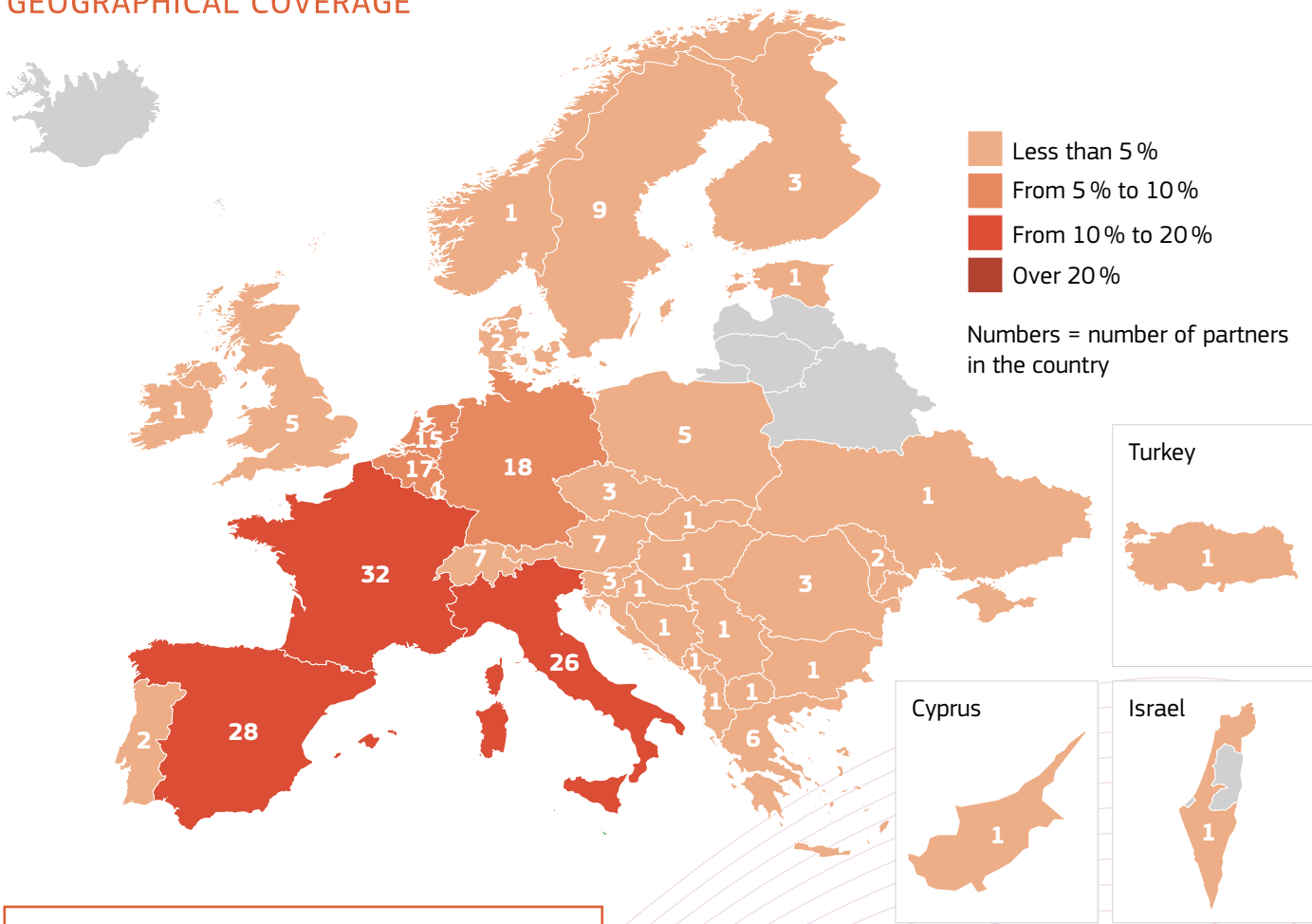
## OVERVIEW OF MEMBERS

### MEMBERS PER TYPE



- INDUSTRY** Other Industrial and/or profit Private organisation
- UNIVERSITY** University and other higher education organisations
- RESEARCH** Public research organisation (including international research organisation as well as private research organisation controlled by a public authority)
- PUBLIC** Research funders, ministries, regions, cities
- SMEs**
- OTHERS** Non-profit, associations, state companies etc.

### GEOGRAPHICAL COVERAGE



**Total number of partners: 212**  
 99.1 % of the Partners are represented in the map.  
 Other partners that do not fit to the map are from Armenia and Sudan.



## MISSION AND VISION STATEMENT

The partnership is implemented by innovation agencies of 37 countries under the umbrella of Eureka. Its vision is to stimulate economic growth and job creation by enhancing the competitiveness of innovative SMEs while contributing to delivering a positive societal and environmental impact in Europe and beyond.

The objectives of the partnership are to enable innovation and the internationalisation of SMEs, and to connect Member States R&D&I national programmes.

The partnership aims to do this by implementing the Eurostars-3 programme and accompanying measures to SMEs, like the Eureka-Innowwide programme and a higher connectivity to other services offered in the European innovation landscape.

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar III – European Innovation Ecosystems

**Type of Partnership:** Co-funded

**Coordinating entity:** Eureka Association

**Total estimated budget:** EUR 988 m

**EU commitment:** EUR 250 m (including EUR 25 m for the accompanying measure Innowwide)

**Partners' commitment:** EUR 738 m

**Predecessor under Horizon 2020:** Eurostars-2 (Horizon 2020) implemented under Article 185 of TFEU

## FIND OUT MORE

[www.eurekanetwork.org](http://www.eurekanetwork.org)

[in https://www.linkedin.com/company/eureka-association/about/](https://www.linkedin.com/company/eureka-association/about/)

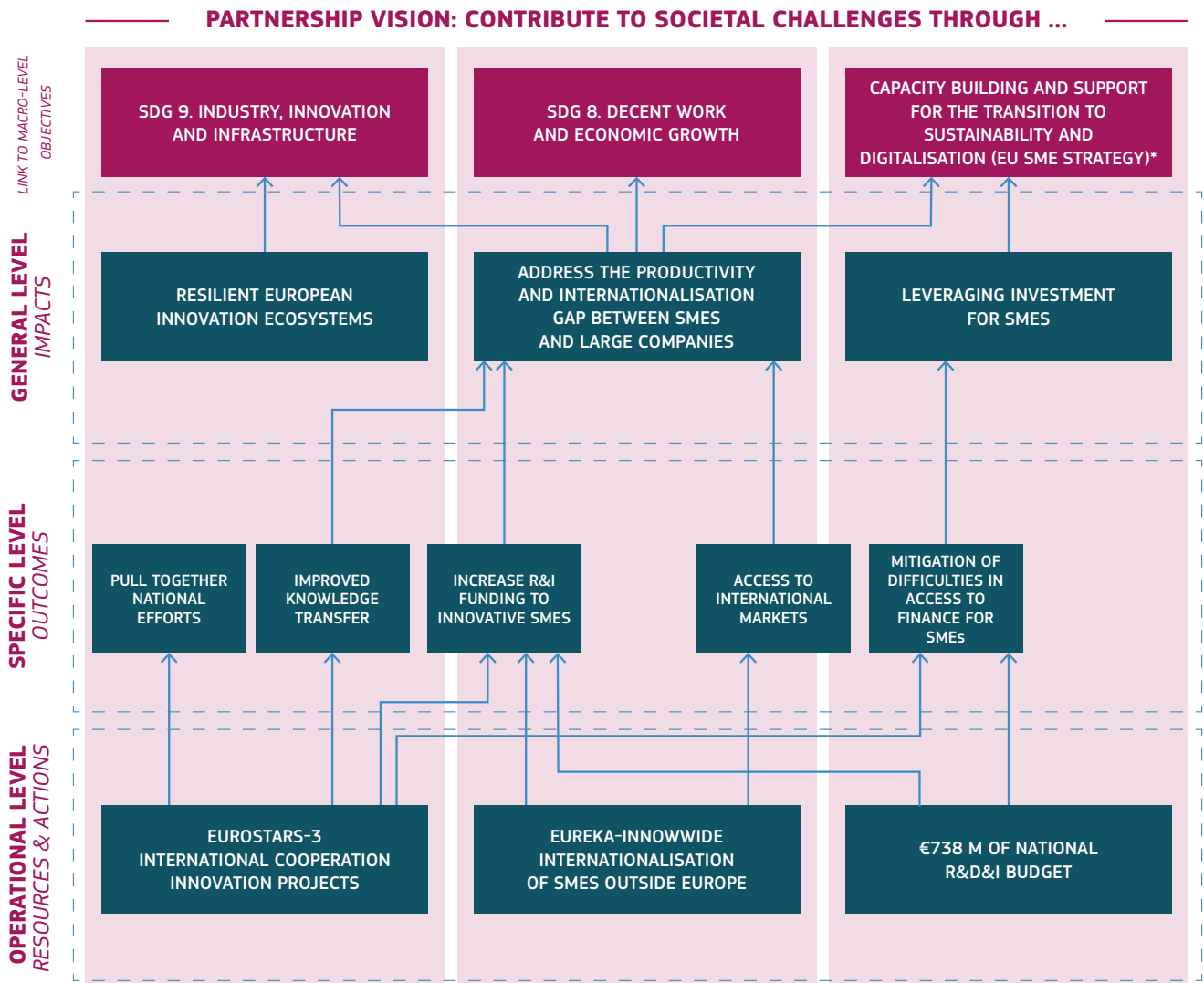
[t https://twitter.com/EUREKA\\_NETWORK](https://twitter.com/EUREKA_NETWORK)

[y https://www.youtube.com/c/EUREKA-NETWORK-1985](https://www.youtube.com/c/EUREKA-NETWORK-1985)

[✉ eureka.secretariat@eurekanetwork.org](mailto:eureka.secretariat@eurekanetwork.org)



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**



\* [https://ec.europa.eu/growth/smes/sme-strategy\\_en](https://ec.europa.eu/growth/smes/sme-strategy_en)

**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Number of Eursotars-3 calls	Number per year	1	2	2	2	N/A
Eureka-Innowwide calls	Number per year	0	1	1	1	N/A
<b>OUTCOMES</b>						
Sustained cooperation over time	% of project partners	15 %	N/A	20 %	25 %	33 %
Newcomers SMEs to international cooperation	% of E3 funded SMEs	N/A	10%	TBD	20 %	N/A
Sales share of new products by innovative SMEs	%	= control group	TBD	TBD	TBD	TBD
Export share of innovative SMEs	%	= control group	TBD	TBD	TBD	TBD
Time to market	Months	24	N/A	N/A	18	TBD
Post-project private investment (after E3)	% of innovative SMEs	= control group	TBD	TBD	TBD	TBD
Post-project public investment (after E3)	% of innovative SMEs	= control group	TBD	TBD	TBD	TBD
Widening participation	% of E3 funded projects	After first E3 call	TBD	TBD	TBD	TBD
Widening budget allocation	% of public E3 fund	After first E3 call	TBD	TBD	TBD	TBD
Use of national budget (cumulative)	€	N/A	€250 m	€500 m	€738 m	€738 m
<b>IMPACTS</b>						
Resilient European Innovation Ecosystem	Number of related KPIs fulfilled (1, 2, 8, 9)	None	N/A	N/A	4	4
Address productivity and internationalisation gap between large companies and SMEs	Number of related KPIs fulfilled (3, 4, 5)	None	N/A	N/A	3	3
Leverage investments for SMEs	Number of related KPIs fulfilled (6, 7, 10)	None	N/A	N/A	3	3

The KPIs are still being developed and thus should not be taken as final.



## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

### SYNERGIES: STORY 1

The European Partnership on Innovative SMEs consists of innovation agencies and ministries from 37 countries. Following Eureka's founding principle of international cooperation, participating countries in Europe and beyond in this partnership will dedicate more than EUR 900 million of trans-national R&D budget to fostering innovation and the internationalisation of SMEs in international cooperation programmes.

By creating this synergy between national R&D budgets, the partnership contributes to the target set by the European Commission and the Council for countries to commit 5% of national public R&D funding to joint programmes and European Partnerships by 2030 (Ref: [Council Recommendation on a Pact for Research and Innovation in Europe \(13701/21\)](#)).

In addition to the abovementioned policy objective, the allocation of national budgets in an international R&D&I programme will help to overcome many of the barriers towards internationalisation identified by numerous policy papers that SMEs face nowadays.

### SYNERGIES: STORY 2

This partnership will aim at achieving the reactivation of some of the less active countries in its predecessor Eurostars-3 thanks to a new provision in Article 15(3) of Horizon Europe, by which Member States can use resources co-financed from cohesion policy funds such as ERDF and ESF+ as national contributions to co-funded partnerships. This new feature under Horizon Europe will strengthen the links of the partnership with smart specialisation strategies and will help to achieve a more balanced participation among its members.

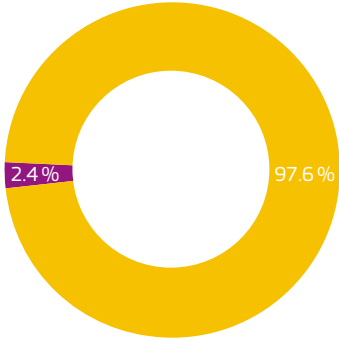
The benefits of this new provision are already visible with the re-introduction of Greece into the programme, and the higher tentative funds allocation of widening countries.

This partnership also aims to become a forum where representatives from participating countries can exchange knowledge and experience on how to channel cohesion policy funds towards this and other European Partnerships.



