

# Spain

ERA-LEARN:  
enabling systematic interaction with the P2P  
community

**November 2019**

**Project no.**

811171

**Project acronym**

ERA-LEARN

**Project full title**

Strengthening partnership programmes in Europe

**Funding scheme**

CSA

**Start date of project**

July 1<sup>st</sup>, 2018

**Duration**

48 months

**Deliverable D5.3**

ERA-LEARN Country Report Spain

**Authors**

Dr. Effie Amanatidou, R&I Policy Analyst, Greece  
Dr. Chiara Marzocchi, Debbie Cox, UNIMAN  
With contributions from the Ministry of Science, Innovation and Universities (Cabinet of the Secretary General for Scientific Policy Coordination), the Agencia Estatal de Investigación (AEI) State Research Agency, the Centre for the Development of Industrial Technology (CDTI), the Instituto de Salud Carlos III (ISCIII), the Spanish Foundation of Science and Technology (FECYT), Innobasque and AGENEX.

**Date of deliverable**

November 2019

**Dissemination Level**

Public

# Table of contents

|  |           |
|--|-----------|
| <b>Preface</b>   | <b>4</b>  |
| <i>The Spanish context in research and innovation</i>          | 4         |
| <i>Introduction</i>  | 6         |
| <i>Acknowledgements</i>  | 7         |
| <b>Key Highlights</b>  | <b>8</b>  |
| <b>1. Who are the key R&amp;I funders in Spain?</b>            | <b>12</b> |
| <b>2. Who are the key R&amp;I performers in Spain?</b>         | <b>21</b> |
| <b>3. In which R&amp;I areas is Spain strong?</b>              | <b>26</b> |
| <b>4. With whom does Spain collaborate in R&amp;I and why?</b> | <b>28</b> |
| <b>5. What are Spain's overall strengths in R&amp;I?</b>       | <b>30</b> |
| <b>6. What are Spain's overall challenges in R&amp;I?</b>      | <b>31</b> |
| <b>7. Spain's position on R&amp;I partnerships</b>             | <b>32</b> |
| <b>8. Topic of interest from Spain: role of the Regions</b>    | <b>33</b> |
| <b>Annex</b>   | <b>35</b> |
| <b>References</b>  | <b>37</b> |

## *The Spanish context in research and innovation*

The economic performance of Spain registered a few negative years after 2008. However, since 2014, the economy shows signs of recovery, with the country GDP growth improving in the last few years from 1.4% in 2014 to 2.4% in 2018, with a rate consistently higher than the EU average (1.8% and 2% respectively<sup>1</sup>).

In 2018, Spain investments in R&D as a share of GDP were at 1.2% and thus both below the EU average of 2.06 % and far from the Country's own target of 2% for 2020. Spain is a moderate innovator and scores comparatively well with the EU in terms of production of skilled human resources (i.e.: graduates)<sup>2</sup>. However, investments in R&D and innovation have showed declining values since 2010 and forecast estimates suggest that Spain will not be able to reach its 2% target of R&D as share of GDP for 2020. In particular, large companies invest proportionately less than in other countries in R&D, with SMEs carrying 50% of private sector innovation expenditures compared to the 23% EU average value<sup>3</sup>. Public R&D investments are also declining with issues linked to poor coordination between national and regional policies that affects the quality of the overall R&D system. In this respect, the unified Ministry of Science, Innovation and Universities will improve synergies and planning in policy-making, while the recently created State Research Agency (2015), a unique department managing public research grants, will also contribute towards better policy alignment and effectiveness.

According to the Innovation Scoreboard (2019), Spain produces a high number of STEM graduates and shows relatively high shares of population with tertiary education. Nonetheless, the share of researchers employed in the private sector is relatively small (37% vs EU average of 49%) while the number of public sector researchers has both declined and increased their average age in the last few years. Notably, while the performance of research quality in Spanish universities has improved during the last decade (measured as % of top publication worldwide), cooperation between academia and private sector remains weak. These factors all contribute to explain the relative low levels of absorptive capacity in the business sector and the relatively lower than average contribution of Spanish businesses to high tech manufacturing and services in Europe<sup>4</sup>.

---

<sup>1</sup> Eurostat, 2019

<sup>2</sup> European Innovation scoreboard 2019

<sup>3</sup> Eurostat: BERD performed by SMEs as % of GDP, 2019

<sup>4</sup> DG Research & Innovation, Research and Innovation analysis in the European Semester 2019 Country Reports.

In summary, Spain's innovation performance is hampered by underinvestment both in public and private R&D that affect both firms' and research organisations' absorptive capacity. In other words, the relatively high number of graduates produced by Spanish universities does not get absorbed by the private and public sector job demand. This is linked to the low R&D investments both in private companies and the public sector that also suffers from lack of demand, i.e.: no new jobs. Stronger cooperation between academia and businesses could contribute to the diffusion of knowledge and help increase the presence of innovative firms. Finally, Spain also suffers from weak coordination across government levels and insufficient reliance on policy evaluation.

Notwithstanding, Spain is among the most active countries in relation to transnational collaboration. Although Spain's scores in priority 2a (transnational cooperation) were below EU28 averages, the ERA Progress Report 2018 notes that the country has seen strong growth since the last ERA monitoring exercise (2016) and predicted a leading position in the very short term, if current trends continues. In particular, Spain's score on public-to-public partnerships has been increasing by 25% yearly even since 2012 (the first year for which data is available) vis-à-vis a marginal growth at the EU-28 level. Another, more modest reduction in gap to the EU-28 is also evident for the GBARD allocated to transnational cooperation along with a slight growth in the Spanish publication of articles with ERA co-authors.

More importantly, the recognition of benefits provided by transnational research cooperation instruments is reflected in the newest strategic priorities in the Spanish State Plan for Scientific, Technological Research and Innovation (PECTI 2017-2020) and active participation in JPIs, ERANETs and similar instruments is one of the most frequently emphasised strategic goals in the newest national ERA roadmap. Furthermore, Spain achieved one of the priority 2a-relevant objectives, i.e. the design of a web based information and communication system for the joint programming thematic priorities. The system aims for greater openness and involvement of the research community.<sup>5</sup>

In this report, Spain's performance is compared to that of Italy, the Netherlands, Sweden and Poland. The selection of these countries is based on

- similar levels of total researchers (full-time equivalent – FTE - average 2014-2017) (IT),
- similar levels of gross expenditure in R&D (GERD) (IT, NL)
- diverse levels of P2P investments (pre-call budgets) normalised by researchers FTE (comparable levels to IT, lower than that of NL and SE and more than that of PL)
- diverse levels of P2P involvement (more than all the other countries in terms of P2P participations but less than NL in terms of P2P coordinations).

These countries will be referred to in the report as Spain's 'comparator group' of countries.

---

<sup>5</sup> ERA Progress Report 2018 Spain [https://ec.europa.eu/info/publications/era-progress-report-2018\\_en](https://ec.europa.eu/info/publications/era-progress-report-2018_en)

---

## *Introduction*

This is the third ERA-LEARN Country Report on P2P (public-public partnerships) participation in a series of country reports that will follow in the course of ERA-LEARN. The first two reports covered Poland and Austria; this report focuses on Spain and further reports are planned on Romania, Belgium, Germany and Finland. The selection of these countries is based on a combination of variables: number of network participations, network coordination and national investments made to date, based on the data provided by the P2P networks to the ERA-LEARN database.

The ERA-LEARN data that are used in the report (cut-off date September 2019) mainly refer to P2P networks that were launched and are supported under Horizon 2020. This data (especially the financial data) is 80% complete, as not all required information has been fully updated by the P2P networks. It is important to emphasise that the data collected in terms of pre-call budget committed or the actual investments in selected projects do not take into account the differences across countries in the eligibility of certain expenses; for example, in some countries only additional costs of a research project are eligible and not personnel costs. In addition, the in-kind contributions made by funding organisations when participating in P2Ps are not usually considered as national investments in P2Ps.

The country reports provide an analysis of P2P participation and try to explain the ‘performance’ of a country in transnational P2P collaboration within the context of the overall situation in the national research and innovation system. In this regard, data and analysis available in other reports are considered such as the RIO (Research Innovation Observatory) country reports, EU Semester national reports, ERA Progress Reports, European Innovation Scoreboard statistics, OECD and EUROSTAT statistics, country reviews and special reports by the Policy Support facility, relevant MLE (mutual learning exercise) special reports, etc.

The goal of the country reports is to provide an overall picture in P2P participation of a particular country, comparing this also to a number of other countries of interest as well as the EU15, EU13 and EU28 overall averages. This may be useful for individual organisations in the specific country as they might only have a fragmented picture of the situation or they might lack explanations for certain features that may be found in the wider R&I context of the given country. The report may also be useful for organisations in other countries that wish to learn the reasons behind the ‘position’ of a particular country and/or learn from other countries’ exemplary performances.

---

## *Acknowledgements*

We owe special thanks to AEI and in particular Joaquín Serrano and Estrella Fernández for providing background material and helping to organise the interviews with key stakeholders. We would also like to thank all the interviewees that shared with us valuable insights, data and information about their experience and knowledge of Spain's position in international collaboration and overall performance in research and innovation. In particular, people from the following organisations were interviewed<sup>6</sup>:

- Cabinet of the Secretary General for Scientific Policy Coordination of the Ministry of Science, Innovation and Universities, FECYT, CDTI, ISCIII, Innobasque, AGENEX
- as well as the project beneficiaries from UAM, UB, University Murcia, and Siemens Gamesa.

Special thanks are also due to Optimat, ERA-LEARN partner, for supporting the data elaboration and the whole ERA-LEARN consortium for commenting earlier versions of the report and helping to improve it.

---

<sup>6</sup> Due to GDPR the names of the individuals are not disclosed.

# Key Highlights

Spain has been one of the most active countries in P2Ps since the launch of the first ERA-NET scheme in 2004. Currently, in H2020, Spain is leading EU28 countries in terms of P2P participation (Figure 1) by taking part in 66 networks in total. Out of these 66 networks, Spain is coordinating five (WaterWorks2014, MANUNET III, EuroNanoMed III, ERA PerMed and CSP ERANET). This supersedes most the comparator countries but is second to the Netherlands with 7 coordinations (Table 1, Figure 2).

Out of the 2604 joint calls that have been launched by P2Ps in Horizon 2020 until now, Spain has participated in 136, i.e. more calls than those of the comparator countries, and has supported 523 projects, which is second only to the Netherlands with 629 projects. Compared with Italy that has similar levels of R&D intensity<sup>7</sup> as well as research capacity (researchers FTE)<sup>8</sup> Spain is in a better position in terms of engagement and supported projects. In relation to the comparator countries with higher research intensity (the Netherlands and Sweden), Netherlands has more supported projects although participating in less networks and presenting lower levels of researchers FTE. Yet, Spain outnumbers Sweden that has a smaller research community but a higher research intensity.

