POLICY BRIEF

ERA-LEARN / GPC analysis of the impact of JPP and JPIs at the national level

ERA-LEARN:
enabling systematic interaction with the P2P community

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Foreword

It was 2015 when I joined the High-level Group for Joint Programming (GPC), that is 7 years after the group has been created as an ERAC dedicated configuration by the Competitiveness Council. I was appointed to the group and accompanied with a message that Joint Programming is the next big thing in R&I because global challenges are not limited within national borders. At the time, I found this very self-evident and something that would be easily understood by decision makers, thus, easy to 'sell'. It soon turned out that the main objective of the Joint Programming, pooling national research efforts in order to make better use of Europe's research resources and effectively tackle common European challenges, is quite a bite and hard to come by, notably when presenting and promoting the added value of implementation structures of JP, the Joint Programming Initiatives (JPIs). It fact JP requires new mindsets and rethinking and reorganizing the way national and regional research programmes are defined and implemented to move towards more aligned research systems. This has proven particularly challenging.

At that time a need for a greater focus on impact, i.e. documenting, demonstrating and measuring it, was a daily topic in the R&I landscape. The 'Hernani Report' - Evaluation of Joint Programming to Address Grand Societal Challenges - stated in 2016 that it was too early in the Joint Programming Process to evaluate the impact of the JPIs on the grand societal challenges, but some socio-economic and minor structural impact could be drawn from JPIs themselves. However, the impact on the national and regional R&I systems has never been tackled. Yes, it is important to explore what has been achieved. In this regard the GPC undertook a survey of the GPC delegates in 2019.

As the Joint Programming is still at the core of integration of different European and national policies, shifting from JPIs to European partnerships, the GPC hopes to have delivered another purposeful contribution to the Joint Programming and evolving partnership landscape, by showing where development of Joint Programming and implementation of Joint Programming Initiatives deviated and what could be improved at the national level.

This report is a joint work of a GPC Task Force including Ingeborg Schachner-Nedherer (AT), Brigitte Weiss (AT), Sirpa Nuotio (FI) and myself, and the ERA-LEARN consortium, in particular, the author Effie Amanatidou. Special thanks and gratitude goes to Ingeborg, Brigitte and Sirpa as well as Effie for her extensive knowledge and experience and linking this report to existing ERA-LERAN analyses and policy briefs.
My thanks and appreciation also go to the rest of the GPC delegates, for responding extensively to the survey, providing comments to earlier versions of the report and insisting to complete the assessment task.

I also offer my sincere appreciation for the learning opportunities provided by the GPC group and their insightful comments and suggestions.

Petra Žagar (GPC Acting-Chair)

1. Executive summary

This report aims to shed light on the impact of the JPP and JPIs at the national level. In this regard it can help examine to what extent the JPP and the JPIs have achieved the goals of priority 2a of the ERA, namely, to address societal challenges through impacting the national programmes and processes.

The is based on a survey that collected responses from GPC delegates from 21 countries and the Belgian region of Flanders, as well as findings from other GPC and ERA-LEARN reports. The task addressed the macro-level considering the impact of engaging in the Joint Programming Process overall without restricting the focus on the individual impact of the ten JPIs, although the views naturally differ from one JPI to another. In this way, this report is complementary to other assessment studies that have been conducted until now (e.g. of ERA-NETs and Art 185 initiatives). Despite the uncertain future of the GPC, the joint programming process is still at the heart of the new partnerships under Horizon Europe. Thus, the results presented in this report are very relevant for the design of the new partnerships under Horizon Europe.

In particular, it is important to realise that participating countries perceive the level of fulfilment of their expectations differently. This is mainly due to the varied performance of the JPIs but also the different starting point of each country, although they all appreciate the value of JPIs both in terms of jointly addressing the agreed challenges but also in relation to policy learning. JPIs do have a way to go in translating their research results to be taken up by policy or economic cycles, but they have indeed achieved a good level of interaction with national policies that led to mutual influence. Whereas the alignment of national policies is moderately progressing, the level of achievement of interoperability across national programming and policy cycles seems to be particularly limited. Such barriers, along with the, usually, large efforts needed to administer participation in JPIs, and the lower success rates of certain countries might render the whole effort less worthy. These conditions are quite relevant for the new Horizon Europe partnerships and the positive steps towards streamlining the landscape and simplifying / harmonising the organisation and participation are welcome. Yet, efforts to increase and ensure the necessary funding from all sides involved are still pertinent, as is the development of a strategic approach for partnership participation. The JPI experience as Member-State initiative supported at the highest policy level is valuable in this regard.

Most countries share similar expectations from participation in the JPP and JPIs. Joining national resources at European level to create critical mass necessary to tackle global challenges is the most relevant expectation / motivation, along with creating common agendas for research and innovation and ensuring that national perspectives are also considered. Interestingly, contributing to increased and faster knowledge transfer to policy or economic cycles does not seem to be a

strong motivation, although gaining leadership worldwide in a given societal challenge is considered highly relevant.

The above initial expectations were fulfilled at varied degrees across the countries. While the majority (16 countries) states that they were moderately or even significantly fulfilled, there is another set of five countries that are more critical. This is due to several reasons as explained by the survey respondents. JPIs are considered to fall short in translating research results into usable inputs for policy-making and other stakeholders. The lack of adequate human resources to manage participation is always an issue that is exacerbated in a quite populous partnership landscape. This can partly account for the inability of some countries to secure adequate financial contributions.

Indeed, the most relevant barrier to JPI participation is the difficulty to allocate national resources to JPI activities. There are several explanations for this including, for instance, the absence of a relevant national programme but also possible incompatibilities of the programme's own procedures and timing with those of the JPI. Indeed, diverse timing of decision-making and funding, as well as incompatibility of annual national policy cycles and specificities of organisations that do not allow supporting certain types of costs or of research were recorded in all the ERA-LEARN country reports.

For some countries, initial ambitions and expectations might have been very high and could not all be met. For others, the JPP did not completely succeed in reducing the gap in research capacities between countries. At the same time, alignment of national policies seems to have been achieved only to a moderate or limited extent. However, several examples of influencing the national systems were cited by the respondents. To note just a few,

- *BiodivERsA has been key to the development of a Belgian Biodiversity Platform to promote Belgian research and to act as a science-policy interface in biodiversity (BE)*
- *National programme Mare:N considers strategic aspects of the SRIA of JPI Oceans (DE)*
- *JPI Oceans SRIA used in National Marine Research & Innovation Strategy 2017-2021 (IE)*
- *BYFORSK clearly inspired by transdisciplinary and cross-sectoral scope of JPI UE (NO)*
- *New research and innovation act includes provision that mission of all ministries should address societal-challenge research, same for new national strategy for internationalization (SI)*
- *Member states and communities of JPIs actively engaged in the design of the European partnerships in Horizon Europe, e.g. JPI Urban Europe and the European Partnership – driving urban transitions to a sustainable future (DUT).*

The claim that the JPP and JPIs do not add anything to national policy making was moderately relevant for several countries (BE-Flanders, EE, MT, PL, PT, SI). Possible explanations may account for this. The Flemish programmes, for instance, are open to foreign participation and they fund foreign research organisations. Thus, they can partly be considered as 'competitors' to trans-national partnerships. In addition, the number of supported projects may not be proportionally analogous to the increased membership of Belgian funding agencies in public R&I partnerships

(*ERA-LEARN Report Belgium*). The low success rate of proposals with Polish organisations might explain the case of Poland (*ERA-LEARN Report Poland*), while the reported barriers are indeed reflected in the limited involvement of Estonia, Malta, Portugal and Slovenia in public R&I partnerships overall.

Additional reported barriers relate to the low level of connection of JPI administrators with the national research community and thus the level of visibility of JPIs at the national level. Indeed, the national system of JPI governance calls for improvements. While there is a national coordination mechanism at least to some extent in most of the countries, the difficulty of coordinating participation nationally is reported as relevant barrier by 10 out of the 22 countries/regions represented in the survey. Nonetheless, it is worthy to note that such a mechanism was totally or to some extent created in response to the need for coordination because of JPP participation for 15 of the 22 countries/regions. In addition, the vast majority claim that there is a monitoring and evaluation system, but in most cases, this is not specifically dedicated to the JPP and JPIs.

Support of JPI participation usually comes from budgets controlled by the Ministries and the funding agencies based on relevant national programmes and through ordinary budget lines. The budget allocation system for JPP may be centralised, i.e., a central funding agency using the budget for European and international collaboration, or totally decentralized with responsibility spread around multiple actors at the national and regional level. Overall, JPI calls are at the same standing as national calls and need to 'compete' in terms of budget allocation. Transferability of money abroad is possible for certain countries – although feasible under pre-conditions for many more - that are also 'open' to real common pots and other schemes such as 'money follows researcher' or 'money follows collaboration'. Overall, the more 'open' systems seem to be in Estonia, Norway, Finland, Cyprus, Iceland, Sweden and the UK.

Positive impacts mainly have to do with the opportunities offered for cooperation with other European countries on a bilateral basis, possibly as spin-offs from the partnerships, and with non-EU countries within the partnerships. Several examples are reported in the survey, for instance:

- *JPI Cultural Heritage has contributed to engaging new research environments nationally(…) Participation in JPI Ocean has led to a pan-European cooperation on two very critical topics which would not have taken place had it not been for JPI Oceans(…) The JPI on Agriculture, Food Security and Climate Change (FACCE JPI) and the JPI on Health, Food and Prevention of Diet Related Diseases (JPI HDHL) have provided useful platforms for Norway (and the other MS/AC) to promote the need for R&I in the field of food and nutrition security (FNS) at the World Expo 2015 in Milano. 2015 has been the year when Sustainable Development was set on the global agenda by the UN, culminating in the adoption of the 17 SDGs, the Agenda 2030 and COP21. The JPIs´ input was timely (May 2015) and contributed to increased attention, especially to also integrate seafood and aquaculture in the FNS-concept. (NO)*
- *Participation in JPIs significantly broadened and deepened contacts and interactions between ministries and funding bodies of different European countries. JPIs created new and active trans-national communities with the shared interest of fostering research on specific (societal)*

themes. JPIs also developed joint activities to improve the impact of common research and a common understanding of cooperation with non-European countries. (NL)

- *For some the main success of the JPIs has been the opportunity to collaborate across Europe and allow Irish researchers to build EU/international networks. (IE)*
- *The added value is that research projects are in partnership with more than one country, which is difficult without the JPI instrument. (UK)*

Although the vast majority (>80%) of responses disagree with any statement indicating lack of positive impact or negative impact, there are some interesting remarks to be made. Undoubtedly the partnerships have positively modified the European arena of international projects. In certain countries this might not have been as evident as in others. This might be attributed to an already good international standing of the national research community as reported by Denmark, Poland, Spain, and Flanders or the already good collaboration with other countries as claimed by Denmark and Slovenia. However, the costs outweigh the benefits for Flanders and Slovenia. A more general explanation is also pertinent here. The costs and benefits relate to the administrative burden that is caused by the participation, the national contributions made available, and the benefits gained in terms of number of projects eventually approved. As Slovenia is one of the least represented countries in overall participation in public R&I partnerships based on the ERA-LEARN data, it is natural that the benefits are low, which in turn exacerbates the perceived costs of participation.

