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Executive Summary

European societies face a number of challenges that have global dimensions and require significant efforts and resources to be combined if they are to be resolved efficiently and effectively. Having realised the global nature of a number of societal challenges, Member States of the EU have evolved a number of promising partnership approaches designed to pool resources in response to these challenges. The past years have seen a proliferation of public-to-public networks (P2Ps) and their evolution in a variety of forms (from FP6 ERA-NETs, to FP7 ERA-NET Plus, the H2020 ERA-NET Cofund actions, or the European Joint Programme (EJP) Cofund) alongside higher-level, political initiatives, i.e. the Joint Programming Initiatives and Art. 185s.

Notwithstanding the distinct features of these instruments and wider initiatives, there are valuable lessons to be learnt through exchange of experiences and ideas. The issues and challenges faced by public-to-public networks hindering their effective implementation and successful performance span different levels (strategic, operational, and financial). These need to be addressed capitalising on the experience gained thus far and building on good practice examples that can already be identified. Enabling this in a constructive and structured way was the overall aim of the 2015 Annual Joint Programming Conference that was held in Brussels, 24-25 January 2016 and attracted more than 300 participants.

Although in absolute terms the level of investments in P2P networks may seem remarkable, the share of this investment in the total national competitive funding is much less impressive. Notwithstanding the progress made thus far, much more needs to be done if P2Ps in research and innovation are to realise their full potential. Stronger commitment of EU Member States, working towards achieving alignment in both strategic and operational terms, and opening up to the world are key strategies in pursuing this aim.

Widening participation and engaging less active countries

The level of participation in P2Ps shows significant variety across different countries. From the EU13 perspective participation in P2Ps faces a number of obstacles including for instance incompatible national legislation, or lack of national programmes addressing similar thematic areas with those addressed by P2Ps, or lack of the necessary human and financial resources to support participation.

However, these obstacles are not characteristic only of the EU13 countries, and being less active in relation to participation in P2Ps is not characteristic of only EU13 countries. In fact, based on the findings of the High-level Expert Group on JPI evaluation, twelve EU Member States and six Associated Countries were identified as "marginal players". These countries have limited financial commitment and do not participate actively in the management of JPIs. The main barriers for participating in P2Ps are lack of political commitment, and lack of funding.

However, there is indeed a lower level of participation and commitment from some EU 13 member states. This indicates that the possibility of using European Structural and Investment (ESI) Funds in order to finance the national participation in P2Ps is important, but not yet utilised as there are certain barriers to overcome. ESI Funds seem not to be the best funding option for P2Ps under the present rules and practices. A top down approach from the EC is needed to adapt SF rules and make them more suitable for P2Ps. To increase their participation, the group of marginal players should select a few initiatives based on their national or Smart Specialization relevant priorities. In the long term this will build trust and political commitment.

Building evidence of impact

Documenting and demonstrating impacts from P2Ps is vital not only for making a case for P2Ps and establishing their added value, but also in helping policy-makers make the right decisions in contexts of scarce public budgets.

Several types of analyses were recently conducted in relation to evaluation and impact assessment of P2Ps. Impact analysis carried out within the ERA-LEARN 2020 project revealed that alignment both at the strategy as well as operational level has been a key success factor for P2Ps. JPI analysis showed that despite the different stages of development of the JPIs, there is already some evidence emerging in specific areas of impact and further indications of potential impacts that can be monitored. Identified impacts fall under six categories; Capacity-building, (Enduring) Connectivity, Attitude / Cultural Change, Conceptual, Structural and Instrumental impacts.

The high-level Expert Group on JPI evaluation classified the countries participating in P2Ps into three groups, the 'leaders', the 'selective players' and the 'marginal players', based on certain criteria such as levels of active participation in JPIs, levels of alignment of national research activities, levels of investment in trans-national research activities, leadership activities, etc. As reflected in the group titles, these groups feature specific behavioural patterns in relation to their participation in P2Ps. The Expert Group also assessed each JPI based on key characteristics and identified a set of key issues that need attention in improving the performance of JPIs. These relate to the level of ambition, commitment, national alignment, national structures for coordination, funding and management of JPIs, role of the Commission, and operational bureaucracy. The Expert Group's work also concluded that there is a need for a determined renewed strategy for strengthening participation in JPIs.

Strengthening the international dimension

Cooperating with partners beyond Europe becomes increasingly important for P2P networks. Some P2Ps are by definition more international in nature than others. However, there is a range of challenges and constraints identified by non-EU countries as much as by the EU P2P members. Alignment of strategies, priorities and funding programmes is a big issue. In addition, the EU programmes may seem complex for third countries and partners, while their visibility might also need improvement. Managing different expectations and levels of commitment is another issue as is managing interest from multiple countries or handling engagement of large countries (such as India or China).

There are already a number of P2P networks with some experiences in international participation which can serve as practical examples when considering a network expansion to other continents. International collaboration should reflect on the overarching approach, criteria and target impacts of the P2P in question. Bilateral initiatives could be a starting step leading to multilateral initiatives. It is important to engage industry and policy makers in P2Ps and attract the appropriate organisations (funding agencies) in the third countries. Mutual learning activities across different initiatives should be promoted. A-la-carte participation open to any funding organisations should be followed, while in-kind contributions should be allowed for any entity facing resource constraints. Overall, the approach to strengthening the global dimension of P2Ps should be supported by selectivity and proof of added value.

Engaging stakeholders

In most of P2Ps delegates from different stakeholder groups are represented in the governance structures of P2Ps. However, tasks, procedures, actual involvement, and expected utility of stakeholder engagement differ considerably across P2Ps. In addition, a joint terminology concerning stakeholder engagement does not exist, nor has a definition of common guidelines or good practices for P2Ps been identified.

The key messages from the presentations and discussions during the conference refer to the importance of mutual learning among stakeholders, researchers, and policy makers. There is the need to move from consultation to creating partnership and enabling co-production. There are different ways to involve stakeholders that can be utilised (formation of advisory boards are outdated). Engagement of stakeholders should consider the local as well as the national and EU level. Last but definitely not least, if the process is right, there is no observable trade-off between academic excellence and societal engagement.

The issue of stakeholder engagement was further discussed in detail in a special event that took place after the end of the Annual Joint Programming. Attendees verified the important of stakeholder engagement from a variety of perspectives (stronger role for society and buy-in to the process and the outcomes, uptake of results, and creation of new ideas and challenges for scientists). There is not “one-size-all-fits” approach for stakeholder involvement; different formats and different stakeholder groups (and subsets) are required during the different stages of a P2P research initiative. While financial constraints and time are the main barriers for stakeholder engagement, building up trust is a key success factor and capacity building needs to be enabled where needed. In relation to pathways for future P2P cooperation on this issue, a helpful focus was seen in the concept of a Societal Interaction Plan. Discussions also concluded with specific recommendations on the way forward highlighting the need for increased networking and collaboration among P2Ps.

Open knowledge and open access

Open Science (OS) is one of the three key strategic priorities of EU research and innovation policy¹. The European Commission encourages all EU Member States to put public-funded research results in the public sphere in order to make science better and strengthen the knowledge-based economy. P2Ps may have a distinct role concerning the provision of access not only for research results but also research data and research infrastructures, which ultimately can accelerate uptake of new knowledge and foster innovation.

Open Science actions have largely been geared by the research community with large players and publishing houses only recently becoming engaged. There seems to be a rising trend in following OS principles by the research community. This needs to be supported by removing barriers and designing incentive-creating policies. However, policy should act as a facilitator and not as an imposer of services or criteria. At the same time, measures are needed to harmonise interoperability and services for utilization of open research data. Training of trainers to spread OS philosophy is also key, as is building on existing experience, rather than re-inventing the wheel. Developing an Open Science Cloud and open infrastructures at EU level is as crucial as embedding open science in society to make science more responsive to societal expectations.

¹ <http://ec.europa.eu/research/openscience/index.cfm>

Working towards alignment

Alignment is a concept, whose elements and implications in the context of P2P are constantly evolving and need to be analysed at the same time, as much seems to depend on it in relation to how successful P2P networks can become. There are varied perceptions as well as misunderstandings on what alignment is. While important work in this area will continue in ERA-LEARN 2020 through studying in detail certain alignment modalities, some conclusions are already worth mentioning. Alignment is not only about organising joint calls for research. It can be achieved via various joint actions and instruments. Alignment needs strong political commitment, mutual trust and consensus-building at all levels, as well as effective inter-agency and inter-ministerial coordination at the national level.

Overall, while alignment seems to be perceived as a new concept in the area of trans-national cooperation in research and innovation, a lot of alignment-related activities are happening already, which lend themselves to mutual learning. Alignment work has been part of the efforts of various instruments for a decade, usually not under the specific term 'alignment'. The JPIs have faced this challenge from the onset and some have successfully aligned limited parts of funding systems, like interoperability of national timeframes in programme cycles.

Whereas, a certain degree of alignment is a precondition for successful performance of P2P networks, it can also be an impact from participation in P2Ps. There are different levels and modalities of alignment, which are spread within several different types of impacts coming from P2Ps. Further, there are activities as well as structures, processes and governance mechanisms that can lead to alignment impacts. A framework on assessing alignment can be built based on broader impact assessment theories and practices of research programmes and JPI specificities, some of which are reflected in existing JPI impact assessment frameworks. Apart from establishing common understanding it is important to share, disseminate and utilise existing knowledge and experience.