*Table 1: Participation in H2020 P2Ps<sup>9</sup>*

|                     | ES  | IT  | PL  | NL  | SE  | EU13 av. | EU15 av. | EU28 av. |
|---------------------|-----|-----|-----|-----|-----|----------|----------|----------|
| P2P participations  | 66  | 57  | 49  | 56  | 50  | 25       | 47       | 37       |
| P2P coordinations   | 5   | 2   | 1   | 7   | 1   | 1        | 5        | 3        |
| Call participations | 136 | 113 | 101 | 103 | 78  | 57       | 91       | 74       |
| Supported projects  | 523 | 413 | 181 | 629 | 381 | 66       | 342      | 204      |

Source: ERA-LEARN database<sup>10</sup> (cut-off date Sept 2019).

<sup>7</sup> Gross expenditure in R&D (GERD) as a share of GDP. Italy: 1.35%, Spain: 1.2%, Poland: 0.67%, Netherlands: 1.17%, Sweden: 2.35%.

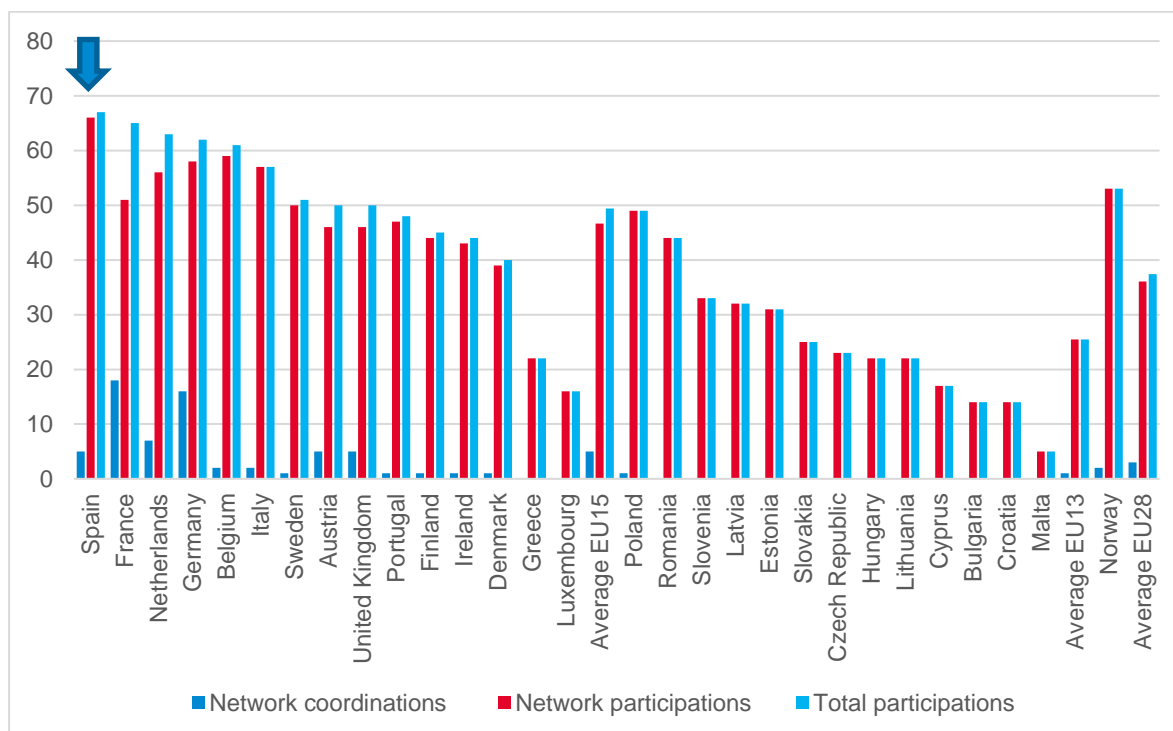
<sup>8</sup> Researchers' FTE (average 2014-2017): Spain: 126,125; Italy: 128,492; Poland: 86,469; NL: 80,450; SE:69,749 (OECD data)

<sup>9</sup> Excluding JPIs.

<sup>10</sup> These figures are actually higher considering that around 20% of the financial data of the H2020 P2Ps have still to be updated by the P2P networks in the ERA-LEARN database.



Figure 1: Network participations and coordinations by country in H2020



Source: ERA-LEARN database (cut-off date Sept 2019).

(\*) Network coordinations: number of networks a specific country coordinates. Network participations: number of networks a specific country takes part as participant. Total network participations: number of networks a specific country participates in with any role (i.e. coordinator, participant, observer, other).

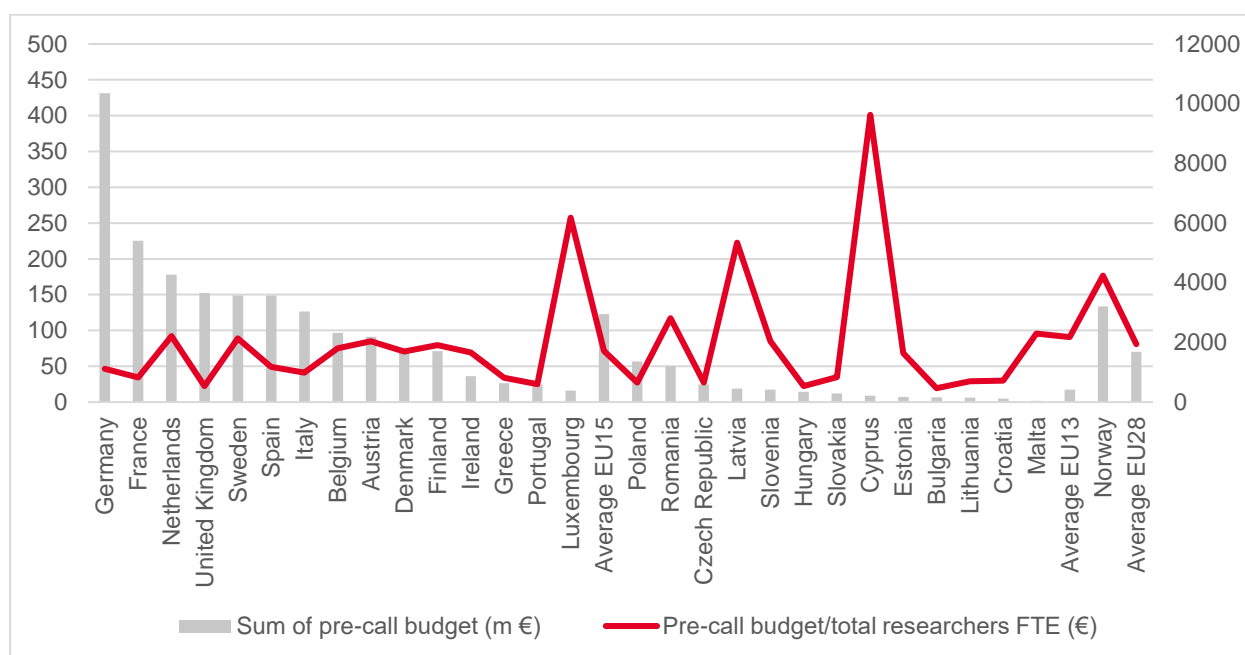
Considering the national funds made available to fund research proposals (total pre-call budget) Spain's contributions are comparable to those of Sweden and Italy and second only to the Netherlands (€ 178 million) (Figure 2). This means that Spain is benefiting more from P2P participation both in comparison to countries with similar levels of research capacity and intensity (Italy) but countries with higher research investments such as Sweden.

However, when the pre-call budget is normalised by researchers FTE, the money that Spain allocates per researcher is third in rank (€ 1179) following that of the Netherlands (€ 2192) and Sweden (€ 2090) but leaving behind Italy (€ 983) and Poland (€ 654). (Figure 2)

This money, allocated pre-call, eventually gets spent although by less than 100%. Based on the current data provided by the two largest Spanish funders (AEI and CDTI), AEI presents an overall absorption rate around 85% and CDTI around 42% albeit with large differences across the various P2P networks<sup>11</sup>. This means that the projects with Spanish participants that get approved account for less than 100% of the Spanish funds made available pre-call. There are various reasons for this such as overestimation of the available Spanish funds, unsuccessful Spanish proposals, sizes of projects that are disproportionate to the Spanish funds available or limited focus on the type of research that is relevant to the remit of the agencies.

<sup>11</sup> For more detailed information please read section 1.

Figure 2: Pre-call national commitments, total (€ million) and per researchers FTE (average 2014-2017) (in €)



Source: ERA-LEARN database (cut-off date May 2019)

(\*) Pre-call budget is the money committed by each country before the launch of a joint call.

(\*\*) Pre-call budget for each researcher is the total pre-call budget committed by a country divided by the total researchers in the country estimated in full-time equivalents (FTE).

Trans-national collaboration in R&I through P2P participation is highly encouraged by the Spanish Ministry of Science, Innovation and Universities and the major funding agencies in the country. Spanish regions are quite active in P2P participation. Based on the ERA-LEARN data, 14 regional organisations are involved in P2Ps under H2020 while this number goes up to 40 when FP6 and FP7 are also considered. It is widely acknowledged that trans-national collaboration platforms are becoming more relevant particularly in view of international recognition and establishing networks to enter wider calls (H2020), but also in being more visible in the European R&I strategic agenda setting. As argued by the interviewees, P2Ps have strengthened collaboration at different levels, i.e. European but also national and regional, among research actors and industry but also among funding agencies.

Spanish research is widely acknowledged in areas such as information society technologies, energy and the environment. This is reflected in the participation statistics in both P2Ps as well as H2020 projects where Spain enjoys one of the leading positions being 3rd in H2020 participations. In addition to these sectors, certain research communities (graphene, quantum technologies, water research) have become more dynamic and visible due to P2P participation, claiming higher budgets at the national and European levels.

The Spanish share in P2P participation would have been even better in the absence of certain challenges. These have to do with certain rigidities at the national level but also the diversities in P2P administration from one network to another and the complexities in certain P2P instruments. Hopes lie in Horizon Europe that some of these challenges may be effectively addressed.

Spain is one of the leaders in P2P participation, investing significant amounts but also benefiting relatively more than most of the comparator countries. Spain holds a solid position that P2Ps are beneficial and is determined to retain their strong engagement in P2Ps. However, certain rigidities at national level and the complexities and diversities in P2Ps' administration make it difficult to fully exploit the potential of P2Ps.

# 1. Who are the key R&I funders in Spain?



The State Research Agency (AEI) is the Spanish agency responsible for the promotion of scientific and technical research through competitive allocation of public resources, the monitoring of actions financed and their impact, and advice on action planning or initiatives through which the national R&D policy is implemented.



The Centre for the Development of Industrial Technology (CDTI) is a public corporate entity which is responsible for the promotion of innovation and technological development in companies and supports applications for national and international R&I projects.



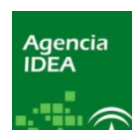
The Instituto de Salud Carlos III (ISCIII) has a dual role: it is a research performing organisation and also acts as a funding agency for biomedical, clinical and health research.