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

Complementing the peer learning experience, JPI members were able to join several groups at European level that promoted good practices related to joint programming. This has clearly proven to be a positive experience for all.

2. Introduction

Joint Programming is a structured, strategic process whereby Member States agree on a voluntary basis and in a partnership approach, on common visions and Strategic Research and Innovation Agendas (SRIA) to address major societal challenges. Participation of Member States is based on the principle of variable geometry. The European Commission (EC) is invited to act as a facilitator by providing ad-hoc and complementary measures to support the Joint Programming Initiatives (JPIs).[1]

There have been two evaluations, in 2012[2] and 2015[3], focusing on the functioning of the Joint Programming Process (JPP) and the ten JPIs that have been set up. Yet, the need for further analysis and reflections on the added value of the JPP is still pertinent especially in view of the discussions on the new partnerships under Horizon Europe currently underway. Responding to this need, the GPC together with ERA-LEARN undertook the task to launch a survey in order to shed light on the impact of the JPP and JPIs at the national level. The aim was to provide information and evidence on possible impacts on research systems, policy making, policy learning and possible influence on society at large. This report presents the findings of the survey that collected responses from GPC delegates from 21 countries and the Belgian region of Flanders considering as much as possible a consolidated national view.

The exercise addressed the macro-level considering the impact of engaging in the Joint Programming Process overall without restricting the focus on the individual impact of the ten JPIs, although the views naturally differ from one JPI to another as marked by the respondents. In this way, this report is complementary to other assessment studies that have been conducted until now (e.g. of ERA-NETs and Art 185 initiatives).

The following sections present the results of the survey, mainly descriptive statistics of the responses as well as the comments made in the open boxes.[4] Where relevant and in making the report as explanatory and comprehensive as possible, other ERA-LEARN publications are cited, the impact assessment policy briefs[5] and country reports[6] in particular.

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[1] https://www.era-learn.eu/partnerships-in-a-nutshell/type-of-networks/partnerships-under-horizon-2020/joint-programming-initiatives#:~:text=Joint%20Programming%20is%20a%20structured,to%20address%20major%20societal%20challenges.

[2] https://studylib.net/doc/11891516/review-of-the-joint-programming-process--mrs.-h.-acheson

[3] https://op.europa.eu/en/publication-detail/-/publication/d4a8f349-e68c-11e5-8a50-01aa75ed71a1

[4] The questionnaire of the survey is included in the Annex.

[5] https://www.era-learn.eu/support-for-partnerships/governance-administration-legal-base/monitoring-and-assessment

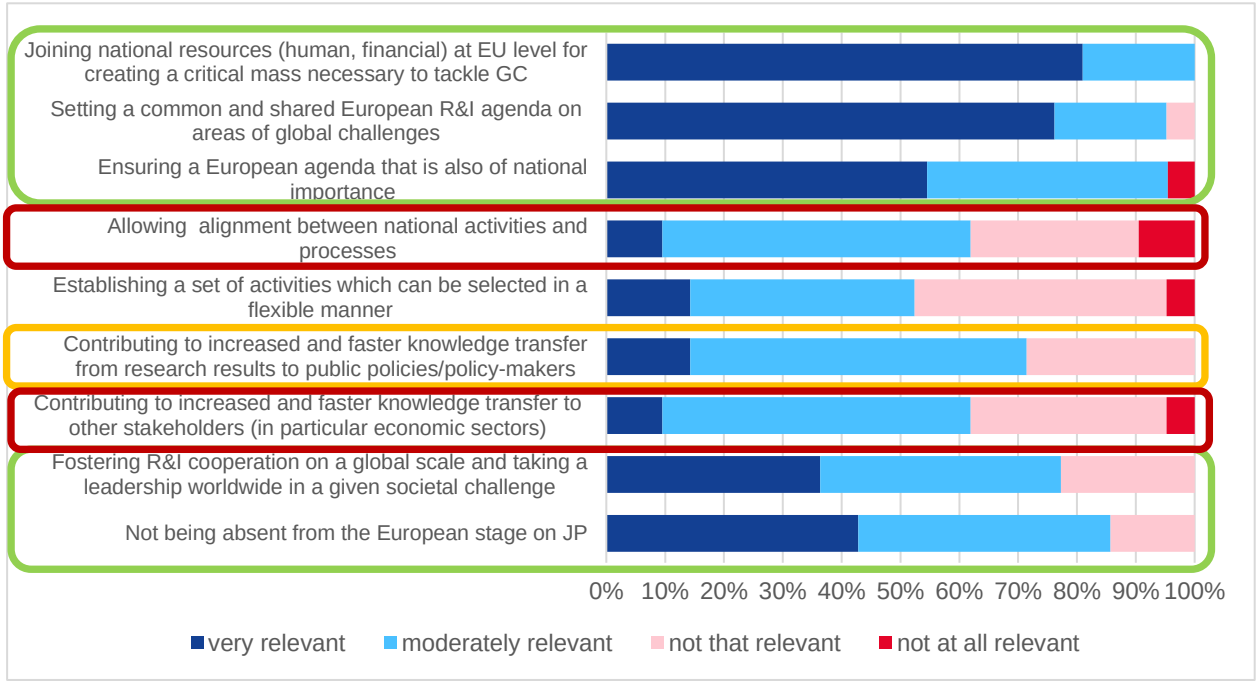
[6] https://www.era-learn.eu/documents (insert 'country report' in the search phrase)

Despite the uncertain future of the GPC, the joint programming process is still at the heart of the new partnerships under Horizon Europe. Thus, the results presented in this report are very relevant for the design of the new partnerships.

3. Initial expectations and motivations

Most countries share similar expectations from participation in the JPP and JPIs. **Joining national resources at EU level for creating critical mass** necessary to tackle global challenges across national borders, is the most relevant expectation / motivation along with **setting a common and shared European R&I agenda on areas of global challenges** and **ensuring a European agenda that is also of national importance**. Thus, it is primarily resource-relevant (critical mass) and alignment-relevant (policy agendas) expectations that prevail. Interestingly, **contributing to increased and faster knowledge transfer from research results to policies or other stakeholders (in particular, economic sectors)** does not seem to be a strong motivation, although **fostering R&I cooperation on a global scale and taking a leadership worldwide in a given societal challenge** is considered highly relevant. Symbolic reasons are also present in the form of not **being absent from the European stage on JP**.

Figure 1: Initial expectations and motivations



These findings echo the results of the *ERA-LEARN 2015 Policy Brief*[7] that were based on 23 interviews with JPI members. As stated in the relevant report:

[7] https://www.era-learn.eu/documents/era-learn-publications/d3-2_final_3nov2015.pdf

> *"…there is an underlying recognition of the international context of research and the fact that there are certain capacities of scientific endeavour that cannot be achieved through narrow programmes or within national borders…"*

At the same time, certain motivations at the organisational level (i.e. the funding agencies perspective) were also identified in the *2015 ERA-LEARN Policy Brief* that can be considered complementary to those revealed by the GPC survey. These include gaining access to additional European funding for the local research community, offering the research community opportunities to build their international profile and mutual learning by exchanging experiences with other funding agencies in relation to managing internationalisation. From the researchers' point of view, JPIs may also be incentivised by the possibility to continue collaboration in a H2020 project; in other words, they are seen as an "entry point" to H2020 than a replacement. (ERA-LEARN 2015 Policy Brief)

The above initial expectations were fulfilled at varied degrees across the countries. While the majority states that they were fulfilled to a moderate extent (for 11 out of 22 counties/regions), a set of five countries (BE, DE, FR, NO and SE) report that they were significantly fulfilled, but another set of five countries (DK, MT, PL, PT, SI) are more critical. Considering the fact that it is difficult to formulate one view across the different JPIs, there are many reasons to justify a more reluctant or critical stance.

Based on the respondents' explanations, JPIs are considered to fall short in relation to translating research results into usable inputs for policy-making and other stakeholders including business actors and potential users. The innovation gap seems to be persistent. Another issue relates to the lack of adequate human resources to manage participation in JPIs and other partnerships in a quite populous landscape, which can partly account for the inability of some countries to secure strong national engagement and adequate financial contributions. JPIs were also expected to have a stronger integration with the work-programmes of the EU Framework Programme, but this has proven false.

For some countries, initial ambitions and expectations were very high and could not all be met. Pooling national resources (partly supported by EC budget) for topics of joint interest was successful, as well as the establishment of thematic platforms on relevant societal challenges. Yet, JPIs did not develop a strong enough national impact to achieve alignment of national programs and agendas and ensure a European agenda that is also of national importance. For others, the JPP did not completely succeed in reducing the gap in research capacities between countries. The actual approach seemed to place the already strong countries in a preponderant position. This attracts particular attention in light of the design of the new partnerships.

4. Alignment of national policies and strategies

Alignment of national policies has been achieved only to a certain extent. When respondents were asked to assess the degree to which national priorities were reflected in the SRIAs, 15 out of 22 countries/regions stated moderately and to a limited extent. The same result was marked when asked about the degree to which the SRIAs influenced national policies and strategies. Notwithstanding variations across JPIs. 16 out of 22 counties/regions) reported moderately or to a limited extent here too. Nonetheless, there were some notable examples of actual influence.

