



The ERA-NET scheme from FP6 to Horizon 2020

Report on ERA-NETs, their calls and the experiences
from the first calls under Horizon 2020

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Summary

The ERA-NET scheme was launched in 2002 under the 6th Framework Programme (FP6) to support the coordination and collaboration of national research programmes. It aimed at facilitating the exchange of good practices, the strategic planning and the design of joint research programmes as well as the implementation of joint activities, in particular joint calls.

Under the 7th Framework Programme (FP7), the ERA-NET scheme was reinforced by introducing an additional new module, ERA-NET Plus, which allows the topping-up of joint trans-national funding for calls with European Union funding.

ERA-NETs under Horizon 2020 follow the principle of simplification and build on the reliable collaboration with MS and their research funders established over the past ten years. They merge the former ERA-NET and ERA-NET Plus and have the central and compulsory element of implementing one substantial call with top-up funding from the European Union. The focus is shifting from the funding of networks to the top-up funding of individual joint calls in selected sub-challenges with high European added value and relevance for Horizon 2020 (policy-driven approach).

The main observations can be summarised as follows:

- **From 2002 – 2013 the EU invested Euro 483 million in the ERA-NET scheme**
The ERA-NET scheme was strongly used by Member States and their research funders, resulting in 123 different ERA-NETs under FP6 and FP7 receiving funding for coordinating national research programmes. 23 ERA-NET Plus actions (top-up funding of transnational calls) have been supported under FP7. The total funding the 71 ERA-NETs under FP7 have received is Euro 180 million. The ERA-NET scheme under FP7 has been funded with Euro 302 million, of which Euro 144 million account for the ERA-NET Plus actions.
- **All EU Member States are highly involved in the ERA-NET scheme**
A total of 72 countries, EU Member States, Associated Countries and Third Countries have participated in ERA-NETs with a strong increase from 47 countries under FP6 to 68 countries under FP7. France, Germany and Spain are the leading participants, but there is also significant involvement of a group of smaller countries, e.g. Austria, Belgium, Finland, Sweden and the Netherlands. The participation of EU12 has increased but is still comparatively low overall with 13% of all participations. The most active associate countries are Israel, Norway, Switzerland and Turkey.
- **More than 350 calls, resulting in more than 3.400 transnational projects funded since 2004**
A total of 359 joint calls have been or are being implemented from 2004 to 2014 and more than 35 calls are still planned for 2015 to 2017. More than 3.400 projects are being funded in the period from 2004 to 2014.
- **Annual volume of coordinated research close to Euro 400 million**
The public funding of transnational research by ERA-NET and ERA-NET Plus actions has been growing steadily since the first calls in 2004 and totals Euro 370 million for 2013 and planned Euro 475 million for 2014. Including the data on calls launched by JPIs and the calls resulting from the ERA-NET Cofund action of the Work Programme 2014/15, the total public funding for transnational calls will exceed Euro 600 million in 2016. The total public funding of research implemented by ERA-NETs and ERA-NET Plus from its beginning until 2013 amounts to more than Euro 2,3 billion and will reach more than Euro 3 billion by 2016.

- **Substantial leverage effects on research coordination**
 The Union funding of ERA-NETs creates substantial effects on research coordination. The leverage effect of the Framework Programme funding was close to 6 for FP6 ERA-NETs (FP funding resulting in public funding of transnational projects) and more than 10 for FP7 ERA-NETs, with some individual ERA-NETs reaching leverage effects of 50.
- **Continuity of networks creates stronger leverage**
 There is a very significant difference between FP7 ERA-NETs that continued from FP6 and achieve leverage effect of more than 16, and new ERA-NETs under FP7 with a leverage effect of 7. This confirms the message from many networks that continuity is a key successor factor.
- **ERA-NET Plus supporting critical mass, evaluation standards and financial integration**
 The ERA-NET Plus instrument results in substantially more countries participating and in larger average call budgets of €19 million compared to €7 million for the ERA-NET calls and supports achieving critical mass. In addition, it establishes international peer review as an evaluation standard, as well as successfully increasing financial integration to ensure proposal selection exclusively based on excellence.
- **ERA-NET Cofund Horizon 2020 successfully launched**
 The community of research funders has been well prepared for the new approach under Horizon 2020 with the Info Day on ERA-NET Cofund (400 participants), the ERA-LEARN newsletter (more than 4500 views) and their dedicated section "P2P under Horizon 2020" on NETWACH as well as the RTD.B2 helpdesk for internal and external users (> 200 requests).
- **New approach for ERA-NETs under Horizon 2020 well understood by the applicants**
 In 2014 a total of 11 ERA-NET Cofund proposals were submitted. They demonstrate that overall the new approach for ERA-NETs under Horizon 2020 has been well understood by the applicants and most proposals fully comply with the ERA-NET Cofund requirements. Many very good descriptions of work received high scores from the expert evaluators. Most of the proposals foresee additional calls (up to 4) and include a wide range of additional activities, with no general difference between ERA-NETs with or without JPI background. Many proposals include strong international collaboration.
- **Positive impact of ERA-NET Cofund on country participation and critical mass**
 The cofunded calls that will be implemented by the ERA-NETS submitted in 2014 will on average result in a much broader participation of countries (18 instead of 10 under FP7) and substantially larger call budgets (on average Euro 28 million). The budget contributions are more balanced, and participation of EU13 countries has increased, although the increase is stronger for the share of participation than for the budget contributions.

There are two issues that deserve further attention:

1. Unbalanced commitments from Participating States

A critical issue that is underlined by the statistics in chapter 3 are unbalanced commitments. The financial commitments to calls differ widely and are often not in line with the research capacities and/or programme volumes of the countries in question. Germany and the UK alone represent one third of the public funding mobilised in the sample. EU 12 contribution is comparatively very low and represents only 5% of the public funding mobilised by ERA-NETs. This issue has to be further analysed together with the Participating States. A number of elements seem to be relevant:

- The initial commitment of a country to a call is not proportionate to the research capacity of the country in question.
- A low number of successful projects resulting from a call do not allow a country to fully use its initial commitment.
- A country does not participate in a call, since their high ambitions for funding to achieve critical mass and expected impacts are not matched by financial commitments of others.

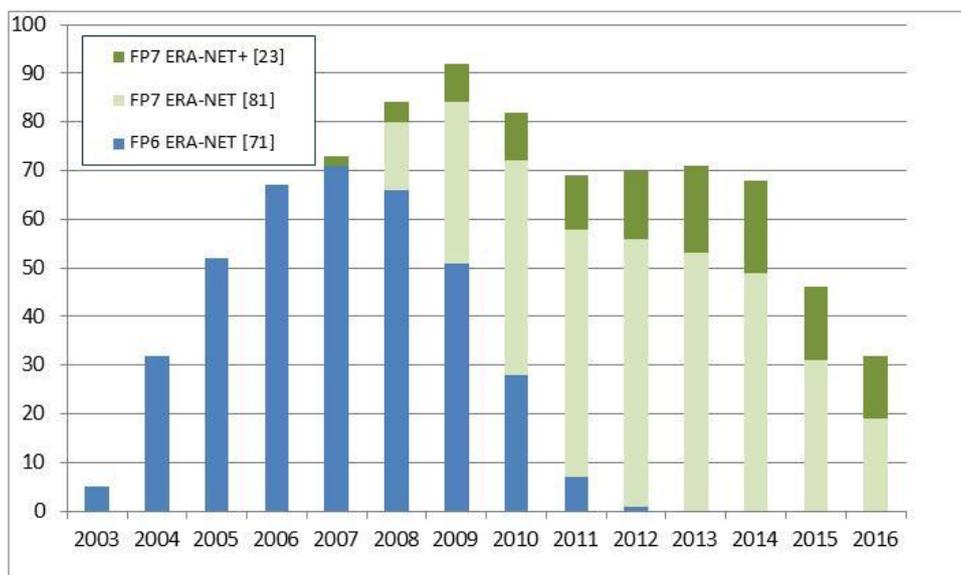
2. Need to improve knowledge on impacts of ERA-NETs and the projects they are funding

Overall there is a need to collect more evidence on impacts of ERA-NETs on the European Research Area and in particular at the level of national research policies, e.g. programme design, content, evaluation practices etc. The same applies for the other P2P initiatives like JPIs or Art.185 initiatives. Despite the large number of calls implemented there is also a clear lack of evidence collected on the impact of the transnational projects funded by ERA-NETs. Both issues will be more systematically addressed under Horizon 2020, with a common approach and compulsory activities on monitoring and impact assessment of individual ERA-NETs.