The above three funding agencies manage the bulk of Spanish participation in P2Ps, mainly ERANET Cofunds but also Art. 185 and 187 initiatives. In addition, other agencies such as the Spanish Foundation of Science and Technology (FECYT) take part in P2Ps but to a much lesser extent. FECYT is a public foundation dependent on the Ministry of Science, Innovation and Universities.

The four bodies, AEI, CDTI, ISCIII and FECYT are supervised by the Ministry of Science, Innovation and Universities.

Spain is also quite active in P2Ps at the regional level. Several regional authorities taking part in R&I partnerships notably: the Economic Development and Infrastructures Department of the Basque Government with the support of the Basque Innovation Agency (Innobasque), Agency for Innovation and Development of Andalusia (IDEA) or Catalanian Enterprise support Agency (ACCIO).



## How are they doing in transnational R&I partnership participation & coordination?

Overall, Spain has always been interested in P2Ps since their launch with the ERA-NET scheme in FP6. Spain has improved its participatory capacity and rate since the beginning of such programmes. It is widely acknowledged that trans-national collaboration platforms are becoming more relevant particularly in view of international recognition and establishing networks to enter wider calls (H2020). The Ministry for Science, Innovation and Universities as well as the other funding bodies agree that “*trans-national collaboration programmes are a must to pursue*” and that cooperation strategies are essential to gain access to scientific networks and develop useful managerial capacities.

Decisions on P2P participation are coordinated by a national-level, inter-ministerial group on joint programming that sets priorities according to Spain’s R&I strategic plans and in relation to available funding allocations. This group includes the main funding agencies i.e. AEI, CDTI, ISCIII and FECYT. The criteria they usually apply include: the Spanish potential in the specific area of knowledge; the available research capacity; whether the area is well covered at national level or not; levels of funds available and existence of national resources to manage the partnership. In addition to this, Spanish regions can also autonomously participate in P2P programmes in their own capacity.

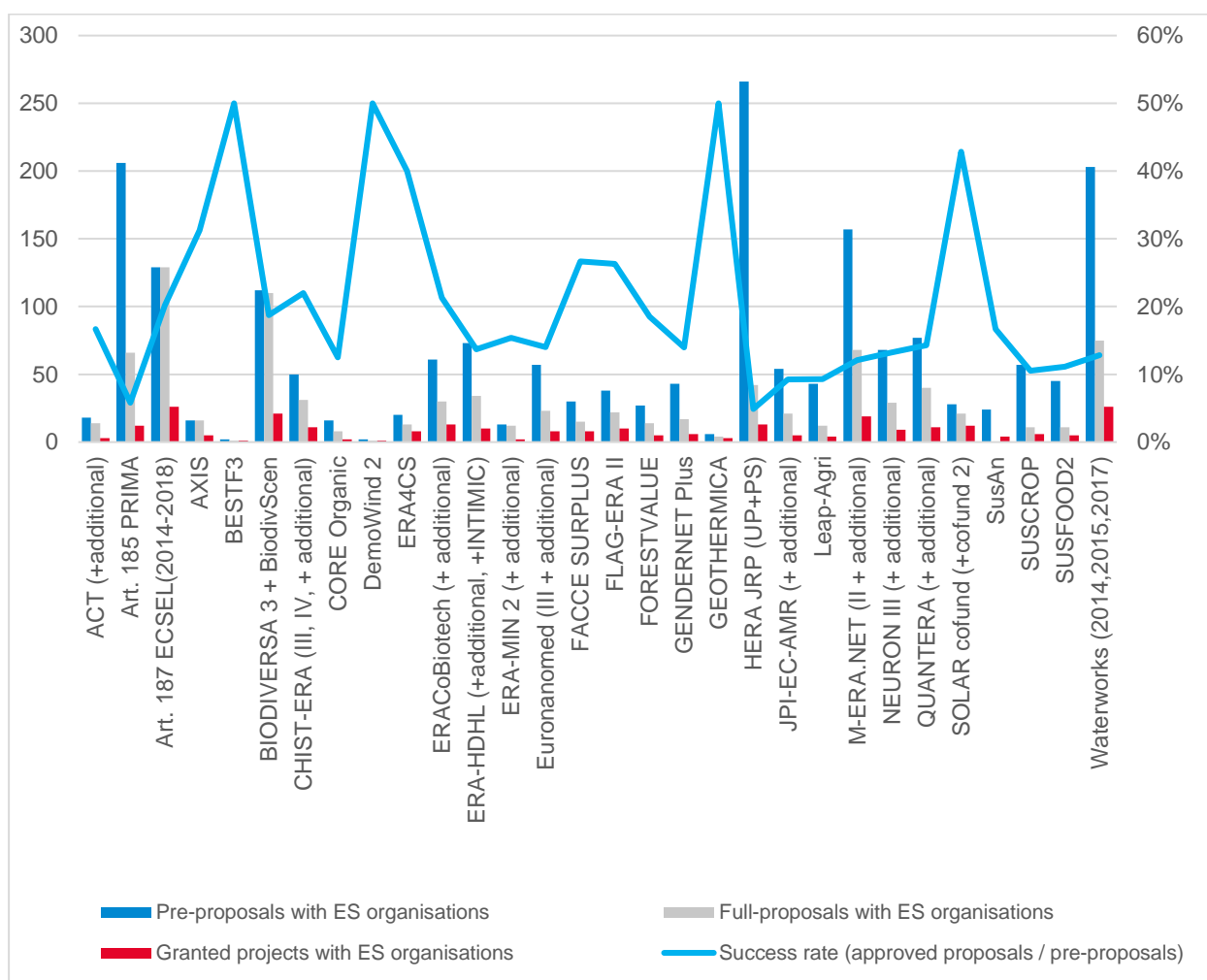
The Ministry for Science, Innovation and Universities appreciates that working in partnership with other Ministries to develop strategic research agendas is highly appreciated along with the possibility offered to the Ministry to prioritize the RDI areas that should be implemented in each P2P and avoid funding similar topics in different initiatives.

However, the high number of P2Ps in similar or complementary areas and the fact that each one has its own procedures and rules to follow is a challenge both in terms of complexity and in terms of the amount of work (and duplication) to follow all these activities. The lack of an annual national fund dedicated to P2Ps under a multiannual framework is also an important obstacle.

In addition, the P2P instruments present challenges due to the involved red tape. Transnational calls can take from 8 to 24 months to become operative as there is a chain of national procedures that need to be put in place and coordinated first. Moreover, the researchers endure double application and reporting obligations as national laws and rules have to be followed.

Thus, “*although beneficiaries perceive such projects as attractive, the combination of relatively scarcer resources and red tape may lead potential applicants to go for national calls or open H2020 calls in the end that are richer in resources and easier to manage.*”  
(Ministry official)

Figure 3: Number of proposals submitted and approved for AEI and success rates under P2Ps during H2020



Source: AEI

Currently **AEI** takes part in around 30 partnerships under H2020. As shown in Figure 3, the partnerships attracting most proposals are PRIMA, HERA and WaterWorks, followed by M-ERA.NET, ECSEL and BiodivERsA. However, the highest success rates<sup>12</sup> (>30%) are noted in the area of energy in particular BESTF3, DemoWind 2, GEOHERMICA, although the number of submissions are rather small (less than 10), but also in the case of SOLAR Cofund 1 and 2 (with 28 submissions). In addition the environment area (in particular AXIS and ERA4CS) present high success rates.

In 2018, the overall budget administered by AEI was approximately € 895 million: 45% for R&D projects, 30% for R&D human resources, 20% for R&D equipment and around 4% for network activities. Overall, transnational collaboration takes less than 3% of the budget allocated in R&I projects, i.e. around € 15 million per year. Overall, AEI spends almost all, if not slightly more, of the initially committed funds to P2P calls. This is the case for PRIMA and ECSEL while in the case of ERA-NET Cofunds the absorption rate is around 80%.

<sup>12</sup> Success rate = number of approved proposals / number of submitted proposals at 1<sup>st</sup> stage of evaluation (pre-proposals)

Based on the views of AEI officials the ERA-NET scheme has influenced the managing of international projects: *“in AEI we have learned a lot.”* It has also led to increased visibility and status for certain research areas like quantum technologies where researchers are now in the front line of research and will gain more funds in the national calls in the future. The same has happened in high computing as well as graphene and the rest of the FET Flagships areas. It is also worth mentioning the water area, where Spain, through its participation in Water JPI attracted an important national budgetary effort that has given very good scientific and technological results. Overall, however, *“benefits depend on the individual partnership as well as the specific discipline addressed; generally when you get only a few proposals approved it is not worth it.”* (AEI officials)

At the same time, AEI faces certain challenges in P2P participation. AEI only funds academic non-profit institutions and it is difficult to attract interest from researchers in topics that are related to high TRLs (>5) such as in energy. CDTI is a better partner for such networks but CDTI mainly provides loans which are considered ineligible in ERA-NETs although a certain percentage does not need to be repaid and could thus be considered a grant. In addition, different agencies follow different models of costs. For instance, ANR or AEI can only fund additional costs of research; salaries are funded by the government through another budget line so these expenses cannot be included in the estimation of the national contribution. Given that R&I personnel costs are around 40% of projects costs, the national contribution that AEI seems to dedicate to P2Ps is by 40% less than in reality. This has important implications in estimating the EC top-up funding that should be granted to AEI. Hopefully both these challenges will be effectively addressed in Horizon Europe.

P2Ps need to be improved in certain characteristics. Each P2P has its own regulations and procedures about proposal submission, evaluation, project reporting, etc. When an agency takes part in several P2Ps - AEI alone currently takes part in around 40 - this is counter-effective and highly inefficient. Thus, the need for a European platform to take care of the organisation of international calls and apply the same rules for all P2Ps is high on the agenda of Spanish agencies.