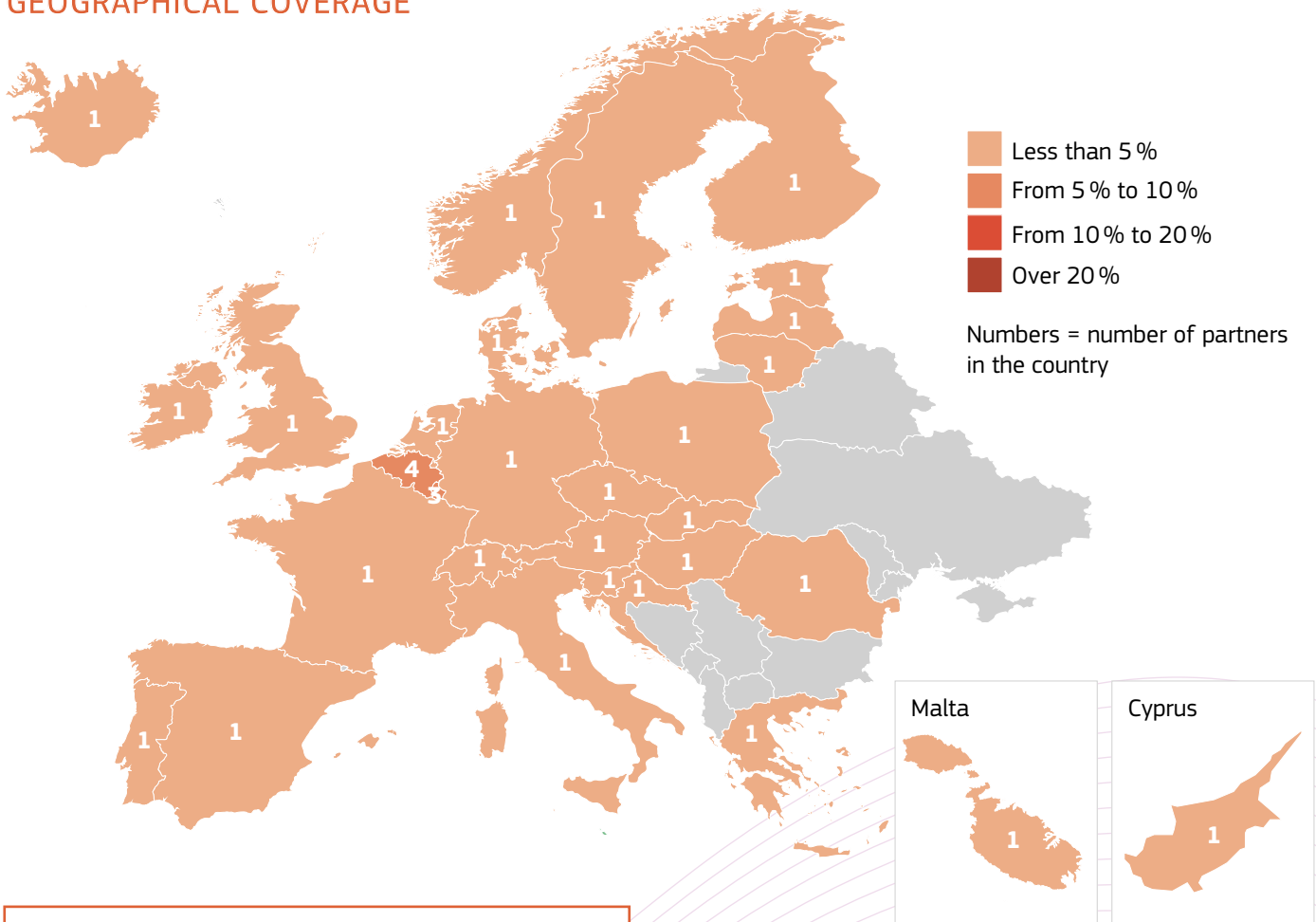
**OVERVIEW OF MEMBERS**

**MEMBERS PER TYPE**



- PUBLIC** Research funders, ministries, regions, cities
- OTHERS** Non-profit, associations, state companies etc.

**GEOGRAPHICAL COVERAGE**



**Total number of partners: 41**  
 87.8 % of the partners are represented in the map  
 Other partners that do not fit to the map are from Canada, Israel, the Republic of Korea, Singapore, South Africa and Turkey.



## MISSION AND VISION STATEMENT

EIT Health is a strong, diverse and balanced European Partnership of best-in-class organisations in education, research, technology, business creation and corporate and social innovation.

EIT Health's vision is 'To enable people in Europe to live longer, healthier lives by building and growing businesses to create products and services that progress healthcare in Europe, while strengthening our economy and the sustainability of our healthcare systems.'

EIT Health's mission is: 'By 2030, we'll be Europe's leading innovation platform, facilitating longer, healthier lives and more sustainable healthcare systems.'

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar III – European Institute of Innovation and Technology

**Type of Partnership:** Institutionalised – EIT KIC

**Coordinating entity:** EIT Health e.V.

**Total estimated budget:** EUR 49.5 m (2021); EUR 59.27 m<sup>1</sup> (2022)

**Predecessor under Horizon 2020:** Started in 2015

1) KIC budget is approved on a yearly basis based on the assessment of the KIC's Business Plan by the EIT

## FIND OUT MORE

EIT Health e.V.  
Mies-van-der-Rohe-Str 1C  
80807 Munich, Germany

<https://eithealth.eu/>

<https://www.facebook.com/EITHealth/>

<https://www.instagram.com/eithealth/>

<https://www.linkedin.com/company/eithealth/>

<https://twitter.com/EITHealth>

<https://www.youtube.com/channel/UC8W06RVPIATNixFMVyi6Ujw>

<https://vimeo.com/user58674995/videos>

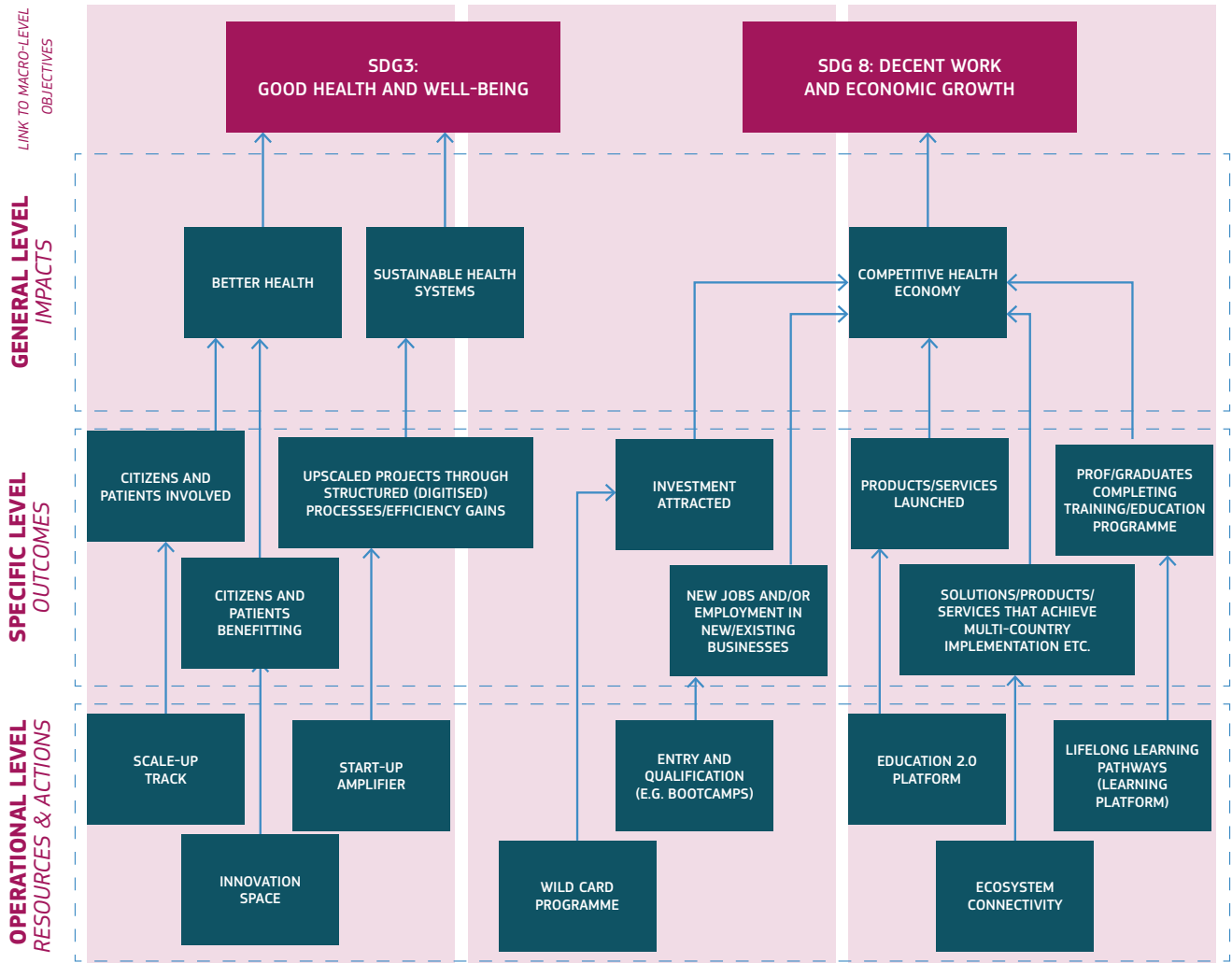
✉ [info@eithealth.eu](mailto:info@eithealth.eu)





**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**

**EIT HEALTH: CONTRIBUTE TO SOCIETAL CHALLENGES BY BUILDING AND GROWING BUSINESSES TO CREATE PRODUCTS AND SERVICES THAT PROGRESS HEALTHCARE IN EUROPE**





**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
# Project partners	Activity partners, which are involved only in implementation of KICs activities (including project partners and wild cards; not including linked third parties).	256	276	296	316	N/A
# Partners from EIT RIS countries	(same as KPI)	77	80	83	85	N/A
# Financial sustainability revenues	€	€11.9 m	€16.3 m	€22.6 m	€30.4 m	N/A
# HEIs involved in EIT and KIC activities	(same as KPI)	20	25	30	30	N/A
<b>OUTCOMES</b>						
# Designed/tested innovations*	(same as KPI name)	18	19	19	16	N/A
# Supported start-ups/scale-ups	(same as KPI name)	103	154	126	109	N/A
# Investment attracted by KIC supported Start-ups/Scale-ups	€	€151 m	€199 m	€191 m	€186 m	N/A
# Participants in (non-degree) education and training	(same as KPI name)	2890	3640	4840	6340	N/A
<b>IMPACTS**</b>						
# Citizens and patients involved	# Citizens and patients involved (ideation, co-creation); where (and if) possible, per disease areas (such as cancer) and range of application (prevention, diagnosis, treatment)	12 800	N/A	25 600	38 400	N/A
# Upscaled projects*** that strengthen healthcare systems	# Upscaled projects*** that strengthen healthcare systems through (cost) efficiency gains and/or by improving the individual experience of care	6	N/A	12	21	N/A
# New jobs or employment created in new businesses	(same as KPI name)	760	N/A	1704	3023	N/A
# Products/services launched	Innovations launched on the market (based on KIC support) (economic)	54	N/A	74	91	N/A

\* Decrease due to shift towards projects focusing on efficiency gains.

\*\* Impact KPIs are measured with the baseline set in the year 2022. The figures in the columns for targets for 2025 and 2027 are the goals set for years 2024 and 2027 as 2024 is the closest available measurement year outlined by EIT Health's Strategic Agenda 2021-2027.

\*\*\* Upscaled projects are projects where proof exists that they were developed with EIT Health support, and are later used by organisations without further EIT Health support

**Remarks:**

- KPIs are taken from the EIT Health's Strategic Agenda 2021-2027, chapter 4.2 Results from the Annual KPI targets.
- Baseline is given as 2021 KPI target, defined in the Strategic Agenda 2021-2027 approved in April 2021
- Outcomes and impacts are linked to the KPIs for resources as outlined in Annex 1 KIC Impact of the Strategic Agenda 2021-2027.



## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

### SYNERGIES: STORY 1

Three key areas of collaboration are currently explored together with the European Innovation Council (EIC):

1. strengthening of network capabilities of start-ups through access to stakeholders and expertise;
2. mobilising start-up access to finance and deal flow;
3. establishing further opportunities and joint events.

The first line of collaboration is focused on the participation of EIC start-ups into EIT Health's programmes. EIT Health would fast-track EIC start-ups into the Bridgehead and Bootcamp programmes, with start-up grants and operational costs covered by EIC. Furthermore, all EIC ventures will have access to EIT Health's ecosystem and benefit from the synergies of the other lines of EIC-EIT Health collaboration. EIC-funded start-ups will benefit from tangible results from the careful programme selection based on their specific stage and needs. The second and third lines of collaboration are meant to strengthen ties and the sharing of expertise between EIC and EIT Health as in-kind services.

### SYNERGIES: STORY 2

EIT Health and the European investment Fund (EIF) are partnering to operate the Venture Centre of Excellence (VCOE), a public-private co-investment programme to empower finance for small- and medium-sized enterprises (SMEs) in Europe's health sector.

The VCOE connects life science investors with high investment capacities – such as venture capital funding, corporate or industrial firms, technology transfer offices, insurers and more – with highly qualified pan-European SMEs using an exclusive artificial intelligence platform that brings all members together.

Companies in the programme receive support to fundraise and have key access to services provided by EIT Health in support of their Series A, B and up to pre-IPO fundraising rounds.

Please see: <https://eithealth.eu/programmes/venture-centre-of-excellence/>

### SYNERGIES: STORY 3

There are also various examples of synergies between stakeholders from within the partnership. There is an overview on the EIT Health web side to cover this: [Case studies in health | EIT Health](#)

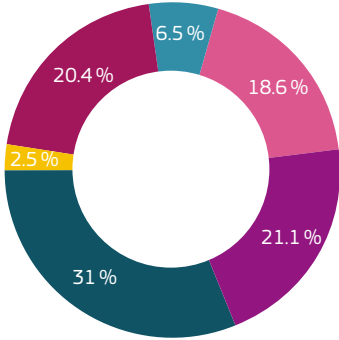
These synergies include:

- supporting the prevention of type 2 diabetes together with Health Integrator
- taking control of movement disorders with more targeted therapy together with DBS Select
- holistic health apps for chronic disease management together with Wefight.