1. Key facts and figures on ERA-NET and ERA-NET Plus actions¹

1.1 Number of ERA-NETs/ ERA-NET Plus and funding received under FP6 and FP7

In total 71 ERA-NETs have been funded under FP6. Under FP7 a total of 83 ERA-NETs and 23 ERA-NET Plus actions have been funded, many of which are still ongoing (*graph 1*). 26 of the initial FP6 contracts have received further funding as ERA-NET actions for coordinating their activities under FP7. A total of 52 ERA-NETs have started under FP7 on topics that were not formerly covered. Almost all ERA-NET Plus actions go back to ERA-NET activities that started under FP6 (18 out of 23).



Graph 1: Number of running ERA-NET and ERA-NET Plus actions over the period 2004-2017.

The use of the ERA-NET scheme varies strongly for the different Themes (*table 1*). The strongest areas under FP6 are Industrial Technologies and SMEs, KBBE (Knowledge Based Bio Economy), Environment and Health. Under FP7 most areas show continuity, with KBBE having further strengthened their activities. Some areas have shown a decreasing number of ERA-NET (Environment, partially due to clustering of existing ones). ICT, INCO and Infrastructures have started using the instrument under FP7. Fundamental sciences and many of the cross cutting topics are mostly not covered under FP7 due to the mismatch with the thematic structure and the abolished FP6 approach of bottom-up calls for ERA-NETs.

¹ The analysis in this section is based on CORDA data.

| Number of ERA-NET actions per area | FP6 ERA-NET | FP7 ERA-NET | FP7 ERA-NET+ | FP7 total | Total FP6/FP7 |
|------------------------------------|-------------|-------------|--------------|------------|---------------|
| Energy | 5 | 4 | 3 | 7 | 12 |
| Environment | 14 | 7 | 2 | 9 | 23 |
| Fundamental Sciences | 5 | 1 | | 1 | 6 |
| Health | 11 | 11 | | 11 | 22 |
| ICT | | 5 | 3 | 8 | 8 |
| INCO | 3 | 8 | 2 | 10 | 13 |
| Industrial Technologies/SMEs | 14 | 17 | 4 | 21 | 35 |
| Infrastructures | | 3 | | 3 | 3 |
| KBBE | 9 | 16 | 3 | 19 | 28 |
| Security | 1 | 2 | | 2 | 3 |
| SSH/SIS | 4 | 2 | 4 | 6 | 10 |
| Transport | 5 | 5 | 2 | 7 | 12 |
| Total | 71 | 81 | 23 | 104 | 175 |

Table 1: Number of ERA-NET and ERA-NET Plus actions per Theme under FP6 and FP7 including horizontal ones reassigned to the closest Theme (FP6: 17, FP7: 7 ERA-NET, 3 ERA-NET Plus).

The total funding received from the framework programmes is shown in *table 2*. The funding the FP6 ERA-NETs have received for coordination is around Euro 180 million. The ERA-NET scheme under FP7 has been funded with around Euro 303 million, of which Euro 159 million are for coordination in ERA-NETs and Euro 144 million for topping-up of calls in ERA-NET Plus actions.

| Union contribution per area [Euro million] | FP6 ERA-NET | FP7 ERA-NET | FP7 ERA-NET+ | FP7 total | Total FP6/FP7 |
|--|--------------|--------------|--------------|--------------|---------------|
| Energy | 12,9 | 8,7 | 26,9 | 35,6 | 48,4 |
| Environment | 37,1 | 13,9 | 10,3 | 24,2 | 61,3 |
| Fundamental Sciences | 12,3 | 2,4 | - | 2,4 | 14,7 |
| Health | 27,6 | 21,9 | - | 21,9 | 49,4 |
| ICT | - | 8,1 | 18,3 | 26,5 | 26,5 |
| INCO | 8,7 | 19,2 | 4,5 | 23,7 | 32,3 |
| Industrial Technologies/SMEs | 36,8 | 27,8 | 39,9 | 67,7 | 104,5 |
| Infrastructures | - | 3,7 | - | 3,7 | 3,7 |
| KBBE | 25,1 | 27,2 | 12,5 | 39,7 | 64,8 |
| Security | 1,8 | 5,3 | - | 5,3 | 7,1 |
| SSH/SIS | 10,6 | 3,5 | 21,8 | 25,3 | 35,9 |
| Transport | 13,8 | 10,7 | 10,0 | 20,7 | 34,5 |
| Total | 186,5 | 152,4 | 144,3 | 296,7 | 483,2 |

Table 2: Union contribution to ERA-NET and ERA-NET plus actions per Framework Programme and Theme, including horizontal ones reassigned to the closest Theme [Euro million].

Statistical data and participation in the ERA-NET scheme under FP6 and FP7

The participation in the ERA-NET scheme is by definition limited to programme owners and programme managers. *Table 3* shows the frequency of participation for all organisations that have participated under FP6 and FP7 in the ERA-NET scheme. It is important to notice that a small number of organisations participate very frequently, but a very large number of organisations participate only in one or just a few ERA-NETs. The number of frequent users has increased under FP7, but the absolute number of single participations is still accounting for more than 50% of the participations.

| Number of ERA-NET participations per organisation | FP6 | | FP7 | | | |
|---|------------|-------|-------|------------|-------|-------|
| | | | | | | |
| > 30 | 1 | 0,2% | 8,0% | 7 | 1,2% | 13,4% |
| 21 - 30 | 1 | 0,2% | | 6 | 1,0% | |
| 11 - 20 | 17 | 3,3% | | 30 | 5,2% | |
| 6 - 10 | 23 | 4,4% | | 35 | 6,0% | |
| 3 - 5 | 41 | 7,8% | 92,0% | 67 | 11,5% | 86,6% |
| 2 | 60 | 11,5% | | 123 | 21,1% | |
| 1 | 380 | 72,7% | | 314 | 54,0% | |
| Total number of organisations | 523 | | | 582 | | |

Table 3: Frequency of organisations participating in the ERA-NET scheme under FP6 and FP7.

This has consequences on the institutional learning and building of experience and competences in cross boarder collaboration. The frequent participants have quickly been able to learn and adapt to the scheme, whereas the smaller organisations as newcomers are faced with a challenging environment. ERA-LEARN has addressed this by collecting good experiences from ERA-NETs and building up a toolbox and training system that also allows smaller actors to benefit from experience gained by others.

| Number of participations | FP6 | FP7 | Total |
|-----------------------------|-------------|-------------|-------------|
| Member States | 1021 | 1602 | 2623 |
| Associated Countries | 102 | 241 | 343 |
| Third Countries | 12 | 72 | 84 |
| EU (JRC) | 1 | 1 | 2 |
| Total | 1136 | 1916 | 3052 |

Table 4: Participation in the ERA-NET scheme under FP6 and FP7 per country groups

From the beginning the ERA-NET scheme has been open to the participation of Associated Countries and Third Countries (*table 4*). FP7 has seen a proportionally stronger participation of entities from Associated Countries, but the most important increase can be observed for the Third Country participation. This is due to a series of ERA-NETs targeting International Cooperation, but also an increasing integration of international activities under the thematic ERA-NETs.