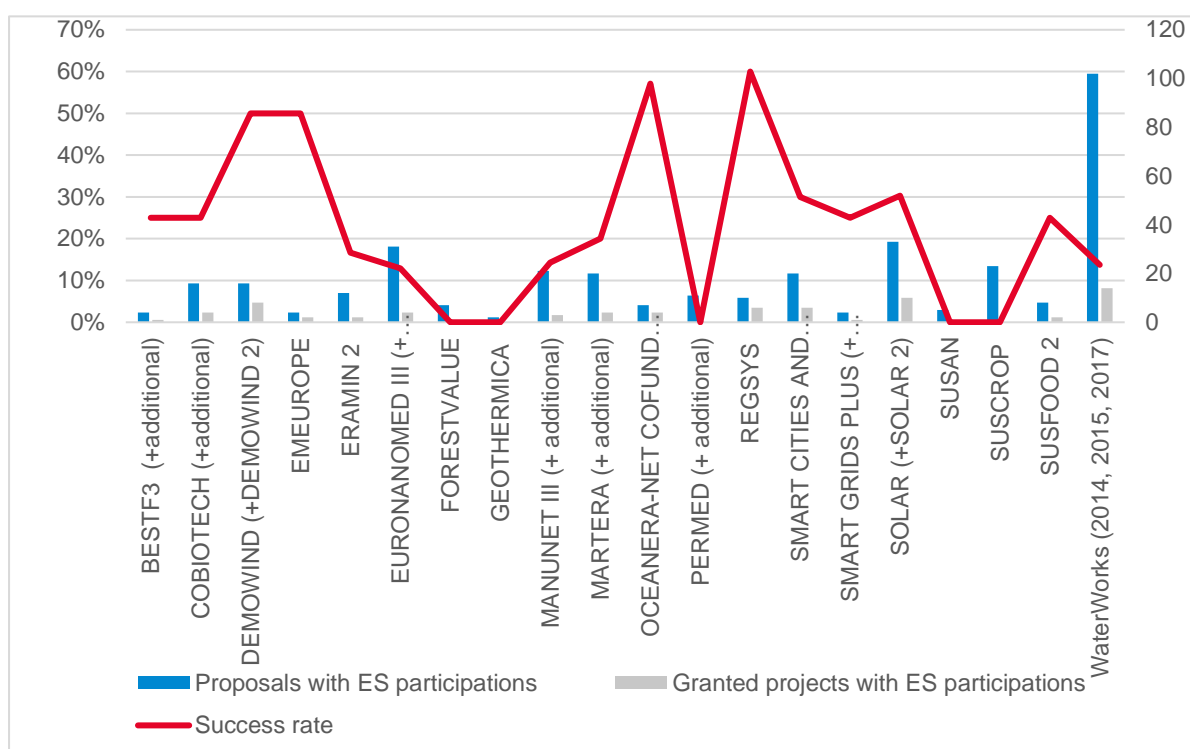
The total budget for **CDTI** is 1 € billion per year and this budget is mainly articulated by means of mixed funding (soft loans with a non-repayable part), which represents the main funding instrument of CDTI. The budget for ERA-NETs is only a small fraction i.e. around € 10 million.<sup>13</sup> Despite the already small budget that is dedicated to ERA-NETs, CDTI normally spends only half of it due to the limited focus of many ERA-NETs in industrial research. In the P2Ps with an increased industrial relevance, e.g. EUROSTARS, the demand is usually higher than the national funds made available. Nevertheless, CDTI encourages companies to increase their participation in the relevant ERA-NETs while also trying to enhance the relevance of the ERA-NET calls for industrial stakeholders.

---

<sup>13</sup> In the P2P calls co-funded by the EC, CDTI funds Spanish companies with grants instead of mixed funding, in order to be eligible to claim the respective top-up funding.



Figure 4: Number of proposals submitted and approved for CDTI (for-profit organisations) and success rates under P2Ps during H2020



Source: CDTI

Analysing the number of proposals submitted and approved in P2Ps under H2020 including Spanish for-profit organisations (Figure 4) the strength of Spanish competence in energy research becomes evident. Energy has attracted a large number of proposals (33) and presents a relatively high success rate (30%). The same applies in the case of SMART CITIES AND COMMUNITIES. REGSYS, OCEANERA-NET and DEMOWIND present even higher success rates (equal or more than 50%) although the proposals submitted are relatively fewer. Interestingly, the WATERWORKS calls have attracted the largest number of proposals from the private sector without, however, presenting a high success rate. The calls under EURONANOMED, MANUNET and MARTERA also attract relatively high number of proposals but present success rates equal or below 20%.

Within the remit of the Group for Joint Programming CDTI decides on which partnerships to take part applying the criteria of industrial focus, potential participation of industry, TRLs addressed, amount of EC funding, overlapping with other (national or international) programmes and availability of internal resources to manage the network.

Resources to manage partnerships are limited. This is an issue for future participation in more partnerships but also in undertaking a heavier role in running P2Ps, i.e. participation in additional calls or activities, leadership of tasks, or network coordination.

CDTI principally follows a bottom-up (without any specific thematic focus) and market-focused approach in the design of its programmes. The 'top-down' approach of the P2Ps offer a good complementarity possibility. Based on the views of CDTI officials,



*“P2Ps have been found as a means that has positively strengthened collaborations at the regional level and between industry and researchers: some P2Ps have been bridging gaps at different levels. Research communities have become more active in certain areas thanks to P2Ps.”*

The main benefit from CDTI's P2P participation can be summarised in the different levels of collaboration that has been strengthened, i.e. European but also national and regional levels, among research actors and industry but also among funding agencies. P2Ps have bridged gaps between national and international programmes approaching different levels of TRL. The research communities in certain areas have also become more dynamic with increased number of funded projects and Spanish companies have improved their international profile and are better prepared to take part in larger programmes like H2020.

*“ERA-NETs are very useful but improvements are needed to increase efficiency in their management. The administration efforts needed are high especially as different ERA-NETs have different internal rules and procedures.” (CDTI officials)*

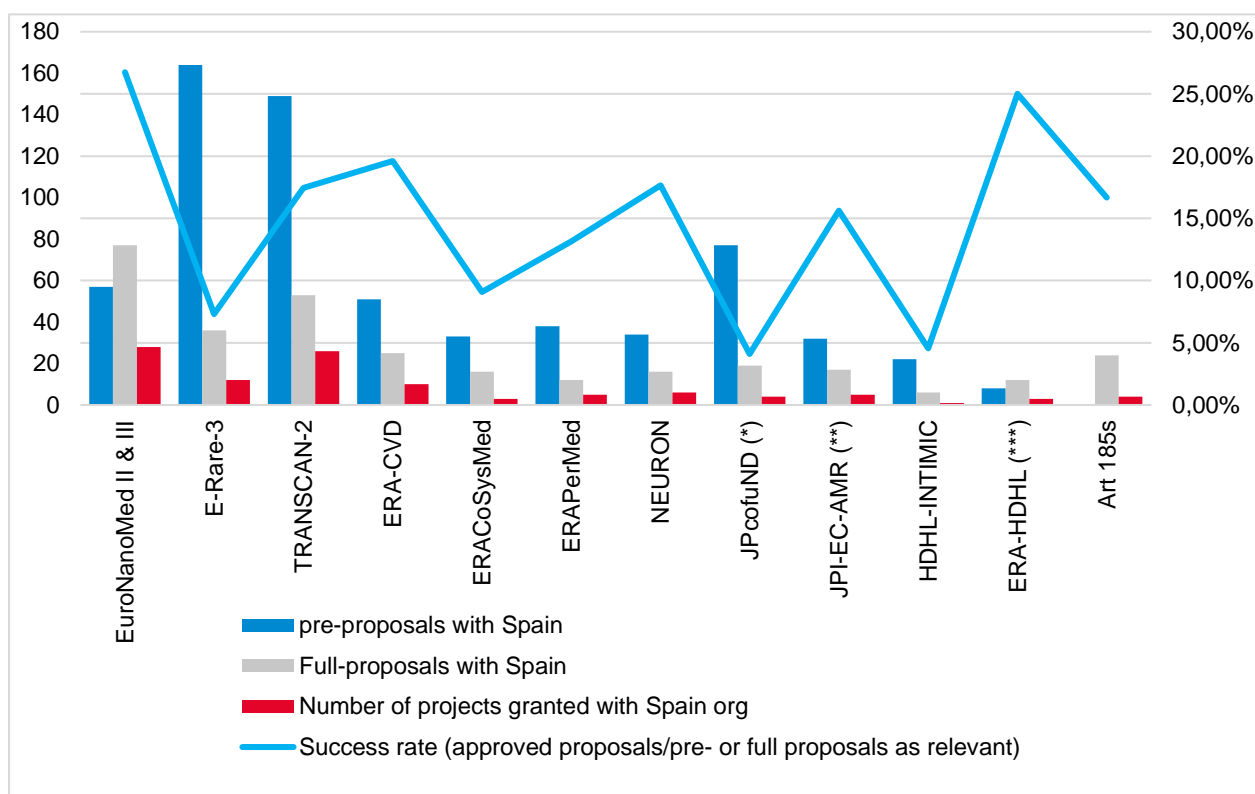
The time to grant, however, should be shortened and the 5-year duration of the partnerships is not enough to allow for completion of the 3-year supported projects including also the double submission procedure that needs to be followed. Participation of industry should be more encouraged in the next generation of partnerships as well as in future relevant calls. Overall, CDTI is interested in continuing their participation in P2Ps and expect improvements in the future with the next generation of R&I partnerships to leverage the potential of trans-national collaboration to the full.

**ISCIII** is a research funding organisation but also a research performing organisation focusing in biomedical and clinical research. ISCIII has been active in P2Ps since their start in FP6 and currently takes part almost in all P2Ps in the health area (4 JPIs, 10 ERANET Cofunds, 2 EJPs, AAL, and EDCTP). Based on the calls that were launched during H2020, ISCIII invested around € 12 million. This accounted for 95% of the initially allocated budget before the calls.

The partnerships with the highest absorption rates are EuroNanoMed II and III (178%), TRANSCAN-2 (157%) and ERAPerMed (155%). Analysing the number of proposals submitted and approved in P2Ps under H2020 including Spanish organisations (Figure 5) the partnerships that have attracted the highest number of proposals are EuroNanoMed II and III, E-RARE and TRANSCAN-2. Although E-RARE attracts the largest number of proposals at the pre-proposal stage it presents the lowest success rate of all ERA-NETs in H2020. The highest success rates are marked for EuroNanoMed and TRANSCAN-2 that attract also a large number of proposals and ERA CVD and NEURON.

For the Cofund actions that are related to JPIs (JPcofuND, JPI-EC-AMR, HDHL-INTIMIC, ERA-HDHL) and the Art 185s (AAL) the average absorption rates are much below 100% ranging between 24% for the Art 185s and 73% for JPI-EC-AMR. Success rates in these calls are also much lower than in the ERA-NETs with the most interesting case being JPcofuND that although attracts a large number of proposals (77) it presents an average success rate of 4.10%. Art 185 calls present comparable success rates to those of NEURON and TRANSCAN-2.

Figure 5: Number of proposals submitted and approved for ISCIII and success rates under P2Ps during H2020



(\*) Average success rate between 2015 and 2017 data

(\*\*) Actual success rate should be much lower due to missing number of pre-proposals in the 2016 call

(\*\*\*) Actual success rate should be much lower due to missing number of pre-proposals in the 2018 call

Source: ISCIII

Overall, ISCIII invests around 3% of their annual budget for calls in P2Ps. Few years ago this would have been less than 1% and given the frozen research budget in the last years this is considered a big step towards recognising the importance of these networks. The experience of ISCIII officials with P2Ps is quite positive.

*„They have helped create a culture that international R&I is a must. Yet, it is also true that we’ve arrived at a high level of complexity as each network applies their own government procedures and oversubscription of P2Ps calls are similar to EU calls...”*  
(ISCIII officials)

It is common view that P2Ps have been a learning mechanism by improving the capacity of beneficiaries to manage international projects. The Spanish scientific community consider P2Ps an important middle step to gain the skills to access more complex international calls. Beneficiaries also acknowledge that P2Ps have simplified the opportunities to collaborate using international funding and have helped achieve an alignment between national and EU research agendas. Working internationally allows them to achieve broader and more robust results. P2Ps have also helped to achieve – although at a rather slow pace - some alignment of the national agenda with the European research agendas and policies and those of the rest of the EU member countries. Ultimately, Spanish researchers today find these partnerships necessary.