Box 1: Examples of cross-references between SRIAs and national policies

JPI Climate cited in Climate Change Science Plan (2018). It also forms the basis for cooperation within the BMWFW's "Responsible Science" programme on climate research (AT)

SRIAs of BiodivERsA influenced the national strategy (BE)

Marine strategy goals are reflected in SRIA of JPI Oceans (EE)

JPI Climate SRIA had a big input from Finnish Meteorological Institute and other Finnish RPOs. Finnish Water Way had impact in the update of JPI Water SRIA (FI)

Some national plans of sectoral ministries take into account the JPND or JPI AMR SRAs (FR)

Successive strategic plans from the Heritage Council reflected the need to continue to engage with EU networks such as the JPICH. The Water JPI SRIA was reflected in the EPA research Strategy 2014-2020 Water priorities. (IE)

Deltaplan on Food/Nutrition reflected well in the updated SRA of JPI HDHL. The national ABR committee provided input on the JPIAMR SRA and the SRA was consulted for a second national programme on AMR. Dutch national priorities were considered in the JPI MYBL SRA (NL)

SRIAs from JPND and JPI AMR have led to a national research strategy for neuro-degenerative diseases and a national strategy on antibiotic resistance JPI Oceans initiated a cross-cutting perspective in ocean research that has later also been introduced in Norwegian Ocean policies. As an example of a national priority that influenced the establishment of the JPIs SRA, sea food has been made much more visible in the SRA of JPI HDHL (NO)

JPI Climate and JPND SRIAs influenced relevant national strategies (SI)

The UK Nutrition Research Partnership has provided input into the JPI HDHL's SRA. The UK National Action Plan for AMR was developed at the same time as the SRIA and the MRC (Medical Research Council) was involved in both processes(…) On precision medicine, both the JPND and MRC had delivery plans and calls about this topic. (UK)

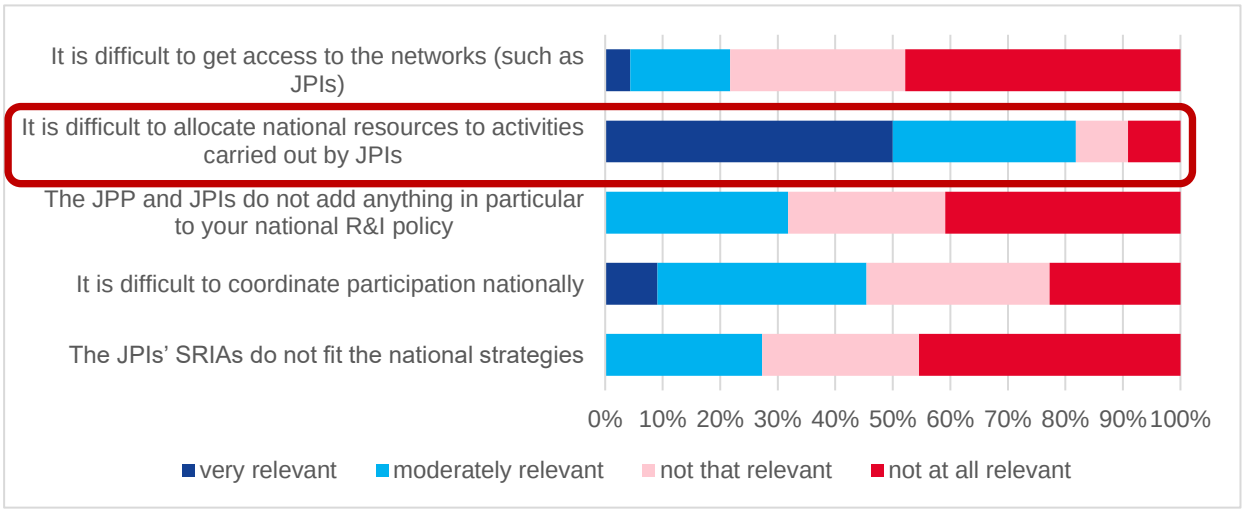
5. Barriers to participation to the JPP and JPIs

The most relevant barrier to participation to the JPP and the JPIs is **the difficulty to allocate national resources to activities carried out by JPIs**. There are several explanations for this. Based on the comments made, the absence of a relevant national programme is a barrier but, at the same time, when a programme does exist the possible incompatibility of the programme's own procedures and timing with those of the JPI might also be problematic. Respondents also commented that the lack of adequate national resources and prioritisation difficulties are also relevant barriers especially given the highly populated partnership landscape.

Indeed, diverse timing of decision-making and funding, as well as incompatibility of annual national policy cycles and specificities of ministries and funding agencies that do not allow supporting certain types of costs or certain types of research were also recorded in all the ERA-LEARN country reports prepared until now.[8]

Additional reported barriers relate to the low level of connection of JPI administrators with the national research community and thus the level of visibility of JPIs at the national level.

Figure 2: Barriers to participation to JPP and JPIs

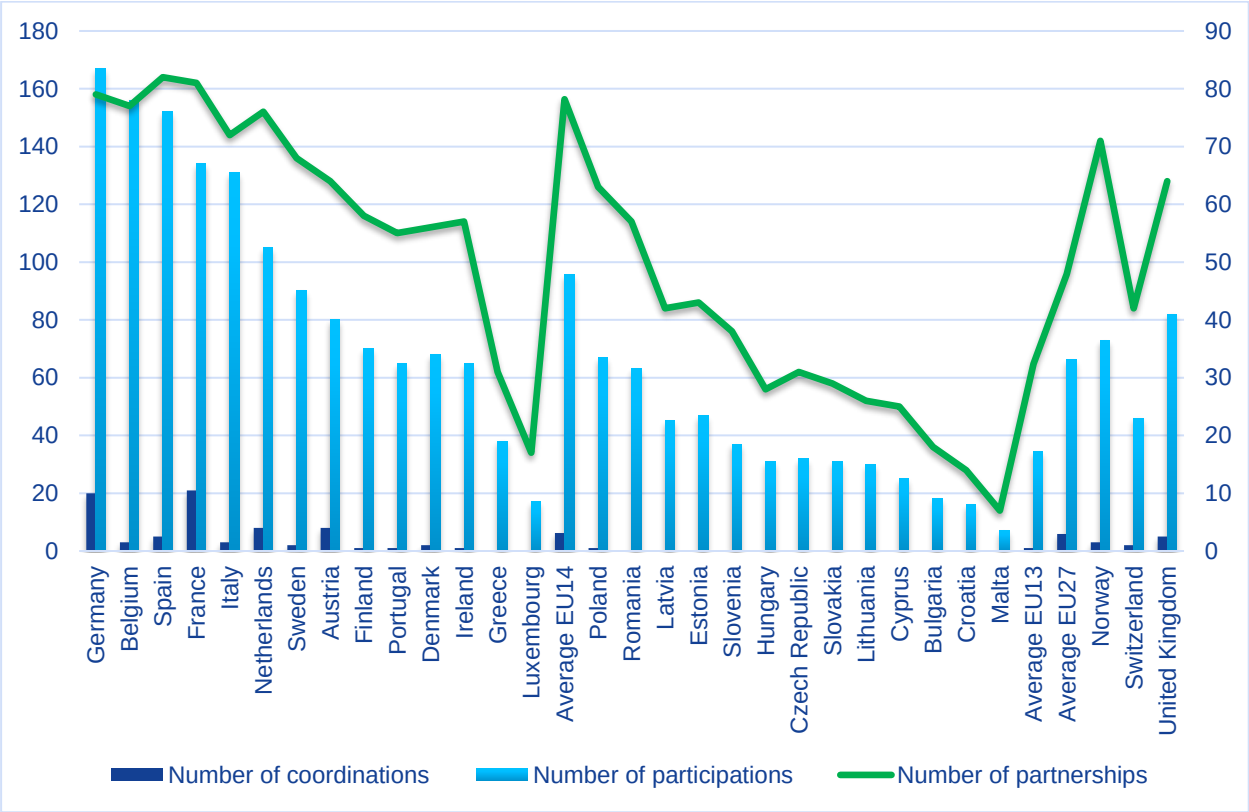


The claim that the **JPP and JPIs do not add anything to national R&I policy** was moderately relevant for several countries (BE-Flanders, EE, MT, PL, PT, SI). Certain explanations may account for this. The Flemish programmes, for instance, are open to foreign participation and they fund foreign research organisations. Thus, they can partly be considered as 'competitors' to trans-national partnerships. In addition, the number of supported projects may not be proportionally analogous to the increased membership of Belgian funding agencies in public R&I partnerships

[8] Documents — ERA-LEARN (era-learn.eu) (insert 'country report' in the search phrase)

(ERA-LEARN Report Belgium). The low success rate of proposals with Polish organisations might offer an explanation for Poland (ERA-LEARN Report Belgium), while the reported barriers are indeed reflected in the limited involvement of Estonia, Malta, Portugal and Slovenia as shown in Figure 3.

Figure 3: Participations and coordinations of Partnerships by country and number of Partnerships by country in H2020 (incl. JPIs)



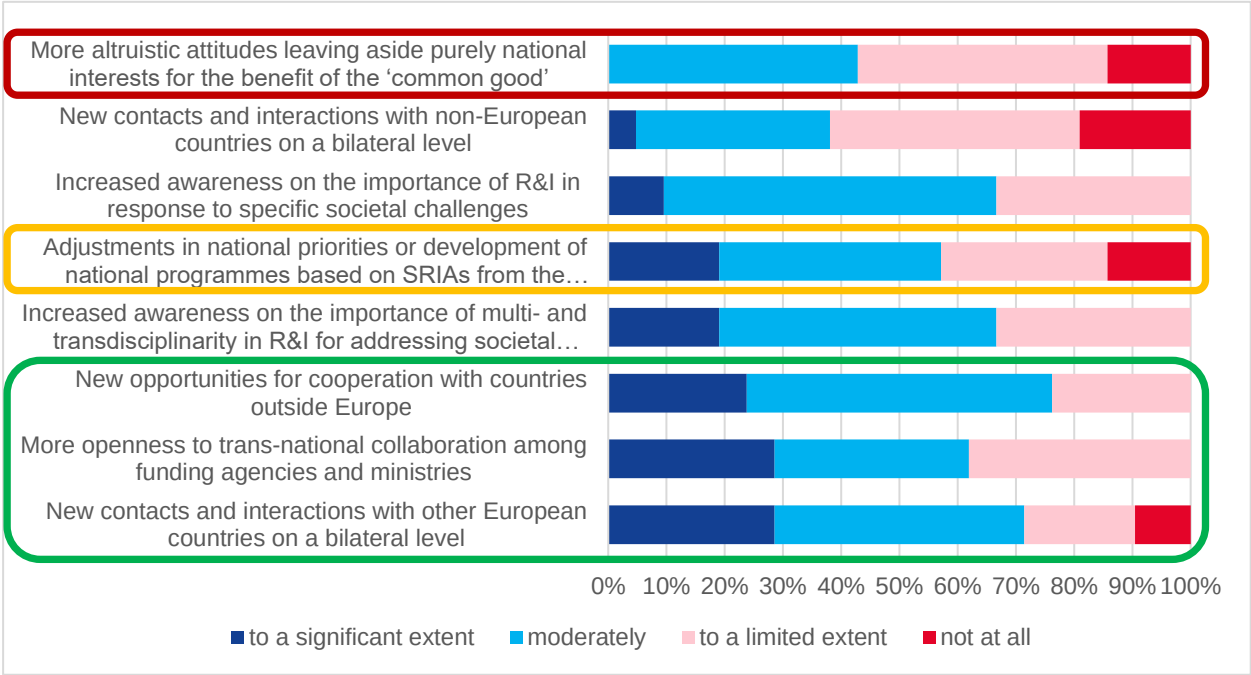
Source: ERA-LEARN database (cut-off date August 2020).
(*) Partnership coordinations: number of partnerships a specific country coordinates. Partnership participations: number of partnerships a specific country takes part as participant. Total partnership participations: number of partnerships a specific country participates in with any role (i.e. coordinator, participant, observer, other).