The details of country participations are shown in *table 5-7*. The participation of the new Member States (EU12) has clearly increased, accompanied in some cases by developing structures that would facilitate participation (e.g. establishment of national funding bodies with programme structures compatible for cross boarder collaboration). Nevertheless it is still comparatively low overall with 13% of all participations under FP6. The most active Associate Countries are Israel, Norway, Switzerland and Turkey.

| Number of participations (Member States) | FP6 | FP7 | total |
|---|-------------|-------------|--------------|
| Austria | 62 | 75 | 137 |
| Belgium | 52 | 92 | 144 |
| Bulgaria | 6 | 18 | 24 |
| Cyprus | 6 | 17 | 23 |
| Czech Republic | 16 | 18 | 34 |
| Denmark | 37 | 54 | 91 |
| Estonia | 12 | 23 | 35 |
| Finland | 56 | 66 | 122 |
| France | 115 | 168 | 283 |
| Germany | 117 | 157 | 274 |
| Greece | 23 | 59 | 82 |
| Hungary | 23 | 35 | 58 |
| Ireland | 22 | 39 | 61 |
| Italy | 47 | 103 | 150 |
| Latvia | 6 | 29 | 35 |
| Lithuania | 4 | 20 | 24 |
| Luxembourg | 4 | 10 | 14 |
| Malta | 2 | 8 | 10 |
| Netherlands | 73 | 88 | 161 |
| Poland | 64 | 47 | 111 |
| Portugal | 32 | 56 | 88 |
| Romania | 19 | 51 | 70 |
| Slovakia (Slovak Republic) | 8 | 20 | 28 |
| Slovenia | 21 | 46 | 67 |
| Spain | 68 | 151 | 219 |
| Sweden | 54 | 65 | 119 |
| United Kingdom | 72 | 87 | 159 |
| Total | 1021 | 1602 | 2623 |

Table 5: Number of participations of Member States in the ERA-NET scheme under FP6 and FP7.

| Number of participations (associated countries) | FP6 | FP7 | total |
|--|------------|------------|--------------|
| Albania | 1 | 3 | 4 |
| Bosnia And Herzegovina | 1 | 2 | 3 |
| Croatia | 2 | 11 | 13 |
| Iceland | 9 | 27 | 36 |
| Israel | 15 | 36 | 51 |
| Macedonia | 1 | 5 | 6 |
| Moldova | | 4 | 4 |
| Montenegro | | 5 | 5 |
| Norway | 44 | 47 | 91 |
| Serbia | 1 | 5 | 6 |
| Switzerland | 21 | 43 | 64 |
| Turkey | 7 | 53 | 60 |
| Total | 102 | 241 | 343 |

Table 6: Number of participations of Associated Countries in the ERA-NET scheme under FP6 and FP7.

| Number of participations (third countries) | FP6 | FP7 | total |
|---|------------|------------|--------------|
| Algeria | | 5 | 5 |
| Argentina | | 1 | 1 |
| Armenia | | 2 | 2 |
| Azerbaijan | | 1 | 1 |
| Barbados | | 1 | 1 |
| Belarus | | 2 | 2 |
| Brazil | | 1 | 1 |
| Canada | 1 | 4 | 5 |
| Chile | | 1 | 1 |
| Egypt | | 6 | 6 |
| French Polynesia | 1 | | 1 |
| Georgia | | 2 | 2 |
| Greenland | 1 | | 1 |
| India | | 5 | 5 |
| Jordan | | 1 | 1 |
| Kenya | 1 | 1 | 2 |
| Korea, Republic Of | | 1 | 1 |
| Lebanon | | 1 | 1 |
| Mexico | | 1 | 1 |
| Montenegro | 1 | | 1 |
| Morocco | | 4 | 4 |
| Netherlands Antilles | 1 | | 1 |
| New Caledonia | 2 | 1 | 3 |
| New Zealand | | 2 | 2 |
| Panama | | 1 | 1 |
| Peru | | 1 | 1 |
| Russian Federation | 3 | 15 | 18 |
| South Africa | | 1 | 1 |
| Syrian Arab Republic | | 1 | 1 |
| Tunisia | | 5 | 5 |
| Ukraine | | 3 | 3 |
| United States | 1 | 2 | 3 |
| Total | 12 | 67 | 79 |

Table 7: Number of participations of Third Countries in the ERA-NET scheme under FP6 and FP7.

1.2 Transnational calls of ERA-NET and ERA-NET Plus actions and leverage effects²

One of the main quantifiable achievements of ERA-NETs are the calls they launch and the resulting projects. ERA-NETs provide for one of the few possibilities outside the Framework Programme for researchers to receive public funding for transnational projects. A total of 314 calls have been implemented from 2004 to 2013 (*table 8*). A further 82 are currently being implemented or prepared for the period 2014 to 2017. Almost all ERA-NETs have implemented calls, except for five FP6 and four FP7 ERA-NETs which have not implemented any calls.

| Number of calls per year [Year of call closure] | FP6 ERA-NET | FP7 ERA-NET | FP7 ERA-NET+ | FP7 total | Total FP6/FP7 |
|--|----------------|----------------|-----------------|-----------|------------------|
| 2004 | 2 | | | | 2 |
| 2005 | 10 | | | | 10 |
| 2006 | 24 | | | | 24 |
| 2007 | 41 | | 2 | 2 | 43 |
| 2008 | 35 | 4 | | 4 | 39 |
| 2009 | 21 | 11 | 6 | 17 | 38 |
| 2010 | 14 | 24 | 1 | 25 | 39 |
| 2011 | 9 | 27 | 1 | 28 | 37 |
| 2012 | 3 | 35 | 2 | 37 | 40 |
| 2013 | 2 | 37 | 3 | 40 | 42 |
| 2014 | 2 | 35 | 8 | 43 | 45 |
| 2015 | 1 | 20 | | 20 | 21 |
| 2016 | | 10 | | 10 | 10 |
| 2017 | | 6 | | 6 | 6 |
| | 164 | 209 | 23 | 232 | 396 |

Table 8: Number of calls implemented per year including currently planned calls.

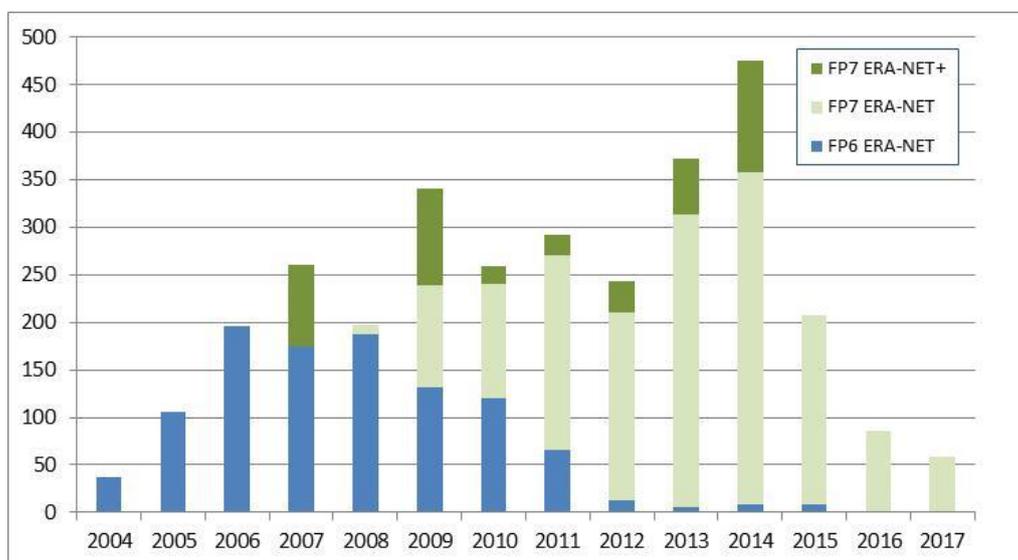
The number of implemented calls has been relatively stable since 2007 with 35 to 45 calls per year. The year 2014 shows a particularly large number of ERA-NET Plus calls, resulting from the proposals submitted to the last call of FP7.