Notwithstanding the importance of alignment as both a precondition and impact of JPIs, there are other types of impacts that should not be neglected in establishing the added value of P2P networks. At the policy level JPIs are the proper vehicle to develop and serve a European vision representing Europe in the international community with a common voice. They can also help in raising awareness among politicians on global challenges, showing results and success stories, also in order to solicit investment in research. JPIs can also play a role in raising awareness of scientific issues on society by showcasing results and possible solutions. JPIs are also a test-bed where to explore and test new instruments, pivotal solutions and ideas. They can help create critical mass of research infrastructure and resources and lead to cross-cutting impacts in relation to developing a community, building trust, and developing standards.

In conclusion, it is characteristic that the issues currently occupying the P2P community have shifted from more technical (such as simplification, harmonisation and interoperability) in the past years to more strategic issues (widening participation, international dimension, engaging stakeholders, etc.). This may indicate changes in the mind-sets of policy makers reflecting acknowledgement of joint programming as valuable means to deal with global societal challenges. In moving ahead, as noted in the concluding session of the conference, the keywords are **'Commitment'**, **'Capacity'**, **'Co-creation and Co-production'**, **'Coherence'**, **'Collective learning'**, **'Collaboration'**, **'Communication'**, **'Co-existence'**, **'Cohesion'**, and **'Compromise'**.

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1. Introduction

The present report summarises the main points that derived from the presentations and discussions during the Annual Joint Programming Event 2015 held in Brussels, 14-15 January 2016. The conference offered the opportunity to discuss the latest policy thinking as regards Joint Programming of research and innovation in Europe and public-to-public partnerships in general, as well as exchange views and experiences from the relevant practice thus far and draw possible success factors and guiding principles for future ventures. The 2-day conference targeted around 300 policy makers and research funders in Europe, as well as related stakeholders (GPC members, JPI representatives, ERA-NET coordinators and participants, representatives from Art.185, ETP, JTI, etc).

Following the positive experiences from past events the programme offered a mix of plenary sessions, including overview presentations providing a common forum for all participants, and interactive workshops around key issues and challenges surrounding public-to-public (P2P) partnerships as well as identified evidence of impacts, success factors, and good practices.²

This conference was the first to be organised by the new ERA-LEARN 2020 project (in cooperation with the EC). As presented by the Coordinator Roland Brandenburg in his plenary talk³, ERA-LEARN 2020 presents a richer agenda of services and tasks offered in support of P2Ps in comparison with the previous ERA-LEARN projects. With a wider focus on whole P2P community (ERA-NETs, ERA-NET Cofund, JPIs, Art 185s) ERA-LEARN 2020 aims to provide support to the Joint Programming Process, and the ongoing optimisation of P2P networks through:

- web-based information, learning and support platform with toolbox
- monitoring and impact assessments of P2P networks
- assessments and benchmarking of current approaches to alignment & exploration of options for new modalities
- distribution of relevant information: newsletters, calls, publications
- workshops, trainings, conferences, supporting documents.

ERA-LEARN 2020 aims at achieving increased efficiency of public administration and policy learning, improved understanding of the joint programming approach to policy making and establishment of added value, and development of common approaches and increased effectiveness of joint programming activities. This will be done with the active participation of the entire P2P community (through interviews, surveys, dedicated workshops, conferences) to define the most relevant support measures and to ensure broad acceptance of project results.

A special feature of ERA-LEARN 2020 is the new, user-lead information learning and support platform⁴ with enhanced functionality including an updated database of all the P2Ps (data of networks, organizations, calls and funded projects resulting from the calls), as well as “good practice” sections on alignment and calls, and a new partner search function for H2020 P2P related calls.

² The agenda is attached as Annex to the present report and can also be downloaded with the presentations from <https://www.era-learn.eu/events/annual-joint-programming-2015-new-date-2016>

³ ERA-LEARN 2020 – support platform for the Public-Public-Partnerships. Plenary presentation by Roland Brandenburg, FFG, ERA-LEARN 2020 Coordinator.

⁴ www.era-learn.eu

The utility of the IT platform was the subject of a special workshop, Topic 1: ERA-LEARN 2020: platform features – media, needs, monitoring, organized on the first day of the conference. Attendees were called to discuss the question “how can the IT platform better serve community interaction, mutual learning and P2P promotion?”

Discussions were triggered by the presentation of the results⁵ from a user need survey that was performed in conjunction with the registration to the conference. 102 responses were received. The survey asked for topics that ERA-LEARN 2020 was expected to take up in its P2P community oriented work. The following topics turned out to be of high/very high relevance:

- Widening of Network Participation
- Applying common Framework Conditions for Call implementation
- Securing or increasing joint call budgets by higher national and regional commitments or other sources
- Evidence and measurement of Impact created by P2P initiatives
- Exploitation of results: Improving the knowledge circulation and take up of innovation
- Alignment activities e.g. coordination of strategic research and innovation agendas in overlapping areas

In the discussions that followed the aspect of using the IT platform for marketing and promotion towards decision makers was addressed. This resulted in the following messages:

- Would it make sense to realize different entry points for different user groups (learning vs. promotion towards policy level) – and to present comprehensive promotional content?
- Statistics, giving proof of the impact and beneficial effects from the national/regional perspective could be presented more prominently.
- The leverage of international funds, through the participation in international projects, could be specified and displayed as a major benefit category.
- Additional content could include benchmarking and performance indications, and success stories

A second strand of the discussion focused on the utility of developing a semi-standardized network assessment and benchmarking tool. The ERA-LEARN 2020 database regularly collects data on P2P networks and research projects. This data could form a basis for statistics, and (comparative) performance measurement of P2P networks. It has been discussed for some time in the ERA-LEARN consortium to develop network related benchmarking, including surveys among applicants and beneficiaries of activities of P2P networks, and among network members like Ministries and Innovation Agencies. First steps are undertaken by Optimat Ltd., University of Manchester and VDI/VDE IT. The workshop enabled the exchange of initial ideas for a comprehensive service offer. Obviously, a “mixed mode” of assessment, involving experts from the ERA-LEARN 2020 consortium and the P2P network is the favoured way of realization.

Below follows the rest of the results of the conference structured in sections that reflect the conference programme to a large extent. The plenary presentations (summarised in sections 2 and 3) focused both on setting the scene and looking to the future of P2P within the recently publicised ‘Lund Revisited’ Declaration. The parallel workshops dealt with special issues and challenges facing P2Ps. Their results are summarised in sections 4 – 10. The report ends with the conclusions summarising the main points made in the event.

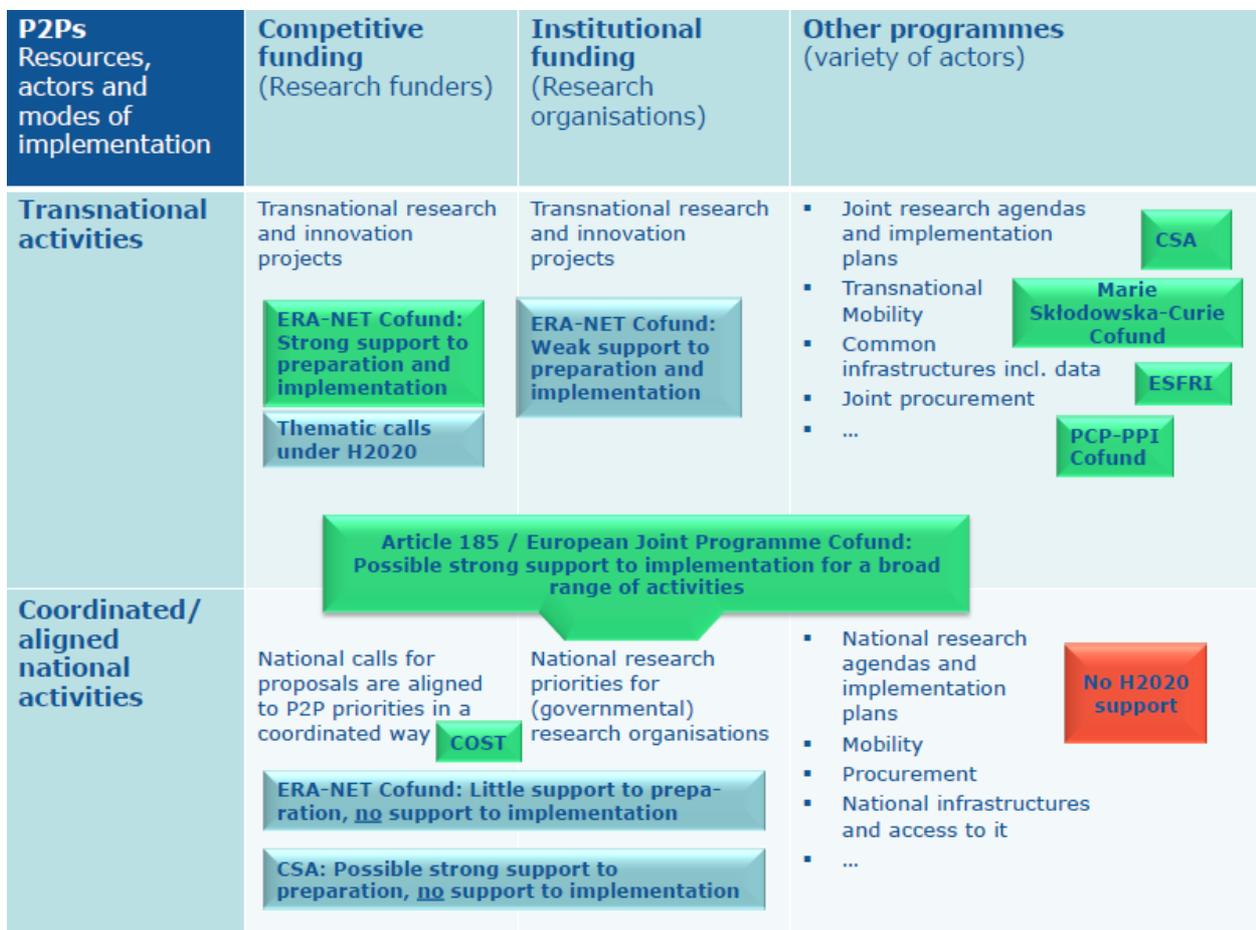
⁵ by Kristof Bertram and Henriette Krimphoff, DLR.