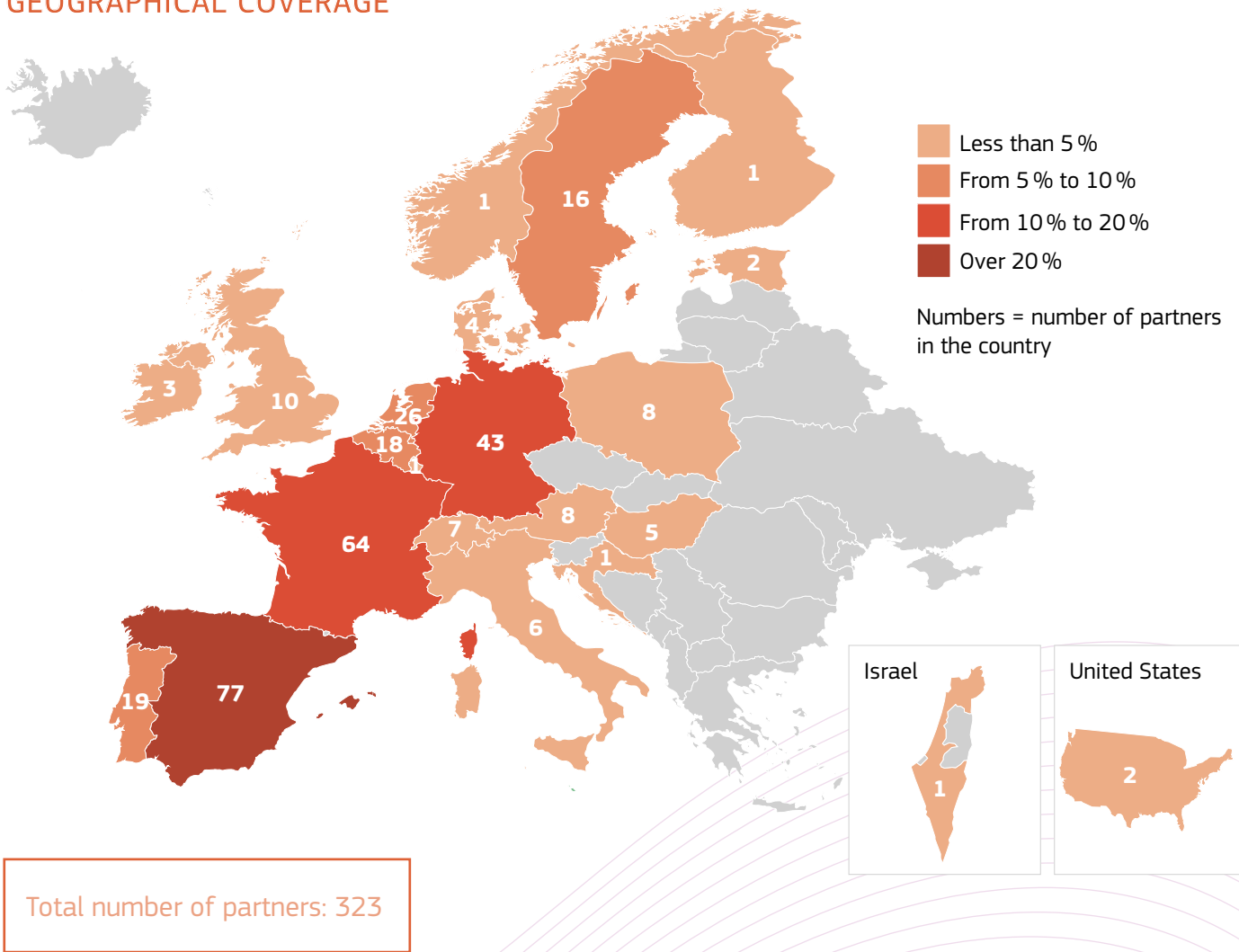
## OVERVIEW OF MEMBERS

### MEMBERS PER TYPE



- INDUSTRY** Other Industrial and/or profit Private organisation
- UNIVERSITY** University and other higher education organisations
- RESEARCH** Public research organisation (including international research organisation as well as private research organisation controlled by a public authority)
- PUBLIC** Research funders, ministries, regions, cities
- SMEs**
- OTHERS** Non-profit, associations, state companies etc.

### GEOGRAPHICAL COVERAGE





## MISSION AND VISION STATEMENT

We embody the future of innovation by mobilising a pan-European multi-stakeholder open-innovation ecosystem of top European corporations, SMEs, start-ups, universities and research institutes, where students, researchers, engineers, business developers and investors address the technology, talent, skills, business and capital needs of digital entrepreneurship.

We build the next generation of digital ventures, digital products and services, and breed digital entrepreneurial talent, helping business and entrepreneurs to be at the frontier of digital innovation by providing them with technology, talent, and growth support.

EIT Digital answers specific innovation needs by, finding the right partners to bring technology to the market, supporting the scale-up of digital technology ventures, attracting talent and developing their digital knowledge and skills.

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar III – European Institute of Innovation and Technology

**Type of Partnership:** Institutionalised – EIT KIC

**Coordinating entity:** EIT Digital IVZW

**Total estimated budget:** Budget: EUR 29.8 m (2021); EUR 24.74 m\* (2022)

**Predecessor under Horizon 2020:** Started in 2010

\* IKIC budget is approved on a yearly basis based on the assessment of the KIC's Business Plan by the EIT

## FIND OUT MORE

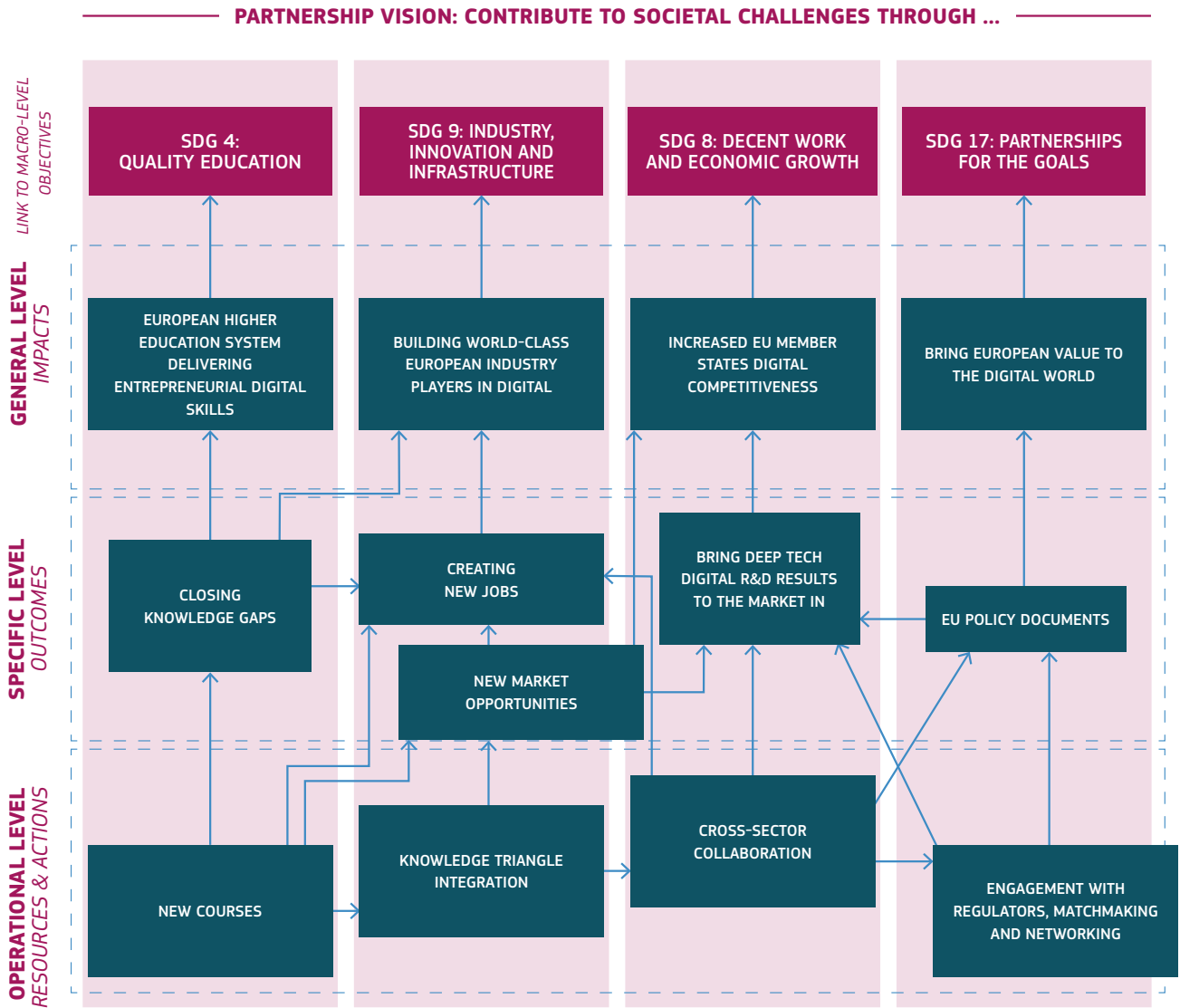
 <https://www.linkedin.com/company/eit-digital>

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**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**





**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Financial sustainability revenues	€		€13.23 m	€19.5 m	€24.6 m	€30 m
Active partners	Number of organisations		400	500	650	650
Mobilised funding	€		€64.5 m	€42 m	€42 m	€42 m
<b>OUTCOMES</b>						
Supported start-ups/ scale-ups (EITHE03.1)	Number of supported start-ups/scale-ups by the KIC	100/year	110	120	120	120
Start-ups created of/for innovation (EITHE04.1)	Number of start-ups created by the KIC innovation activities	50/year	50	60	60	60
Investment attracted by KIC supported start-ups/scale-ups (EITHE06.1)	Amount of investment attracted by KIC supported start-ups/scale-ups	€70 m/ year	€70 m	€70 m	€70 m	€70 m
<b>IMPACTS</b>						
Strengthening the economic impact of EU digital firms through increasing the share of exports of their digital services to non-EU markets	% of services of firms involved with EIT Digital (start-ups, scale-ups, partners) exported to non-EU markets	New	20 % (by 2024)		40 %	40 %
Supporting European regulation and digital standards that addresses key European values such as ethics of AI, data protection, trusted social media platforms	Deployment of an effective thought leadership and policy support capacity demonstrated by uptake and adoption (by governments, EC and other governmental organisations) of EIT Digital initiatives, policy recommendations and publications (e.g., makers and shapers journey, policy reports on the digital industry, cybersecurity and AI)	New	6 EIT Digital thought leadership publications quoted in key EU policy documents		10 EIT Digital thought leadership publications quoted in key EU policy documents	10 EIT Digital thought leadership publications quoted in key EU policy documents
Increased digital talent development in Europe by transforming the European ICT Masters and Doctoral programmes with a stronger focus on societal needs and on entrepreneurship (societal)	Adoption of the EIT Digital Master School model, Industrial Doctoral School model and EIT quality label for European Technical universities		10 % of European technical universities		15 % European technical universities	
Increased competitiveness of EU Member States with a special focus on countries with a DESI (Digital Economy and Society) < 50 (societal)	Level of participation of Member States with DESI lower than 50 in EIT digital activities (e.g., through RIS programme)		+100 % participation		+130 % participation	

EIT Digital's strategic objectives are aimed at strengthening EU impact in digital. We aim at fostering a stronger European digital ecosystem to leverage the diversity and complementarities of different players to build world class digital companies. The EU has been driving the development of the Single Market to boost business opportunities and including and empowering citizens, yet the Single Market is still characterised by high fragmentation. We aim at increasing Member States competitiveness by taking dedicated actions in RIS countries, which present lower level of innovation, while continuing to foster innovation across the EU. EU countries are known for strong publicly funded R&D, while private companies have a more conservative approach. We aim at changing this trend to speed up the adoption and commercialisation of R&D results in strategic areas. This is expected to increase societal and economic impact of EU R&D investments and stimulate industry investment. Fundamental to the ambition of a stronger digital Europe is a European education system able to adapt to the digital reality, which can equip people with the right digital skills and to deploy digital technology to support education. All our efforts are committed to overcoming female gender underrepresentation in digital with continuous and focused approaches.

## **SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES**

### **MANUFACTURING INDUSTRY DIGITAL INNOVATION HUBS**

The Manufacturing Industry Digital Innovation Hubs (MIDIH) project lead by EIT Digital is an inclusive Innovation Action of 21 beneficiaries coming from 12 EU countries, including, Competence Centers, Digital Innovation Hubs, CPS/ IOT Technology Providers as well as Lighthouse Manufacturing Industries.

The MIDIH project supports the ICT Innovation for Manufacturing SMEs by developing a “one-stop shop” of services with access to advanced digital solutions and financial opportunities. MIDIH project aims also to establish a mentoring and coaching sustainable programme to help manufacturing SME migrate their 6Ps assets (Products, Processes, Platforms, People, Partners, Performance) towards the new technologies brought by the Internet of the Future, CPS and IOT.

### **CYBERSECURITY COMPETENCE FOR RESEARCH AND INNOVATION: CONCORDIA**

CONCORDIA, an EU-funded multi-disciplinary R&I project, gathers above 50 EU partners, including EIT Digital. The project aims to interconnect all of Europe's cybersecurity capabilities into a network of expertise to help build a secure, trusted, resilient and competitive ecosystem. Moreover, it will develop the EU Cybersecurity Research and Innovation Roadmap.

EIT Digital is focusing on the private-public partnership, bringing together stakeholders from a wide range of domains and exploring the needs of the digital market. Also, EIT Digital is involved in training activities and will bring forward the EIT Digital Academy for organising digital professional schools on cybersecurity.

### **A EUROPEAN AI ON-DEMAND PLATFORM AND ECOSYSTEM: AI4EU**

The European AI on Demand Platform brings together the AI community while promoting European values. Furthermore, the platform facilitates knowledge transfer from research to business application. For this, it mobilised the whole European AI ecosystem and united 80 partners coordinated by Thales Six GTS France SAS, including EIT Digital, top universities, and innovation centres in 21 countries.

The AI4EU Platform established a world reference, built upon and interoperable with existing AI and data components and platforms. The project implemented eight pilots led by industrial partners to demonstrate the platform's capabilities. Each pilot focused on a different area by highlighting the platform's versatility: AI4Citizen, AI4Robotics, AI4Industry, AI4Healthcare, AI4Media, AI4Agriculture, AI4IoT, and AI4Cybersecurity.





## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES (CONTINUED)

### ENTREMO

The startup Entremo, co-founded by EIT Digital Master School students, is deploying their product, a wristband to remotely monitor the vital signs of patients, in hospitals and nursing homes in Hungary. The watch can measure vital signs of COVID-19 patients.

It all started with a group of friends passionate about using technology to improve people's health and wellbeing, all of them involved in different EIT Digital Master School programmes. They had earlier won the European Commission #EuvsVirus hackathon's healthcare category with a prototype of their 3D-printed remote monitoring device. This led to an invitation to submit a call for proposals to the EIT Digital Innovation Factory DATA against COVID-19 initiative. For this they found four international partners: ELTE-Soft, MOHAnet and E.tv.s Lorand University from Hungary and InnoTractor from the Netherlands. EIT Digital supports collaboration with students – universities – SMEs and public bodies for bringing next level innovation to the market.

### SARA

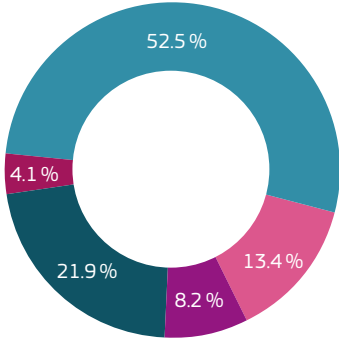
The Social & Autonomous Robotic Health Assistant (SARA) startup from the Netherlands offers a turnkey hardware and software solution for care institutions and hospitals to improve care recipients' quality of life and provide support to alleviate caregiver-staffing shortages. SARA functions as a social entity in nursing homes and hospitals. The robotic assistants are designed to be largely autonomous, since nurses can access the SARA system from a computer or a tablet to create a personalised profile and health plan for every client (supporting music therapy and reminding staff or clients when it is time to take medication).