The public funding for research leveraged by ERA-NET and ERA-NET Plus actions has been growing quite steadily since the first calls in 2004. In 2009, there was a peak of Euro 340 million, and it has reached Euro 370 million in 2013 (*Table 9, graph 2*).

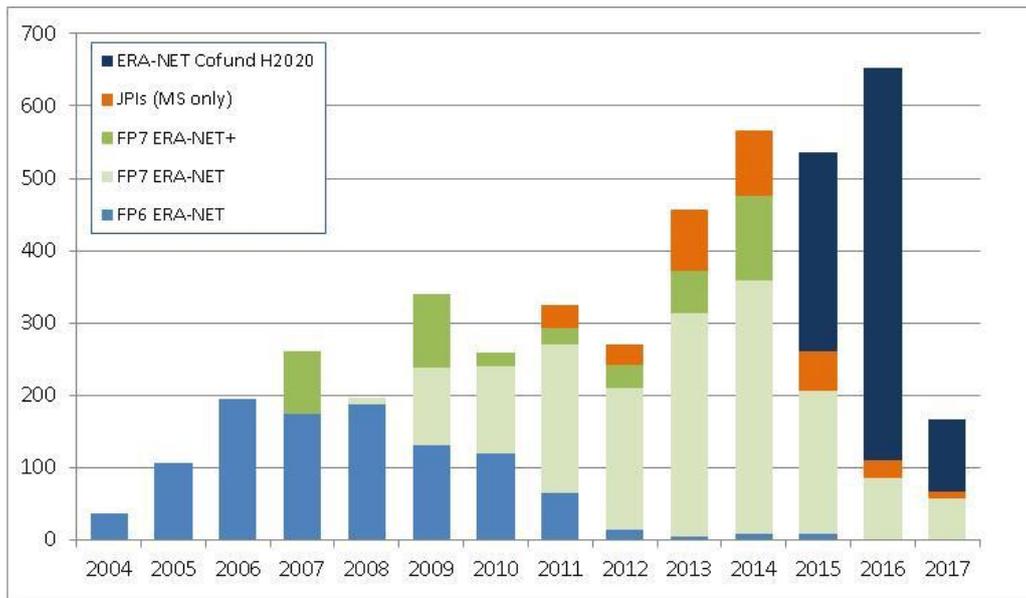
² The analysis in this section is based on call data that has been collected by the European Commission (DG RTD.B2) in 2012 to 2014.

| Total call budget per year [Euro million] | FP6 ERA-NET | FP7 ERA-NET | FP7 ERA-NET+ | FP7 total | Total FP6/FP7 |
|--|----------------|----------------|-----------------|-----------|------------------|
| 2004 | 37,4 | | | | 37,4 |
| 2005 | 105,8 | | | | 105,8 |
| 2006 | 195,3 | | | | 195,3 |
| 2007 | 174,5 | | | 85,7 | 260,2 |
| 2008 | 187,1 | 10,1 | | 10,1 | 197,2 |
| 2009 | 131,1 | 107,4 | 102,3 | 209,8 | 340,8 |
| 2010 | 119,4 | 121,3 | 18,9 | 140,2 | 259,6 |
| 2011 | 65,5 | 204,4 | 22,6 | 227,0 | 292,5 |
| 2012 | 13,1 | 196,6 | 33,2 | 229,8 | 242,9 |
| 2013 | 5,1 | 308,3 | 58,3 | 366,6 | 371,7 |
| 2014 | 9,1 | 349,1 | 117,4 | 466,5 | 475,6 |
| 2015 | 8,0 | 199,0 | | 199,0 | 207,0 |
| 2016 | | 86,0 | | 86,0 | 86,0 |
| 2017 | | 58,0 | | 58,0 | 58,0 |
| | 1.051,3 | 1.640,2 | 438,5 | 2.078,7 | 3.130,1 |

Table 9: Total public funding per year for calls implemented by ERA-NET and ERA-NET Plus actions over the period 2004-2017 including currently planned calls [Euro million].



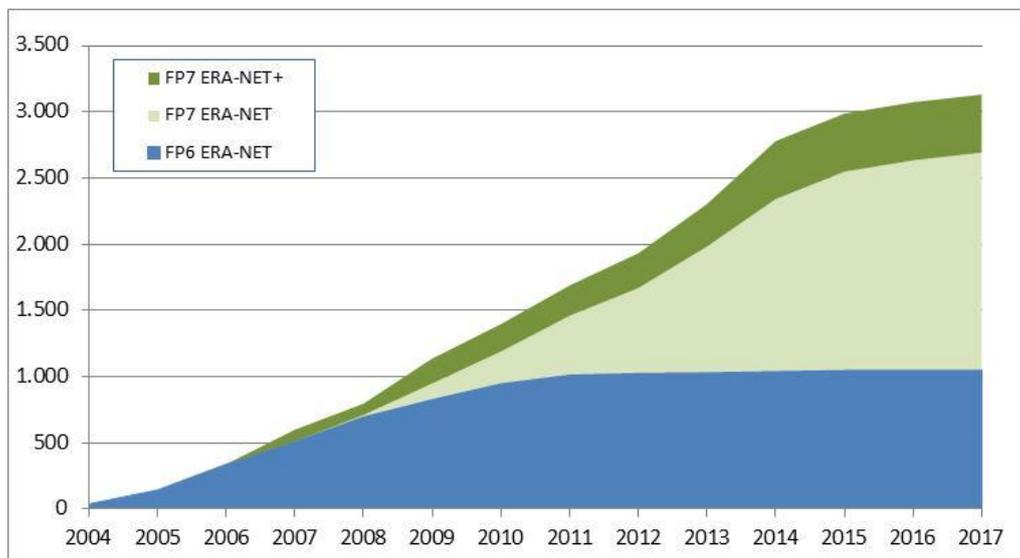
Graph 2.1: Total public funding per year for calls implemented by ERA-NET and ERA-NET Plus actions over the period 2004-2017 including currently planned calls [Euro million].



Graph 2.2: Total public funding per year for calls implemented by ERA-NET , ERA-NET Plus, JPIs (calls implemented by MS only) and ERA-NET Cofund under Horizon 2020 actions over the period 2004-2017 including currently planned calls [Euro million].

If one includes the data on calls launched by JPIs and the calls resulting from the ERA-NET Cofund action of the Work Programme 2014/15, the total public funding for calls will exceed Euro 600 million in 2016 (graph 2.2)

For the period 2014-2017, calls with a total volume of more than Euro 800 million are already planned. The total public funding of research implemented by ERA-NETs and ERA-NET Plus from its beginning until 2013 amounts (graph 3) to Euro 2,3 billion. The public funding resulting from the FP6 and FP7 ERA-NET/ERA-NET Plus actions is expected to total Euro 3,1 billion until the end of 2017.



Graph 3: Aggregated public funding for calls implemented by ERA-NET and ERA-NET Plus actions over the period 2004-2017 including currently planned calls [Euro million].

For a substantial number of calls (around 275) additional information is available on the selected projects. The average size of projects funded by ERA-NET and ERA-NET Plus actions is Euro 814,000. This allows an estimate of around 3400 transnational projects funded by ERA-NET and ERA-NET Plus and JPIs in the period 2004 - 2014.

On average ten countries participate in a call (compared to 13 countries in ERA-NET Plus calls). The different thematic priorities show differences, ranging from on average 11 to

13 countries for Health, KKBE and Industrial Technologies/SMEs to 6 to 7 countries in the themes Energy, Fundamental Research and Transport (*table 10*). Across all areas the number of participating countries has been increasing, from 8 countries during 2005 to 2009 to around 12 countries in 2013/14.

| Area | Average number participating countries |
|-----------|--|
| ENERGY | 7,6 |
| ENV | 9,6 |
| FUND | 6,9 |
| HEALTH | 11,4 |
| ICT | 8,3 |
| INCO | 9,9 |
| IND/SME | 10,9 |
| INFRA | 8,5 |
| KBBE | 12,8 |
| SSH | 12,5 |
| TRANSPORT | 7,5 |

Table 10: Average number of countries participating in the joint calls, per Theme.