Difficulties to coordinate participation nationally is moderately or very relevant for a number of countries including Belgium, Czech Republic, Denmark, Italy, the Netherlands, Poland, Portugal and Slovenia. These include cases of high decentralization like Belgium for instance or populous national research systems like Italy. Interestingly, four of the same countries (CZ, DK, NL, PL) also report limited fit of the JPI SRIAs to national strategies as a moderately relevant barrier.

6. Positive and negative impacts

Positive impacts mainly have to do with the new **opportunities offered for cooperation with other European countries on a bilateral level**, possibly as spin-offs from the partnerships, as well as **with countries outside Europe**. **More openness to trans-national collaboration among funding agencies and ministries** is also highly appreciated. Interestingly, the **adjustments in national priorities or the development of national programmes based on SRIAs** is moderately achieved.

Figure 4 : Positive impacts of JPP at national level



The respondents highlight that providing a uniform answer for all JPIs it is difficult. Yet, some overall comments were made as shown below.

Box 2: Statements regarding the positive impacts perceived by JPP and JPIs

JPIs have inspired European and international research collaborations at a wide range for the benefit of national research groups(…) The research community has become more aware of European research opportunities. (DE)

JPI CH has contributed to engaging new research environments nationally (…) Participation in JPI Ocean has led to a pan-European cooperation on two very critical topics which would not have taken place had it not been for JPI Oceans (…)The JPIs (FACCE and HDHL) have provided useful platforms for Norway (and the other MS/AC) to promote the need for R&I in the field of food and nutrition security (FNS) at the World Expo 2015 in Milano. 2015 has been the year when

Sustainable Development was set on the global agenda by the UN, culminating in the adoption of the 17 SDGs, the Agenda 2030 and COP21. The JPIs´ input was timely (May 2015) and contributed to increased attention, especially to also integrate seafood and aquaculture in the FNS-concept. (NO)

In some cases SRIAs have had an impact on national programmes and initiatives. In other cases there has been no relevant national programme and it has been more difficult to participate. (FI)

Participation in JPIs significantly broadened and deepened contacts and interactions between ministries and funding bodies of different European countries. JPIs created new and active trans-national communities with the shared interest of fostering research on specific (societal) themes. JPIs also developed joint activities to improve the impact of common research and a common understanding of cooperation with non-European countries. (NL)

For some the main success of the JPIs has been the opportunity to collaborate across Europe and allow Irish researchers to build EU/international networks. (IE)

The added value is that research projects are in partnership with more than one country, which is difficult without the JPI instrument. (UK)

The vast majority (>80%) of responses disagree with any statement indicating lack of positive impact, or negative impact of JPIs and JPPs at the national level, there are some interesting remarks to be made. (Fig. 5) Undoubtedly the partnerships have positively modified the European arena of international projects. In certain countries this might not have been as evident as in others, however. This might be attributed to an already good international standing of the national research community as reported by Denmark, Poland, Spain and Flanders or the already good collaboration with other countries as claimed by Denmark and Slovenia.

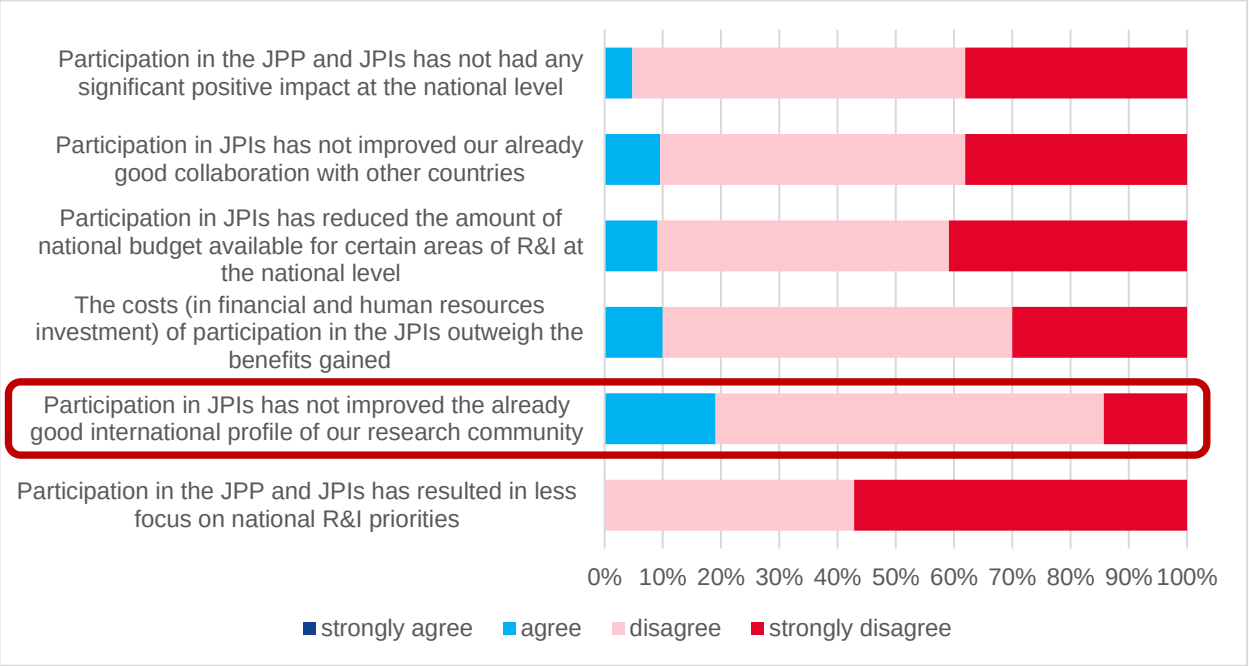
Denmark enjoys a good international profile of the national research community. Based on the ERA-LEARN database[9], although the number of partnerships that Denmark takes part (including JPIs) is not much higher than the EU average (56 vs. 48) the number of approved projects with Danish participants is much higher than the EU27 average (346 vs. 309). This denotes a strong research community internationally. The same stands for Belgium with 361 projects. Naturally, expectations may have been higher than in other countries.

Overall, the costs outweigh the benefits for Flanders and Slovenia. This may be partly explained by the fact that Flanders enjoys already a good international research profile while Slovenia states that there is already good collaboration with other countries. A more general explanation is also pertinent. The costs and benefits relate to the administrative burden that is caused by the participation, the national contributions made available and the benefits gained in terms of number of projects eventually approved. As Slovenia is one of the least represented countries in overall

[9] Participation in H2020 publicly funded R&I Partnerships including JPIs - data on participation and number of projects supported (cut-off date August 2020).

participation in public R&I partnerships (Fig. 3) it is natural that the benefits are low, which in turn exacerbates the perceived costs of participation.

Figure 5: Lack of positive impacts or negative impacts of JPP at national level



Box 3: Statements regarding the lack of positive impacts perceived by JPP and JPIs

The human resource investment is considerable and is still increasing compared to the 'domestic' calls for proposals. There is no additional budget for such a collaboration, it is just a reorientation of our existing budget. (BE)

The human resources investment needed to prepare and participate in the joint transnational calls is significant and often goes unrecognised…There is also a large output in maintaining a watching brief on JPI activities and looking at influencing agendas…That said while the administrative burden of such programmes is quite heavy, the links established are extremely valuable across the EU and beyond. (IE)

This overall balance may differ among specific JPIs. The ERA-NET calls fill a gap between national and multilateral (horizon 2020) calls, it allows post-docs to participate in small multilateral research projects and exchange practices. JPIs have often acted as drivers to bring important actors on the national level together. (NL)

For the UK, an important aspect of participation is that JPIs compliment and add value to national agendas and need to be aligned at the outset. Strength of alignment varies depending on commonality of key issues at European level vs national variation. (UK)

6.1. Extent of influence at national level: policy or structural

The first *ERA-LEARN Policy Brief (2015)* on impacts from JPIs identified certain structural impacts that related to changes in institutions and structures in the national research landscape. These took the form of changes to research governance organisation. New, inter-ministerial forms or mirror groups were created responding to the need to coordinate national participation. JPI members mentioned that increased national coordination was an impact they anticipated and cited numerous examples. Structural impacts also emerged from developing the SRIAs. This was of two main types, firstly, the adjustment or creation of a national strategy in a specific area, or, the consideration of SRIAs in the national strategies. (*ERA-LEARN Policy Brief, 2015*)

Indeed, these findings were echoed in the responses in the GPC survey in 2019. Although answers to the question "to what extent do you consider that the JPP and JPIs have influenced your national system" were split across "not at all", "limited extent", "moderately" and "significant extent" (10%, 35%, 35%, 20% respectively), there were many examples of such impact in addition to those reported in Box 1.