2. Setting the scene: ERA tools for Public-Public Partnerships

The multiplicity of P2P networks and their proliferation in the recent years have been a major issue for the P2P community. Positioning the different instruments in the ERA landscape has not been an easy task. This becomes even more crucial when new instruments are designed. In this regard the presentation of J. Niehoff has been quite constructive.

In his presentation, Niehoff visualised the different ERA tools as shown in the following figure.

Figure 1: Positioning of P2Ps based on type of funding and type of activities



Source: ERA tools for Public-Public Partnerships. Plenary presentation by Joerg Niehoff, DG Research & Innovation. EC

In particular, the new instrument, ERA-NET Cofund presents the following features:

- Requires implementation of a co-funded joint call for proposals (compulsory, one co-funded call per Grant Agreement).
- The EU contribution is mainly a proportional contribution to total public funding of the joint call.
- Additional EU contribution to coordination costs is available on the basis of a unit cost for additional activities including additional calls without top-up funding.
- There is a stable EU co-funding rate: the ERA-NET Plus reimbursement rate from FP7 (33%) applies

- For the co-funded calls the proposal evaluation and selection need to follow the Horizon 2020 standards

In addition, there is the European Joint Programme (EJP) Cofund. EJP Cofund under Horizon 2020 is a new co-fund action for the 2016-17 work programme that is designed to support coordinated national research and innovation programmes. The EJP Cofund aims at attracting and pooling a critical mass of national resources on objectives and challenges of Horizon 2020 and at achieving significant economies of scales by adding related Horizon 2020 resources to a joint effort. This instrument involved the implementation of a joint programme of activities, ranging from research and innovation to coordination and networking activities, including training activities, demonstration and dissemination activities, support to third parties etc.

There are some specific provisions that apply for EJP Cofund: an Annual Work Plan needs to be submitted with the proposal and as a deliverable prior to each successive reporting period (subject to Commission approval). There is a fixed reimbursement rate indicated in the Work Programme (applied to the overall pool of all eligible direct and indirect costs). EJP Cofund actions have a fixed 5-year duration with 12-month reporting periods. Critical issues are that the commitments from the Horizon 2020 budgets have to come from a single year. The targeted community (public programmes) has to be ready to build up a joint programme of this scale and commit to its implementation. It requires therefore careful preparation on all sides and the experiences with the pilot actions from the WP 2016/17 will be crucial to decide on its future use.

Article 185 TFEU (ex Article 169 TEC) actions on the other hand are driven by the participating Member States and need to apply the co-decision procedures (ordinary legislative procedure involving Commission, Parliament and Council). This is a heavy procedure but can ensure financial stability in the longer term (contractual relationship for a duration of around 10 years with 25-50% co-funding by the EU). The EC and the participating states have distinct roles in Art 185. There are four Art. 185 actions under H2020 while two more might follow at a later stage.

The total public funding triggered by the joint calls enabled by the above ERA tools (ERA-NETs, Art 185) as well as the existing JPIs reaches € 6 billion since 2004 as shown in the following table.

Table 1: Investment in joint calls

Total public funding [Euro million]	ERA-NETs	of which cofunding for JPIs	JPIs	Art.185s	Total
2004 - 2011	1.689		33	1.058	2.780
2012	187		24	226	437
2013	344		73	222	639
2014	381	24	58	242	681
2015	264	105	63	209	536
2016	646	123	-	380	1.026
Total	3.511	252	251	2.337	6.099

Source: ERA tools for Public-Public Partnerships. Plenary presentation by Joerg Niehoff, DG Research & Innovation. EC.

Although this figure may seem impressive in the first instance, the actual weight of investments in P2P networks in comparison to the total national competitive funding is less remarkable. Based on the latest EUROSTAT figures the share of national competitive funding is 33% of a total of € 88 billion (total civil R&D appropriations), thus around € 29 billion. The respective figure for investment in joint calls in 2014 as shown above was 681 million. Thus investment in joint calls in 2014 reached 2.34% of the total national competitive funding.⁶

Niehoff concluded his speech by summarising the main differentiating features between the instruments supporting programme level collaboration, ERA-NET Cofund, EJP Cofund and Art 185, as shown below.

Table 2: Main features of ERA-NET Cofund, EJP Cofund and Art 185.

	ERA-NET Cofund	EJP Cofund	Art.185
Main activities	Single transnational call for proposals with Union cofunding	Direct research, demonstration and coordination activities	Multiple transnational calls for proposals
Other activities	Possibility to include additional activities incl. additional joint calls in a variable geometry	Possibility to include a limited number of calls for proposals, e.g. by including RFOs	To be defined in the basic act, if justified by the nature of the initiative
Beneficiaries / recipients of EU contribution	Typically RFOs RPOs in exceptional cases Mandated by PS	Typically RPOs RFOs in addition Mandated by PS	Designated Implementation Structure (indirect management)
Participating States (PS) contribution	Normally cash, possibility to allow for in-kind ERA-NETs with RPOs	Normally in-kind, but possibility to include cash contributions from RFOs	Defined in the basic act, normally cash, in-kind contributions if justified by the nature of the initiative
Union contribution	Reimbursement rate set at 33%	Reimbursement rate set in the WP, maximum 70%	Defined in the basic act, in most cases matching the contributions of PS
Duration	5 years	5 years	Typically 10 or more years, with Union contribution over up to 7 years
Establishment	WP H2020	WP H2020	COM Proposal incl. ex-ante Impact Assessment, Decision of Council and EP
Other issues	Can be used to prepare for Art.185 (examples: EMRP/EMPIR, BONUS)	Could be used to prepare for Art.185	Conditional to a dedicated implementation structure Commitment for strong financial, management and scientific integration

Source: ERA tools for Public-Public Partnerships. Plenary presentation by Joerg Niehoff, DG Research & Innovation. EC.

⁶⁶ ERA tools for Public-Public Partnerships. Plenary presentation by Joerg Niehoff, DG Research & Innovation. EC.

Within this landscape differences can be identified as much as areas of potential overlap. Thus, as the P2P community has repeatedly highlighted, it is important to establish synergies where possible between the different instruments. FACCE-JPI offers a good example of such linkages with ERA-NETs. In his plenary talk about 'The FACCE-JPI Experience: maturity and cooperation with ERA-NETs', Niels Gøtke⁷ presented the ways that the specific JPI has established a successful collaboration with a variety of ERA-NETs over the years. Between 2011 and 2013 FACCE-JPI identified and mapped to FACCE core themes more than 20 FACCE-relevant bio-economy ERA-NETs. FACCE decided to work with existing ERA-NETs and to develop topics for new ERA-NETs together with the Commission and the Member States. In this regard, FACCE published relevant position papers on ERA-NETs in 2011 which were updated in 2015.

Thus far, FACCE-JPI has collaborated with four ERA-NETs leading to EU co-funded calls: FACCE ERA-NET Plus (€18.8m total, 2013-2018); FACCE SURPLUS (€13.8m, 2014-2019); ERA-GAS (€13.8m, 2015-2020); WATERWORKS together with JPI WATER (€27.55m total, 2016-2020). An additional call has also been launched with an existing ERA-NET (Biodiversa, 2013) while there is close cooperation with other ERA-NETs such as ERA-NET SuSaN (€20m total, 2016-2020) and SUSFOOD 2 2017 (in close cooperation with JPI HDHL).

As the FACCE-JPI experience shows the ERA-NET instrument is a relatively easy way of putting in place joint calls. Moreover JPIs can serve as a structuring element. FACCE benefitted from having many members of the Governing Board involved in relevant ERA-NETs. There was good constructive dialogue from the beginning. Existing ERA-NETs could see the advantage of linking to FACCE and having a more strategic longer run approach. ERA-NETs are proven instruments that are appreciated by Member States and are cost-efficient. The steps for running an ERA-NET are based on well-known processes for running a call that funding agencies know well.

In addition, FACCE had the advantage of having a close cooperation with the SCAR Committee and the EC in developing new ERA-NET topics in H2020 and the ERA-NET Cofund instrument is appropriate to invest in new research topics and for aligning. FACCE has taken this opportunity and has been involved in developing five ERA-NET Cofunds and one ERA-NET Plus.

However, there are difficulties as well. Limited commitment by Member States entails the risk of competition among different instruments as countries may not be able to commit funding to all of them. Human resources are being stretched (the same people are in practice working for several ERA-NETs and JPIs). The ERA-NET Cofund is still an administratively heavy instrument.

Overall, the FACCE-JPI experience concludes that without the ERA-NET instrument FACCE would not have achieved what it has achieved until today. ERA-NETs are an easy way of linking JPIs among them (JPI WATER, JPI HDHL) and linking them to the world outside Europe. Coordination and synergies between the many different partnering initiatives (P2Ps and PPPs) is needed. Coordination and networking is also crucial for the JPIs. In the future EC funding should facilitate other types of joint actions than joint calls (e.g. institutional funding (in-kind ERA-NETs, CSAs, EJP Cofunds). The potential in Joint Programming has not been reached. That however requires high level support from Member States and the EC.

⁷ Chair of the Governing Board of FACCE – JPI.