Figures in *table 11* show that the average budget per call is more than twice as much for ERA-NET Plus actions (Euro 19.1 million) than ERA-NET actions (Euro 7,8 million) under FP7.

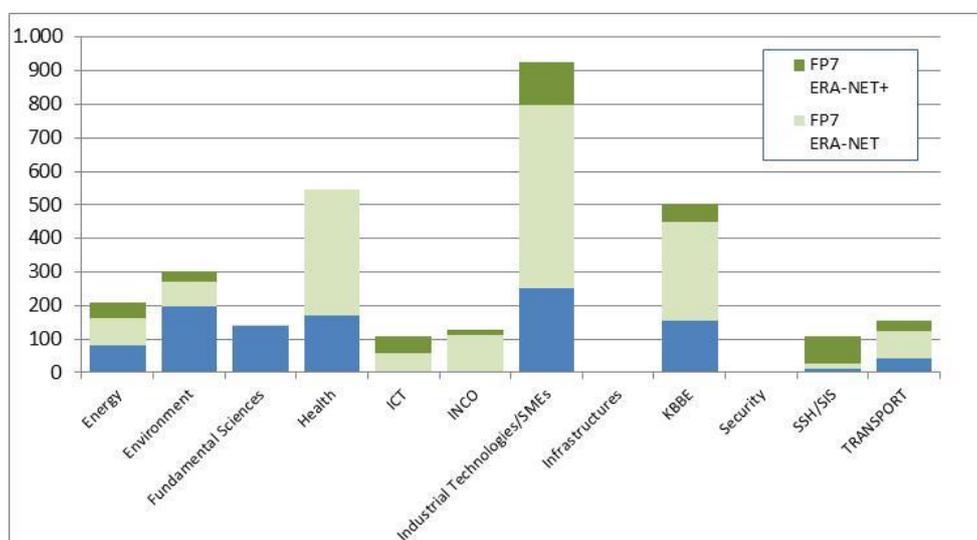
| Average call budget [Euro million] | FP6 ERA-NET | FP7 ERA-NET | FP7 ERA-NET+ | FP7 total | Total FP6/FP7 |
|---------------------------------------|----------------|----------------|-----------------|-----------|------------------|
| 2004 | 18,7 | | | | 18,7 |
| 2005 | 10,6 | | | | 10,6 |
| 2006 | 8,1 | | | | 8,1 |
| 2007 | 4,3 | | 42,9 | 42,9 | 6,1 |
| 2008 | 5,3 | 2,5 | | 2,5 | 5,1 |
| 2009 | 6,2 | 9,8 | 17,1 | 12,3 | 9,0 |
| 2010 | 8,5 | 5,1 | 18,9 | 5,6 | 6,7 |
| 2011 | 7,3 | 7,6 | 22,6 | 8,1 | 7,9 |
| 2012 | 4,4 | 5,6 | 16,6 | 6,2 | 6,1 |
| 2013 | 2,6 | 8,3 | 19,4 | 9,2 | 8,9 |
| 2014 | 4,6 | 10,0 | 14,7 | 10,8 | 10,6 |
| 2015 | 8,0 | 10,0 | | 10,0 | 9,9 |
| 2016 | | 8,6 | | 8,6 | 8,6 |
| 2017 | | 9,7 | | 9,7 | 9,7 |
| | 6,4 | 7,8 | 19,1 | 9,0 | 7,9 |

Table 12: Average call budget for calls implemented by ERA-NET and ERA-NET Plus actions over the period 2004-2017 including currently planned calls [Euro million].

The total public funding realised per Theme including planned calls (*table 12 and graph 4*) reaches Euro 925 million for Industrial Technologies and SMEs, followed by Health, KBBE and Environment themes (between Euro 300 and 540 million). ERA-NET Plus actions cover a substantial part of the joint calls in the fields of SSH, Energy and ICT.

| Total call budget per theme [Euro million] | FP6 ERA-NET | FP7 ERA-NET | FP7 ERA-NET+ | FP7 total | Total FP6/FP7 |
|---|----------------|----------------|-----------------|----------------|------------------|
| Energy | 82,9 | 79,8 | 46,5 | 126,2 | 209,2 |
| Environment | 195,7 | 73,7 | 31,7 | 105,4 | 301,0 |
| Fundamental Sciences | 139,1 | 4,3 | - | 4,3 | 143,5 |
| Health | 168,5 | 376,2 | - | 376,2 | 544,7 |
| ICT | - | 59,4 | 50,6 | 110,0 | 110,0 |
| INCO | 4,2 | 108,0 | 13,8 | 121,8 | 126,0 |
| Industrial Technologies/SMEs | 252,2 | 546,5 | 127,0 | 673,6 | 925,8 |
| Infrastructures | - | 3,5 | - | 3,5 | 3,5 |
| KBBE | 155,1 | 293,2 | 55,5 | 348,8 | 503,9 |
| Security | - | - | - | - | - |
| SSH/SIS | 10,3 | 16,0 | 81,8 | 97,8 | 108,1 |
| TRANSPORT | 43,3 | 79,7 | 31,6 | 111,3 | 154,6 |
| | 1.051,3 | 1.640,2 | 438,5 | 2.078,7 | 3.130,1 |

Table 12: Total public funding per Theme for calls implemented by ERA-NET and ERA-NET Plus actions over the period 2004-2017 including currently planned calls [Euro million].



Graph 4: Total public funding per Theme for calls implemented by ERA-NET and ERA-NET Plus actions over the period 2004-2017 including currently planned calls [Euro million].

The Union funding of ERA-NETs creates substantial effects on research coordination. The leverage effect of the Framework Programme funding was close to 6 for FP6 ERA-NETs (Euro 1 Framework programme funding resulting in Euro 6 public funding of transnational projects) and more than 10 for FP7 ERA-NETs. There is a very significant difference between those FP7 ERA-NETs that continued from FP6 and achieve a leverage effect of more than 16, and new ERA-NETs under FP7 with a leverage effect of 7.

The differences across themes are equally significant, with some individual ERA-NETs reaching leverage effects of 50.

| Leverage effect of ERA-NETs [national funding/Union funding] | ERA-NET FP6 | ERA-NET FP7 | ERA-NET (FP6/ FP7) |
|---|----------------|----------------|-----------------------|
| Energy | 6,4 | 9,2 | 7,5 |
| Environment | 5,3 | 5,3 | 5,3 |
| Fundamental Sciences | 11,3 | 1,8 | 9,8 |
| Health | 6,1 | 17,2 | 11,0 |
| ICT | | 7,3 | 7,3 |
| INCO | 0,5 | 5,6 | 4,0 |
| Industrial Technologies/SMEs | 6,9 | 19,7 | 12,4 |
| Infrastructures | | 0,9 | 0,9 |
| KBBE | 7,2 | 9,6 | 8,6 |
| Security | | | |
| SSH/SIS | 1,3 | 2,6 | 1,9 |
| Transport | 3,1 | 7,5 | 5,0 |
| Total | 5,8 | 10,4 | 7,9 |

| Overall leverage effect of FP7 ERA-NETs | |
|---|------|
| - that continued from FP6 | 16,5 |
| - that started new under FP7 | 7,4 |

Table 13: Leverage effects: Framework-programme funding resulting in public funding of transnational projects.