The startup named SARA was created as a result of a collaboration between university students – SMEs and important business players under EIT Digital Innovation Factory umbrella and has strong customer traction in the Netherlands.



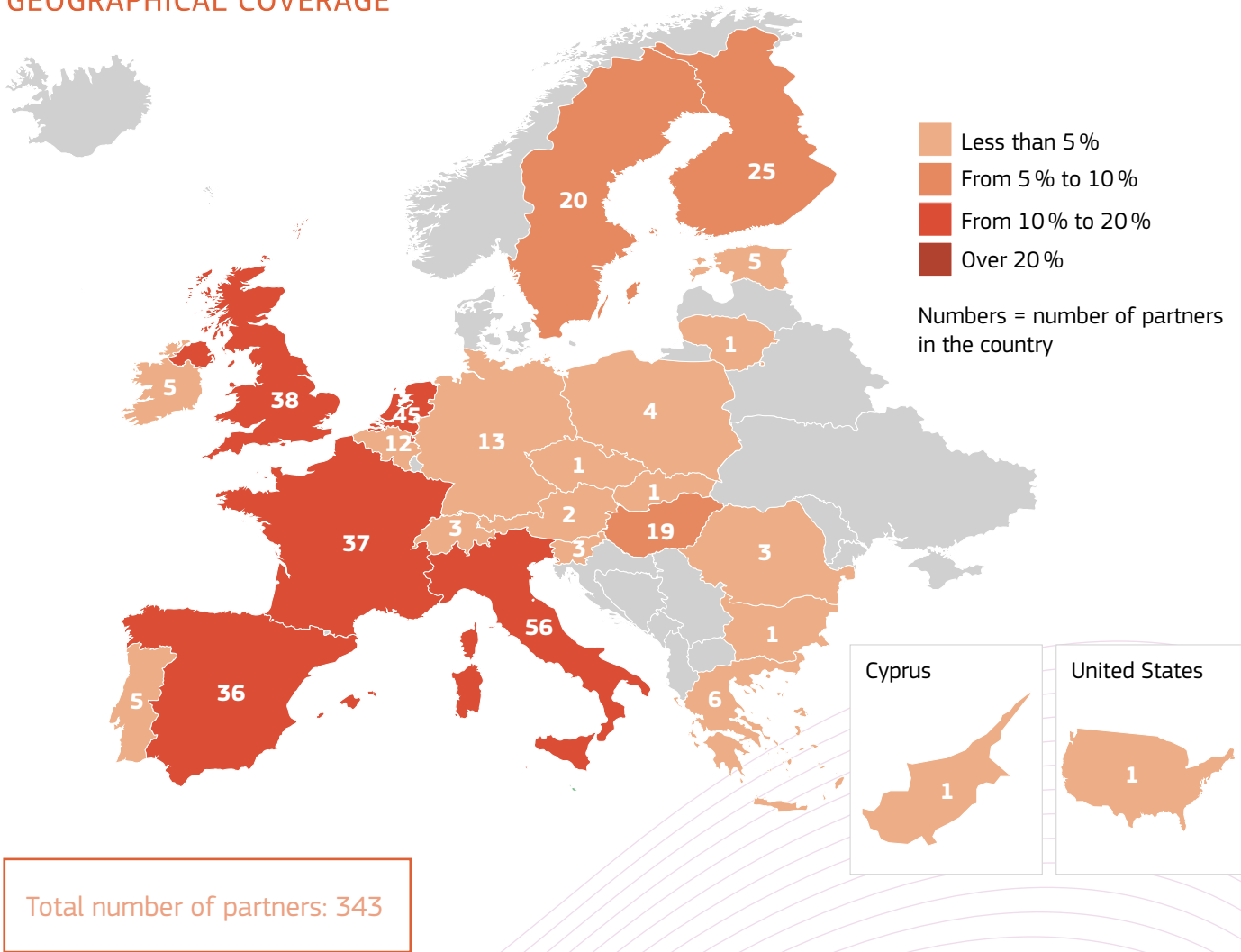
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- RESEARCH** Public research organisation  
(including international research organisation as well as private research organisation controlled by a public authority)
- SMEs**
- OTHERS** Non-profit, associations, state companies etc.

### GEOGRAPHICAL COVERAGE





## MISSION AND VISION STATEMENT

EIT Manufacturing leverages the strengths and abilities of European industry to design and manufacture the goods and services that create our wealth and underpin our ambition to reach Europe's sustainability goals. Recent geopolitical impacts and crises, such as the COVID-19 pandemic, strengthen the need for Europe to sustain a strong and resilient manufacturing industry. In alignment with the EU's recovery plan [NextGenerationEU](#), the KIC is committed to support the manufacturing industry to recover quickly and learn from the crisis. European manufacturing needs the strong innovation, business creation, and education capability created by EIT Manufacturing to fulfil our bold vision: **global manufacturing innovation is led by Europe!** We will achieve our vision through collaboration. EIT Manufacturing's mission is to: **Bring together manufacturing actors across Europe to integrate innovation and education for an entrepreneurial and sustainable Europe.**

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar III – European Institute of Innovation and Technology

**Type of Partnership:** Institutionalised – EIT KIC

**Coordinating entity:** EIT Manufacturing Association

**Total estimated budget:** EUR 33.6 m (2021); EUR 40.06 m\* (2022)

**Predecessor under Horizon 2020:** Started in 2020

\* KIC budget is approved on a yearly basis based on the assessment of the KIC's Business Plan by the EIT

## FIND OUT MORE

[www.eitmanufacturing.eu](http://www.eitmanufacturing.eu)

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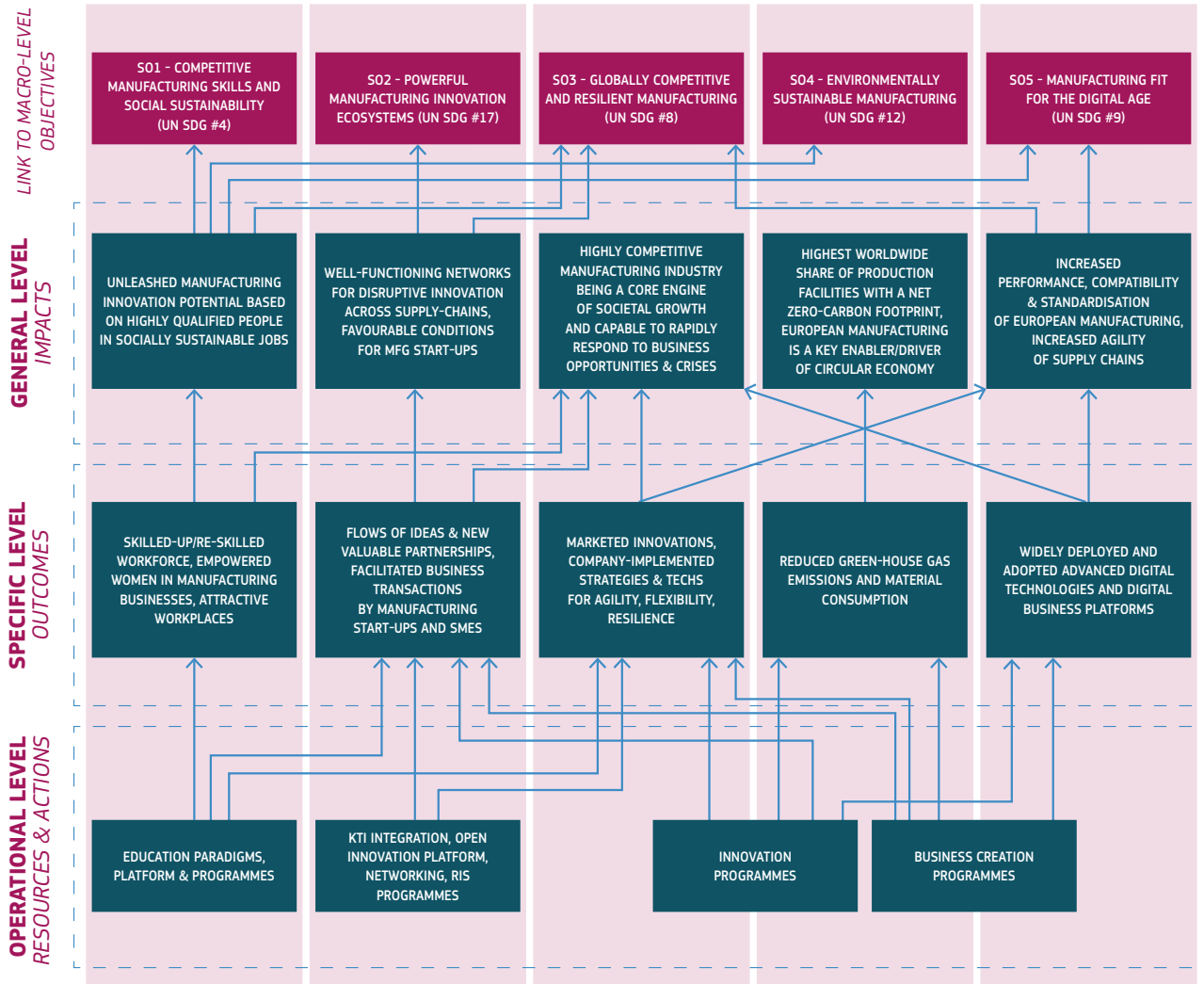
[y https://www.youtube.com/user/EITeu](https://www.youtube.com/user/EITeu)

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PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)

EIT MANUFACTURING VISION: GLOBAL MANUFACTURING INNOVATION IS LED BY EUROPE



\* KTI: Knowledge Triangle Integration  
 \*\* RIS: Regional Innovation Scheme



**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Active KIC Partners (organizations actively involved in KIC activities) (cross-SO)	# of partners	50 (2020)	280	310	320	-
Co-location centres (CLCs) (cross-SO)	# of CLCs	5 (2020)	6	7	8	-
Regional innovation scheme (RIS) hubs (cross-SO)	# of RIS hubs	13 (2021)	16	16	16	
Total budget (cross-SO)	€	N/A	€90.68 m	€109.57 m	€112.04 m	-
<b>OUTCOMES</b>						
Educational badges issued to document and testify the achievement of a learning outcome (SO1)	# of badges	N/A	2182	4985	9368	-
Start-ups created / led by women (SO1)	# of start-ups	N/A	2	4	5	-
Supported start-ups/scale-ups (SO2)	# of supported start-ups/scale-ups	N/A	171	229	277	-
Marketed innovations (products/ services) (SO3)	# of innovations	N/A	22	25	27	-
Activities (including new ventures) that lead to a reduction of material consumption of at least 20 % (related to the process/product targeted) three years after the end of the activity (SO4)	# of activities (including new ventures)	N/A	4	5	6	-
KIC partners who have deployed and adopted advanced digital tools or digital business platforms to increase performance (SO5)	# of KIC partners	N/A	10	20	20	-
<b>IMPACTS</b>						
Highly qualified employees working in the manufacturing sector (SO1)	% of highly qualified employees over all employees in the manufacturing sector	(24 % in 2017)	N/A	N/A	>30 %	-
Manufacturing value added (SO2, SO3)	% over GDP	(14 % in 2018)	N/A	N/A	>16 %	-
Circular material use rate in manufacturing sector exceeds 15 % (SO4)	use rate	(11 % in 2014)	N/A	N/A	> 15 %	-
Reduction of GHG emissions in non-ETS industry (SO4)	% of reduction	2005	N/A	N/A	> 25 %	-
Participating companies increasing their digital maturity through the KIC (SO5)	# of companies	N/A	N/A	N/A	> 500	-

Short-, mid- and long-term (impact) KPIs are defined to monitor the progress towards achieving the five EIT Manufacturing Strategic Objectives (SOs), according to the impact pathways identified in EIT Manufacturing Strategic Agenda 2021-2027:

- SO1 – Competitive manufacturing skills and social sustainability: a highly skilled workforce in attractive jobs;
- SO2 – Powerful manufacturing innovation ecosystems: ecosystems for innovation, entrepreneurship, business transformation;
- SO3 – Globally competitive and resilient manufacturing: disruptive and incremental innovation increase the competitiveness of European manufacturing;
- SO4 – Environmentally sustainable manufacturing: radically reducing climate impact and creating closed-looped manufacturing;
- SO5 – Manufacturing fit for the digital age: maximise the development, use, and exploitation of digital technologies in manufacturing.

## **SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES**

EIT Manufacturing brings together manufacturing actors in innovation ecosystems – industry, solution providers, SMEs and start-ups, universities and RTOs – aiming to add unique value to European products, processes, services and to ensure that global manufacturing innovation is led by Europe. In order to achieve this, it strongly supports synergies between different types of stakeholders across Europe. In addition, EIT Manufacturing is strongly interested in and pursues collaborations with initiatives at the European and national/regional levels to establish collaborations and synergies of mutual benefit. The cross-sectoral character of manufacturing covering a wide range of industrial sectors and the combined capacities of its community allows fertilisation across several, modern technologies. Therefore, a wide area of synergies is explored such as with other KICs and European Partnerships, with regional and national authorities, with initiatives like the European Digital Innovation Hubs, the New European Bauhaus, the GAIA-X initiative, and with international associations and fora, like the World Manufacturing Forum. Indicative examples of synergies are presented hereafter.

### **SYNERGY WITH EFFRA AND THE MADE IN EUROPE EUROPEAN PARTNERSHIP**

EIT Manufacturing has been working together with the European Factories of the Future Research Association (EFFRA) looking forward to collaboration with strong benefits for the future of European manufacturing. EFFRA is the private counterpart of the European Commission in the Made in Europe European Partnership under Horizon Europe. This collaboration signals an important milestone, further to which stakeholders of two initiatives from two different pillars, Made in Europe (Pillar 2) and EIT Manufacturing (Pillar 3), will work together towards a common goal, strengthening European manufacturing and multiplying the impact of R&I activities. In the coming years collaboration is expected to also extend to education and business creation aspects. The relevant cooperation agreement was signed in Brussels, on 27 October 2021, receiving the support of DG EAC, DG CONNECT and DG RTD.

Within the context of this collaboration, EIT Manufacturing created and launched the Innovate Together initiative in 2021 which is an open call for proposals for innovation activities aiming to support tested and demonstrated exploitable results (supported by Made in Europe) and accelerate their market deployment. This synergy between Made in Europe and EIT Manufacturing can create a huge potential for accelerating the market exploitation of research and innovation activities and maximising their economic and societal impact.