3. Looking to the future: “Lund Revisited”

The 2015 Annual Joint Programming Conference took place in the aftermath of the high level “Lund Revisited” European conference on research and innovation to help address societal challenges that was organised in Lund, 4 December 2015⁸. “Lund Revisited” reviewed the progress made since 2009 when Member States and European Institutions agreed to focus research on the grand challenges of our times by shifting from a thematic to a challenge-driven approach in research and aligning European and national strategies and instruments. This agreement was documented in the Lund Declaration 2009.

Although recognising that important steps have been taken during the last six years towards aligning and coordinating resources towards dealing with society’s major challenges, there is still a lot of progress to be made. The results of the summit discussions summarised in the new Lund Declaration (2015)⁹ emphasise the urgency of increased efforts in four priority areas.

As Joakim Appelquist explained in his plenary speech¹⁰, the four areas of action refer to alignment, frontier research and European knowledge base, global cooperation, and achieving impact. In relation to alignment priority should be given to providing high-level political support to ensure active participation of all Member States and associated countries. Interoperability and openness of programmes present major challenges for alignment. In this regard the framework conditions within the European research and innovation system need to be improved so that the necessary structural changes in the Member States can be made notably in the context of national ERA roadmaps. Efforts towards aligning national strategies, instruments, resources and actors should be intensified building also on existing smart specialisation strategies. A jointly agreed approach and process should be designed for “smart alignment” that allows Member States to jointly identify and address new challenges.

The second priority area, frontier research and European knowledge base, emphasises the importance of investing in frontier research and research infrastructures and ensuring that these are effectively organised to enable interdisciplinary projects. This would also require fostering a new generation of researchers with the right set of skills that include creativity, entrepreneurship, and innovation. Diffusion and exchange of new knowledge should be enhanced both through mobility schemes as well as strengthened open science approaches including open access to both publications and data.

Global collaboration is the third priority area. Recognising that certain grand challenges are global in nature, delegates stressed the important of connecting with partners in advanced, emerging and developing countries to address societal challenges at global level. The existing experiences of certain JPIs that have successfully linked to non-EU countries should be exploited. In this process, European initiatives need to better exploit their potential to attract the world’s best researchers and private investments.

⁸ The Conference “Lund Revisited - Next steps in tackling societal challenges” gathered 240 delegates from thirty different countries in Lund to follow up and look forward regarding European research and innovation. Distinguished speakers included Helene Hellmark Knutsson, Swedish Minister for Higher Education and Research and Carlos Moedas, EU Research Commissioner.

⁹

<https://www.vr.se/inenglish/newspress/newsarchive/news2015/lundrevisitedeuropansummitonresearchandinnovation.5.4006904e1518bee050ee2ad4.html>

¹⁰ Plenary Session presentation of the Lund declaration 2015, 14 Jan 2016 by Joakim Appelquist, Director of International Division at VINNOVA.

The fourth priority area, achieving impact in tackling the grand challenges targeted, is the ultimate goal that European trans-national initiatives are pursuing. Locked into a vicious cycle, Member States and stakeholders need to see evidence of impact to be persuaded to get involved in trans-national collaboration, while impact is much dependent on the degree of commitment of Member States and engagement of stakeholders. Delegates highlighted the need to incentivise Europe's public research organisations to strengthen the interface and collaboration with stakeholders and actors outside the academic community, also stressing the need for increased innovation focus in trans-national research. At the same time, it is important to strengthen the pro-active involvement of end-users, public sector and industry in addressing societal challenges including demand-side actions.

In preparation of the Lund conference 2015 a Joint Statement of the 10 Chairs of Joint Programming Initiatives (JPIs)¹¹ was drafted that was presented by P. Monfray¹² at the plenary session of the first day of the conference. The 10 JPI Chairs proposed eleven tracks of action for spreading the "joint programming process" and improving its leverage and long-term effects that reflected the importance of the four priority areas that were eventually adopted in the Lund Declaration 2015. In relation to alignment it was proposed to apply a proactive approach and increase visibility, attractiveness and legitimacy of JPIs throughout the different layers of the diverse research systems in the Member States in order to reinforce commitment. JPI Chairs also saw the need to go beyond an approach which would only focus on transnational calls and research funding organisations alone and align key national actions of the Member States in relation to research infrastructures, mobility, capacity building, databases, organisation incentives, etc. They also highlighted the need to develop synergies for knowledge based solutions and policies with EC Directorates-General beyond DG R&I (such as REGIO, AGRI, CLIMA, CNCT, EAC, ENER, GROWTH, ENV, DEVCO, MARE, SANTE) and with others European initiatives (e.g. ETPs, EIPs, EIT, ESFRI).

In relation to frontier research the JPI Chairs suggested to extend the ERC support to collaborative and multidisciplinary teams, as ad-hoc synergy grants, to tackle complex issues with a strong potential for a new generation of innovations in the 2020s related to societal challenges. In relation to the global dimension, the JPI Chairs favoured the international opening of JPIs, including cooperation with G7, emerging countries and regional initiatives (e.g. Africa, Latin America, Mediterranean area, Asian sub-regions). At the same time, they spotted the need to work towards a better coordination amongst JPIs, bilateral cooperation schemes of Member States, EC Directorates-General and ERAC (GPC and SFIC). This effort should aim at building strong international leadership and attractiveness of Europe at global level.

According to JPI Chairs, achievement of impacts necessitates generation of evidence and implementation of solutions. Dissemination of solutions and sharing Europe's response to certain grand challenges with the rest of the world is also important in contributing to the UN 2030 Agenda for Sustainable Development. In this regard it is important to exchange and disseminate the best practices identified in the JPIs and each of the Member States with a strong emphasis on their added value in terms of evidence-based solutions and actions, as well as on involvement of users and policy-makers in research planning. The JPI Joint Statement also included three additional tracks of action of a more generic nature. These reflected the need for increased commitment and cooperation of the MS and associated countries, simplification of interactions

¹¹ Prepared for the LUND Conference 2015 by Ph. Amouyel, P. Byrne, N. Goetke, M. Héral, C. Montgomery, A.P. Recchia, P.M. Rossini, I. Schaedler, M. Ulfendahl, P. Monfray.

¹² Joint statement JPI chairs by Patrick Monfray, ANR, JPI Climate chair.

between EC and JPIs and extension of EC support in relation to planning and funding within and beyond H2020, reduction of operational bureaucracy and engagement of key actors.

Looking to the future of JPIs, Mr. M., Schmid, Vice-Chairman of the GPC, expressed the aspiration for JPIs to become big players in the European Research Area (ERA)¹³. However, in pursuing this aim, first and foremost a common understanding needs to be built about what JPIs are. JPIs are strategic hubs for Joint Programming on Grand Societal Challenges in Europe. In addition, the visibility and significance of JPIs to Member States and other stakeholders as well as the public must be increased so that everybody realises the strategic importance of JPIs as core elements of the ERA. JPIs must also be equipped with the necessary resources to fulfil their ambitious tasks. In this regard the vital importance of commitment by the Member States as well as the EC to the joint programming process and the JPIs was echoed, alongside the role that should be played by the JPIs in shaping national agendas as well as the EC Framework Programmes. Last but not least, efforts should be geared towards alignment beyond joint funding activities and delivering solutions towards dealing with grand societal challenges.

3.1 Reflections from two EU13 countries

Against this background, the views of Slovenia and Romania provided a critical perspective. In her talk Ms. P. Žagar¹⁴ recognised the importance of participating in trans-national collaboration networks like ERA-NETs, JPIs and Art. 185s. Reflecting perceived opportunities and benefits she explained that participation of Slovenia is based on accumulated positive experience and increasing interest by the researchers' community. It is acknowledged that such participation enables financing and transnational cooperation in research fields that are financially disadvantaged, apart from increasing the visibility of Slovenia into the EU scientific landscape and inducing improved networking and coordination of national funding.

Nevertheless it suffers from certain challenges. National legislation is not usually adapted to allowing transnational cooperation. The lack of national programmes targeted at the same or similar thematic areas with the P2P network in question is another major obstacle. Ensuring the required human resources for managing such trans-national cooperation at Ministry or agency level is also quite demanding as is ensuring the required national contributions needed to fund all approved proposals with Slovenian participation. Slovenian researchers also appreciate the opportunities for "bottom-up" research and stimulating market-oriented research offered in cases such as EUROSTARS-2.

Participation in trans-national P2Ps also suffers certain challenges and those faced by Slovenia are common to several countries. Depending on the area in question responsibility of participation may be divided between two organisations (or Ministry and agency) and this may complicate decision-making and fund allocation. The timing of budget adoption at the national level may also be incompatible with that of decision-making about levels of commitment in the P2Ps.

Yet, the overall conclusion is on the positive side, i.e. the ERA-NET schemes are very suitable mechanisms for a small country for achieving breakthrough research and strengthening the international profiles of

¹³ What do JPIs need to become really big players in the ERA. Plenary session presentation by Martin Schmid, Vice-Chairman of the GPC.

¹⁴ Small country in vast P2P partnerships landscape. Plenary session presentation Petra Žagar, Ministry of Education, Science and Sport, Slovenija

national researchers. The efforts by the EC to enable synergies and combination between ESIF and H2020 are appreciated. The added value of P2Ps needs to be sufficiently demonstrated in order to persuade influential decision makers under a wider policy to promote transnational activities.

The second country perspective came from Romania. The presentation made by Ms. I. Ispas¹⁵ revealed that the participation and performance of Romania in P2Ps can be considered more than satisfactory given that Romania has four times fewer researchers per population, five times smaller GERD¹⁶ and nine-teen times smaller R&D expenditures in euro per capita compared to the EU average. Romania participates in 80 networks in total and the Romanian national contributions in joint calls between January 2014 and June 2015 covered 2.59% of the total budget calls. This was the highest share between New Member States followed by Poland with 2.31%, and is also comparable to that of Finland (2.89%).