The question of which **funding mode** to apply for funding transnational projects is a central issue of every call. The following funding modes are in use:

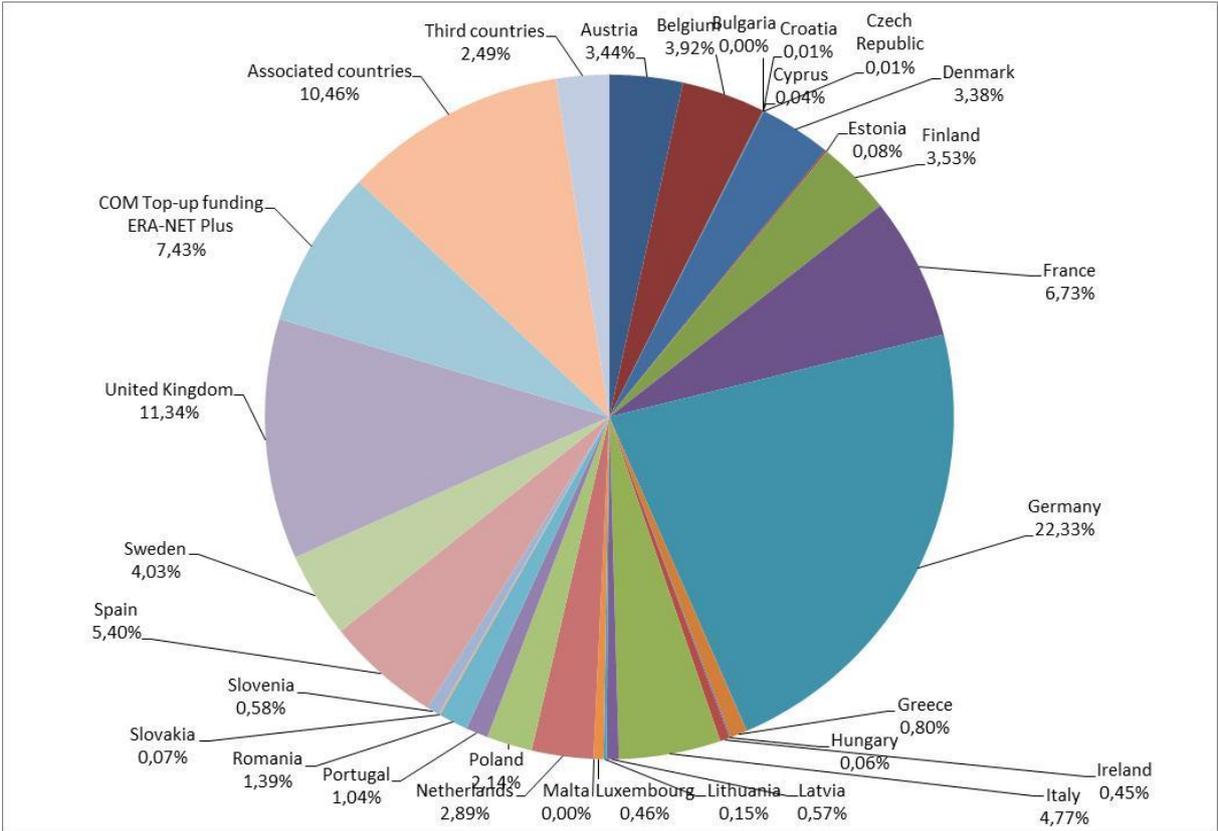
- **Real common pot:** Countries pool their national contributions to a common and centrally administered call budget. This provides funding for successful proposals irrespective of the applicant's nationality and results in transnational flows of funding (funding crosses borders).
- **Virtual common pot:** Countries and regions pay for their own participants without any cross border funding.
- **Mixed mode:** Parts of the call budget are reserved for a "real common pot" which allows compensating mismatch between national funding contributions and requested budgets for successful proposals when following the ranking list.

The most frequently used funding mode (*table 14*) is the virtual common pot with almost 80% of all call budgets. The ERA-NET Plus calls require that Member States use a funding mode that ensures selection according to the ranking list. As a consequence, ERA-NET Plus actions rely almost exclusively on the mixed mode (13% of all call budgets, 90% of all ERA-NET Plus calls). In normal ERA-NET calls real common pot or mixed mode are scarcely used (1%). The use is limited to fundamental research, social sciences, humanities or public procurement actions.

| | ERA-NET | ERA-NET Plus | total |
|--------------------|--------------|--------------|---------------|
| virtual common pot | 79,1% | 0,8% | 79,8% |
| real common pot | 1,6% | 1,6% | 3,1% |
| mixed mode | 4,2% | 12,9% | 83,0% |
| | 84,8% | 15,2% | 100,0% |

Table 14: Funding modes used in ERA-NET and ERA-NET Plus calls [percentage of total public funding]

For the calls launched in the years 2009 to 2014 a fairly representative sample of data (around 40% of the call budgets for that period) has been collected that provides details on the country contribution to the call budgets and funding of transnational projects. The differences across countries are obvious (*graph 5, table 15*). Germany and the UK alone represent 1/3 of the public funding mobilised in the sample. EU 12 contribution is comparatively very low and represents only 5% of the public funding mobilised by ERA-NETs. Associated Countries and Third Countries together account for 13%. If one compares the relative participation of Member States in ERA-NETs to the relative contributions to calls two countries contribute over-proportionally (Germany and the UK), almost all other Member States contribute under-proportionally.



Graph 5: Share per Member State of total public funding in ERA-NET and ERA-NET Plus calls for a sample of calls launched in 2009 - 2014.

| | budget contribution per country | [Euro million] | [%] |
|-----------------------------|--|-----------------------|------------|
| Member States | Austria | 24,5 | 3,44% |
| | Belgium | 27,9 | 3,92% |
| | Bulgaria | - | 0,00% |
| | Croatia | 0,1 | 0,01% |
| | Cyprus | 0,3 | 0,04% |
| | Czech Republic | 0,1 | 0,01% |
| | Denmark | 24,1 | 3,38% |
| | Estonia | 0,6 | 0,08% |
| | Finland | 25,1 | 3,53% |
| | France | 48,0 | 6,73% |
| | Germany | 159,2 | 22,33% |
| | Greece | 5,7 | 0,80% |
| | Hungary | 0,4 | 0,06% |
| | Ireland | 3,2 | 0,45% |
| | Italy | 34,0 | 4,77% |
| | Latvia | 4,1 | 0,57% |
| | Lithuania | 1,1 | 0,15% |
| | Luxembourg | 3,3 | 0,46% |
| | Malta | - | 0,00% |
| | Netherlands | 20,6 | 2,89% |
| | Poland | 15,2 | 2,14% |
| | Portugal | 7,4 | 1,04% |
| | Romania | 9,9 | 1,39% |
| | Slovakia | 0,5 | 0,07% |
| | Slovenia | 4,2 | 0,58% |
| Spain | 38,5 | 5,40% | |
| Sweden | 28,8 | 4,03% | |
| United Kingdom | 80,9 | 11,34% | |
| | COM Top-up funding ERA-NET Plus | 53,0 | 7,43% |
| Associated Countries | Switzerland | 18,2 | 2,55% |
| | Norway | 26,8 | 3,75% |
| | Iceland | 0,8 | 0,11% |
| | Turkey | 20,4 | 2,86% |
| | Israel | 8,4 | 1,18% |
| Third Countries | Burkina Faso | 0,1 | 0,02% |
| | Côte d'Ivoire | 0,1 | 0,02% |
| | Egypt | 0,2 | 0,03% |
| | Kenya | 1,2 | 0,17% |
| | South Africa | 1,1 | 0,16% |
| | Belarus | 0,0 | 0,00% |
| | russia | 3,7 | 0,52% |
| | Canada | 5,3 | 0,74% |
| | Taiwan | 0,5 | 0,06% |
| | serbia | 0,2 | 0,02% |
| | new zealand | 1,0 | 0,14% |
| | USA | 4,3 | 0,60% |
| | | 712,9 | 100,0% |

Table 15: Total public funding per country and country share in ERA-NET and ERA-NET Plus calls for a sample of calls launched in 2009 - 2014.