Box 4: Examples of policy or structural impact at national level

Experience of JPI UE inspired to take leadership of the European Partnership – driving urban transitions to a sustainable future (DUT)in Horizon Europe; Establishment of the Austrian Joint Water Initiative (AT)

More effective national coordination with sectorial ministries and other stakeholders (CZ)

Increased awareness in sectorial ministries on partnerships and international cooperation (EE)

Due to Water JPI, Finnish Water Way (Finland's International Water Strategy) increased cohesion between stakeholders in Finland. Implementation Plan of Blue Bioeconomy (in Finland) and establishment of a national mirror group related to Water JPI. (FI)

Structural effects and inputs to national strategies (FR)

National programme Mare:N considers strategic aspects of the SRIA of JPI Oceans (DE)

JPI Oceans SRIA used in National Marine Research & Innovation Strategy 2017-2021 (IE)

SRIA of the JPIs considered in National Research Programme 2021-2027 (IT)

BYFORSK clearly inspired by transdisciplinary and cross-sectoral scope of JPI UE (NO)

New research and innovation act includes provision that mission of all ministries should address societal-challenge research, same for new national strategy for internationalization (SI)

Such impacts were only reported to a limited extent for Flanders, Czech Republic, Denmark, Malta, Netherlands, Poland and Sweden, or not at all for Portugal and Portugal and Iceland.

6.2. Uptake of JPI research results in public policies

As discussed earlier, the contribution to increased and faster knowledge transfer to policy or economic cycles was not seen as a strong motivation. Indeed, when asked about the uptake of JPI research results in public policies, 65% of the respondents consider that this has been achieved to a moderate extent, while the rest think that such a contribution has been insignificant. Nevertheless, some notable examples are worth mentioning.

Box 4: Uptake of JPI research results in public policies

Investing in ICOS (Integrated Carbon observing System) was triggered by JPI Climate. Water JPI Conference 2016 raised awareness in policy makers. (FI)

Microplastic and deep-sea mining support had major impact on policy and general public awareness. Research and sectorial ministries are well aware of JPIAMR and take research results into account. (DE)

JPI-AMR increased awareness of AMR issue with a one-health perspective, including alternative strategies to combat antimicrobial resistance. Part of these were reflected in the National Programme for Combating the Anti-Microbial Resistance 2017-2020. (IT)

Water JPI policy papers on Chemicals of Emerging Concern reached the policy makers. (NL)

Participation has led to a pan-European cooperation on two very critical topics (microplastics and munitions) which would not have taken place had it not been for JPI Oceans (NO)

AMR: Both China and India have now banned the use of colistin in animal feed based largely on transnational research (Newton funded activity). The loss of the translational pipeline for new antibiotics is due to market failure as new drugs are held in reserve to preserve their effectiveness. New pilot programs to provide market incentives based on developing new antibiotics, rather than relying on market sales, are underway in the UK, Sweden and the USA (…) JPND established in 2016 a working group on the harmonisation and alignment in brain imaging methods. In addition, it developed a research database which contains data on the scope and spread of research related to neurodegenerative disease in 27 member countries. It also developed a Global Cohort Portal which is a searchable catalogue of cohort studies that covers both disease-focused and general population studies and a PND Database of Experimental Models for Parkinson's Disease (…) JPI HDHL is committed to interacting as effectively as possible with relevant European initiatives and programs for optimal information flow and transparency and to create valuable synergies. (UK)

7. National governance

7.1. National coordination systems – monitoring and evaluation systems

Based on the survey respondents, most countries do have a coordination mechanism whose scope ranges from thematic coordination to overall coordination of international collaboration. Such national coordination mechanisms include tasks such as:

- Informing the national stakeholders
- Discussing the national positions for representation in JPIs governance bodies
- Contributing to strategic documents/discussions developed within the JPIs
- Identifying issues in the JPP in general in order to feed policy discussions
- In some cases, decisions on national commitments / contributions

The actors involved possibly reflect the national research and innovation system including research miniseries, sectorial ministries, research funding and performing organisations, stakeholders from economic sectors and others with an interest in research and innovation. It is noteworthy that 15 of the 22 countries/regions state that this mechanism was totally or to some extent created in response to the need for coordination because of participation in the JPP and JPIs.

In addition, 19 out of the 22 represented counties/regions indicate that there is a monitoring and evaluation system for the participation in the JPP and JPIs. However, in most cases this is not specifically dedicated to the JPP and JPIs but is integrated in the overall monitoring and evaluation system addressing national programmes, initiatives, policies, etc. Notwithstanding, there have been countries or funding agencies that have carried out evaluation exercises specifically for their participation in public R&I partnerships.[10]

[10] See for example the evaluation reports of the Academy of Finland, https://www.era-learn.eu/support-for-partnerships/governance-administration-legal-base/monitoring-and-assessment/reference-library.

7.2. Budget and funding

Budget allocation and coverage of JPI governance

Support of JPI participation usually comes from budgets controlled by the Ministries and the funding agencies based on relevant national programmes and through ordinary budget lines. In the absence of a relevant national programme, multiple budget lines and sources of funding may need to be drawn together to cover JPI participation. The budget allocation system for JPP may be centralised, i.e. a central funding agency using the budget for European and international collaboration (as in France) or totally decentralized (as in Belgium) with responsibility spread around multiple actors at the national and regional level. In some other countries such as Finland for instance, ministries, funding agencies and research performing organisations have separate budgets and governance and can participate according to their own priorities. There are also cases (like the Netherlands) where budget allocation is done on an ad-hoc basis and the decisions are made case-by-case. Alternatively, in other countries such as Italy, a specific share is annually earmarked (15% of MUR budget) for JPIs and public R&I partnerships, with equal amount provided in cash and/or in kind by research performing organisations with their own budget research budgets.

Overall, JPI calls are at the same standing as national calls and need to 'compete' in terms of budget allocation. Yet, there is also the example of Sweden where a dedicated group including the governmental agencies that fund research is given an annual amount to distribute strategically, on top of what each agency decides to allocate for their transnational collaborations. This is around € 20 mil from a total budget that is given to research funding agencies of appr. € 1100 mil.

Financial support of the governance and management of the JPIs (i.e. JPIs member fees, budget to participate to governing/management board meetings, in-kind contributions, etc.) is not covered systematically through a dedicated budget line for instance. It is mostly addressed on a case-by-case basis, although in some countries there is a central actor that is responsible for covering the participation fees. The payment of fees is usually included in the same budget under specific ministries dedicated to supporting international collaboration.

Transferability of money aboard and the real common pot model

Transferability of money abroad is possible for the funding agencies of certain countries only, notably, Belgium, Cyprus, Estonia, Iceland and Norway. It is impossible for example in France, Czech Republic, the Netherlands, or Poland. In the case of Italy and Estonia it is only possible provided the money goes to national beneficiaries. For Austria, Germany, Flanders, Finland and Spain, it is possible only in exceptional cases that need sound justification. In the case of Spain, for instance, and in particular of the Agencia Estatal de Investigación (AEI), it is possible to make

transfers abroad to finance R&I activities of Spanish entities, but this requires a complex administrative procedure established by law to receive the approval of various ministerial budget control departments (Foreign Affairs, Fiscal Office, Council of ministers).

Similar conditions apply in the case of participating in a real common pot. While it is possible for certain countries, it is legally impossible for others, and there is also a group of countries that allow this only in exceptional cases although it is not forbidden by law. As an example, the funds available by the Ministry of Science and Innovation in Spain, managed by the AEI, are mostly grants to finance R&I entities based in Spain. However, it would be possible to finance a foreign entity, although this would require a very solid argument for the desirability of investing Spanish public funds to a foreign entity.

Transferability of money abroad and adoption or the real common pot in partnerships should be treated as two separate issues, however. Although it may be possible for certain countries, the purpose and effectiveness of adopting a real common pot in a partnership should also be examined.

Table 1: Possibility to transfer money abroad and participate in a real common pot funding scheme

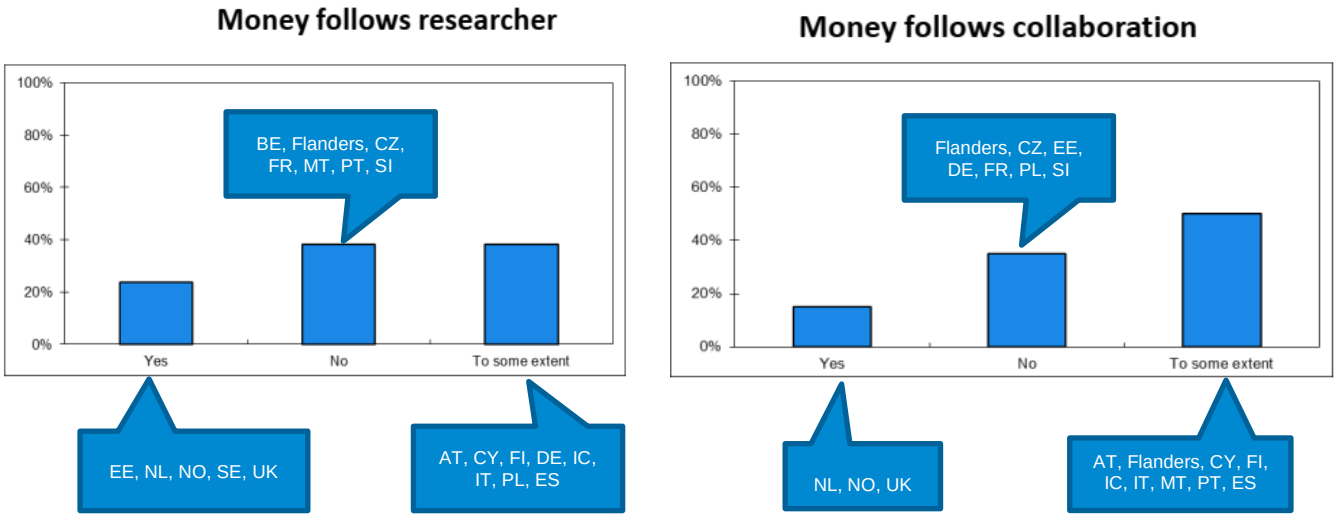
	Transfer money abroad			Real common pot		
	Possible	Pre-conditions/ exceptional cases	Impossible	Possible	Pre-conditions/ exceptional cases	Impossible
Austria		X			X	
Belgium-Federal	X				X	
Belgium-Flanders		X				
Cyprus	X			X		
Czech Republic			X			
Denmark			X		X	
Estonia	X				X	
Finland		X		X		
France			X			X
German		X			X	
Iceland	X			X		
Ireland						
Italy		X			X	X
Malta			X			
Netherlands			X			X
Norway	X			X		
Poland			X			X
Portugal			X		X	
Slovenia			X			
Spain		X			X	
Sweden		X				X

United Kingdom		X			X	

Other ‘open’ schemes

The inability to transfer money abroad is also reflected in the degree to which other ‘open’ schemes like the ‘money follows researcher’ or the ‘money follows collaboration’ are feasible for participation. Countries that are able to transfer money abroad, like Norway and Estonia, are also able to take part in schemes like ‘money follows researcher’ where portability of project funding is enabled when researchers move across borders within Europe. On the other hand, in the case of the Netherlands or Poland for example, where it is not possible to transfer money abroad, schemes like ‘money follows researcher’ or ‘money follows collaboration’, where foreign expertise is allowed and funded, are possible. (Figure 6)

Figure 6: Participation in the ‘money follows researcher’ and money follows collaboration’ schemes



Whereas the majority of the countries state that possibility to take part in such schemes is subject to specific pre-conditions, it can be concluded that the more ‘open’ systems are found in Estonia, Norway, Finland, Cyprus, Iceland, Sweden and the UK.