The Romanian strategy for participation in P2Ps is justified and shaped by the positive prior experience in ERA-NETs and Art 185s and the ability to find common ground with the Romanian strategy for RTDI and identify potential for Romanian researchers. This strategy takes into account requests coming from the scientific community while it also gives high priority to the ERA-NET Cofund scheme and participation in the JPIs. Specifically for the JPIs, two dedicated programmes will be created in 2016 under the national programme for RTDI, i.e. a programme for JPI support (funding exclusively RDI projects and support actions) and an international cooperation programme for improving participation in JPIs.

This can be seen to counterbalance the serious cuts in the national research budget (2012-2015) that largely affected the success rates in ERA NETs for Romanian organisations. Serious cut backs and shrinking public budget for research is a general challenge for many NMS (but not only) affecting their ability to participate in P2Ps. Finding the right partner to participate in a P2P network can also be challenging, given the increased fragmentation existing in some national research landscapes. On the positive side, the increased opportunities for SME and users' participation offered by the Art. 185s where Romania takes part (AAL and EUROSTARS) are much appreciated.

Overall, the plenary presentations revealed certain key challenges facing joint programming and P2Ps both at their current state as well as in fulfilling a strengthened role in the ERA in the future. These can be summarised in the following themes:

- Building evidence of impact in increasing engagement and commitment
- Widening participation and engaging less active countries
- Strengthening the global dimension to build international leadership
- Engaging stakeholders in delivering solutions
- Spreading research excellence through open knowledge and open access
- Working towards alignment to increase leverage and long-term effects

Each of these themes is discussed in detail in the following sections of the report based on the presentations and discussions enabled in the conference parallel workshops.

¹⁵ Romanian profile in P2Ps. Plenary presentation by Ioana Ispas, National Authority for Scientific Research and Innovation, Romania.

¹⁶ Gross Expenditure in Research and Development.

4. The Experience of the ERA-NET Cofund under Horizon 2020

ERA-NET Cofund actions under Horizon 2020 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. Research funders and ministries involved in ERA-NETs had to adapt to the modifications and simplifications (e.g. unit cost for additional activities) that were introduced.

The first experiences from implementing ERA-NET Cofund actions were discussed in a special workshop, Topic 1: Experiences with ERA-NET Cofund under Horizon 2020, organised on the first day of the conference. The objective of the workshop was to contribute to an assessment of the first ERA-NET Cofund actions under Horizon 2020 and identify critical issues that need to be addressed.

Discussions were triggered by two presentations:

- The ERA-NET scheme From FP6 to Horizon 2020 by Jörg NIEHOFF DG Research & Innovation, Unit B2 – ERA Policy and Reform, European Commission
- JTC Cofund Lessons learnt from the ERA-NET Cofund E-Rare-3 by Daria Julkowska, ANR, France

According to Niehoff, the ERA-NET Cofund is a new approach that has been well received and understood by the applicants. Most proposals fully comply with the ERA-NET Cofund requirements. All but one proposal foresee additional activities while most of the proposals foresee up to four additional calls (exception: 2 of the proposals related to JPIs), which in some cases attract substantial indicative financial commitments. Proposers introduce a wide range of additional activities, with no general difference from ERA-NETs and irrespective of whether the ERA-NET Cofund proposal is linked to a JPI or not. In addition, many proposals include strong international collaboration.

However, there are also a number of challenges. The required level of central support from the Commission service in preparing and implementing the actions is high. There is a risk of underspending if the call budget is just sufficient to justify the EC contribution. Some technical aspects not well understood (budget tables) or not yet well explained (information on cumulative expenditure). The templates may be too rigid for some while also needing revision in some cases. The simplification of interface with the Commission leads to increased complexities for consortia as they need to agree on many financial aspects outside the Grant Agreements, which is not always easy. ERA-NET Cofund can only top-up grant programmes. Financial instruments, a combination of financial instruments and grants, or programmes financed under the Structural Funds (now called European Structural and Investment Funds) can be used to fund projects under ERA-NET Cofund, but they are not eligible for co-funding. There is uncertainty on the side of the beneficiaries about reporting and related issues (audits, justification of unit costs, etc.) whereas the guiding material made available via ERA-LEARN 2020 (CA template, budget examples, template for observes report etc.) is not always known.

The E-Rare-3 experience in combination with that of JPND & Transcan shows that the ERA-NET Cofund allows widening as there is possibility to open research projects, after the 1st step of evaluation, to countries that risk underspending their budget. Initial earmarked budgets were increased thanks to the EC contribution and more projects were funded. However, the unit cost and black box models in relation to management costs were difficult to put in place.

The discussion that followed was structured in the following three aspects:

- Proposal preparation and submission, grant preparation
- Preparation and implementation of the co-funded call
- Consortium management, in particular financial issues

The discussion showed that the instrument works fairly well. However, participants, in particular newcomers, may encounter difficulties in dealing with the technicalities of the instrument (templates, financial rules, in-kind ERA-NET). It is not easy to understand how to fill in the budget tables. There are different types of costs which make the financial rules difficult to understand. There is a need for guidance on reporting requirements and possible audits, in particular for unit costs. The "Black Box" approach is absolutely essential for the sound financial management, in particular for the costs related to the management of the activities. However the "Black Box" approach is difficult to understand for newcomers. There is a need for good practice material on ERA-NET Cofund management.

The ERA-Cofund instrument allows a lot of flexibility but at the same time the management becomes more complex. Many issues need to be discussed among the partners and the preparation of the consortium agreement may take time. Regarding the co-funded call, it is important to have a commitment from partners which aims at maximising the number of funded projects. Besides the initial national call contributions, it is recommended to foresee additional amounts to avoid the risk of the EC contribution being underused.

Another key issue is the distribution of the EU contribution among the partners. The experience has showed that the mixed mode is a good practice to maximise the number of funded projects. It allows the consortium to use part of the EC contribution as a "real common pot" to fill the gaps if national funds of some countries are already spent. The amount of the Union contribution is considered sufficient, but sometimes too big to be fully absorbed which may result in under-spending. Specific measures may be needed to increase the participation of under-represented countries. ERA-NET Cofund rules are flexible enough to allow for this type of measures (e.g. one criterion of eligibility may be the inclusion of partners from under-represented countries in the proposals).

5. Building evidence of impact

This section draws upon the plenary presentations 'An analysis of the performance of networks: emergence of impacts and good practice' by Ms. E. Amanatidou, and 'Key findings and conclusions of the High-Level Expert Group Joint Programming' by Mr. J. Hernani, as well as the presentations and discussions enabled during Topic 2: Evaluation of Joint Programming – key issues, organised on the first day of the conference.

Amanatidou presented the results of the first impact assessment exercise carried out under ERA-LEARN 2020. This exercise was divided into two strands, the first one examined factors of success of ERA-NETs and the second one identified some evidence of impacts from JPIs. The research revealed the key factors affecting perceived impacts from participation in ERA-NETs. Specifically, 'programme interoperability' or 'operational alignment', that is, compatible timing across different programmes, common or compatible rules in funding and participation in research activities and common procedures for project monitoring / evaluation, was found to be of major importance affecting almost all types of perceived impacts. At the same time, factors that related to the level of complementarity between the national programme and the ERA-NET and the existence of cooperation agreements between the national programmes were also deemed importance for achieving certain impacts.

Although coming from a different cohort, the JPI interviews confirmed the above findings. In addition, the JPI analysis showed that despite the different stages of development of the JPIs, there is already some evidence emerging in specific areas of impact and further indications of potential impacts that can be monitored. Identified impacts fall under six categories; Capacity-building, (Enduring) Connectivity, Attitude / Cultural Change, Conceptual, Structural and Instrumental impacts. Connectivity is relevant for JPIs both for the participating ministries and public agencies across different countries but also within the same country, as well as the beneficiaries of JPI calls. New capacity-building is produced in subject areas where previously transnational collaboration amongst Member States was poor or non-existent (for instance neuro-degenerative research, cultural heritage, anti-microbial resistance or water research).

Attitudinal/cultural change is emerging within Member States and manifested in multidisciplinary and interdisciplinary approaches instigating a fundamental change in the mind-sets of the research communities involved and the various, associated ministries. Conceptual impacts relate to drawing the attention of national governments to the relevant subject areas and achieving visibility of the JPI both within and beyond the EU. Structural impacts relate to changes in institutions and structures in the national or European research landscape. JPI members mentioned that several structures were created to increase national coordination. Instrumental impact relates to the actual solutions that are sought to deal with the societal challenges addressed by the JPIs.

Hernani in his speech about the key findings from the analysis of JPIs carried out by the respective High-Level Expert Group presented a country classification based on certain criteria. These include for instance levels of active participation in JPIs, levels of alignment of national research activities, levels of investment in trans-national research activities, leadership activities, etc. Three groups of countries emerge based on this classification, the 'leaders', the 'selective players' and the 'marginal players'. These groups feature specific behavioural patterns. An interesting result is in relation to their intention to increase participation in P2Ps. Naturally the 'leaders', forming the critical mass of most active countries, choose to maintain their level of participation or increase it only moderately. One would expect that a significant increase in participation would feature in the other two groups but interestingly, this is not the case. Most of the 'selective players'

choose to maintain their levels of participation while more than half of the ‘marginal players’ choose to increase it only moderately. This indicates the need for a determined renewed strategy since no plans are devised to increase the critical mass.