*„When looking at impacts – through various studies that have been conducted by some P2Ps – scientists were able to get more funds in other calls like in H2020 and others*

*after their participation in P2P projects... The fact that certain communities such as the cancer researchers are now working together as a partnership is very important... International funding from the P2Ps also increased the reputation of the successful researchers.” (ISCIII officials)*

The limited administrative resources are always a problem. Yet, it is firstly the complexity of managing the different ERA-NETs with the different rules and procedures that needs to be improved. Thus a proposal to establish one umbrella partnership for all in the health area makes sense and the new partnership approach aiming to the rationalisation of the landscape is a positive step. The different rules and asymmetries across the different agencies (ability to fund all organisations vs. only public, or only private) and the different funding calendars from one country to another is also affecting the possibilities of the local community to take part (as compared to other country groups where such asymmetries do not exist).

**FECYT** officials repeated the need for more simplicity and visibility to increase participation of researchers in P2P calls. P2Ps have enhanced the coordination between different agencies and different strategies at the national level positively affecting the formulation of R&I strategies. However, although Spain has obtained good results in trans-national collaboration, results from P2P collaboration are not as good as for H2020 projects. This seems to be linked to the preferences of the beneficiaries (both researchers and companies) that are attracted to more financially rewarding schemes - H2020 beneficiaries get total cost funding, while in P2Ps only additional costs are covered as the national rules have to be followed - but also because beneficiaries struggle to understand the co-funding mechanisms and feel burdened with the double application process. In addition, it is quite disappointing when a successful proposal is withdrawn because of one of the partner countries cannot guarantee the funding of their researchers.

*“Something helpful would be to set up an ‘entry point’ at the EU level for proposal submission and monitoring alongside a common set of rules and procedures across P2Ps in general and also across the countries. Extra efforts are necessary to better communicate P2Ps i.e. the possibilities of funding, the success stories and impacts, although it is difficult to support monitoring of impacts beyond the lifetime of the projects.” (FECYT official)*

From a regional perspective, **Innobasque** has been taking part in P2Ps also from the very start, the motivation being to improve the international standing of research and innovation in the region. Out of the 17 Spanish regions the Basque Country is the only one with a Regional Innovation Index score at the EU average and is thus considered to be a ‘strong (–) innovator’. (RIO Country Report 2018 Spain) The ERA-NETs provide a good opportunity for internationalisation in smaller projects than the FP. In this sense, they fill a gap between FP projects and regional R&I projects. Impacts have been positive both for the beneficiaries – the Basque Government funds firms; research organisations and universities act as sub-contractors - and for the Basque Government and Innobasque as they have learned how to manage international projects and have become more visible enabling direct dialogue with the EC and other European initiatives such as European Platforms.

However, they feel that there are not as many international projects as they would like mainly due to a) although the applicants see the ERA-NETs as an opportunity for international collaboration the administrative procedures are complex and time-consuming (double application/reporting procedures) and b) sometimes even if they do apply and the project is

positively evaluated it may not be funded due to the lack of budget of some other countries' agencies. This has certain implications.

*“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)*

Spanish agencies have always been highly interested and engaged in P2Ps. However, there are challenges that have to be overcome to allow them to exploit P2Ps and enjoy to the full the benefits they are already well aware of. These challenges concern both the rigidities in the national R&I system but also the complexities in P2P participation.

## 2. Who are the key R&I performers in Spain?

The Higher Education Sector in Spain includes 48 public universities, 32 private universities and 90 other centres. In recent years (2008 to 2016), there has been an increase in the number of private universities (+ 33.3%) which has also affected the number of researchers employed by private universities (+ 52.7%). The Government R&I sector includes eight main Public Research bodies (OPIs), 53 other public national centres, 343 regional and local public centres and another 74 centres that accounted for 41.6%, 11.3%, 34.4% and 12.7% respectively of government sector GERD<sup>14</sup>

The main Public Research Bodies (Organismos Públicos de Investigación: OPIs) are: the Spanish National Research Council (Consejo Superior de Investigaciones Científicas, CSIC); the Research Centre for Energy, Environment and Technology (Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas, CIEMAT); the Geological and Mining Institute of Spain (Instituto Geológico y Minero de España, IGME); the Spanish Institute of Oceanography (Instituto Español de Oceanografía, IEO); the National Institute for Agricultural and Food Research and Technology (Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria, INIA); the Carlos III Health Institute (Instituto de Saludo Carlos III, ISCIII); and the Institute of Astrophysics of the Canary Islands (Instituto de Astrofísica de Canarias, IAC). In addition, the National Institute for Aerospace Technology (Instituto Nacional de Técnica Aeroespacial Esteban Terradas: INTA) is under the umbrella of the Ministry of Defence.

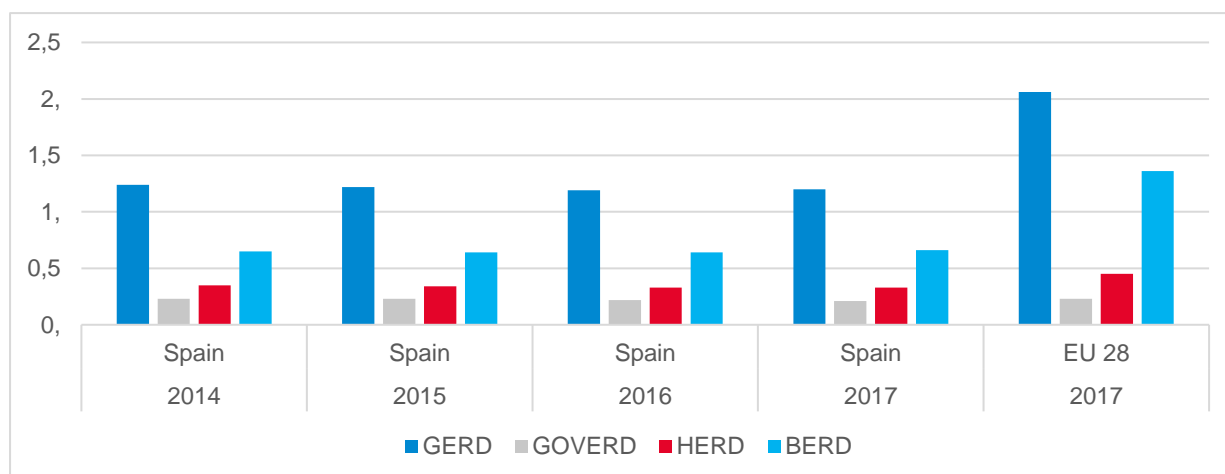
Based on Eurostat data (2016), the R&D personnel population in Spain is about 342,000 people, of whom around 219,000 are researchers. The majority of those work respectively in: the Higher education sector (122,000) followed by the Business sector (62,500) and Government (33,600).

Spain is a 'moderate innovator'. The Spanish expenditures in R&D (GERD) have been declining since after the 2008 crisis; however, since 2015 a year-on-year increase was first registered although they are still far behind the pre-crisis levels (2.7% in 2018). (RIO Country Report 2018 Spain) Nonetheless, in 2017 GERD remains well below the EU28 average values (1.24% against an EU value of 2.06%), a trend that is consistent across all sectors, with the exception of Government R&D (GOVERD) where Spain is only marginally below EU28 averages. Noticeably, Business R&D expenditures have not been affected by the crisis where most business R&D funding comes directly from the private sector. (Figure 6)

---

<sup>14</sup> Spanish Institute of Statistics, 2017

Figure 6: R&D expenditures in Spain (as % GDP)

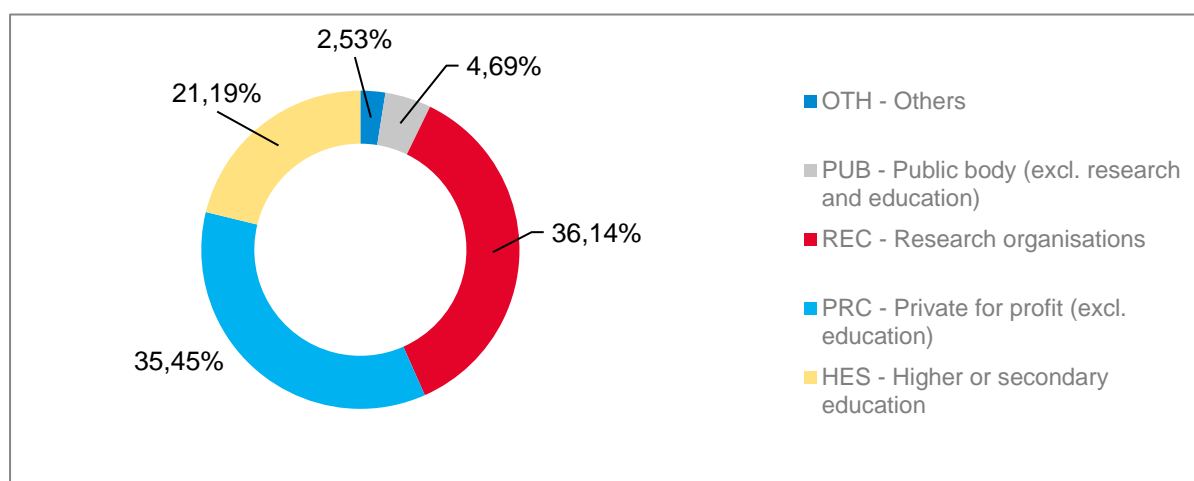


Source: Eurostat (R&D expenditures by Sector of performance)

Spain is among the most represented countries in Horizon 2020 along with Germany, the UK, France, Italy and the Netherlands. Overall, Spain is ranked 3<sup>rd</sup> in relation to Spanish participations (11.65% of total H2020 participations) and 4<sup>th</sup> in terms of EU budget share (9.82% of total net EU contribution) doing better than Italy and being not that far from France, and presents a higher than the EU average success rate: 12.76% against 11.98% for total proposals/eligible applications.

The total EC contribution of approved projects reaches € 4.11 billion (until September 2019). The performance of the Spanish research actors in H2020 is slightly taken over by Research Organisations with 36.14% of EC contributions followed by private for-profit companies (35.45%) and HEIs (21.19%). In addition, Spain is also quite successful in ERC grants having received € 485.3 million in funding.<sup>15</sup>

Figure 7: Net EU contribution by Type of Organisation



Source: H2020 data <https://ec.europa.eu/research/horizon2020/index.cfm?pg=country-profiles-detail&ctry=Spain>

<sup>15</sup> <https://webgate.ec.europa.eu/dashboard/sense/app/a976d168-2023-41d8-acec-e77640154726/sheet/0c8af38b-b73c-4da2-ba41-73ea34ab7ac4/state/analysis>

## How are they doing in P2P-project participation?

Based on data from the ERA-LEARN database, Spanish research organisations took part in 523 P2P-supported projects that absorbed some € 140 million from Spain during H2020. These scores are only second to those of the Netherlands in the comparator group of countries and among the highest ones in the EU28 cohort after Germany, France and the UK.