### **ENVIRONMENTAL TECHNOLOGY VERIFICATION (ETV) PROGRAMME**

EIT Manufacturing has been working with DG ENV within the context of promoting the circular economy in manufacturing by relevant EIT Manufacturing activities, while also by specially focusing on and promoting the Environmental Technology Verification (ETV) programme. Accordingly, EIT Manufacturing, through its Co-Location Center West, participates in the team that has the role of the ETV secretariat for the coming years.

### **REGIONAL/NATIONAL AUTHORITIES**

EIT Manufacturing has signed a large number of agreements (MoUs, MoCs, LoIs) with relevant regional and national stakeholders, especially in EIT RIS eligible countries. These agreements mark the start of our cooperation towards specific collaborations in the future at the regional and national levels. EIT Manufacturing has also acceded to the MoUs signed by EIT with EU Member States and is aiming to strongly contribute in the context of these MoUs. By fostering collaboration with national and regional authorities EIT Manufacturing will be able to connect SMEs and start-ups in RIS countries with instruments and funding that can be used by them for innovation, education and business creation.





## MISSION AND VISION STATEMENT

EIT InnoEnergy vision is 'to be the leading engine for innovation and entrepreneurship in sustainable energy'.

EIT InnoEnergy defines its mission as 'to build and manage a sustainable, long-lasting operational framework amongst the three actors of the knowledge triangle in the energy sector: industry, research, and higher education, while ensuring that the integration of the three is more efficient and has a higher impact on innovation (talent, technology, companies) than the three standing alone'.

EIT InnoEnergy, with the other KICs, have demonstrated that innovation is vastly different compared to research (and compared to commercial activities); and requires different parties involved (research institutes, universities, industry, public administration, financial institutions, regulators), different dynamics (not only project based interactions, but ambitions in a given sector), different management (from project or deal bilateral management to management of dynamics based on societal challenge goals) and different values (trust is key in InnoEnergy ecosystem).

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar III – European Institute of Innovation and Technology

**Type of Partnership:** Institutionalised – EIT KIC

**Coordinating entity:** EIT InnoEnergy SE

**Total estimated budget:** EUR 43 m (2021); EUR 36.58 m\* (2022)

**Predecessor under Horizon 2020:** Started in 2010

\* KIC budget is approved on a yearly basis based on the assessment of the KIC's Business Plan by the EIT

## FIND OUT MORE

[www.innoenergy.com](http://www.innoenergy.com)

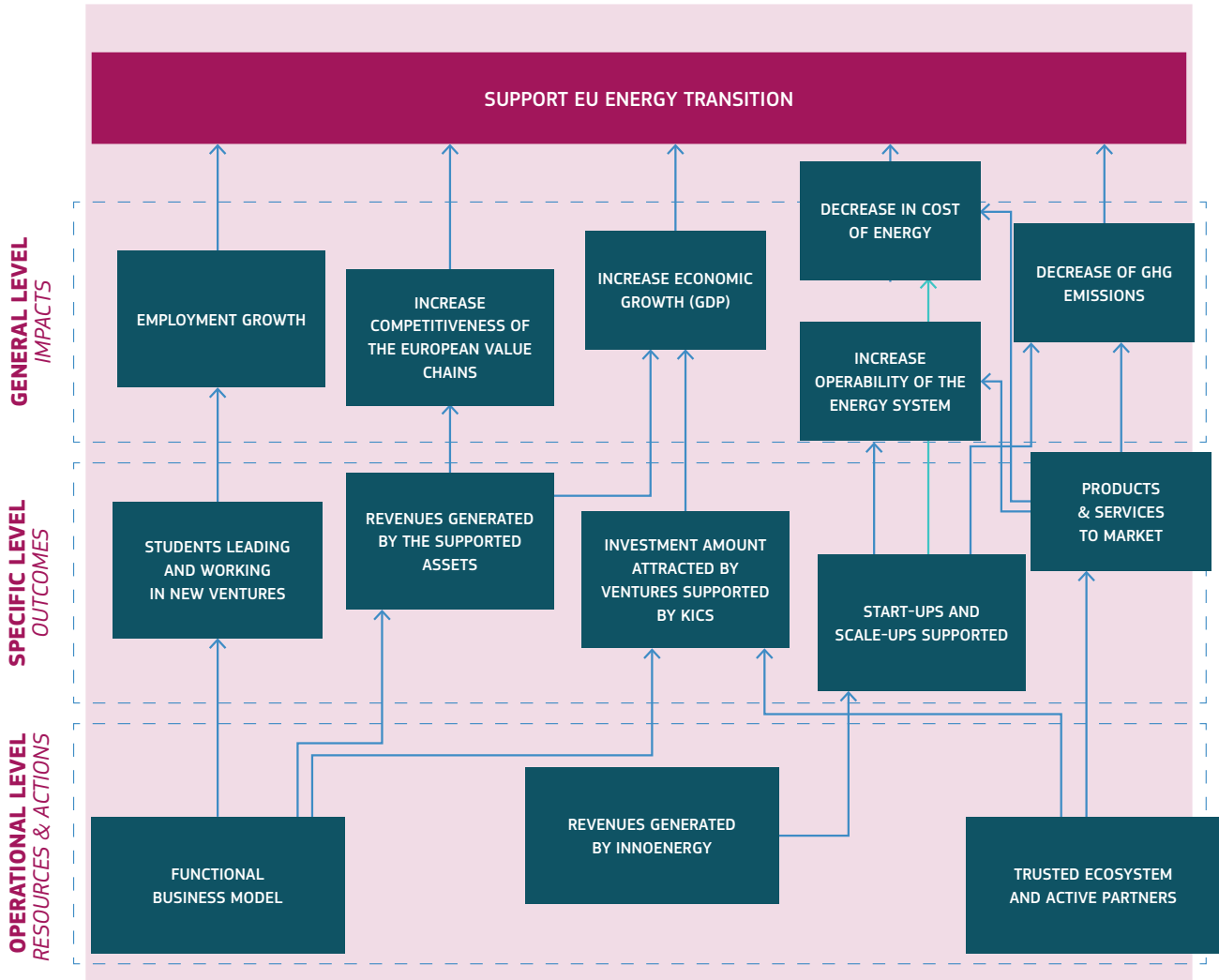
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PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)

**PARTNERSHIP VISION: LEADING ENGINE  
FOR INNOVATION AND ENTREPRENEURSHIP IN SUSTAINABLE ENERGY**





**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Revenue generated by EIT InnoEnergy – audited	€		€61.2 m	€120.2 m	€182.2 m	€220 m
Equity positions from the balance sheet – audited	€		€500 m	€1000 m	€1600 m	€2000 m
Active Partners	Number of organisations		500	800	1000	1000
<b>OUTCOMES</b>						
Products and services to the market	Number of products		60	60	60	60
Start-ups and scale-ups supported	Number of start -up/ scale ups supported		90	90	90	90
Investment amount attracted by ventures supported by KICs	€		€800 m	€1000 m	€1000 m	€1000 m
Revenues generated by the supported assets	€		€500 m	€1200 m	€1500 m	€2000 m
Students leading and working in new ventures	Number of students		40	40	40	40
<b>IMPACTS</b>						
New jobs created & maintained (multiplied with 4 for indirect)	Number of jobs		10 000	20 000	25 000	30 000
Increase competitiveness of the European value chains	Number of value chains		2	3	4	5
Decrease of costs of energy	€ saved				€1800 m	€1800 m
Decrease of GHG emissions	Giga tonnes of CO <sub>2</sub> abated				0.3	0.3
Increase operability of the energy system	TWh of renewable energy deployed				100	100

The baseline for the impact indicators for 2020 is available here: [https://issuu.com/innoenergy/docs/eit\\_innoenergy\\_impact\\_report\\_2020\\_digital\\_low?mode=window&\\_hsmi=154129881&\\_hsenc=p2ANqtz--LLS1I8raYfxR2UPP7Z1Al3ftuYUXuazIVQ9V2uU9vC2aPACOrMM60mw8BEhi1BPu2XmYiKOfAsVLUuEeCvi844JRHXA](https://issuu.com/innoenergy/docs/eit_innoenergy_impact_report_2020_digital_low?mode=window&_hsmi=154129881&_hsenc=p2ANqtz--LLS1I8raYfxR2UPP7Z1Al3ftuYUXuazIVQ9V2uU9vC2aPACOrMM60mw8BEhi1BPu2XmYiKOfAsVLUuEeCvi844JRHXA)

The impact is assessed every two years and published in an impact report.



## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

### EUROPEAN BATTERY ALLIANCE (EBA)

EIT InnoEnergy has been entrusted by the European Commission to drive forward and promote EBA250 activities. EIT InnoEnergy's role in the European Battery Alliance is to provide background data and to define key questions, recommendations, and actions. EIT InnoEnergy also supports the establishment of a European battery ecosystem by providing EBA250 workshops, a meeting place for key stakeholders along the entire value chain.

EBA goal is to build a strong pan-European battery industry to capture a new market worth EUR 250 billion a year in 2025.

EBA is an independent meeting place: more than 700 members throughout the value chain have joined EBA250. The members come from the industrial, academic, and financial worlds, from mining to recycling.

EBA is project driven: our actions' DNA are competitiveness, sustainability, significant impact, objective focus, urgency, concrete, project-driven, sharing and investment.

### EUROPEAN GREEN HYDROGEN ACCELERATION CENTER

The European Green Hydrogen Acceleration Center (EGHAC) focuses purely on accelerating the uptake of green hydrogen in Europe – generated only with renewable sources such as wind or solar – as a key pillar for decarbonising our heavy industry, energy, and transport sectors.

EGHAC was set up by the EIT InnoEnergy and Breakthrough Energy with the ambition by 2025 to build a EUR 100 billion a year green hydrogen economy. This will create up to 500 000 direct and indirect jobs across the complete value chain. The ambition for yearly demand for useful green hydrogen-based energy will be 1 200 TWh.

The EGHAC will initiate and support large scale industrial green hydrogen projects which will have massive CO<sub>2</sub> reduction impact, kickstart the creation of a green hydrogen economy and create jobs. These projects are always considered from a value chain perspective and explicitly include the 'off-takers' (end customers).

Next to large-scale industrial projects EGHAC supports further developments of green hydrogen-related technology. Start-ups and innovation projects can get support via the regular EIT InnoEnergy processes and support programmes.

### EUROPEAN SOLAR INITIATIVE (ESI)

The ESI aims to re-develop a strong photovoltaic (PV) manufacturing industry in Europe across the entire value chain from raw materials to recycling, which will capture the additional 20 GW of annual solar demand forecasted in Europe for the next decade. This will generate EUR 40 billion of GDP annually and create 400 000 new direct and indirect jobs across the PV value chain.

The ESI combines the thriving ecosystem of PV players created over the years by SolarPower Europe and the successful blueprint of the European Battery Alliance, led by EIT InnoEnergy, with its [Business Investment Platform \(BIP\)](#). Designed to bridge the gap between business cases, investors, off takers, delivery resources, BIP shortens time to investment, de-risks, accelerates and boosts the robustness of the investment cases in all required dimensions (technology, team, supply chain, environmental sustainability and off-takers).





## MISSION AND VISION STATEMENT

EIT Climate-KIC's mission is to catalyse systemic change through innovation in areas of human activity – cities, land use, sustainable production systems, finance – that have a critical impact on greenhouse gas emissions and to create climate-resilient communities. EIT Climate-KIC aims to direct its efforts at systems innovation, working with ambitious actors to connect supply and demand while leveraging the power of its community to catalyse change. In this way, EIT Climate-KIC will work to unlock systemic change through strategic innovation – designing, executing and connecting entrepreneurial experiments and deep demonstrations selected and assessed as a portfolio of innovation effects on levers of systemic change.

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar III – European Institute of Innovation and Technology

**Type of Partnership:** Institutionalised – EIT KIC

**Coordinating entity:** EIT Climate-KIC

**Total estimated budget:** EUR 29.3 m (2021); EUR 21.18 m\* (2022)

**Predecessor under Horizon 2020:** Started in 2010

\* KIC budget is approved on a yearly basis based on the assessment of the KIC's Business Plan by the EIT

## FIND OUT MORE

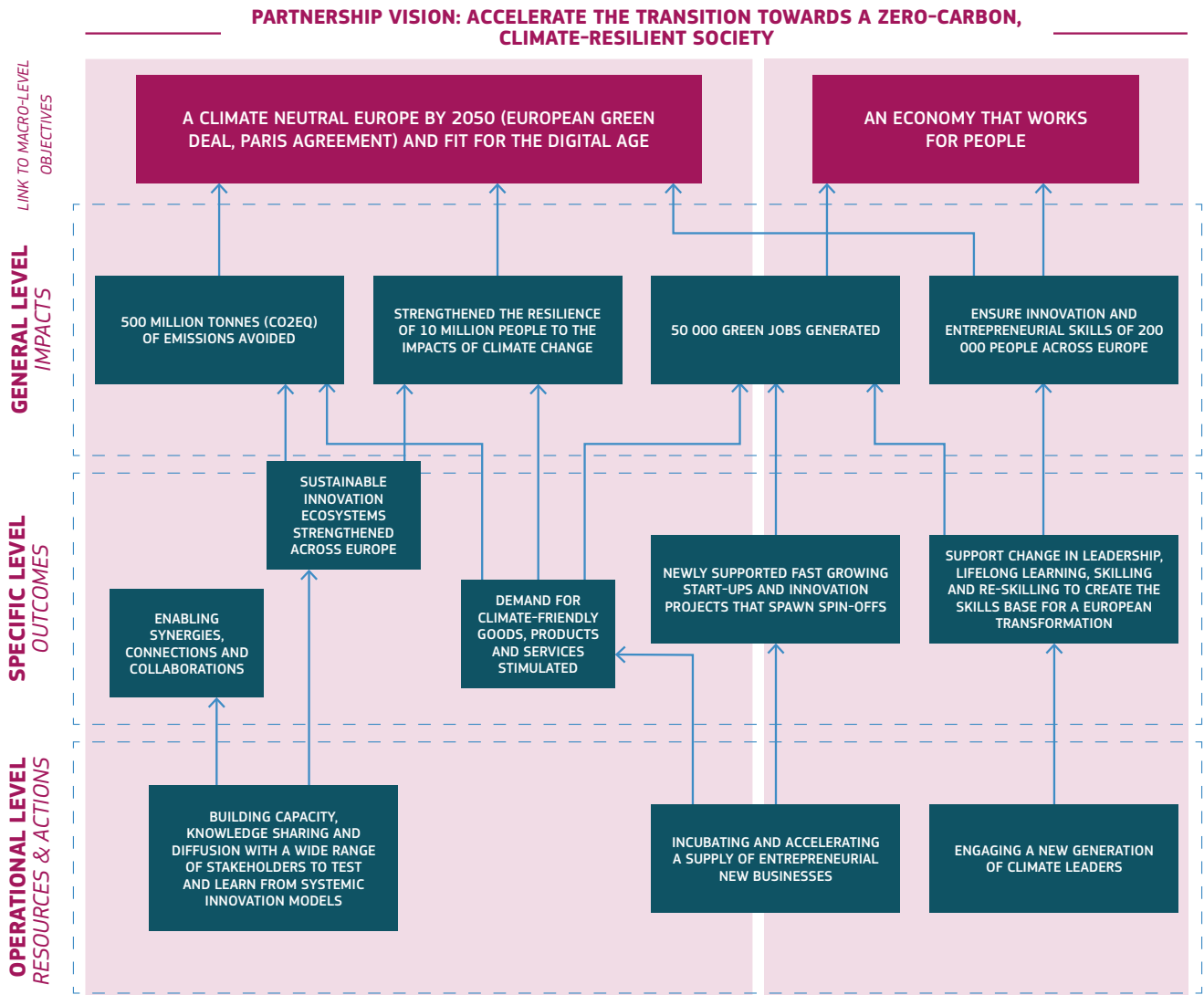
<https://www.climate-kic.org/>

@ClimateKIC

[ckbrussels@climate-kic.org](mailto:ckbrussels@climate-kic.org)