The High-level Expert Group analysis also revealed the key barriers hindering participation in JPIs based on a survey of 33 national policy-level stakeholders. In agreement with the analysis carried out by ERA-LEARN the key barriers relate to limited financial resources and, to a lesser degree, limited human resources and capacities, lack of alignment of different national funding systems and coordination at the national level. In addition, the multiplicity of JPI options makes decision-making harder especially when national budgets are limited. The High-level Expert Group also attempted the characterisation of each JPI based on certain criteria combining mobilisation of capacities and resources and impact (Societal challenge positioning, International leadership, Driving innovation, Variety of instruments, Investment in joint R&I, Share of national investment, Degree of national alignment).

Further, the Expert Group identified a set of key issues that related to ambition, commitment, national alignment, national structures for coordination, funding and management of JPIs, role of the Commission, and operational bureaucracy. A set of more specific issues were also identified by different stakeholder groups as shown in the following table.

Table 3: Specific issues highlighted by stakeholders

JPI Management	GPC	National Stakeholders	European Commission
<ul style="list-style-type: none"> • Variable national commitment • Reaching a structuring effect • Going beyond research • The Commission does not support equally • Competition for national resources • Sustainability of network infrastructure • Risk of administrative burden 	<ul style="list-style-type: none"> • Variable performance of JPIs • Added value of GPC • Executive resource • The role of the JPIs within a future GPC structure 	<ul style="list-style-type: none"> • Political attention • The difficulty of being able to establish national positions • Wider landscape of P2P initiatives • Balanced budget • The importance of ministerial and funding agency participation • Incentives from the Commission to co-invest 	<ul style="list-style-type: none"> • JPIs are not achieving critical mass • Limited stakeholder engagement beyond research • Increasing dependence on H2020 instruments • Overlaps between some JPIs

These issues were then discussed in detail in the workshop ‘Topic 2: Evaluation of Joint Programming – key issues’, organised on the first day of the conference. The workshop provided the opportunity to both validate the key issues identified and get ideas from participants on how they might be addressed in the recommendations. The participants were provided with an extract from the Interim Report of the Expert Group, including the 20 specific issues segmented by the four stakeholder groups. Over 70 conference delegates participated in the workshop and were given the opportunity to break into four sub-groups and discuss all 20 of the key issues by moving in turn through the four stakeholder stations. In general, the key issues presented were accepted with some presentational changes. In addition, a wide range of ideas were

highlighted and these are being used as one of the many inputs to the recommendations of the Expert Group report which is due to be completed by the end of February 2016.

6. Widening participation

As Joint Programming Initiatives and other Public-Public Partnerships have become important parts of Europe's research and innovation agenda, the further success of these initiatives will depend on the participation and commitment from member states and associated countries. There are substantial differences between countries both in number of initiatives they participate in, and in how much resources they commit to the joint efforts within the partnerships. Lower level of participation and commitment from some EU 13 member states indicate that the possibility of using Structural Funds in order to finance the national participation in P2Ps is important.

These issues were discussed in detail in a dedicated workshop titled 'Topic 3: Widening participation in Public-Public Partnerships' and organised on the first day of the conference. The workshop focused on how to increase participation in P2P from countries which have been less active so far. Possibilities of using Structural Funds for financing activities within JPIs and other P2Ps were discussed. The discussion was based on two presentations:

- Status on participation and commitment to JPIs and other P2Ps from EU 13 member states, seen from the expert group evaluating the JPIs (Leonidas Antoniou, RPF)
- Experiences from the Smart Specialization Strategies (RIS3) on the use of Structural Funds in financing P2Ps, seen from the S3 platform (Karel Haegeman, EC)

Based on the findings of the High-level Expert Group on JPI evaluation, L., Antoniou noted that it is actually 12 EU Member States and six Associated Countries that were identified by the evaluation panel as "marginal players". These are not exactly the same as the EU 13 countries. In general these countries have limited financial commitment and do not participate actively in the management of JPIs. Based on a survey among these marginal players, the main barriers for participating in P2Ps are lack of political commitment, and lack of funding. On the positive side, there is a quite strong expectation that the marginal players will increase their participation in the future although to a moderate degree.

In this framework, the case of Cyprus presents some interest. Despite the fact that it is a small country (with only one funding agency) Cyprus is active in 25 ERA-NETs, three Art 185s and four JPIs. Cyprus is also a case where European Structural and Investment Funds are co-financing (at 50%) the national R&D budget. However, their experience shows that it is difficult to use SF to fund projects supported under P2P networks for a number of reasons. First, the use SF for funding JP projects has high management risk. Second, there may be incompatibilities among the SF requirements, the flow of budgetary implementation, co-financing rules as well as the schedules of the JPIs' calls. Third, SF support should better be targeted to support primarily large, mature projects, e.g. infrastructure, clusters, etc., due to the high management requirements. Fourth, the SF rules for double financing might hinder support of JPIs' projects as most of the JPIs' calls fall under the ERA-NET Cofund scheme which is financed by the EC (H2020).

The S3 platform experience shows that some regional actors have been quite active in P2Ps. However, the most active regions are not among the EU13 countries. Yet, a focus on societal challenges in Smart Specialisation Strategies shows a potential to align JPI research agendas with research and innovation priorities of selected regions given that there is usually overlap between Smart Specialisation Strategies and national research strategies - especially in smaller countries (as the case of Cyprus has also showed). This

is especially important given also the large amounts dedicated for research and innovation (up to €100bn until 2020).

In establishing synergies between H2020 and European Structural and Investment Funds (ESIF) one has to think that H2020 is an excellence-based, non-territorial approach and quite competitive. However it provides opportunities to also introduce novel measures for 'spreading excellence and widening participation'. On the other hand, ESIF is appropriate for place-based, socio-economic development, on a non-competitive based but it also aims at building regional/national excellence and capacities. Thus some common ground indeed exists.

In linking P2Ps and RIS3/S3 certain opportunities can be identified. P2Ps can bring regions with similar or complementary priorities together to develop bottom-up value chains, supported by thematic S3 platforms. Lagging regions could particularly benefit as RIS3 targets both "low growth" and "under developed" regions. RIS3 can also act as entry point to understand broader structural problems (RDI, education, business environment and governance). The process of developing RIS3 strategies is a mutual learning process addressing also examples of parallel funding, sequential funding, alternative funding, and simultaneous / cumulative funding.

At the same time, it presents a number of challenges. RIS3 and P2Ps are two different communities that need to be linked. Adding to this, there may be different national ministries dealing with structural funds/RIS3 and with JPIs/national research funding. Multi-level governance may be a challenge in itself due to lack of coordination between regional and national authorities. Structural Funds may be the main source of funding RIS3 in which case supporting JPIs is not straightforward. Lack of trust, awareness, and commitment, as well as administrative and legal barriers also form serious challenges.

The discussion that followed these presentations confirmed and enriched some of the conclusions already made by the presenters. Structural Funds seem not to be the best funding option for P2Ps under the present rules and practices. A top down approach from the EC is needed to adapt SF rules and make them more suitable for P2Ps. This, however, will only be possible in the next programming period. To increase their participation, the group of marginal players should select a few initiatives based on their national or Smart Specialization relevant priorities. In the long term this will build trust and political commitment. In some countries regional authorities are the main players in R&D funding, but no particular role is foreseen for them in JPIs. This should be accommodated in JPIs and P2Ps in general.

7. Strengthening the international dimension

The European Union is a world leader in research and innovation but more and more research and innovation is performed beyond Europe. The increasing number of internationally co-authored scientific publications shows that research and innovation are strongly interlinked internationally. Furthermore, global challenges are important drivers for research and innovation and have to be tackled in a common effort as climate change and infectious diseases do not stop at national borders.

Cooperating with partners beyond Europe becomes increasingly important for P2P networks. However, in practice it is not always easy to identify suitable cooperation partners, to build a working basis despite large distances, or to find a common approach across cultures. Nevertheless, there are already a number of P2P networks with some experiences in international participation which can serve as practical examples when considering a network expansion to other continents. Likewise, there is also an increasing number of third countries which are actively engaging in cooperation with European communities and step up their participation in P2P networks.

Within this framework, the issue of strengthening the global dimension of P2Ps was the subject of a special workshop called 'Topic 4: Internationalisation of Public-Public Partnerships beyond Europe' organised on the first day of the conference. The workshop aimed

- To present practical examples of P2P networks with international participation;
- To facilitate the exchange of experience on how to establish and support cooperation with funding organisations from e.g. America, Africa or Asia;
- To identify challenges, obstacles and benefits of Public-Public Partnerships beyond Europe;
- To help elaborate opportunities for cooperation beyond Europe.

The workshop started with an introduction to the international dimension in P2Ps based on statistical data on participation of third countries¹⁷ and the special features in H2020 enabling participation of non-EU countries¹⁸.

At the same time, H2020 has a strong international dimension given the orientation to tackle societal challenges of a global nature. However, there have been significant changes in H2020. While "enlargement and neighbourhood countries" and "developing countries" are eligible for automatic funding, "industrialized countries" (e.g. USA, Japan, Korea) and "emerging economies" (BRIC + Mexico) will only receive funding under specific conditions. Despite the openness of H2020 beyond EU a number of challenges exist in collaborating with third countries that are not unfamiliar to the P2P community. These include difficulties in agreeing on the research focus with the target country, or challenges in relation to aligning science, technology and innovation initiatives in multi-lateral cases. Yet, there are some successful examples among P2P networks. Third countries can be either full members in JPIs and/or can participate in joint activities.

Three P2P networks with the highest amount of third country participation were chosen to give a presentation in the workshop based on the statistics presented. These included one Art 185, one JPI and one ERA-NET, i.e. one from each of the three types of P2Ps (EDCTP¹⁹, JPI Water²⁰ and ERA-NET LAC²¹).

¹⁷ Presented by the Coordinator of ERA-LEARN, Roland Brandenburg, FFG.