Finally, all countries (except Malta) state that they are able to take part in a lead agency scheme, where one agency/organisation is delegated responsibility of managing the partnership on behalf of the other partners.

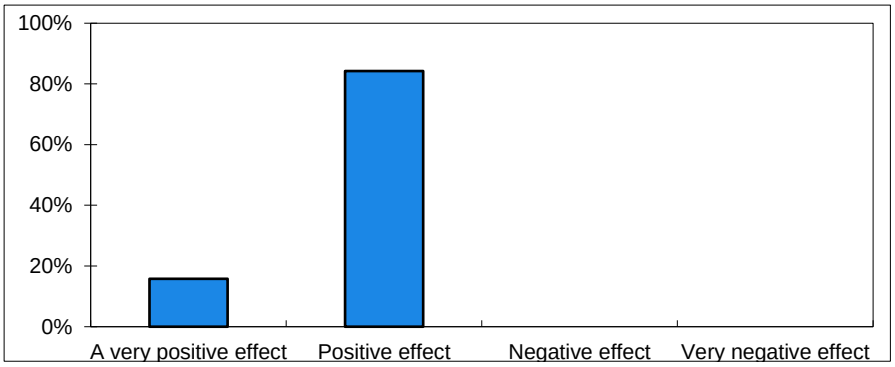
8. The peer learning experience

The potential impact of participation in JPIs extends beyond supporting research projects and influencing policies or structures at national level. It can relate to mutual learning, identification and spread of good practices. When asked about the capacity of the research funding organisations to manage transnational programmes, respondents were split to those that stated that this was improved due to JPI participation and those where capacities remained the same.

The countries that improved their capacity through JPI participation included Austria, Czech Republic, Estonia, Finland, France, Germany, Ireland, Italy, Malta the Netherlands, Norway and Spain. Interestingly six of the ten countries (AT, FI, FR, DE, IT, NL, NO and ES) are among the top performers in terms of participation in public R&I partnerships including JPIs. (Figure 3) It can be concluded that the more participation, the more benefits gained via mutual learning. However, capacities can also worsen because of the limited resources available to manage transnational collaboration in the first place, which become even more scarce by adding JPI participation as stated by Belgium.

Complementing the peer learning experience, JPI members were able to join several groups at European level that promoted good practices related to joint programming (e.g., GPC, Mutual Learning Exercise on Alignment, other JPI working groups, etc.). This experience clearly had a positive impact on the development of national policy on joint programming as shown in Figure 7.

Figure 7: Impact of participation in groups at European level on the development of national policies on JP



Additionally, certain examples were reported to illustrate such experiences. While the benefits gained through mutual policy learning cannot be doubted, there are certain issues that need to be tacked for JPIs to be successful.

Box 5: experiences of participating in relevant EU level groups about the development of national policies on JP (e.g., GPC, Mutual Learning Exercise on Alignment, other JPI working groups, etc.).

Participation means constant mutual learning from European partners. (AT)

The GPC has had an impact on the general coordination process at national level. (FR)

Positive effect on calls and evaluation procedures and rules, science to policy activities and Mirror Groups. For another JPI, it has led to far better understanding of EU policy, access to trans-national networks on heritage and research policy. For other JPIs, it has so far been very positive in terms of establishing pan-EU (and beyond) links, though hasn't significantly influenced national policies. (IE)

While we do not have a dedicated policy for JP, the experience in these Groups has contributed to shaping the internationalisation dimension of the national R&I strategy and the ERA Roadmap for Malta. (MT)

Norway participates in the GPC and its working groups, and also in the MLE on alignment and interoperability of research programs. These are useful arenas and reports and provide inspiration for further development of national policy. (NO)

MLE and IG2 participation has lead to that we have set up a national organisation for the JPI coordination. Ministries and agencies participate. (SE)

Climate JPI: We have seen positive impact in terms of improved understanding of the complexities of linking trans-national activities… For JPs to be successful links between RFOs (the financers) and RPOs (the "doers") need to be improved…JPs need to strike the right balance between supporting harmonised European strategic objectives and more bespoke national agendas. The balance is different depending on the sector / thematic of the particular JPI. (UK)

9. Strategic work by the GPC, the JPIs and the European Commission

The High-level Group on Joint Programming (GPC) and the European Commission (EC) have accompanied and supported the Joint Programming Process (JPP) and undertook several analyses on the effect and the impact of the JPP, focussing among others on the impact of the JPP at the national level. Additionally, the JPIs followed, at least partly, a harmonized approach and reflected their work, coordinated by the Chairs of the 10 JPIs.

This work formed an important part of the JPP. To take stock of its outcome and in view of the development of the New European Research Area and the ERA Forum for Transition (EFT) some results are highlighted in this part of the report. Several of the topics discussed in the ERA Forum for Transition have been an issue for many years in Joint Programming (JP) already. Important results can be found in the reports mentioned in this short summary of the analytical and strategic work on the JPP by the GPC, the JPIs and the EC, with some of them being relevant concerning the effect of JP on the R&I systems of European Member States (MS) and Associated Countries (AC).

9.1. Task Force on Monitoring and Evaluation by the JPIs (2018)

The Report of the Task Force on Monitoring & Evaluation by the JPIs[11] was the result of a joint effort by the 10 JPIs supported by ERA-LEARN to examine the monitoring and evaluation frameworks to support the steering and decision-making of the JPIs.

A major conclusion of this effort was, that the evaluation and comparison of JPIs is a complex task and that their effect on their domain and in the R&I of their MS/AC is obvious, although difficult to specify and very much depending on the nature of the domain of the JPI. This has many reasons, one being the very complex nature of the JPIs and the diversity of the JPP. A result of this work was a set of dimensions and indicators to reflect the functionalities of the JPIs. Many of these indicators describe the effects of JP on national R&I systems:

[11]ERA-Learn, Report of the Task-Force on Monitoring & Evaluation of the JPIs, 2018, by participants of the 10 JPIs https://www.era-learn.eu/documents/final_report_task_force_m-e_jpis_dec2018.pdf

Dimension	Indicator
Alignment of national and European and/or international research and innovation programmes and resources	Committed SRIAs
	Adaptation of national priorities towards JPI SRIA
	Shared or coordinated use of R&I infrastructures
International cooperation or activities Enhanced knowledge production/sound knowledge base in JPI area	Engagement with countries beyond Europe
	Influence on global agenda
	Productivity and quality of R&I community
	Size, structure and diversity of R&I community
	Integration with user sectors
	Research and innovation management policies
Governance	Administrative efficiency
	Representative efficiency
	Relational efficiency
Contribution to the area of the societal challenges	Influence on factors contributing to tackling the area of societal challenge
	Impact on policy relevant to the area of the societal challenge

9.2. Report of the GPC Task Force on the analysis of the Long-Term Strategies of the Joint Programming Initiatives (2018)

The report[12], drafted by the GPC working group on the Future of Joint Programming analysed the long-term strategies of the 10 JPIs that have been developed through a GPC-led process together with the JPIs. These long-term strategies were developed in view of the upcoming EU Framework Programme for research and innovation (2021-2027), with the aim to visualise a common outline for the future of JP and to provide input for the strategic planning of the EU. Using a standardized format, the 10 JPIs submitted detailed long-term plans for their topics. They presented a strong narrative of concerted strategic planning and delineated how societal challenges can be tackled through joint

[12]ERAC-GPC 1306/18,P. Holm et.al, Final Report of the GPC Task Force on the analysis of the Long Term Strategies of the Joint Programming Initiatives (2018) https://www.era-learn.eu/documents/jpi_longtermstrategies_analysis

efforts of MS/AC. The long-term strategies of the 10 JPIs together with the analysis be the GPC confirmed the relevance of the joint work in the respective domains and showed a large number of achievement by the JPIs and the JPP.

The analysis found that all JPIs had around 20 member countries or more, functioning management structures with a clear leadership, a secretariat and advisory bodies suitable for the needs of the JPI, strategic plans for their joint work, as well as an impressive number of joint activities. All JPIs managed to counteract fragmentation and to improve the R&I structure and alignment in Europe within their domains and they built stable knowledge hubs and networks. Some of the JPIs influenced a significant share of research in their domains and had leading positions at least in parts of their R&D domains. The long-term strategies by the 10 JPIs and the report by the GPC identified a large number of concrete examples for outcomes and achievements that are still relevant.

Among the activities and outcomes of the JPIs were a high number of joint calls, the building of stable knowledge hubs, alignment, coordination and networking within their domains, communication activities, the publishing of position papers and extensive international cooperation.

This analysis, however, also revealed a number of important challenges with relevance to the analysis of the impact of JP on national R&I. The most relevant are the funding of the JPIs joint activities and functioning of the secretariat for the joint calls that are both much affected by a too short commitment perspective of typically just 1-2 years. Even with substantial joint funding by MS/AC, European funding from the Framework Programme has proven to be essential to enable such complex forms of international R&I collaboration. Many of the challenges for JPIs appear to go back to the still highly heterogeneous national R&I systems. Another general concern was the poor involvement of EU13 countries (in JPIs as well as in the EU Framework Programme). The rather low participation of industry and the difficulty in engaging all relevant groups of stakeholders can be traced to the initial research focus of the JPIs and remains an important challenge to address.

Several of the recommendations developed in this report are still relevant for ERA, for the Partnerships under Horizon Europe, for Joint Programming and for the R&I-collaboration between MS/AC beyond Horizon Europe:

- A strong mid-term (3-5 years) commitment is required due to the long-term nature of the challenges tackled. The joint work needs to be high on the agendas of MS/ACs to boost synergies between national and European investments to achieve the desired sustainability. This crucial aspect has been observed also in previous analyses, asking for active support mechanisms by MS/AC and the EU.
- Continued mid-term (3-5 years) commitment from the EC Framework Programme is essential to create leverage effect on MS/AC. Almost all long-term strategies of the JPIs showed that this support, together with even a modest level of support from the Framework Programme, like a CSA for funding of coordination, makes a big difference.