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**





**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Financially sustainable revenues	€	€6.2 m	€11.6 m	€18.5 m	€27 m	TBD
Active KIC partners (in EIT grant)	Number of partners	180	160	150	150	N/A
HEIs involved in EIT and KICs activities	Number of HEIs	14	18	20	26	TBD
<b>OUTCOMES</b>						
Designed/tested Innovations	Number of innovations	N/A	12	12	12	TBD
Supported start-ups/ scale-ups	Number of start-ups	163	150	120	120	TBD
Participants in (non-degree) education and training	Number of participants	2959	1500	1500	1200	TBD
<b>IMPACTS</b>						
Avoided or sequestered greenhouse gas emissions measured as MT CO <sub>2</sub> equivalent (cf. baseline year).	million tonnes (CO <sub>2</sub> eq) of emissions avoided	N/A	200**	N/A	500	TBD
Places/challenge owners with an agreement to work in partnership with EIT Climate-KIC to achieve rapid decarbonisation and resilience	Number of places and challenge owners	N/A	30*	N/A	50	N/A
People with enhanced innovation and entrepreneurial skills	Number of people	N/A	50 000***	N/A	200 000	N/A
Combined # new jobs created in start-ups/ scale-ups, and # jobs/ employment in existing businesses, partners sustained through innovations.	Number of jobs	N/A	20 000****	N/A	50 000	N/A
Euros leveraged to support the scale-up/ diffusion of innovations to tackle climate change.	€	N/A	€30 bn*****	€100 bn	TBD	N/A

\*, \*\*, \*\*\*, \*\*\*\*, \*\*\*\*\* by 2024

Baseline year is 2021.

Annual Report 2020: [https://eit.europa.eu/sites/default/files/gb\\_decisions\\_and\\_eit\\_caar\\_2020.pdf.pdf](https://eit.europa.eu/sites/default/files/gb_decisions_and_eit_caar_2020.pdf.pdf)

Impact Report 2021: <https://www.climate-kic.org/who-we-are/making-an-impact/>

EIT Climate-KIC's Strategic Innovation Agenda (2021-2027): <https://eit.europa.eu/who-we-are/eit-glance/eit-strategy-2021-2027>



## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

### SYNERGIES: STORY 1

EIT Climate-KIC has been supporting a cohort of 15 city governments across Europe through the [Deep Demonstrations Healthy Clean Cities Programme](#). [Deep Demonstrations](#) are the large-scale projects through which we offer systems innovation as a service to Europe's most ambitious 'challenge owners' – i.e., the mayors, government ministries, industry leaders and funders who have the means and mandate to tackle Europe's biggest climate change challenges. Building on this programme, EIC Climate-KIC is now coordinating the NetZeroCities project aiming to lead European cities' transition to net-zero emissions by 2030. The project is part of Horizon 2020 and will directly support the targets of the European Green Deal and the EU's mission of 100 [Climate-Neutral and Smart Cities by 2030](#).

### SYNERGIES: STORY 2

Together with the Joint Research Centre (JRC), EIT Climate-KIC co-developed a practitioner-oriented handbook *Policy co-creation for mission-oriented policies. Participatory methodologies to structure multi-stakeholder policymaking processes* (2020). The handbook is based on the lessons learnt from facilitating policy processes as part of the Smart Specialisation Thematic Platform, the EU Policy Lab and the EIT Climate-KIC experience on practice-based knowledge on sustainability transitions and policy processes. The aim was to set the ground for handbook to serve as a tool to support implementation actions such as technical assistance and capacity building related to the new action lines on industrial transitions, sustainable smart specialisation strategies (S4) and the UN's Sustainable Development Goals in the context of the new EU policy framework. This type of exchange of good practices is already taking place in the cross-KIC initiative in the Western Balkans, where Climate-KIC is responsible for the overall coordination and leading of place-based actions and cross-regional collaboration on systems mapping and policy co-design processes.

### SYNERGIES: STORY 3

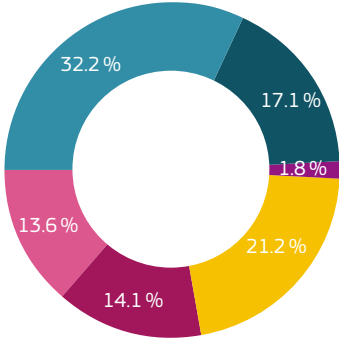
EIT Climate-KIC has a range of entrepreneurship activities that aim to identify, support and invest in entrepreneurs through every stage of innovation, helping them move from initial concepts to scalable companies, all of which have been very successful across Europe and are now gaining global traction. EIT Climate-KIC is now operating in more African countries than ever before (15 countries). In our ClimateLaunchpad programme more African ideas were submitted and African entrepreneurs were supported more than before – 909 ideas (45% of total ideas across programmes globally) with 593 invited to join our online mini-course and over 150 participating in the full programme. Through conversations with funders, we were able to secure additional funding to build upon our existing entrepreneurship programmes. This led, for instance, to the CDC Group funding the Adaptation and Resilience Challenge in 2021, which involved taking an adaptation lens to our existing programme and offering an adaptation and resilience specific accelerator programme to 15 start-ups. Irish Aid also increased their funding to build gender mainstreaming tools to be integrated into our programmes.





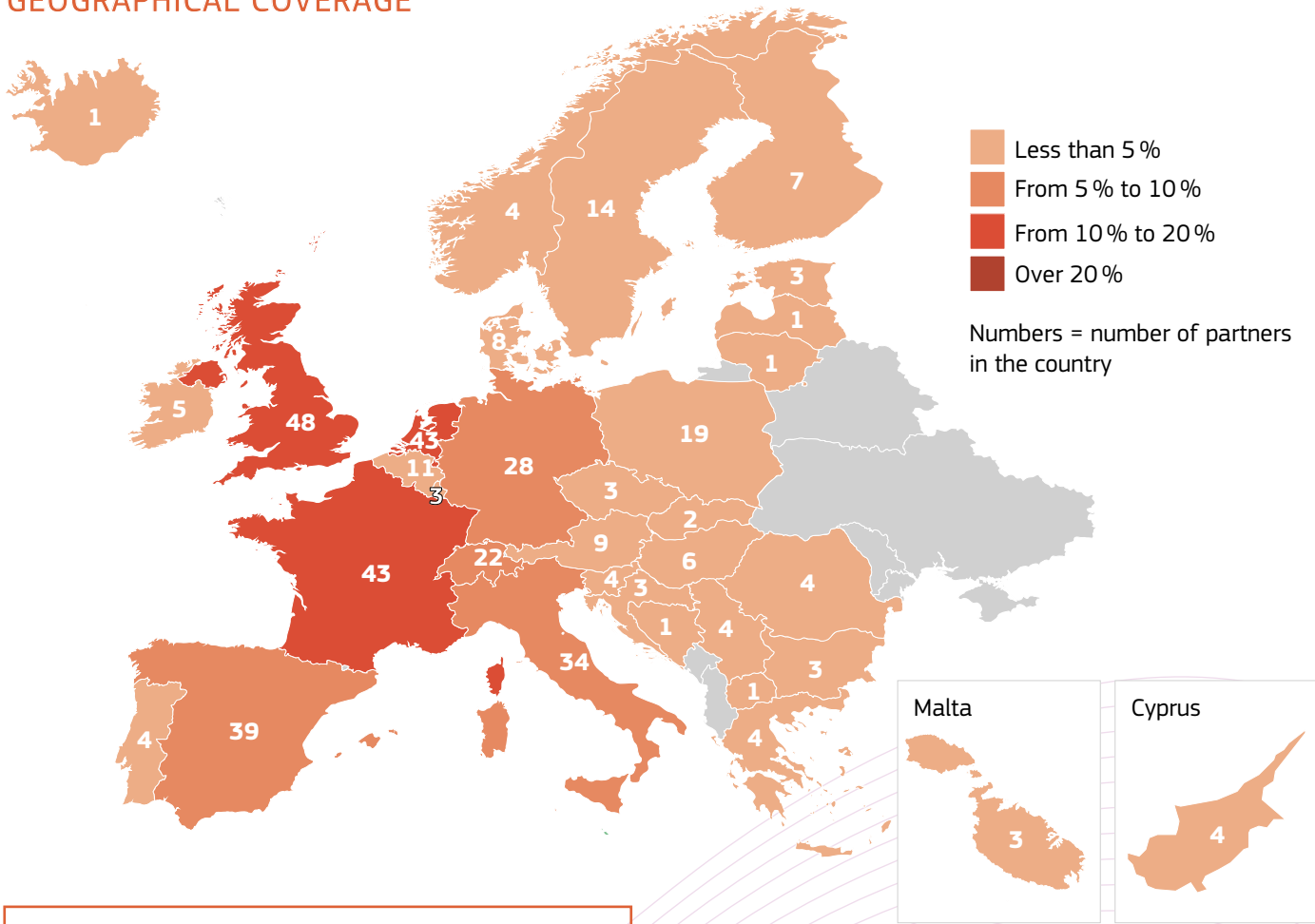
## OVERVIEW OF MEMBERS

### MEMBERS PER TYPE



- INDUSTRY** Other Industrial and/or profit Private organisation
- UNIVERSITY** University and other higher education organisations
- RESEARCH** Public research organisation (including international research organisation as well as private research organisation controlled by a public authority)
- PUBLIC** Research funders, ministries, regions, cities
- SMEs**
- OTHERS** Non-profit, associations, state companies etc.

### GEOGRAPHICAL COVERAGE



**Total number of partners: 397**  
 98.2 % of the partners are represented in the map  
 Other partners that do not fit to the map are from China, Colombia, Indonesia, Mexico, Thailand and United States.



## MISSION AND VISION STATEMENT

At EIT Urban Mobility we accelerate the change towards a sustainable model for urban mobility for liveable urban spaces.

We strive for a form of mobility that allows people and goods to move affordably, fast, comfortably, safely and cleanly but at the same time enables cities to reclaim public spaces from cars, creating more space for people to work, meet up and play.

We foster integration by bringing together the key players across the whole value chain of mobility and integrating the knowledge triangle. We engage people, connect communities, accelerate market opportunities, and educate students and professionals. To solve the most pressing mobility challenges, we put cities at the centre of all of our activities.

All the activities of EIT Urban Mobility serve three societal impact goals:

- improving quality of life in cities;
- mitigating and adapting to climate change;
- creating jobs and strengthening the European urban mobility sector.

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar III – European Institute of Innovation and Technology

**Type of Partnership:** Institutionalised – EIT KIC

**Coordinating entity:** EIT Urban Mobility management team

**Total estimated budget:** EUR 31.3 m (2021); EUR 42.44 m\* (2022)

**Predecessor under Horizon 2020:** Started in 2019

\* KIC budget is approved on a yearly basis based on the assessment of the KIC's Business Plan by the EIT

## FIND OUT MORE

[www.eiturbanmobility.eu](http://www.eiturbanmobility.eu)

<https://www.facebook.com/EIT-Urban-Mobility-1951333174955858/>

<https://www.instagram.com/eiturbanmob/>

[www.linkedin.com/company/eit-urban-mobility/mycompany/](http://www.linkedin.com/company/eit-urban-mobility/mycompany/)

<https://twitter.com/eiturbanmob?lang=en>

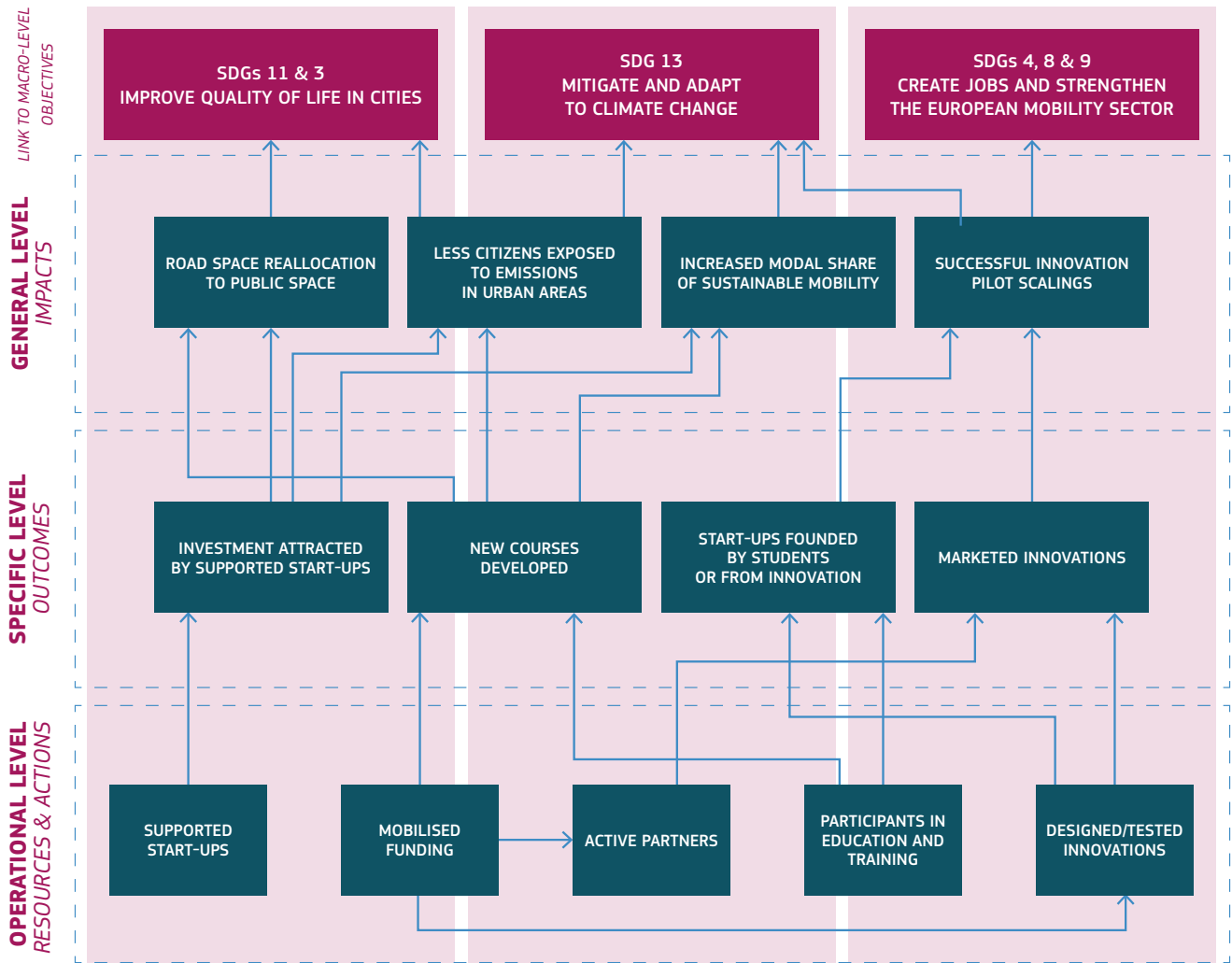
[https://www.youtube.com/channel/UCnsVPKuZBK\\_UiZo0MOYNxXQ](https://www.youtube.com/channel/UCnsVPKuZBK_UiZo0MOYNxXQ)