This amount accounts for around 6.6% of the total actual investments made by all involved countries in P2Ps in H2020.<sup>16</sup> This is comparable to that of Sweden (6.6%) and one of the highest shares in EU28 following that of Germany (19.5%), France (9.2%), the Netherlands (8.5%) and the UK (7.5%). Overall, the quality of the national research community is high enough to compete at European level.

*“This may have improved in the last years as the local researchers were faced with a frozen national research budget that made them to look for funds outside the country.”  
(ISCIII official)*

Spanish research competences are widely acknowledged especially in areas such as information society technologies, energy and the environment, health and social sciences. Spanish researchers have always enjoyed a good international standing. P2P participation helped maintain their good standing and get more prepared for larger programmes such as H2020. At the same time, they were offered opportunities to excel in emerging fields such as quantum technologies, graphene and all those addressed by the FET Flagships.

The experiences of project beneficiaries were quite positive coming from both academia and industry. All interviewees appreciated the great collaboration opportunity they had and the benefits they gained from this collaboration. Researchers acknowledged the value of having been part of the specific P2P projects although it will take more time for the impacts to become visible and despite certain challenges they had to confront. These included changes in the team of researchers involved, but also limitations in the budget the Spanish organisations could apply for in some cases. This hindered Spanish organisations to perform at the same level as the other countries' teams. They could not hire post-docs for the whole duration of the projects and were restricted in their travels.

*“I am very proud of the research work we did ... I was very happy to lead an international team of researchers...The responsibility of leading an international team is higher but quite valuable... We plan to continue collaboration in the future with some of the partners... but I would be happy if the limitations in the budget that Spanish organisations can apply for disappear in the future...Spaniards and Greeks had less financial capacity than the other teams.” (Project beneficiary)*

In all the interviews with project beneficiaries the intention was stated to continue the collaboration that was established or continued in the specific projects. The two stage evaluation procedures were also positively assessed and considered even shorter than in the case of Spanish projects.

---

<sup>16</sup> These figures may actually be higher considering that around 20% of the financial data of the H2020 P2Ps have still to be updated by the P2P networks in the ERA-LEARN database.



*“This was my first trans-national (EU) project, and I think I’ll try to repeat. I’ve participated in quite a few national projects...This HERA project felt quite similar to the way our national projects work in terms of style of application, planning, and reporting... The trans-national dimension is quite a plus, the chance to work comparatively across national traditions and to share results and perspectives with other national teams.”*  
(Project beneficiary)

Compared with national projects, the transnational projects had a higher budget and the administrative efforts needed were more or less the same. In fact, it was very much appreciated that in the end beneficiaries had to follow national rules that are known to them and deal with the national agency that they know how it works. Yet, in some cases, such as AEI, no overheads are eligible for transnational projects and this creates an additional burden for participants. In addition, the competition may be high, although this varies across the networks.

Bilateral programmes also offer collaboration with other countries. *„However, these programmes do not support the research itself so links with other institutions are not as close as when you get down to work on the same topic...This was the value of the HERA project, not the money...”* (Project beneficiary) *„HERA works better than the main EC programme because of its focus on humanities, which leads to more appropriate evaluation criteria. It is important to have a dedicated humanities funding programme in Europe.”* (Project beneficiary)

*“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; you need to invest a lot in writing a H2020 proposal... Having the ability to collaborate with others compensates for the extra efforts in preparing a proposal and managing the project. 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)

According to the view of the funding agencies’ officials some researchers may be reluctant to apply for P2P funding due to the limited funding provided. P2Ps follow national rules, which means that in case their proposal is approved the funding will only cover additional costs, whereas H2020 beneficiaries get total cost funding. Another barrier is that many researchers and businesses do not understand the co-funding process applied in ERA-NETs and also feel burdened by the double application and reporting procedures that have to be followed. Related to this, are the completely different calendars between P2P and national calls that may cause delays in the launch of approved projects. Needless to say, the possibility that approved projects may not be implemented due to the inability of some agencies to secure the respective national funding is also a disappointing factor.

*“...The different requirements by the national funding agencies made the further elaboration more difficult...(also) some of the Spanish regulations are very restrictive, more than in other countries...”* (Project beneficiary)

Nevertheless, the views of both public and private sector researchers kept on the positive side. All agreed that schemes such as ERA-NETs are worth keeping in the future.



The key factors for success as witnessed by the beneficiaries interviewed included

- commitment and organizational qualities of the project leader ensuring of agile and efficient steering from the early preparation stages, fluent and transparent communication and well-planned and run periodical meetings;
- responsiveness and commitment from all other project partners to the particular topic, clear and shared strategy; good understanding of the project purpose and the collaboration; clear workplan and objectives; relatively frequent face-to-face contact that maintains a sense of commitment
- availability of administrative support both preparing the proposal and managing the project
- adequate funding and easy to complete application
- flexibility of funding, autonomy of setting research objectives, high-quality evaluation; clear understanding of what funding agencies are looking for; trying to minimise paperwork i.e. use already known national procedures and keeping simple the European part of the proposal (especially if you need to submit twice, i.e. to the network and the funding agency).

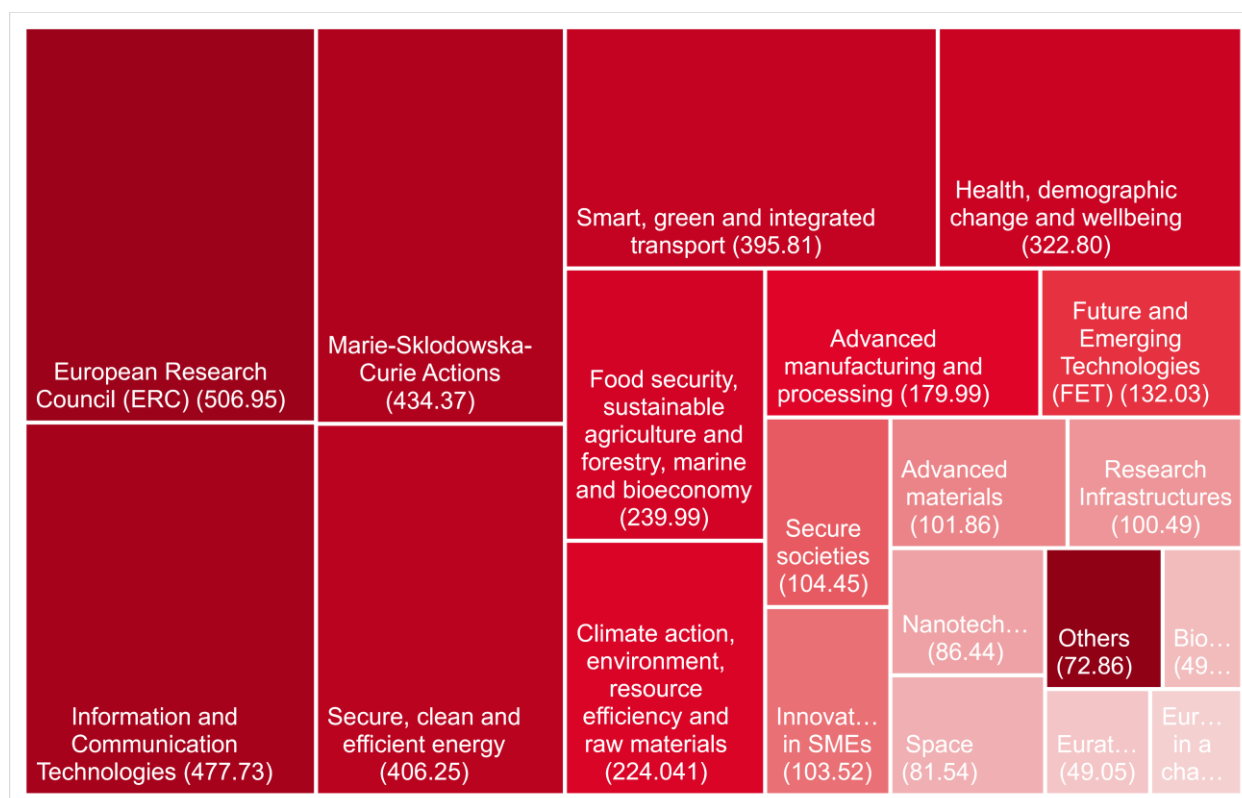
Spanish researchers are performing quite well in transnational collaboration in R&I. This involves both H2020 as well as P2Ps. Their involvement in P2P projects was highly appreciated despite the various administrative and financial barriers they had to face. It is strongly recommended that P2Ps continue to be supported by the Spanish agencies.

### 3. In which R&I areas is Spain strong?

The R&I specialisation areas of Spain are reflected in the new PECTI<sup>17</sup> 2017-2020 which emphasises eight societal challenges: (i) Health, demographic change and well-being; (ii) Bioeconomics: sustainability of primary production systems and forestry, food safety and quality, marine and maritime research and bioproducts; (iii) Safe, efficient and clean energy; (iv) Sustainable, intelligent and integrated transport; (v) Climate change, the environment and natural resources; (vi) Social sciences and humanities and the challenges of Spanish society; (vii) Digital economy, society and culture; and (viii) Security, protection and defence. While this focus is in line with the objectives of Horizon 2020, the ERAC Review of the Spanish R&I System (2014) has called for further strategic work to better identify and develop genuine regional strengths.

Considering the research areas supported by H2020 it is mainly ICT, energy, transport, bioeconomy and the environment that attract most Spanish participations apart from ERC that also denotes strengths in basic science (Figure 8).

Figure 8: Participant Net EU Contribution H2020 per thematic area (€ million)



Source: <https://webgate.ec.europa.eu/dashboard/sense/app/a976d168-2023-41d8-acec-e77640154726/sheet/d23bba31-e385-4cc0-975e-a67059972142/state/analysis>

<sup>17</sup> Spanish State Plan for Scientific, Technological Research and Innovation

Based on the AEI data, within the ERA-NETs, those in the area of “Nanotechnologies, Advanced Materials, Biotechnology, and Advanced Manufacturing and Processing” (NMBP) absorb more than the initially committed funds by (around 117% on average) while those in the areas of FET and the Environment absorb around 95-100%. The ERA-NETs in the area of health absorb around 80% of the committed funds and in the area of bioeconomy around 64%. Surprisingly, certain P2Ps in the area of energy, where Spain enjoys specialisation, namely ACT, BESTF3 and DemoWind 2, have not managed to absorb all available Spanish funds (absorption rate lower than 20%) in the calls launched during H2020 mainly due to unsuccessful proposals for Spanish participants, overestimation of the available Spanish funds but also due to the size of projects, which in the case of ACT, they were too large for the Spanish budget and Spanish researchers could not participate in equal conditions.