¹⁸ Presented by Ralf König, FFG.

¹⁹ Speaker: Lara Pandya, EDCTP

²⁰ Speaker: Dominique Darmendrail, ANR

EDCTP focuses on diseases (HIV/AIDS, TB, Malaria, NIDs, respiratory and diarrheal diseases, emerging infectious diseases of particular relevance for Africa, including Ebola), new tools and interventions (diagnostics, drugs, vaccines & microbicides) and capacity development (Fellowships, Networks, Ethics, Regulations). EDCTP has a Sub-Saharan Africa Focus and has increased membership and funding of third countries in its second round (EDCTP2): 14 African countries as equal members with the participating 14 EU countries. International cooperation is also a pre-requisite for participating in EDCTP call for proposals.

Water JPI was officially adopted by EU Competitiveness Council in December 2011. Water JPI partners currently represent 88 % of the European National Public RDI investment on water. The international dimension features quite prominently in the current status of the network as well as its future plans. Water JPI already has partners in several EFTA countries, enlargement countries and countries covered by the European Neighbourhood Policy, while the linked ERA-NET Cofund project WaterWorks2015 focusing on water and agriculture challenges involves partners from Canada, Egypt, South Africa, Taiwan, Tunisia, and USA. Water JPI also applied for a CSA project in H2020 especially developed to international collaboration and plan to submit another ERA-NET Cofund (WaterWorks2017). The contacts with research funding organisations to invite them to participate in this ERA-NET have already started in 2014 (with Brazil, Canada, China, India, South Africa, USA, and Vietnam) based on three main criteria (scientific excellence, development and market, i.e. the innovation dimension).

Interest is high also in relation to regional networking: with America, there exist MoUs between USA and Canada, between USA and Latin & Central America countries; with Africa, first efforts are made via WRC or networks such the AfriAlliance CSA; with Asia there are contacts only at the individual level; there is also collaboration with specific regional initiatives like BONUS, PRIMA, or the Belmont Forum. Furthermore there is an existing cooperation with international institutions such as UN institutions, Banks (World Bank, regional development banks), OECD, Foundations, such as Melinda and Bill Gates foundation and other Networks, such as the Global Water Research Coalition (GWRC).

Similarly to EDCTP, the main challenge in establishing international collaboration is to find common interests and common policy objectives for managing water resources. It is also vital to try and capitalise on existing cooperation in ensuring continuity.

ERA-NET LAC is by definition international. Partners come from Europe (Finland, France, Germany, Norway, Portugal, Romania, Spain, Turkey) and LAC (Argentina, Barbados, Brazil, Chile, Mexico, Panama, Peru, Uruguay). The thematic areas covered include energy, bio-economy, biodiversity/climate change, health, and ICT. The general objectives of the network is: supporting the implementation of the Joint Initiative for Research and Innovation and strengthening the bi-regional partnership in Science, Technology and Innovation by planning and implementing concrete joint activities and by establishing an innovative and sustainable framework for future bi-regional joint activities. In establishing new partnerships beyond Europe, the ERA-NET LAC experience prescribes that it is important to identify expectations / demands from the new funding organizations by also aligning the partners and circumspectly involving them in the process. Clear Terms of References should be developed addressing the needs of all partners under a transparent procedure. There should be high flexibility to accommodate and eventually synchronise different national regulations, time-lines, organizational details, national / institutional legislation and funding rules. Precise and concrete funding rules are encouraged while different national / regional holiday seasons may put an extra

²¹ Speaker: Marianne Vaske, DLR

burden on the timing of joint activities and different national / regional budget periods may severely influence the time-line of joint calls.

The presentations were followed by a roundtable discussion accommodating country perspectives from New Zealand²² and Canada²³ as well as the Belmont Forum²⁴. Challenges in NZ for international collaboration are similar to those faced by P2Ps. Alignment is an issue for both EU and non-EU countries alike, at all levels: national alignment, alignment at the European level and international alignment. Possible pathways towards better alignment and synergy may include the new NZ International Science Strategy and Catalyst Fund, greater cross-engagement between JPIs and other EU mechanisms as well as the development of international umbrella platforms. These suggestions reflect good practice elements also identified in P2Ps, i.e. the existence of a specific strategy (supported also by a special fund) at the national level for international collaboration and better synergies and complementarities between JPIs and the rest of ERA instruments to multiply effects but also avoid unnecessary overlaps.

The Belmont Forum is a global ERANET-like network on environment and sustainability issues, a network of the world's major and emerging funders of global environmental change research, which was created in 2009 for solution-oriented actions. The membership is growing (currently there are 20 members from EU and beyond) and the network allows a flexible a-la-carte participation that is open to any funding organisation. Experience showed that trust building is a demanding but necessary endeavour in establishing effective collaboration.

There are the several Canada-EU Agreements in Scientific and Technological Cooperation: 92 S&T agreements between Canada and EU Member States, and 45 S&T agreements between Canadian provinces and EU Member States. The priority sectors in Canada-EU cooperation refer to health, agriculture (knowledge-based bio-economy), aeronautics and space, ICT, arctic science, oceans and marine technology, researcher mobility and infrastructure. Regarding P2Ps, the Canadian participation is mainly represented by CIHR (Canadian Institutes for Health Research). CIHR is very active participating in four JPIs, six CSAs, three ERA-NETs, and ERA-NET Cofund projects.

Triggered by the above presentations the discussion that followed pointed out the growing trend of internationalisation of P2Ps since FP7 in response to global societal challenges to be tackled as well as the shift from the country to a thematic approach in H2020. Some P2Ps are by definition more international in nature than others. The intake of newcomers should be based on proven added value. Bilateral collaboration may be a good option to start with as it offers the needed learning curve and opportunity to start building trust. Yet, there are efficiency gains to cooperate on multilateral than bilateral basis. In-kind participation is also a useful mechanism (used in EDCTP) in response to inability to bring in cash.

There is a range of challenges and constraints identified by non-EU countries as much as by the EU P2P members. Alignment of strategies, priorities and funding programmes is a big issue. Misalignment may lead to missed opportunities due for instance to different budget and holiday season timelines. In addition, the EU programmes may seem complex for third countries and partners while their visibility might also need

²² Speaker: Mr. Bruce McCallum, Ministry of Business, Innovation & Employment, New Zealand

²³ Speaker: Michael Willmott, Mission of Canada to the EU

²⁴ Patrick Monfray, Co-chair, Belmont Forum, ANR, France

improvement. Managing different expectations and levels of commitment is another issue as is managing interest from multiple countries or handling engagement of large countries (such as India or China).

The recommendations made by the audience focused on two main areas, i.e. exploring different pathways to alignment and enhancing simplicity and flexibility. International collaboration should reflect on the overarching approach, criteria and target impacts. Bilateral initiatives could be building blocks for multilateral initiatives. It is important to engage industry and policy makers in P2Ps and engage with the appropriate organisations (funding agencies) in the third countries. Mutual learning activities across different initiatives should be promoted. A-la-carte participation open to any funding organisations should be followed, while in-kind contributions should be allowed for any entity facing resource constraints. Overall, the approach to strengthening the global dimension of P2Ps should be supported by selectivity and proof of added value.

8. Engaging stakeholders

In order to achieve enough critical mass to address major societal challenges by pooling resources from different countries, involvement of a wide range of actors, such as national research funding organisations, relevant research communities from academia and industry as well as user communities need to be integrated in P2Ps. Most of the P2Ps have developed some sort of measures for including different stakeholders in their actions, at different stages of development of their joint planning processes. In most of P2Ps, delegates from different stakeholder groups are represented in the governance structures of P2Ps. However, tasks, procedures, actual involvement, and expected utility of stakeholder engagement differ considerably from each other. In addition, neither a joint terminology concerning stakeholder engagement nor a definition of common guidelines or good practices for P2Ps have been identified.

These issues were discussed in detail in the workshop 'Topic 2: Engaging stakeholders in Public-Public-Partnerships' organised in the second day of the conference. The workshop aimed to

- discuss the purpose and desired outcomes of stakeholder engagement in European P2Ps,
- highlight existing approaches for stakeholder engagement among existing P2Ps, and
- explore options on how to involve relevant stakeholders at different levels of engagement.

Workshop participants were first introduced to three perspectives coming from an ERA-NET (BiodivERsA)²⁵, JPI Urban Europe²⁶, and the FP7 project PE2020²⁷ (Public engagement tools and instruments for dynamic governance in the field of Science in Society).

Based on the knowledge gained through the PE2020 project, public engagement (PE) has become pertinent as the declining turnout at elections and the complexity of many policy issues have led to an increased shift towards both deliberation in policy and towards greater public engagement in decision making. Citizens have become less deferential and dependent on authorities, more consumerist and volatile, and old styles of representation have come under pressure. PE cultures and practices of PE are unevenly distributed in the ERA. As PE has become a more professional activity, the influence of the national environment has become even more vital, since it shapes how specialized skills and resources are developed. Unlike before, there is no clear political ideology behind public engagement and there is great potential for innovation in the whole field of PE activity.

At the same time, the EC's commitment to responsible research and innovation causes increasing pressure for national research agencies to include PE practices. However, PE is presently unable, at least partially, to play the transformative role EC has assigned to it. In addition, an intensified bottom-up movement for PE is emerging with a high number of non-profit organisations and voluntary organisations promoting PE activities. This pro-PE movement only marginally involves academic institutions as such. PE2020 aims at shedding some light on public engagement by analysing selected PE activities, identifying key factors for success and contributing to the development of a web-tool.

²⁵ Speaker: Xavier Le Roux, French Foundation for Biodiversity Research - Coordinator and CEO of BiodivERsA.