✉ [office@eiturbanmobility.eu](mailto:office@eiturbanmobility.eu)



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**

**EIT URBAN MOBILITY VISION: CREATION OF SUSTAINABLE MOBILITY FOR LIVEABLE URBAN SPACES**





**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
EIT UM supported start-ups	#	80	100 per year	100 per year	100 per year	TBD
Active partners	#	180	220	230	250	TBD
Mobilised funding	€	NEW	TBD	TBD	€75 m	TBD
Participants in education and training	#	2500	4000	7500	10 000	TBD
Designed/tested innovations	#	17	30 per year	35 per year	35 per year	TBD
<b>OUTCOMES</b>						
Investment attracted by EIT UM supported start-ups	€	€3 m	€8 m	€10 m	€12 m	TBD
Start-ups founded by students or from innovation	#	N/A	TBD	TBD	TBD	TBD
New courses developed	#	NEW	N/A	N/A	150	TBD
Marketed innovations	#	15	20 per year	27 per year	33 per year	TBD
<b>IMPACTS</b>						
Road space reallocation to public space	% change in EIT UM City Club cities	NEW	N/A	N/A	Decrease in 80 % of the City Club cities compared to levels of 2020	TBD
City Club city inhabitants exposed to emissions in urban areas	% change in EIT UM City Club cities	NEW	N/A	N/A	Decrease in 80 % of the City Club cities compared to levels of 2020	TBD
Modal share of sustainable mobility	% change in EIT UM City Club cities	NEW	N/A	N/A	Increase in 100 % of the City Club cities compared to levels of 2020	TBD
Innovation pilots scalings	#	NEW	10 per year	10 per year	10 per year	TBD

EIT Urban Mobility monitors its outputs through three different set of KPIs. These relate to:

- annual EIT core KPIs: same set of KPIs for all KICs in line with EIT KIC model;
- EIT Urban Mobility specific KPIs: KPIs relating to programmes of EIT UM;
- EIT Urban Mobility city impact indicators.

City impact indicators are not measured on an annual basis. They will be monitored by observing the values of each respective indicator for City Club members in 2024 (against 2020 values) and 2027 (against 2024 values) and assess if an increase or decrease in the values can be observed in a growing number of cities.

For several new EIT Urban Mobility specific KPIs and EIT Urban Mobility city impact indicators, baselines were not established yet.

EIT Urban Mobility's Strategic Agenda 2021-2017 provides further insights into the KIC's strategy for 2021-2027, the intervention logic, the full set of KPIs and the pathway towards achieving our societal and urban mobility impact goals: [https://www.eiturbanmobility.eu/wp-content/uploads/2021/04/210329\\_SA\\_EIT-UM-branded\\_Final-published.pdf](https://www.eiturbanmobility.eu/wp-content/uploads/2021/04/210329_SA_EIT-UM-branded_Final-published.pdf)

## **SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES**

### **FURNISH (FAST URBAN RESPONSES FOR NEW INCLUSIVE SPACES AND HABITAT)**

FURNISH was born to fight the spread of COVID-19 in cities, while reinforcing the use of public space. FURNISH organised an open call to select 4 teams throughout Europe which digitally fabricated and deployed urban elements to temporarily adapt public spaces to meet the new challenges and opportunities presented by COVID-19. FURNISH aims to merge the challenge of gaining more public space through 'tactical urbanism', which can reconfigure a street to expand the area for pedestrians and leisure, with local digital manufacturing. The call was open to Fab Labs, research groups, designers and makers able to produce rapid solutions to the urgent spatial problems and opportunities posed by the coronavirus. The project is planned to design and test new mobile urban elements to be temporarily installed in public spaces to promote social cohesion while bringing safety and a healthy environment for citizens. The seven Mobile Urban Elements (MUE) prototypes were placed in seven different sites in five European cities.

Further details: <https://www.eiturbanmobility.eu/furnish-the-project-that-is-reconfiguring-public-spaces-across-europe/>

### **ESTABLISHMENT OF A REGIONAL INNOVATION SCHEME HUB NETWORK**

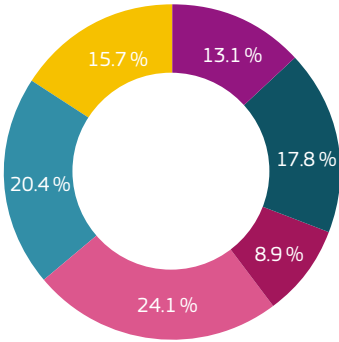
EIT Urban Mobility establishes, launches, maintains and grows a network of organisations (hubs) acting in regions considered moderate or modest innovators in several waves, and selects the regions to start with based on their urbanisation and touristic parameters, city structure and population. Once the hubs are established, they act as facilitators between local ecosystem actors and the EIT Urban Mobility network integrating the knowledge triangle through specialised activities, thereby contributing to the incremental growth of regional innovation capacity.

Further details: <https://www.eiturbanmobility.eu/ris/> and <https://www.eiturbanmobility.eu/we-are-growing-five-new-research-innovation-scheme-hubs-launched/>



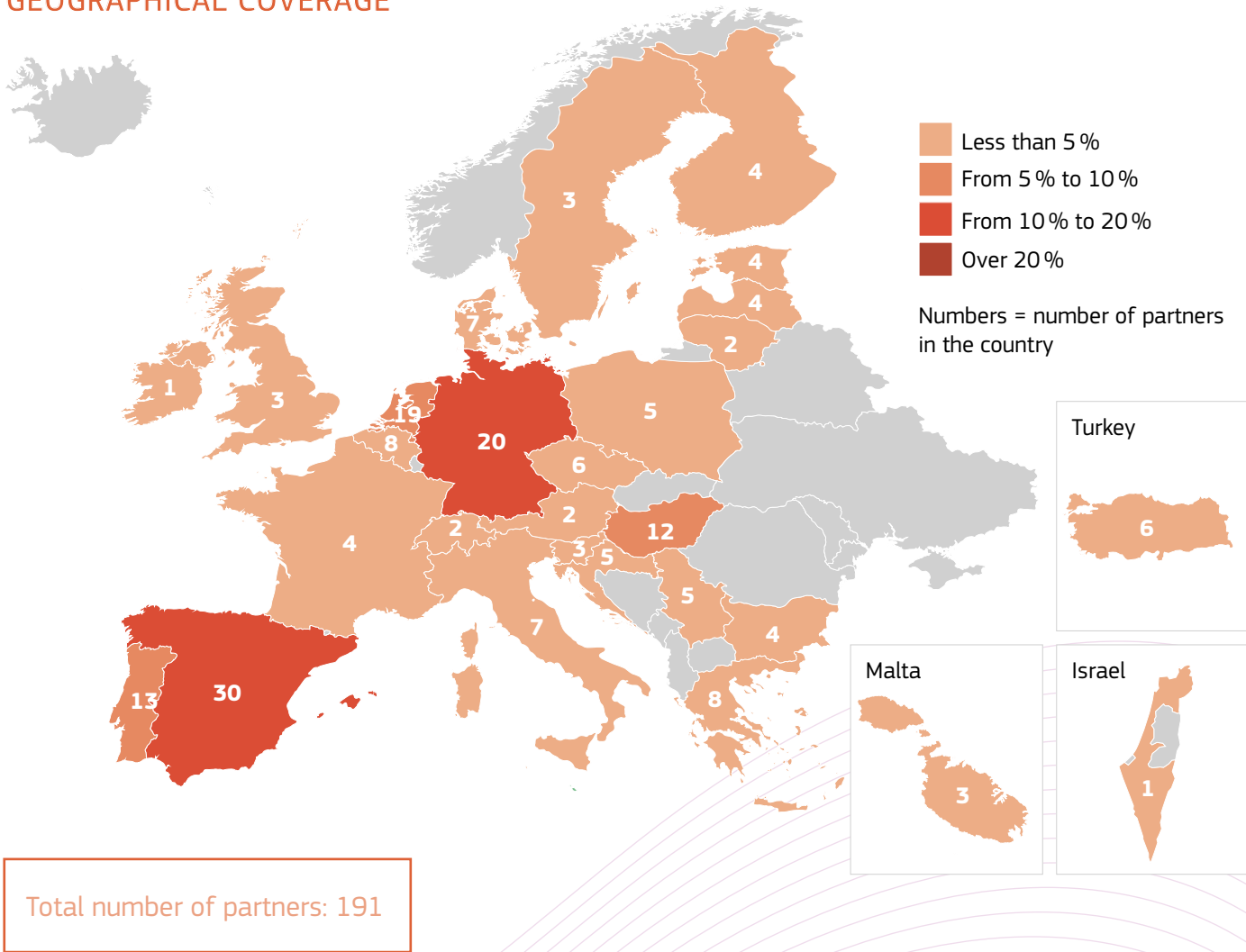
## OVERVIEW OF MEMBERS

### MEMBERS PER TYPE



- INDUSTRY** Other Industrial and/or profit Private organisation
- UNIVERSITY** University and other higher education organisations
- RESEARCH** Public research organisation (including international research organisation as well as private research organisation controlled by a public authority)
- PUBLIC** Research funders, ministries, regions, cities
- SMEs**
- OTHERS** Non-profit, associations, state companies etc.

## GEOGRAPHICAL COVERAGE





## MISSION AND VISION STATEMENT

EIT Food's vision is a world where everybody can access and enjoy sustainable, safe and healthy food – with trust and fairness from farm to fork.

EIT Food's mission is to transform how food is produced, distributed, and consumed and to increase its value to European society. We will achieve this by solving the biggest innovation challenges through trusted industry, education and research partners working together with informed and engaged citizens.

EIT Food priorities are outlined in its [SRIA 2021-2027](#).

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar III – European Institute of Innovation and Technology

**Type of Partnership:** Institutionalised – EIT KIC

**Coordinating entity:** EIT Food IVZW

**Total estimated budget:** EUR 55.4 m (2021); EUR 50.52 m\* (2022)

**Predecessor under Horizon 2020:** Started in 2016

\* KIC budget is approved on a yearly basis based on the assessment of the KIC's Business Plan by the EIT

## FIND OUT MORE

[www.eitfood.eu](http://www.eitfood.eu)

[in https://www.linkedin.com/company/eit-food?originalSubdomain=be](https://www.linkedin.com/company/eit-food?originalSubdomain=be)

[tw https://twitter.com/eitfood?lang=en](https://twitter.com/eitfood?lang=en)

[✉ info@eitfood.eu](mailto:info@eitfood.eu)



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**

*Not available*

**PARTNERSHIP'S KEY PERFORMANCE INDICATORS**

*Not available*

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
<b>OUTCOMES</b>						
<b>IMPACTS</b>						

**SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES**

*Not available*

**OVERVIEW OF MEMBERS**

*Not available*





## MISSION AND VISION STATEMENT

EIT RawMaterials is an innovation community within the European Institute of Innovation and Technology (EIT). The mission of EIT RawMaterials is to enable the sustainable competitiveness of the European minerals, metals and materials sectors along the value chain by driving innovation, education and entrepreneurship.

EIT RawMaterials is a key European actor in advancing Europe's transition into a sustainable economy. This will be realised by integrating knowledge from industry, higher education and research by engaging stakeholders from the entire raw materials value chain.

EIT RawMaterials builds on the world's largest network of excellent partners in raw materials and advanced materials. EIT RawMaterials' activities contribute to maintaining and increasing Europe's competitiveness whilst securing and creating new jobs.

Raw materials are critically important for society in general, and for the transition to a green economy in particular. They are key for achieving the goals set out in COP21 and the United Nations Sustainable Development Goals, for implementing the European 2030 Agenda for Sustainable Development and for the European Resource Efficiency Initiative. Metals, minerals and raw materials and their sustainable supply and consumption are important in the move towards a circular economy.