In the case of ERA-NET Cofunds managed by CDTI, again it is those in the area of NMBP that absorb almost all (around 90%) of the funds initially committed (CoBioTech, MANUNET III, EURONANOMED3). This is also valid in the case of OCEANERA-NET Cofund and SUSFOOD 2. The other Cofunds present absorption rates between 50-60% even in the area of energy and the environment where Spain enjoys specialisation (e.g. DemoWind, WaterWorks, Solar, Smart Cities and Communities). These ERANETs turned out to be focused on lower TRLs and to have a less intense industrial component than expected, which reduced the participation of companies and thus the allocation of funds by CDTI.

In the case of the P2Ps related to health, the ones that focus on nanomedicine or biomaterials are more successful than others as the Spanish community is already quite advanced in these areas with their own established networks world-wide. The same applies in the case of cancer research and personalised medicine. Success in a particular network call depends on the interest and the capacity of the community in the call topic. (ISCIII)

Spain is world-renowned for its excellence in several research fields. This is reflected in their performance in H2020 as well as in their participations in P2Ps.

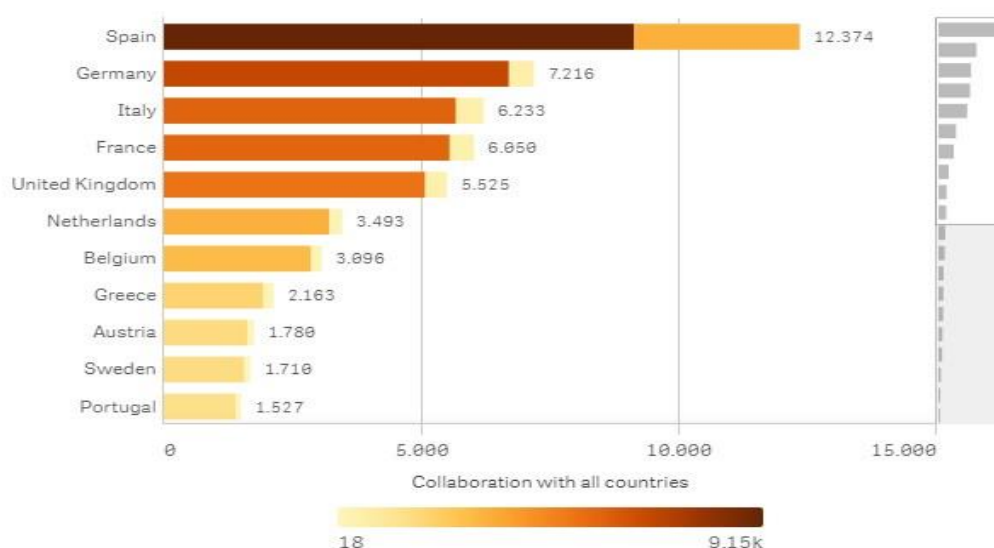
## 4. With whom does Spain collaborate in R&I and why?

Based on the Interim Evaluation of H2020 the most represented countries in Horizon 2020 publications are Germany, the Netherlands, the UK, France, Italy and Spain. Germany, the Netherlands and the UK continue to co-publish largely between themselves as observed in FP7. Spain and Italy remain part of their own group but are now co-publishing more with smaller Member States, including Cyprus, Romania, Croatia and Greece.

On the other hand, according to the interviewees, Spanish companies want to collaborate with the European South and countries with similar cultures, and contexts. Naturally, it is also where the right expertise lies that plays a big role to improve their international profile and explore new experiences in their work. Previous collaborations are also relevant factors when building up the consortium core partners.

Based on H2020 data<sup>18</sup> Spanish organisations in H2020 projects collaborate mostly with counterparts from Germany, Italy, France, the UK, the Netherlands and Belgium. (Figure 9) These countries are also among the most active countries in Horizon 2020 (Germany, UK, France, Italy, Spain and the Netherlands). This is largely repeated in P2P supported projects where, based on ERA-LEARN data, Spanish organisations collaborate mostly with researchers from Germany, Italy, France, the Netherlands and the UK, followed by Sweden and Austria but also Norway (Figure 10).

*Figure 9: Top 10 collaborations of Spain with other countries in H2020 projects*



<sup>18</sup> <https://webgate.ec.europa.eu/dashboard/sense/app/a976d168-2023-41d8-acec-e77640154726/sheet/e1b57f9a-669b-4962-bdb9-0151c523120f/state/analysis>

Figure 10: Collaborations of Spanish organisations in P2P-supported projects in H2020



Source: ERA-LEARN database

Spanish organisations collaborate with counterparts in the most active countries in both P2Ps and H2020. This is driven by where the necessary expertise lies but also by similarities in cultures and contexts.

## 5. What are Spain's overall strengths in R&I?

- Overall positive economic performance showing evidence of recovery after the crisis with consistently higher than the EU average growth rate
- High availability of skilled human resources and in particular of STEM graduates
- Increased research quality in Spanish universities (measured as % of top publication worldwide)
- Leading position in the P2P landscape – relatively high GBARD allocated to transnational cooperation and slight growth in the Spanish publication of articles with ERA co-authors
- Increased policy attention in transnational / international R&D collaboration in the newest strategic priorities. Active participation in JPIs, ERANETs and similar instruments is one of the most frequently emphasised strategic goals in the newest national ERA roadmap.

## 6. What are Spain's overall challenges in R&I?

- Declining investments in R&D and innovation both in public & private sectors
- Poor coordination between national and regional policies and strategies in R&D
- Poor framework conditions for innovation, e.g.: product market reforms and low uptake of R&D incentives from private companies
- Low levels of researchers working in the private sector and declining number of researchers in the public sector
- Lack of opportunities for young researchers resulting in an ageing public research sector and rigid labour market conditions for researchers
- Weak cooperation between academia and private sector
- Lack of systematic evaluation of policies and institutions

## 7. Spain's position on R&I partnerships

Spain has always supported the concept of joint programming through partnership such as ERA-NETs as joint programming is acknowledged to contribute to bringing together European policies and procedures in order to achieve ERA objectives.

Currently, the role of the EU partnerships as a whole is being reconsidered and reevaluated. This fact is not caused because they are considered a failed policy design; quite the opposite, there is a general consensus that adjustments are required that allow both the Member States and the EC to ensure the coherence of all initiatives and their proper framework with Horizon Europe as well as the maximum alignment with national strategies. Spain has also highlighted the need to simplify and rationalize the current portfolio of proposed partnerships under Horizon Europe.

H2020 partnership initiatives have fostered transnational R&D in Europe, supporting international-scale projects but applying local management. This has had a very positive effect, especially for less experienced research groups and companies and within less developed regions.

For the future partnerships under Horizon Europe it is essential to establish common rules and procedures for all partnerships so that aspects related to the call management can be centralized through a common platform of services allowing uniform, common, agile and efficient procedures. Under this centralized management scheme, creation and opt-out mechanisms could be established for the different initiatives according to criteria exclusively related to R&I strategies. Moreover, the Member States' funding agencies could make better use of their resources by modifying or aligning their procedures towards a well-established model.

In line with the above, a centralized management for P2Ps would help minimize duplication of efforts and/or fragmentation of initiatives and projects. In addition, the use of a common management platform is linked to better management and exploitation of research results and greater connectivity between scientific and technological infrastructures and major initiatives.



## 8. Topic of interest from Spain: role of the Regions

Regions have an important role in the Spanish R&I system and are quite active in R&I partnerships. Below follow two examples of P2Ps where Spanish regional organisations have the lead role of Coordinator.

### MANUNET

MANUNET aims to coordinate the research and innovation efforts in the field of advanced manufacturing with a special focus in the key areas of new production processes, adaptive manufacturing systems and technologies for the factory of the future. MANUNET supports innovation-driven, close-to-market research and development projects in manufacturing. It aims to encourage cross-border value chains that emerge from advancing technologies. Two key characteristics differentiate MANUNET from other networks: the focus on regional research policies and the special support to SMEs. MANUNET is now running in its third phase MANUNET III (2016-2021) under H2020, enjoying a significant participation of regional organisations from Wallonia (Belgium), Asturias, Basque Country, Castilla y León, Catalonia, Navarra (Spain) Lombardy, Piemonte, Puglia and Toscana (Italy), Nord Brabant, Gelderland and Overijssel (The Netherlands). Despite the economic crisis, MANUNET has succeeded in launching calls every year since 2007 (13 calls in total until now) mobilising € 268 million in R&I expenditure of which € 152 million are national/regional public funding. As a result, 282 projects were funded involving 749 SMEs. MANUNET was born as a Basque Government's initiative in 2004. Prompted by the high importance of the Basque industry as well as studies suggesting that manufacturing is largely a concentrated activity in regions or even, districts - that later formed the Smart Specialisation approach - the Basque Government decided to generate a continental initiative to move towards a European regionally-based Research Area on manufacturing. Thus, MANUNET focuses on regions with an important manufacturing dimension in the economy and own financial support. MANUNET also invite countries to join to make the network stronger and complement regional funds in certain cases. At the same time, MANUNET is expanding through efforts to collaborate with regions in countries beyond Europe (e.g. Russia, Israel, South Korea).

Innobasque has been coordinating MANUNET for quite a long time. Given the differences across regions / countries in relation to funding calendars, types of funding, eligible beneficiaries, etc., coordination is not a trivial task. Overall, strong leadership is needed along with diplomacy skills to ensure high commitment from each partner. The changes in management brought about by the new ERA-NET Cofund instrument in H2020 required additional efforts from the partners and especially the coordinator to ensure a smooth transition and operation from MANUNET II to MANUNET III. Despite the obstacles, however, MANUNET is a successful network offering participating regions the opportunity to internationalise their funding programmes and thus benefit their SMEs, increase visibility at European level and work with other regional and national agencies. Participation of regions in P2Ps is important. Based on Innobasque officials, countries should lean on regions when it comes to supporting SMEs as they are closer to the SMEs reality. Internationalising their funding programmes is an excellent way of collaborating. Yet, the limited resources should be kept in mind. Regions should focus on a smarter participation in P2Ps rather than a more increased participation overall, exploiting the limited resources to have the biggest impact.

MANUNET Coordinator: Innobasque,

### CSP ERANET

CSP ERANET constitutes a public-public partnership gathering 11 representatives from Member States, Associated Countries and Regions that have committed more than € 9 million of public funds for launching the Cofund joint call for proposals and more than € 6 million for the additional call to finance transnational research actions. CSP ERANET is the result of a joint EU will to bridge the gap between research and commercial deployment in the Concentrated Solar Power (CSP) technology so that this technology can play a main role in the European renewable electricity generation in the medium term. CSP ERANET aims to coordinate the efforts of the participating countries and regions towards achieving CSP SET Plan objectives by supporting strategic projects with substantial volumes of investment, which cannot be allocated by individual countries or by the EC on their own. CSP ERANET targets large-scale projects implementing medium/high TRL research, which will accelerate the time to commercial deployment of affordable, cost-effective and resource-efficient CSP technology solutions. During the 5 years of CSP ERANET (2019-2024) the consortium intends to pool together financial resources from multiple countries, the Commission and the private sector, in order to invest more than 24 million euros in researching for innovative CSP solutions. This investment will finance 8 topics which were selected among the 12 R&I topics defined in the CSP Implementation Plan produced by the SET Plan temporary working group (TWG) on CSP.