- More involvement, also in core activities, by stakeholders and industry is needed when tackling societal challenges.
- Better coordination is needed between JPIs and other joint activities of MS/AC and the Framework Programme together with stronger positioning of JPIs within the European research landscape and beyond.
- Evaluation, strategic coordination, foresight and regular updates should ensure that the joint activities are still most relevant for tackling their challenges.

9.3. Report "Evaluation of Joint Programming to Address Grand Societal Challenges" (2016)

The final report by the expert group chaired by Juan Thomas Hernani "Evaluation of Joint Programming to Address Grand Societal Challenges"[13] was an important work initiated by the EC. This report claims that at its start in 2008 the JPP was highly welcomed by MS/AC and that a large proportion of EU MS/AC participated in the 10 initiatives. The JPP was seen as a solution for grand challenges and as an instrument to enable collaboration of countries, the EC, regulatory authorities, citizens, users, industry administration, stakeholders and city councils. This report analysed the successes and weaknesses of the JPP 15 years after its start. The report found that there is a broad participation; however, two thirds of the investments in joint activities at that time came from just seven countries (Germany, Sweden, Netherlands, France, UK, Italy and Norway). The report also confirmed that the financial support from the Framework Programme (through CSA, ERA-Net Cofund Actions, etc.) has always been essential. Participation varied across Europe and less than 50% of the 33 countries that responded to the survey considered that they are actively participating in the JPIs at a high level. Most countries replied to be 'satisfied' with the JPIs but a significant minority (30%) indicated that they are 'unsatisfied'. The feedback on the adaptation of national research policy and systems was also quite disappointing. Barriers were identified to be structural, financial, or related to the nature of national research systems, a lack of emphasis on challenge-based, or even thematic, research, etc. On the positive side, many appreciated access to knowledge and international capacity building. Industry was found to be underrepresented.

The report also examined the impact of the JPIs on their respective societal challenge and their effectiveness to mobilize co-investment and alignment actions, revealing quite different patterns

[13] A. Hunter, J.T. Hernani et.al, Evaluation of Joint Programming to Address Grand Societal Challenges, European Commission 2016 https://www.era-learn.eu/documents/ec-publications/jp_evaluation_final_report.pdf.

among the JPIs. In some cases, it was found that the JPP and individual JPIs influenced the national research and innovation policy and that they had an impact on their societal challenge, although to a varying extent. The work of the expert group confirmed once again the need of the support from the Framework Programme and a stronger support by MS/AC.

9.4. Report of the Working group on GPC and JPIs (2014)

The Working group on GPC and JPIs[14] together with the Implementation Group "Fostering and Mentoring JPIs"[15] tackled the implementation of JP by the JPIs, the GPC and the EC. Some of the key messages as outcome of the analysis at that time are still relevant. Feedback from the consultations undertaken with the actors in the JPP indicated that relations / communications between the partners in the Joint Programming process were suboptimal to the attainment of their respective mandates. The GPC Working Group did not find evidence of properly structured relationships between the GPC, JPIs and EC, nor evidence of a reliable and consistent communications structure between the parties involved in Joint Programming. At that time, arrangements were ad hoc and based on individual personal contacts within the various groups.

The Working Group identified the EC as a key player, which has both the resources and ability to bring all parties together. Moreover, the EC has responsibility under the Treaty to take any useful initiative to promote such coordination to ensure that national policies and the Union policy are mutually consistent. Joint Programming Initiatives were found to be key instruments in developing such mutual consistency. While the EC should perform this coordination promotion role, the JPP was confirmed to be a Member States driven initiative. The GPC, as the political and strategic forum for Joint Programming would have the obligation to have a clear vision and determined and sustained political commitment.

Analysis by the working group confirmed that an active participation and commitment by Member States and Associated Countries that join JPIs is vital in order to promote cohesion, to maintain a high level of interest in Joint Programming and to maximise resources' utilisation. The participation only at the GPC level was not found to be enough. It is important, therefore, to keep the opportunity open for future participation by Member States in Joint Programming and Article

[14] ERAC-GPC 1306/14 (2014) P. Kelly et.al., Report of the Working group on GPC and JPIs https://data.consilium.europa.eu/doc/document/ST-1306-2014-INIT/en/pdf

[15] GPC, B. Weiss et.al., GPC Implementation Group 1, "Fostering and mentoring JPIs" (2016) https://www.era-learn.eu/documents/2016212gpcig1reportfinal.pdf

185 initiatives. The principles of Open Access and Variable Geometry were identified as valuable features of Joint Programming. Further recommendations with a view on the impact of Joint Programming on the R&I of MSs included increased visibility and a communication and dissemination strategy, a future-oriented strategic vision, better alignment of European and Member States R&I activities, and substantive resources. The role of the GPC in coordinating activities of Member States around their JPIs was seen as complementary to its Mandate.

9.5. Report of the GPC Working Group on framework Conditions for Joint Programming (2014)

The Report of the GPC Working Group on Framework Conditions for Joint Programming[16] was elaborated by a group of members of the GPC to update the Voluntary Guidelines for Framework Conditions on Joint Programming in the light of the experience of the JPP since its beginning. This Working Group acknowledged the impressive progress JPIs have made since the start of the JPP. The major key messages related to the impact of Joint programming are:

1. Joint Programming is a learning process with the ambition to change substantively the way we cooperate in research. JPIs are platforms for research and innovation in their respective challenge area. Such an undertaking cannot be designed on a drawing board but needs to be developed over time.

2. The degree of divergence of rules and procedures for funding R&I throughout MSs/ACs is such that it considerably delays transnational collaboration in the ERA. Simplification and harmonisation are needed.

3. A well-balanced governance system, which provides effective leadership, is a prerequisite for success in achieving the objectives of a JPI. Continuous evaluation of the effectiveness of the governance system of each JPI is essential.

4. The strategic process of translating an identified grand challenge into joint activities is the core task of every JPI. Its main elements are defining strategic objectives, a vision, and are developing a Strategic Research (and innovation) Agenda (SRA, SRIA), supported by an implementation plan.

[16] ERAC-GPC 1304/14 (2014) https://data.consilium.europa.eu/doc/document/ST-1304-2014-INIT/en/pdf

5. Though the focus on the implementation of the SRAs or SRIAs has primarily been on the joint calls, JPIs have already carried out a large variety of joint activities. All these activities aim at the alignment of (national and European) resources.

6. The ultimate objective of JPIs is to contribute to overcoming societal challenges. JPIs can contribute to this objective by inducing (technological and/or societal) innovation, or by providing evidence (research findings, data) for political decision-making.

The potential impact of participation in JPIs extends beyond supporting research projects and influencing policies or structures at national level. It can relate to mutual learning, identification and spread of good practices. When asked about the capacity of the research funding organisations to manage transnational programmes, respondents were split to those that stated that this was improved due to JPI participation and those where capacities remained the same.

The countries that improved their capacity through JPI participation included Austria, Czech Republic, Estonia, Finland, France, Germany, Ireland, Italy, Malta the Netherlands, Norway and Spain. Interestingly eight of these countries (AT, FI, FR, DE, IT, NL, NO and ES) are among the top performers in terms of participation in public R&I partnerships including JPIs. It can be assumed that the more participation, the more benefits gained via mutual learning can in a way improve policy planning and implementation in the national R&I systems.

Imprint

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10. Annex: survey questionnaire

Survey on impact of Joint Programming at national level

For which country are you replying? *[Several replies for Belgium to be considered]*

Answer on an individual basis or on a consolidated national basis

GENERAL QUESTIONS

1) What were your initial expectations and motivations for your country to participate to the JPP and JPIs (very relevant, moderately relevant, not that relevant, not at all relevant)?
    a. Joining national resources (human, financial) at European level for creating a critical mass necessary to tackle global challenges
    b. Setting a common and shared European R&I agenda (SRIA[17]) on areas of global challenges
    c. Ensuring a European agenda that is also of national importance
    d. Allowing alignment between national activities and processes
    e. Establishing a set of activities which can be selected in a flexible manner
    f. Contributing to increased and faster knowledge transfer from research results to public policies/policy-makers
    g. Contributing to increased and faster knowledge transfer to other stakeholders (in particular economic sectors)
    h. Fostering R&I cooperation on a global scale and taking a leadership worldwide in a given societal challenge
    i. Not being absent from the European stage on JP
    j. Others – please specify:
    k. Any additional comment on these initial expectations and motivations:

2) To what extent have your country's initial expectations and motivations been globally realized?
    a. To a significant extent/moderately/to a limited extent/not at all
    b. Please specify which expectations and motivations have been realized to a limited extent or not at all:

3) What are for your country the barriers to participate to the JPP and JPIs (very relevant, moderately relevant, not that relevant, not at all relevant)?
    a. It is difficult to get access to the networks (such as JPIs)
    b. It is difficult to allocate national resources to activities carried out by JPIs

[17] Strategic Research and Innovation Agenda

c. The JPP and JPIs do not add anything in particular to your national R&I policy
d. It is difficult to coordinate participation nationally
e. The JPIs' SRIAs do not fit the national strategies
f. Others – please specify:
g. Any additional comment on the barriers:

4) To what extent do you agree with the following statements regarding the positive impacts of JP at your national level (to a significant extent/moderately/to a limited extent/not at all)?
   a. Participation in JPIs has increased awareness on the importance of research and innovation in response to specific societal challenges
   b. Participation to JPIs has led to adjustments in national priorities or development of national programmes based on SRIAs from the JPIs (or other similar initiatives)
   c. Participation in JPIs has increased awareness on the importance of multi- and trans-disciplinarity in R&I for addressing societal challenges
   d. Participation in JPIs has led to new opportunities for cooperation with countries outside Europe
   e. Participation in JPIs has enabled new contacts and interactions with other European countries on a bilateral level
   f. Participation in JPIs has enabled new contacts and interactions with non-European countries on a bilateral level
   g. Participation in the JPP and JPIs has led to more openness to trans-national collaboration among funding agencies and ministries
   h. Participation in the JPP and JPIs has led in some cases to more altruistic attitudes leaving aside purely national interests for the benefit of joining forces for the 'common good'
   i. Others – please specify:
   j. Any additional comment on these statements:

5) How much do you agree with the following statements regarding the lack of or negative impacts of JP at your national level (to a significant extent/moderately/to a limited extent/not at all)?
   a. Participation in the JPP and JPIs has not had any significant positive impact at the national level
   b. Participation in JPIs has not improved our already good collaboration with other countries
   c. Participation in JPIs has not improved the already good international profile of our research community
   d. Participation in JPIs has reduced the amount of national budget available for certain areas of R&I at the national level
   e. Participation in the JPP and JPIs has resulted in less focus on national R&I priorities
   f. The costs (in financial and human resources investment) of participation in the JPP and JPIs outweigh the benefits gained
   g. Others – please specify:
   h. Any additional comment on these statements:

6) Since Joint Programming has been established ten years ago, to what extent do you consider that the JPP and JPIs have influenced your national system (e.g. change in the national strategy, establishment of a national structure to coordinate/oversee JP participation, etc.)?
    a. To a significant extent/moderately/to a limited extent/not at all
    b. Some concrete examples are welcome:

7) In 2010, the GPC published the so-called “voluntary guidelines on framework conditions for Joint Programming in research”.
    a. Do you know this publication? Yes/No
    a. If yes, to what extent has your country used it for the implementation of the JPP and participation in JPIs? A lot/moderately/a little/not at all
    b. If a little/not at all, explain why?
    c. Which recommendations do you consider as useful/relevant (To a significant extent/moderately/to a limited extent/not at all):
        i. Peer-review procedures
        ii. Forward-looking activities
        iii. Evaluation of Joint Programmes
        iv. Funding of cross-border research?
        v. Optimum dissemination and use of research findings
        vi. Protection, management and sharing of intellectual property rights
    d. Do you think it is necessary/useful to update this document? Yes/No

8) An evaluation of Joint Programming to address grand societal challenges was carried out in 2015 (HERNANI REPORT REF + HYPERLYNK TO REPORT). Several issues have been identified and several recommendations have been made in the evaluation report. The goal of the following questions is to analyze to what extent the evaluation from 2015 has had an impact at national level.
    a. On issues identified by national authorities, do you consider that the situation in your country has positively evolved on the following topics between 2015 and today (a lot/moderately/a little/not at all/not relevant[18]):
        i. Political attention and national commitment
        ii. Establishing national positions (notably through national structures for coordination)
        iii. National alignment promoted by JPIs’ SRIAs
        iv. Budget available
    b. On recommendations made by the evaluation panel toward national authorities, to what extent have they been addressed in your country (a lot/moderately/a little/not at all/not concerned):
        i. Ensure that the current process of developing national ERA Roadmaps (Priority 2A: Jointly addressing Grand Challenges) takes full account of the need to address weaknesses in national alignment structures/processes and increases political commitment and levels of investment.

[18] « not relevant » means that this was not identified as an issue from your national point of view during the evaluation

ii. For those countries that do not already have one, establish a national coordination system for Joint Programming
iii. For those countries that are marginal or selective players in JPIs, explore the potential synergies with their Smart Specialisation Strategy to enable more strategic participation and/or complementary actions

NATIONAL GOVERNANCE

9) Do you have in your country a system for national coordination of the participation in the JPP and JPIs?
    a. Yes/No/to some extent
    b. If yes/to some extent:
        i. Which actors are involved?
            1. Ministry/ministries responsible for R&I
            2. Sectorial ministries
            3. Research Funding Organizations (RFOs)
            4. Research Performing Organizations (RPOs)
            5. Stakeholders from the economic sector with interest in R&I
            6. Other actors - please specify:
        ii. What is the scope of this national coordination system?
            1. Only JPIs
            2. All P2Ps
            3. Other scope – please specify:
        iii. What are the tasks of this national coordination system:
            1. Informing the national stakeholders (notably in view of participating in activities carried out by JPIs)
            2. Discussing the national positions for representation in JPIs governance bodies
            3. Contributing to strategic documents/discussions developed within the JPIs
            4. Identifying issues in the JPP in general in order to feed policy discussions (either at national level and/or at European level such as via the GPC)
            5. Other tasks – please specify:
        iv. Would you say it was created in response to the need for coordination because of your participation in the JPP and JPIs?
            1. Yes/No/to some extent
        v. Additional comments/brief description of your national system:
    c. If no – could you explain why and if there are challenges to overcome because of this lack of a dedicated system for national coordination?

10) Do you have a monitoring and/or evaluation system at national level regarding participation to the JPP and JPIs?
    a. Yes/No/to some extent
    b. If yes/to some extent, what actors are involved:
        i. Ministry/ministries responsible for R&I
        ii. Sectorial ministries

iii. RFOs
iv. RPOs
v. Other actors - please specify:

c. If yes/to some extent, what activities/mechanisms does it include:
   i. Annual reports
   ii. Specific monitoring system for JPP/JPIs
   iii. Other monitoring mechanism – please specify:
   iv. Any additional comment on the monitoring of JPP and JPIs (including description of the existing system):
d. If no, please explain why and if there are issues related to this lack of monitoring framework?

NATIONAL STRATEGIES AND OUTREACH TO NATIONAL PUBLIC POLICIES

11) To what extent have SRIAs from transnational initiatives (JPIs or other P2Ps which work in a way similar to JPIs) led to changes in your national strategies/priorities?
   a. To a significant extent/moderately/to a limited extent/not at all
   b. Some concrete examples are welcome (e.g. illustration of a new/change of priority at national level on a given topic related to any transnational thematic initiative, extracts from national strategy documents citing the specific JPI or other P2P SRIA, etc.)

12) To what extent are your national priorities well reflected in SRIAs coming from transnational initiatives?
   a. To a significant extent/moderately/to a limited extent/not at all
   b. Some concrete examples are welcome (e.g. cases/extracts of national priorities from your country which have influenced the establishment of SRIAs)

13) How do you assess the impact of JP activities in terms of outreach and dissemination, notably towards sectorial ministries in terms of uptake of research results in public policies?
   a. Significant/moderate/insignificant
   b. Some concrete examples are welcome (e.g. results from transnational initiatives which have led to a change in a public policy, including other than research)

BUDGET AND FUNDING

14) Do you have a specific system for budget allocation to participate to JPIs activities (joint calls or other activities, including in-kind contributions)?
   a. Yes/No/to some extent
   b. If yes/to some extent, can you describe briefly the mechanisms for funding allocation (dedicated envelope for JPIs activities? Percentage of your national budget devoted to transnational activities in a given area? Other mechanism?) and what actors are involved (same list than the one in 10b)?
   c. If no, how is the budget allocated for your participation in JPIs activities (if any) decided upon and where does it come from?

15) Do you have a specific system for financial support to JPIs governance (e.g. JPIs member fees, budget to participate to governing/management board meetings, in-kind contributions, etc.)
    a. Yes/No/to some extent
    b. If yes/to some extent, can you describe briefly the mechanisms for this funding allocation and what actors are involved?
    c. If no, how is the budget allocated for your participation in JPIs governance (if any) decided upon and where does it come from?

16) Based on your participation in JPP and JPIs, how would you assess the evolution of the capacity of your Research Funding Organizations (RFOs) to manage transnational programmes, and possibly coordinate some?
    a. Improved/remained the same/Worsened (e.g. due to the very limited resources available)
    b. Is there a double submission system that requires researchers in your country to submit a proposal to the agency coordinating the joint transnational call and to your national agency (e.g. possibly with a different language)?
        i. Yes/No/to some extent
        ii. If yes/to some extent, why? Do you intend to change this? What are the constraints?
    c. Can your RFO(s) transfer money to another funder in another country?
        i. Yes/No/to some extent
        ii. If yes/to some extent, are there specific conditions? Please specify.
        iii. If no, why? Do you intend to change this? What are the constraints?
    d. Can your RFO(s) participate to a transnational initiative with a real common pot?
        i. Yes/No/to some extent
        ii. If yes/to some extent, are there specific conditions? Please specify.
        iii. If no, why? Do you intend to change this? What are the constraints?
    e. Can your RFO(s) take part in the following schemes:
        i. Leading agency: Yes/No/to some extent
        ii. Money follows researcher: Yes/No/to some extent
        iii. Money follows collaboration: Yes/No/to some extent
    f. Any concrete example of successful management of transnational initiatives or of setting-up rules to favor transnational cooperation is welcome here (examples can include initiatives beyond JPIs).

PEER-LEARNING ACTIVITIES

17) To what extent has your participation in groups at European level that promote good practices related to JP had an effect on the development of national policy on JP? (e.g. GPC, Mutual Learning Exercise on Alignment, other working groups)
    a. A very positive effect/positive effect/negative effect/very negative effect
    b. Some concrete examples are welcome (e.g. impact of participation to such a group regarding the establishment of new policy at national level)

11. Annex: abbreviations

AC	Associated Countries
AEI	State Research Agency in Spain
BMWFW	Federal Ministry of Education, Science and Research of Austria
COP21	2015 United Nations Climate Change Conference
EC	European Commission
EU	European Union
EPA	Environmental Protection Agency, Ireland
ERA	European Research Area
FNS	Food and Nutrition Security
GPC	High Level Group for Joint Programming
H2020	Horizon 2020 (8th Framework Programme for research and Innovation)
ICOS	Integrated Carbon observing System
JPI	Joint Programming Initiative
JPI AMR	JPI Antimicrobial Resistance - An emerging threat to human health
JPI CH	JPI Cultural Heritage and Global Change: a new challenge for Europe
JPI Climate	JPI on Connecting Climate Knowledge for Europe
JPI FACCE	JPI on Agriculture, food security and climate change
JPI HDHL	JPI on Health, Food and prevention of diet related diseases
JPI MYBL	JPI More Years, Better Lives on the Potential and Challenges of Demographic Change
JPI Oceans	JPI on Healthy and Productive Seas and Oceans
JPI UE	JPI Urban Europe - Global Challenges, Local Solutions
JPND	EU Joint Programme – JPI on Neurodegenerative Disease Research
JPI Water	JPI on Water Challenges for a Changing World
JPP	Joint Programming Process
MUR	Ministry of Universities and Research of Italy
MLE	Mutual Learning Exercise
MRC	Medical Research Council of UK
MS	Member States
P2P	Public-Public Partnerships
PND	Database of Experimental Models for Parkinson's Disease of UK
R&I	Research and Innovation
RFO	Research Funding Organizations
RPO	Research Performing Organizations
SDGs	Sustainable Development Goals
SRIA	Strategic Research and Innovation Agenda
UN	United Nations