2. Conclusions on FP7 and outlook for Horizon 2020

2.1 Lessons learned from ERA-NET under FP6 and FP7

The overall experience with ERA-NET and ERA-NET Plus actions under FP6 and FP7 was positive, as witnessed on many occasions by the participating Member State authorities and their funding bodies.

This created expectations towards a further optimisation of the instrument, often linked to the efforts of participation in a large number of initiatives. During FP7 the Commissions services, in close collaboration with ERA-LEARN, organised a number of events and workshops that aimed among other things at identifying user needs for the further development of the ERA-NET scheme. Ministries and funding bodies from all Member States and Associated Countries have been invited to participate in interactive workshops to identify critical issues that the ERA-NET instrument under Horizon 2020 should take into account. The following *table 16* shows their main recommendations and how this has been reflected in the design of the ERA-NET scheme under Horizon 2020.

| User recommendations | Modification of the ERA-NET actions under Horizon 2020 (ERA-NET Cofund) |
|--|--|
| Call implementation is the core activity and important linking element for consortia, ERA-NET Plus is clearly an incentive, but with a high complexity of contractual implementation | Emphasis on co-funding of calls, simplification of grant agreement and reporting obligations towards the Commission |
| Other activities are equally important, it is necessary to keep networks alive and provide a networking budget for all partners | ERA-NET consortia have autonomy and flexibility in deciding which additional activities are implemented |
| Need for more flexible type of ERA-NETs, allowing users to adapt it according to their needs and evolve without constantly amending the grant agreement | Consortia have the flexibility to define any activities they see fit beyond the co-funded call. |
| Partners/associated partners should be able to join for specific activities/periods of time | Variable geometry for activities over the five year duration, participation in activities outside the cofunded call does not require participation in the Grant Agreement. |
| Strong preference for costs reimbursement: Output based for the call and unit costs for other activities | ERA-NET Cofund reimburses 33% of the total public funding paid to the projects resulting from the cofunded call and a fixed amount per ERA-NET partner per year without financial reporting for the other activities. |
| Importance of continuous funding for networking at reduced level to give long term perspective, in particular for smaller organisations | The unit cost for additional activities provides for continuous funding for networking during the five year duration of the ERA-NET Cofund action. |
| Simplify and limit reporting requirements | Reporting is limited (normally two reporting periods), single financial reporting at the end of the action, two numbers per beneficiary (total public funding for the cofunded call, number of years an organisation took part in other activities). |

Table 16: Main stakeholder recommendations on the ERA-NET scheme under FP7 and the way they are reflected in the ERA-NET Cofund actions under Horizon 2020.

Critical issues that are underlined by the statistics in chapter 3 are imbalanced commitments of participating states and the fact that critical mass is not achieved in many cases. The financial commitments to calls differ widely and are often not in line with the research capacities/programme volumes of the countries in question. The issue of unbalanced commitments has to be further analysed together with the Participating States. A number of elements seem to be relevant:

- The initial commitment of a country to a call is not proportionate to the research capacity of the country in question.
- A low number of successful projects resulting from a call does not allow a country to fully use its initial commitment.
- A country does not participate in a call, since their high ambitions for funding to achieve critical mass and expected impacts are not matched by financial commitments of others.

2.2 ERA-NET cofund design under Horizon 2020

A policy decision taken by the Commission in preparing the instruments to be used under Horizon 2020 was to merge ERA-NET and ERA-NET Plus into a single type of action ERA-NET Cofund. This was pursued for the following reasons:

- Reduction in the number of instruments and simplification.
- Improved experience by MS with networking and launching joint calls allows introduction of the compulsory element of a transnational call.
- Build on the positive experienced from ERA-NET Plus concerning critical mass and increased standards for proposal evaluation and selection.

ERA-NET Cofund under Horizon 2020 is designed to support public-public partnerships (including Joint Programming Initiatives) in their preparation, establishment of networking structures, design, implementation and coordination of joint activities as well as topping up of joint calls (one call per Grant Agreement). It is based on the merger of the existing ERA-NET scheme and ERA-NET Plus actions with implementation via "programme co-fund actions" (new under H2020). It allows for programme collaboration in any part of the entire research-innovation cycle.

The implementation under Horizon 2020 follows the principles of simplification and builds on the reliable collaboration with MS and their research funders established over the past ten years. The Commission focusses with an output based approach on the co-funding of individual calls, while allowing a stronger autonomy and flexibility for other activities and calls implemented by the participating states without Commission co-funding.

ERA-NETs under Horizon 2020 have the central and compulsory element of implementing one substantial call with top-up funding from the European Union. **The focus is shifting from the funding of networks to the top-up funding of individual joint calls in selected sub-challenges with high European added value and relevance for Horizon 2020 (policy-driven approach).**

2.3 The use of institutional funding for ERA-NETs

A high level of governmental research funding is allocated as institutional funding and remains largely untapped for research coordination. This goes for both basic research performers as well as those more active in applied research. The limited experience with initiatives that tackle this issue is positive; AERTOS funded under FP7 is an example of an ERA-NET working mainly with institutional funding. The ERA-NET Plus iMERA Plus is a particular successful example of institutional funding being integrated in a call with more than Euro 60 million public funding, leading to the Art.185 initiatives EMRP (FP7) and EMPIR (H2020) integrating 50% of the metrology research into a single initiative.

Consequently the new ERA-NET instrument allows the more systematic inclusion of institutional funding of selected actors in ERA-NET calls under the condition of competition and transparency. This has been made possible for ERA-NET Cofund under H2020 but has to be tested and further developed with the services and stakeholders concerned. First proposals for ERA-NETs using institutional funding are expected to result from the 2015 calls.

2.4 Launch of ERA-NETs under Horizon 2020 and experiences from the first calls

In order to prepare the community of research funders for the new approach under Horizon 2020 a number of activities have been launched:

- The **Info Day on ERA-NET Cofund**³ in January 2014 attracted around 400 participants from ministries and research funders and provided in-depth training on the new instrument and guidance through the different relevant documents (Annex to the work programme, Model Grant Agreement, specific and simplified templates for proposal submission and reporting).
- At the time of the publication of the Work Programme 2014/15 **ERA-LEARN** provided detailed information on the instrument and the relevant calls in form of a **newsletter** (more than 4500 views) as well as a dedicated section "**P2P under Horizon 2020**" on **NETWACH**⁴.
- The central unit coordinating the ERA-NET scheme has worked as a **helpdesk for internal and external users** and answered has more than 200 requests in 2014.
- Four internal training sessions for the DG RTD colleagues were organised in 2014, with more than 100 participants.

The Work Programme 2014/15 included for the year 2014 call topics for ERA-NET actions that led to submissions of 11 proposals. They have been submitted to the calls launched under the different priorities and challenges and evaluated as part of the overall evaluation. Dedicated experts with specific expertise on programme implementation and evaluation in relation to ERA-NETs have been selected, together with thematic experts, to evaluate the proposals. In addition, the unit in charge of coordinating the ERA-NET scheme has carried out a review of all proposals submitted to ensure compliance with MGA requirements and draw overall conclusions. The main results and lessons learned from the proposals submitted to the 2014 call can be summarised as follows:

- Overall the new approach for ERA-NETs under Horizon 2020 has been well understood by the applicants and most proposals fully comply with the ERA-NET Cofund requirements.
- Many very good descriptions of work received high scores from the expert evaluators; these can serve as blueprints for future initiatives.
- Some proposals did not fully comply with call requirements and need to be corrected during grant preparation.
- All but one proposal foresee additional activities.
- Most of the proposals foresee up to 4 additional calls (exception: 2 of the proposals related to JPIS), some of them with substantial indicative financial commitments for the additional calls.
- Proposers introduce a wide range of additional activities, with no general difference between ERA-NETs with or without JPI background.
- Many proposals include strong international collaboration.