CSP ERA-NET is coordinated by [AGENCIA EXTREMENA DE LA ENERGIA \(AGENEX\)](#) i.e. the Extremadura Energy Agency. Extremadura hosts 40% of the total solar power facilities in Spain and has been focusing in CSP technologies for a long time. The Region covers the total of the electric demand with renewable energy (of which around 45% is from CSP) and also exports energy to the rest of Spain. Renewable energy and particularly CSP is a key priority in its RIS3. There is a significant potential in the region in relation to CSP technology and its implementation and the Regional Authorities are also committed to this purpose. These conditions and the strong experience of AGENEX in managing European projects led the agency to become the coordinator of CSP ERA-NET with the support from the national Spanish agencies and the Region of Extremadura. At first it was challenging to coordinate and bring to an agreement so many different partners that may have common overall goals but also have their own interests to safeguard. However, in quite little time (the network runs since June 2019) obstacles were overcome and the joint call has been successfully launched. The main benefits of CSP ERA-NET for Extremadura are the high potential for CSP technology implementation in the region and the associated business potential that can boost the regional economy. Based on AGENEX officials, participation of regions to partnerships such as ERA-NETs can be beneficial provided the topics, research areas or technologies addressed by the ERA-NET are of key importance for the region and included in the RIS3 main priorities. Once this is secured, success factors include: availability of funds to manage regionally, international project management skills, existence of local potential to exploit research and the results (local research organisations, local businesses, industries, etc.). Overall, regional participation in P2Ps can bring benefits with regards to opening up the region to international collaboration which is crucial especially for less-advanced and smaller regions. This increases both the research and business capacity of the region.

CSP ERA-NET Coordinator: AGENEX

# Annex

| Main indicators for P2Ps in H2020 <sup>19</sup>         | Spain       | Italy       | Poland     | Sweden      | Netherlands | EU13 average H2020 | EU15 average H2020 | EU28 AVERAGE  |
|---|-------------|-------------|------------|-------------|-------------|--------------------|--------------------|---------------|
| Total pre-called budget available for P2P calls (€)     | 148,727,179 | 126,391,451 | 56,596,687 | 148,879,441 | 178,082,831 | 17,649,680.54      | 123,124,697.88     | 74,154,154.12 |
| Number of total network participations                  | 67          | 57          | 49         | 51          | 63          | 25                 | 50                 | 37            |
| Number of network coordinations                         | 5           | 2           | 1          | 1           | 7           | 1                  | 5                  | 3             |
| Number of funding organisations participating in P2Ps   | 67          | 56          | 48         | 51          | 62          | 25                 | 49                 | 37            |
| Number of P2P calls with specific country participation | 136         | 113         | 101        | 78          | 103         | 57                 | 91                 | 74            |
| Number of proposals submitted to P2P calls (*)          |             |             |            |             |             |                    |                    |               |
| Number of eligible proposals submitted to P2P calls (*) |             |             |            |             |             |                    |                    |               |
| Success rate (funded/submitted proposals) (*)           |             |             |            |             |             |                    |                    |               |
| Number of projects funded under P2P calls               | 523         | 413         | 181        | 381         | 629         | 66                 | 342                | 204           |
| Number of participants in projects from country         | 367         | 218         | 103        | 311         | 451         | 45                 | 239                | 142           |
| EU top-up funding received (m €)(*)                     |             |             |            |             |             |                    |                    |               |
| Total budget of funded projects (m €) (*)               |             |             |            |             |             |                    |                    |               |
| Total requested EC contribution for projects (€) (*)    |             |             |            |             |             |                    |                    |               |

Sources: ERA-LEARN database (cut-off date Sept 2019), Estimated missing data 20%

(\*) Data to be collected in the future

| Main R&I indicators  | Spain   |         |         |         | Italy        | Poland       | Sweden       | Netherlands  | EU 28 average |
|--|---------|---------|---------|---------|--------------|--------------|--------------|--------------|---------------|
|  | 2014    | 2015    | 2016    | 2017    | 2017         | 2017         | 2017         | 2017         | 2017          |
| GERD (as % of GDP)   | 1.24    | 1.22    | 1.19    | 1.2     | 1.35         | 1.03         | 3.4          | 1.99         | 1.96          |
| Percentage of GERD funded by the business sector   | 46.41   | 45.85   |         |         | 49.99 (2015) | 39 (2015)    | 57.26 (2015) | 48.65 (2015) | 54.65 (2015)  |
| Percentage of GERD funded by government  | 41.63   | 41.36   | 40.93   |         | 37.98 (2015) | 41.82 (2015) | --           | 33.13 (2015) | 31.74 (2015)  |
| Percentage of GERD funded by rest of the world   | 7.41    | 8.04    |         |         | 8.3 (2015)   | 16.74 (2015) |              | 15.51 (2015) | 10.88 (2015)  |
| Percentage of GERD performed by the business sector  | 52.92   | 52.54   | 53.74   | 54.92   | 61.43        | 64.49        | 70.58        | 58.78        | 65.67         |
| Percentage of GERD performed by higher education   | 28.13   | 28.12   | 27.52   | 27.11   | 24.18        | 25.39        | 25.72        | 29.81        | 22.17         |
| Percentage of GERD performed by government   | 19.13   | 18.50   | 17.76   |         | 12.69        | 2.28         | 3.70         | 11.41        | 11.31         |
| GOVERD (% of GDP)  | 0.23    | 0.23    | 0.22    | 0.21    | 0.17         | 0.02         | 0.12         | 0.22         | 0.23          |
| percentage of GOVERD financed by the business sector   | 5.80    | 6.03    | 5.55    |         | 3.75 (2016)  | 5.3 (2016)   | 3,95 (2015)  | 16,11 (2016) | 8,09 (2016)   |
| HERD (as % of GDP)   | 0.35    | 0.34    | 0.33    | 0.33    | 0.33         | 0.34         | 0.85         | 0.59         | 0.43          |
| percentage of HERD financed by the business sector   | 5.95    | 5.70    | 5.15    |         | 1.30 (2016)  | 3,04 (2016)  | 4,02 (2015)  | 7,79 (2016)  | 6,54 (2016)   |
| BERD (% of GDP)  | 0.65    | 0.64    | 0.64    | 0.66    | 0.83         | 0.67         | 2.40         | 1.17         | 1.36          |
| percentage of BERD funded by the business sector   | 82.34   | 81.92   | 82.25   |         | 84.12(2016)  | 79.14 (2016) | 80.42 (2015) | 82,06 (2016) | 81,91(2015)   |
| percentage of BERD funded by government  | 9.71    | 9.36    | 8.87    |         | 3.49 (2016)  | 16.32 (2016) |              | 1.66 (2016)  | 6,35 (2015)   |
| percentage of BERD funded by rest of the world   | 7.77    | 7.86    | 8.64    |         | 12.25 (2016) | 4.43 (2016)  |              | 16,01 (2016) | 11,45 (2015)  |
| Total national public funding to transnationally coordinated R&D (€ million)   | 330.180 | 342.048 | 360.651 | 332.911 | 776.245      | 129.998      | 179.863      | 162.379      |               |
| National contributions to bilateral or multilateral public R&D programmes (€ million)  | 29.947  | 10.535  | 22.498  | 19.650  | 23.375       | 32.746       | 105.552      | --           |               |
| National contributions to Europe-wide transnational public R&D programmes (including P2Ps)   | 154.527 | 174.592 | 202.262 | 207.500 | 588.367      | 14.282       | 33.004       | 98.517       |               |
| Total researchers (full-time equivalent)   | 122,235 | 122,437 | 126,633 | 133,195 | 136,204      | 96,497       | 75,247       | 85,300       |               |
| Percentage of scientific publications among the top 10% most cited publications worldwide as % of total scientific publications of the country   | 9.50    | 9.20    |         |         | 10.4 (2015)  | 4.9 (2015)   | 11.9 (2015)  | 14.58 (2015) |               |
| ERC grantees by country per call year  | 22      | 14      | 24      | 22      | 16           | 4            | 17           | 45           |               |
| Sources: EUROSTAT <a href="https://ec.europa.eu/eurostat/data/database">https://ec.europa.eu/eurostat/data/database</a> ;  |         |         |         |         |              |              |              |              |               |
| OECD STI Indicators, <a href="https://stats.oecd.org/Index.aspx?DataSetCode=MSTI_PUB&amp;_ga=2.10058678.2035126309.1548251117-1585184866.1542984834">https://stats.oecd.org/Index.aspx?DataSetCode=MSTI_PUB&amp;_ga=2.10058678.2035126309.1548251117-1585184866.1542984834</a> |         |         |         |         |              |              |              |              |               |

Sources:

EUROSTAT, <https://ec.europa.eu/eurostat/data/database>;

OECD STI Indicators, [https://stats.oecd.org/Index.aspx?DataSetCode=MSTI\\_PUB&\\_ga=2.10058678.2035126309.1548251117-1585184866.1542984834](https://stats.oecd.org/Index.aspx?DataSetCode=MSTI_PUB&_ga=2.10058678.2035126309.1548251117-1585184866.1542984834)

# References

## Reports

ERA Progress Report 2018 Spain, <https://publications.europa.eu/en/publication-detail/-/publication/f01c585d-34c2-11e9-8d04-01aa75ed71a1>

ERAC Peer Review of the Spanish Research and Innovation System 2014  
<https://rio.jrc.ec.europa.eu/en/library/erac-peer-review-spanish-research-and-innovation-system>

European Semester Country Report Spain 2016, [https://ec.europa.eu/info/publications/2017-european-semester-country-reports\\_en](https://ec.europa.eu/info/publications/2017-european-semester-country-reports_en)

Fernández-Zubieta, A., Ramos-Vielba, I., Zacharewicz, T., RIO Country Report 2017: Spain, EUR 29192 EN, Publications Office of the European Union, Luxembourg, 2018, ISBN 978-92-79-81829-5, doi:10.2760/976893, JRC111466

Spain, European Innovation Scoreboard 2019 [https://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards\\_en](https://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards_en)

## Internet sites

Country Profiles in H2020 <https://ec.europa.eu/research/horizon2020/index.cfm?pg=country-profiles>

EUROSTAT, <https://ec.europa.eu/eurostat/data/database;>

OECD STI Indicators,  
[https://stats.oecd.org/Index.aspx?DataSetCode=MSTI\\_PUB&\\_ga=2.10058678.2035126309.1548251117-1585184866.1542984834](https://stats.oecd.org/Index.aspx?DataSetCode=MSTI_PUB&_ga=2.10058678.2035126309.1548251117-1585184866.1542984834)

ERA-LEARN Explore P2Ps service <https://www.era-learn.eu/>

## *Imprint*

### **AUTHORS**

Effie Amanatidou

Chiara Marzocchi

With contributions from  
the Ministry of Science,  
Innovation and  
Universities, AEI, CDTI,  
ISCIII, FECYT and  
Innobasque.