EIT RawMaterials' projects are either directly linked to the SDGs by measurable output or indirectly by consequences of the measurable outputs. <https://eitrawmaterials.eu/sustainable-development-goals/>

## KEY FACTS AND FIGURES

**Horizon Europe Pillar and Cluster:** Pillar III – European Institute of Innovation and Technology

**Type of Partnership:** Institutionalised – EIT KIC

**Coordinating entity:** EIT RawMaterials e.V and EIT RawMaterials GmbH

**Total estimated budget:** EUR 58.3 m (2021); EUR 55.21 m\* (2022)

**Predecessor under Horizon 2020:** Started in 2015

\* KIC budget is approved on a yearly basis based on the assessment of the KIC's Business Plan by the EIT

## FIND OUT MORE

<https://eitrawmaterials.eu>

<https://www.instagram.com/eitrawmaterials/>

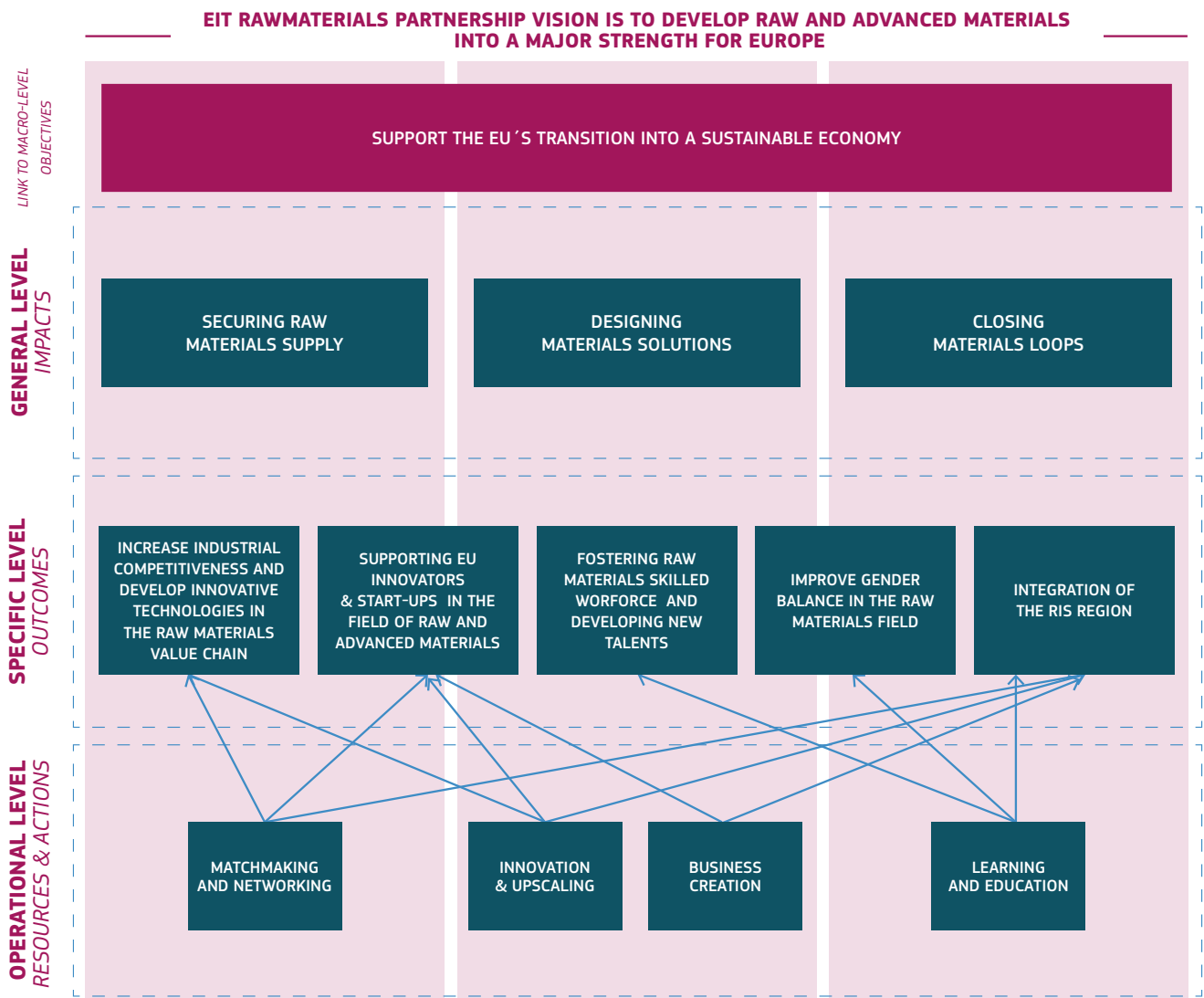
<https://www.linkedin.com/company/eit-raw-materials/mycompany/>

<https://twitter.com/eitrawmaterials>

[info@eitrawmaterials.eu](mailto:info@eitrawmaterials.eu)



**PARTNERSHIP SPECIFIC IMPACT PATHWAY (PSIP)**





## PARTNERSHIP'S KEY PERFORMANCE INDICATORS

KPI NAME	UNIT OF MEASUREMENT	BASELINE	TARGET 2023	TARGET 2025	TARGET 2027	AMBITION >2027
<b>RESOURCES (INPUT), PROCESSES AND ACTIVITIES</b>						
Number of EIT RM partners	Number of partners		145	155	165	
EIT RM RIS Hubs	Number of RIS HUBs		8	10	10	
HEIs involved in EIT and KIC activities	# of HEIs		75	75	75	
Partners from EIT RIS countries	Number of EIT RM RIS Countries		110	130	140	
<b>OUTCOMES</b>						
Marketed innovations	Number of innovations	Unit	29	30	30	
Supported start-ups/scale-ups	Number of start-ups	Unit	50	50	50	
Investment attracted by KIC supported start-ups/scale-ups	Number of investments	Unit	10	10	10	
Securing raw materials supply	Investment attracted in resources	€			€500 m	
Improve gender balance in the RM sector	Women graduating from RM-related courses	%	40%	45%	50%	
<b>IMPACTS</b>						
Integrate and leverage the RM potential in the RIS region	Integration of the RIS region – % funding RIS participants in non-RIS projects	%	20%	20%	20%	
Ensure stable RM workforce	Creating/maintaining/re-skilling jobs in the RM sector (including conversion from brown technologies)	Unit	1300	5800	12000	
Designing materials solutions	Women graduating from RM courses	%			50%	
Closing materials loops	% CO <sub>2</sub> emitted savings	%			20%	

**EIT RM Impact KPIs target**

In keeping with the refinement of its strategic agenda and with changes in the EIT core KPIs, EIT RawMaterials has reviewed its impact KPIs and aligned them with its strategic objectives and overall societal impact.

All the above KPIs are taken from the EIT RawMaterials Strategic Agenda 2021/2027.

[https://eitrawmaterials.eu/wp-content/uploads/2021/04/Annex-1-EIT-RawMaterials\\_Strategic-Agenda\\_2021-2027.pdf](https://eitrawmaterials.eu/wp-content/uploads/2021/04/Annex-1-EIT-RawMaterials_Strategic-Agenda_2021-2027.pdf)

## SYNERGIES WITH OTHER EUROPEAN AND NATIONAL INITIATIVES

### THE EUROPEAN RAW MATERIALS ALLIANCE (ERMA)

EIT RawMaterials has been given the mandate by the European Commission to manage ERMA and its activities. ERMA was announced by the European Commission on 3 September 2020, as part of an Action Plan on Critical Raw Materials, and the publication of the 2020 List of Critical Raw Materials. ERMA's vision is to secure access to critical and strategic raw materials, advanced materials, and processing know-how for the EU's industrial ecosystems. ERMA involves all relevant stakeholders, including industrial actors along the value chain, Member States and regions, trade unions, civil society, research and technology organisations, investors and NGOs. In the first year since its foundation in November 2020, around 600 such partners have joined ERMA.

<https://erma.eu/about-us/>

### HIGHER EDUCATION INITIATIVE

The EIT's HEI initiative: **Innovation Capacity Building for Higher Education** is a joint EIT community activity coordinated by EIT RawMaterials. The initiative is a key objective for the European Institute of Innovation and Technology (EIT) as part of its new strategy, the EIT Strategic Innovation Agenda 2021–2027. The initiative aims to support higher education institutions with expertise and coaching, access to the EIT innovation ecosystem, and funding, enabling them to develop innovation action plans complementing the needs of individual higher education institutions.

<https://eit-hei.eu/about/about-eit-hei-initiative/>

### EIT CIRCULAR ECONOMY

Developed and led by EIT RawMaterials, the EIT Circular Economy Community consists of six Knowledge and Innovation Communities namely EIT RawMaterials, EIT Climate-KIC, EIT Digital, EIT Food, EIT Manufacturing and EIT Urban Mobility.

The EIT Circular Economy Community aims to:

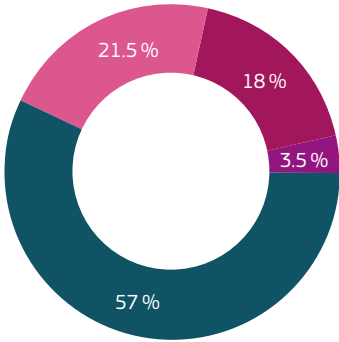
- support KICs in developing a joint circular economy offer;
- strengthen the implementation of a Circular Economy joint strategy;
- support breakthrough initiatives and start-ups through the Environmental Technology Verification (ETV) programme;
- collaborate with the European Commission in the implementation of the European Circular Economy Action Plan;
- collaborate with the European Circular Economy Stakeholder Platform (ECESP);
- facilitate access to markets for innovative KICs solutions.

<https://www.eit-circulareconomy.eu/about-us/>



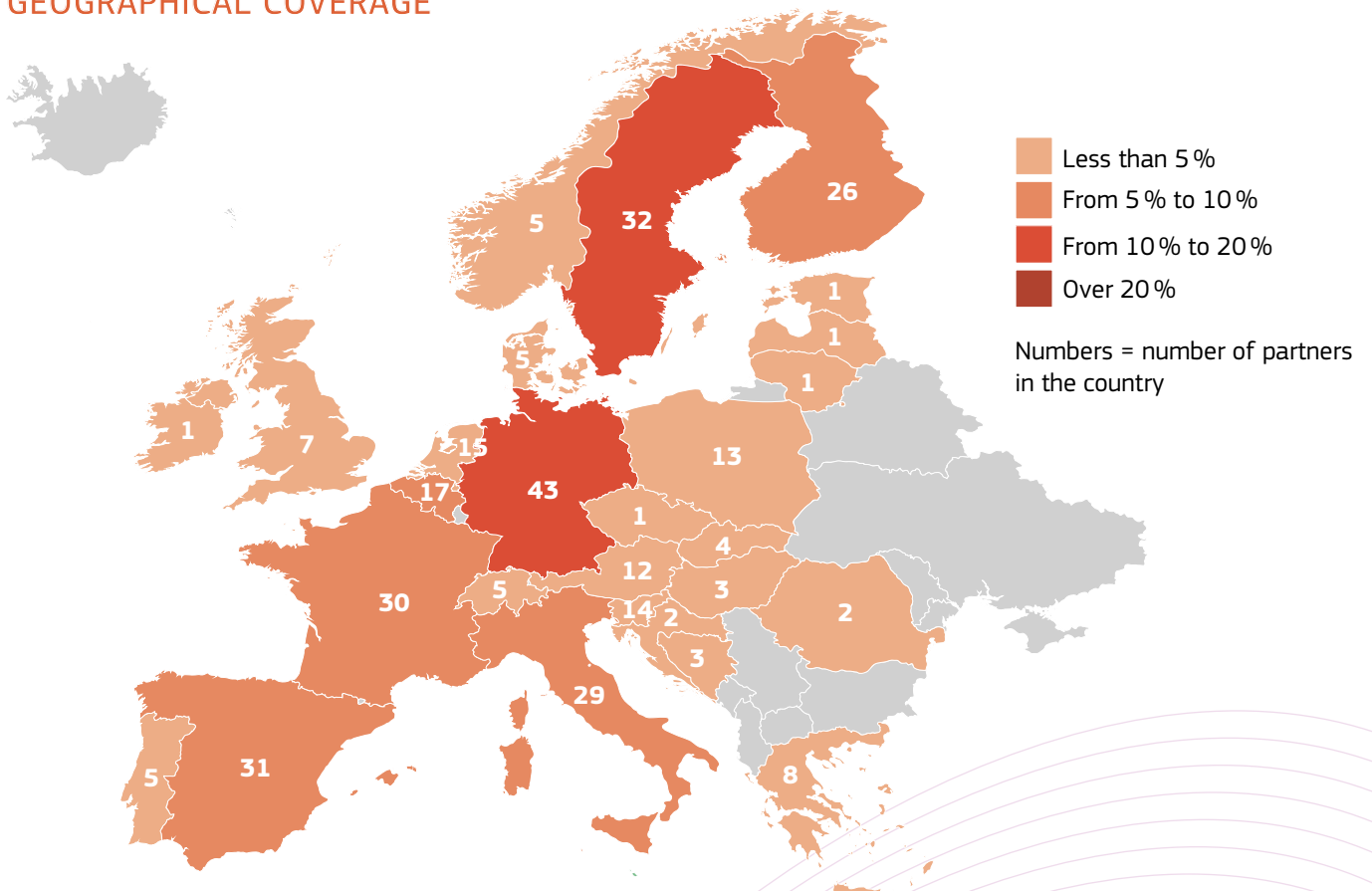
## OVERVIEW OF MEMBERS

### MEMBERS PER TYPE



- INDUSTRY** Other Industrial and/or profit Private organisation
- UNIVERSITY** University and other higher education organisations
- RESEARCH** Public research organisation (including international research organisation as well as private research organisation controlled by a public authority)
- OTHERS** Non-profit, associations, state companies etc.

### GEOGRAPHICAL COVERAGE



Total number of partners: 316

## Getting in touch with the EU

### IN PERSON

All over the European Union there are hundreds of Europe Direct information centres.

You can find the address of the centre nearest you at:

**[https://europa.eu/european-union/contact\\_en](https://europa.eu/european-union/contact_en)**

### ON THE PHONE OR BY EMAIL

Europe Direct is a service that answers your questions about the European Union.

You can contact this service:

- by freephone: **00 800 6 7 8 9 10 11** (certain operators may charge for these calls),
- at the following standard number: **+32 22999696**, or
- by email via: **[https://europa.eu/european-union/contact\\_en](https://europa.eu/european-union/contact_en)**

## Finding information about the EU

### ONLINE

Information about the European Union in all the official languages of the EU is available on the Europa website at: **[https://europa.eu/european-union/index\\_en](https://europa.eu/european-union/index_en)**

### EU PUBLICATIONS

You can download or order free and priced EU publications from:

**<https://op.europa.eu/en/publications>**. Multiple copies of free publications may be obtained by contacting Europe Direct or your local information centre (see **[https://europa.eu/european-union/contact\\_en](https://europa.eu/european-union/contact_en)**)

### EU LAW AND RELATED DOCUMENTS

For access to legal information from the EU, including all EU law since 1952 in all the official language versions, go to EUR-Lex at: **<http://eur-lex.europa.eu>**

### OPEN DATA FROM THE EU

The EU Open Data Portal (**<http://data.europa.eu/euodp/en>**) provides access to datasets from the EU. Data can be downloaded and reused for free, for both commercial and non-commercial purposes.

This report on the Performance of European Partnerships, also known as the Biennial Monitoring Report (BMR), aims to provide a strong evidence base to guide the implementation of partnerships and to inform strategic discussions on the effectiveness of the new policy approach to European Partnerships and, where relevant, how it should evolve. The report aims to shed light on the progress of partnerships in achieving the EU objectives and targeted impacts - both individually and collectively, at EU and national level. The BMR 2022 focuses on Horizon Europe's new partnership landscape and establishes benchmarks for assessing progress in future reports.

*Research and Innovation policy*