In conclusion the new approach under Horizon 2020 seems to have been well received and well understood by the applicants. It is nevertheless foreseen to establish an expert group in 2015 that will perform an in-depth analysis of ERA-NET Cofund proposals submitted to thematic ERA-NET calls and of the first experiences in their implementation, taking into account operational, strategic and policy related criteria.

³ <http://ec.europa.eu/research/era/era-net-cofund-h2020-infoday2014.htm>

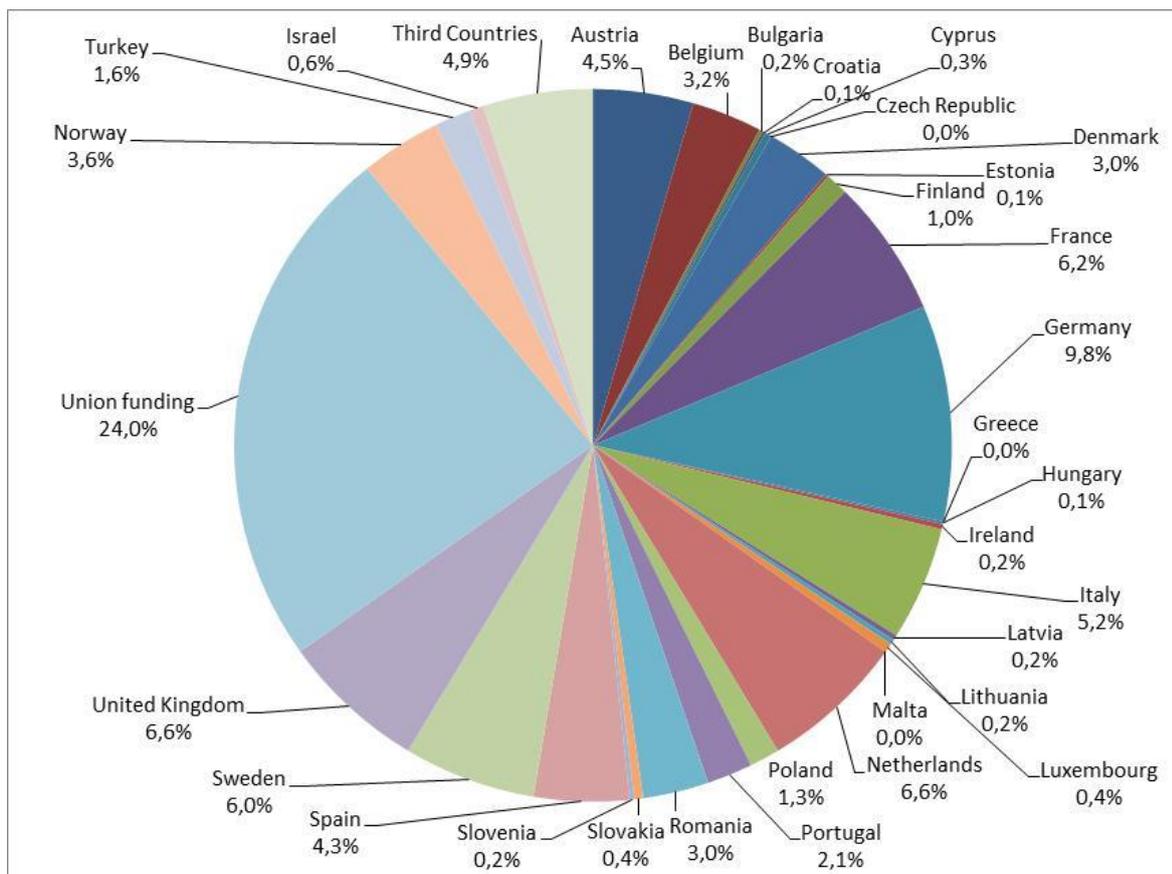
⁴ <http://netwatch.jrc.ec.europa.eu/web/lp/learning-platform/p2p-in-h2020>

2.5 Impact of the ERA-NET Cofund actions on the calls launched

The proposal data for the ERA-NET Cofund actions submitted to the calls in 2014 allows a comparison between the calls implemented under FP7 and the cofunded calls planned by the ERA-NETs under Horizon 2020. The main findings are summarised in *table 17* and *graph 6*. The cofunded calls that will be implemented by the ERA-NETs submitted in 2014 will on average result in a much broader participation of countries and substantially larger call budgets. The budget contributions are more balanced, and the participation of EU13 countries has increased, although the increase is stronger for the share of participation than for the budget contributions. The stronger country participation results in three countries participating in every ERA-NET call, and a further nine that participate at least in 60% of the calls.

| | ERA-NET scheme FP7 | ERA-NET Cofund Horizon 2020 |
|---|--------------------|-----------------------------------|
| Number of countries per call | 10 | 18 |
| Average call budget [Euro million] | 8,8 | 27,9 |
| Share of EU13 | | |
| - budget | 5% | 6% |
| - participation | 13% | 21% |
| Countries participating in calls | | |
| 100% | - | 3 (BE, ES, NL) |
| > 80% | - | 5 (+ PT, NO) |
| > 60% | 3 (BE, FR, DE) | 12 (+ AT, FR, DE, IT, PL, RO, UK) |

Table 17: Comparison of key data for calls launched by the ERA-NETs under FP7 and the ERA-NET Cofund calls under Horizon 2020 (cofunded calls planned for 2015)



Graph 6: ERA-NET Cofund proposals submitted to the Horizon 2020 calls in 2014: share per country of total public funding in the co-funded calls.

2.6 Horizontal support to public-public partnerships under Horizon 2020

A further element that has been designed to better support public-public partnerships under Horizon 2020 is the initiative ERA-LEARN 2020 (subject to conclusion of grant agreement, currently under preparation). In order to strengthen P2Ps and support Member States and their research funders in the preparation, implementation and monitoring of jointly implemented actions it is necessary to provide a common framework. The specific challenge that needs to be addressed across all priorities and challenges is how to realise a common approach to the preparation and implementation of joint activities and aligned national/regional activities, their monitoring and impact assessment as well as dissemination of results. This needs to involve the main stakeholders engaged in designing and deploying the broad structures and functions for the coordination and cooperation of national and regional research programmes.

In order to address this issue a successor to the NETWATCH and ERA-LEARN activities of FP7 has been prepared and is likely to start in early 2015 under the title ERA-LEARN 2020 to:

1. Provide a web-based information, learning and support platform for P2P to avoid duplication of efforts;
2. Support the ongoing optimisation of P2P networks by providing a toolbox for the wider activities of joint programming, particularly the JPIs, Art.185 and ERA-NET Cofund instrument, as well as their associated impacts;
3. Implement a systematic process for monitoring and impact assessment of P2P networks, including their impacts at both the policy, programme and co-funded RTD project-level;
4. Assess and benchmark current approaches to alignment and explore options for new modalities to better align national and/or regional activities under common research agendas;
5. Implement an annual cycle of knowledge exchange aimed at increasing the impact of investment in P2P activities and exploring options to support less research intensive countries.

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The ERA-NET scheme was launched in 2002 under the 6th Framework Programme (FP6) to support the coordination and collaboration of national research programmes. It aimed at facilitating the exchange of good practices, the strategic planning and the design of joint research programmes as well as the implementation of joint activities, in particular joint calls.

Under the 7th Framework Programme (FP7), the ERA-NET scheme was reinforced by introducing an additional new module, ERA-NET Plus, which allows the topping-up of joint trans-national funding for calls with European Union funding.

ERA-NETs under Horizon 2020 follow the principle of simplification and build on the reliable collaboration with MS and their research funders established over the past ten years. They merge the former ERA-NET and ERA-NET Plus and have the central and compulsory element of implementing one substantial call with top-up funding from the European Union. The focus is shifting from the funding of networks to the top-up funding of individual joint calls in selected sub-challenges with high European added value and relevance for Horizon 2020 (policy-driven approach).

Studies and reports