²⁶ Speaker: Margit Noll – JPI Urban Europe Management Board.

²⁷ Speaker: Dr. Mikko Rask, Consumer Society Research Centre, University of Helsinki.

Stakeholder engagement underpins the whole BiodivERsA process. A Handbook has also been published illustrating the importance of this approach. This includes ‘best practices’ to assist those planning and carrying out (biodiversity) research in identifying which stakeholders to involve, why to involve them, and how and when to engage with them; planning engagement activities; managing conflicts; and monitoring outcomes²⁸. Stakeholders play an active role in the first phases of BiodivERsA through co-designing the mapping and foresight and the road-map that will lead to topics for joint calls and programme alignment. They then take part, under a co-production approach, in the implementation of joint activities, analysis and (societal) impact assessment of funded projects.

Based on BiodivERsA, experience shows that engaging stakeholders should be a carefully planned activity also given that there is a fear of trade-off between academic excellence and stakeholder engagement. To enable stakeholder engagement throughout the whole process innovative procedures and tools are needed. It is a challenge to make researchers, stakeholders and wider society work together to increase the societal impact of research but it can be rewarding in a number of ways: increased societal empowerment, improved links and partnerships, access to additional resources or information, wider buy-in of the project, better communication, awareness, trust and support, improved learning through sharing of experiences, managing risks and reducing conflicts, and making research more credible, relevant & legitimate, therefore improving its impact for society.

JPI Urban Europe also applied a co-creation approach in developing their Strategic Research and Innovation Agenda (SRIA). This was organized through the FP7 Project SEiSMiC (Societal Engagement in Science, Mutual learning in Cities). Through a series of national and international workshops, SEiSMiC aimed to:

- Create a platform that enables a structured dialogue and mutual learning with citizens and urban actors on social innovation for the urban future
- Mobilize wide range of urban actors, in particular civil society in networks in 10 countries
- Stimulate initiatives and projects between the stakeholders (Mutual learning)
- Contribute to the societal dimension of the SRIA of JPI Urban Europe and providing input for European Urban Policy.

The SEiSMiC experience shows that for supporting the SRIA implementation, continuous strategic dialogue with stakeholder groups of science, cities, civil society and business (industry) is needed to ensure transdisciplinarity. The different logics of various stakeholders should be taken into account. A broad and flexible connection to local, national and European contexts and different stakeholders is seen as the best way forward. Going beyond advisory boards, a co-creation process is needed to connect the various stakeholder groups effectively.

Further, the JPI Urban Europe shared the experience of establishing a Stakeholder Involvement Platform (SIP) for the SRIA development. The SIP concept includes:

- Establishing a core panel representing all stakeholder groups with sufficient regional spread across Europe;
- Setting up a process that involves the different stakeholder groups according to their logic and the related question;

²⁸ www.biodiversa.org/stakeholderengagement

- Complementing this European level approach with national consultations to mobilise, involve and inform the national communities;
- Building up a stakeholder database for dissemination.

The key messages from the presentations and discussions that followed refer to the importance of mutual learning that is enabled among stakeholders, researchers, and policy makers. There is the need to move from consultation to partnership and co-production, and from advice to solutions. There are different ways to involve stakeholders that can be utilised (advisory boards are outdated). There are several tools and instruments available, however resources and experts are needed. Engagement of stakeholders should consider the local as well as the national and EU level. Last but definitely not least, if the process is right, there is no observable trade-off between academic excellence and societal engagement.

The issue of stakeholder engagement was further discussed in detail in a special event that took place after the end of the Annual Joint Programming. Attendees in this workshop verified the importance of stakeholder engagement from a variety of perspectives (stronger role for society and buy-in to the process and the outcomes, uptake of results, as well as creation of new ideas and challenges for scientists). There is not “one-size-all-fits” approach for stakeholder involvement; different formats and different stakeholder groups (and subsets) are required during the different stages of a P2P research initiative. Financial constraints (budget) and time are the main barriers for the further stakeholder engagement. Building up trust is an important activity for successful stakeholder involvement. The P2P secretariat plays a crucial role in the preparation and communication for/with stakeholders as well as for the planning of stakeholder engagement.

The use of online open platforms by some JPIs to engage stakeholders was also discussed. These allow for the active participation of all the stakeholders, supporting co-creation. However, some concerns were raised about this model: how to prioritise stakeholders? How to sort stakeholders by relevance? How to prevent bias in stakeholders' participation? There needs to be equilibrium between co-creation and distribution of participation. In order to achieve this equilibrium, there needs to be a balance between bottom-up approaches (such as open platforms) and a direct approach from the JPIs, inviting relevant stakeholders that are not represented in these platforms. Stakeholder mapping exercises are useful for this.

The participants also agreed that it is important to clearly define the goals of the process to make the best use of stakeholder engagement. This also includes clearly defining the roles and expectations of the stakeholders throughout the entire process. The engagement process should be planned ahead (upstream) and should happen from the very beginning to promote a sense of ownership by the stakeholders. The timelines/schedules/availability of the stakeholders should be considered during the engagement process. The stakeholders selected should act on a level-playing field. This may require capacity building of some stakeholders. It is important to keep this in mind when selecting the stakeholders and JPIs should encourage this capacity building in order to make the best out of this process. The role of the stakeholder advisory boards was also discussed. Participants agreed that there is a need for a different kind of engagement system that goes beyond the formal advisory boards.

Finally, in relation to pathways for future cooperation between JPIs, the discussions centred on the need to adapt stakeholder engagement to the challenge addressed by each JPI. A helpful focus for the development within each JPI and for the cooperation between JPIs was seen in the concept of a Societal Interaction Plan. The discussions also triggered specific suggestions and recommendations on the way forward as well as in relation to further networking and collaboration between P2Ps on this issue.

9. Open knowledge and open access

It is widely acknowledged that open knowledge policies including open access to research publications, research results, and research data contribute to better and more efficient science and to innovation in the public and private sectors. The European Commission therefore encouraged all EU Member States to put public-funded research results in the public sphere in order to make science better and strengthen the knowledge-based economy. For P2Ps an incorporation of open knowledge policies may help to enhance the way researchers collaborate and knowledge is shared. P2Ps may have a distinct role concerning the provision of access not only to research results but also research data and research infrastructures in the area concerned. Thereby, access and re-use of data, infrastructures and tools can be granted more easily and at a reasonable cost, which ultimately can accelerate uptake of new knowledge and foster innovation.

The above issues were discussed in a special workshop, 'Topic 3: Strategies for fostering open knowledge and open access in research' organised on the second day of the conference. The workshop provided an opportunity to review and discuss objectives, approaches, benefits and challenges of open access and open knowledge policies amongst P2Ps. The workshop started with three presentations of existing initiatives implementing open knowledge strategies:

- The European Open Science Agenda (Jean Claude Burgelman, European Commission)
- The Open Science and Research Initiative in Finland (Sami Niinimäki, Ministry of Education and Culture Finland)
- Open Knowledge Strategies in Joint Programming Initiatives: The Open Knowledge Strategy of JPI-Climate (Patrick Monfray, Chair of JPI Climate, France)

Open Science (OS) is of significant importance for the EC as it is one of the three priorities of Commissioner Moedas. The European Open Science Agenda, which is the result of extensive consultation with a variety of stakeholders and enjoys strong support by Member States and the Council, includes five action lines:

- Fostering and creating incentives for OS, e.g. promote best practices, research integrity, citizen science etc.; establish an Open Science Policy Platform (bottom-up mechanism);
- Removing barriers, e.g. 'alternative' metrics, European "code of conduct", addressing low open data skills amongst researchers and the underuse of professional support;
- Mainstreaming and further promoting OS policies: e.g. extend H2020 pilot on open access today, prevent double dipping;
- Develop research infrastructures for Open Science, e.g. common interfaces and data standards, coordinate funding/ maintenance and interoperability, develop European Open Science Cloud for data, protocols and methodologies;
- Open Science as Socio-Economic Driver, e.g. address Societal Challenges by implementing Joint Open Science Initiatives, call for action in Horizon 2020 programme "Science with and for Society", work programme 2016-17.

Among ongoing activities is the establishment of the Open Science Policy Platform, the setting up of Expert groups on 'European Open Science cloud' and 'altmetrics' and the implementation of the Open Science Monitor. At the same time, several call for proposals are planned on training on open science, joint open science initiatives and piloting the European Open Science Cloud. It is evident that the European

Commission is actively promoting open science and urges national systems to follow this root.²⁹

Niinimäki provided a national perspective on Open Science. Finland is a pioneer in adopting Open Science principles in research having stated related efforts as early as 2009 with Research Data Survey Initiative (TUTA). Finland's efforts are also guided by a vision they have set for 2017 that 'Open research leads to surprising discoveries and creative insights. The current initiative, Open Science and Research 2014-2017 initiative (ATT), stresses that Finland aims at incorporating open science and research to the whole research process to improve the visibility and impact of science and research in the innovation system and society at large. At the same time, it is important to foster the research system in Finland towards better competitiveness and higher quality, transparent, collaborative and inspirational research. The measures promote open publications, open research data, open research methods and tools, as well as increasing skills and knowledge and support services in open science domain. Contributions from all research system actors are welcome to change the research culture towards openness. Finland will engage in international collaboration to promote open science and research.

Finland is equipped with a specific roadmap towards their vision (2014-2017) aiming at reinforcing the intrinsic nature of science and research, strengthening openness-related expertise, ensuring a stable foundation for the research process, and increasing the social impact of research. The Roadmap has concrete steps and responsibilities for each stakeholder that are based on annual stakeholder hearings to avoid top-down approach.

The Finish experience shows that continuous shorter (e.g. bi-annual) initiatives (rather than large-scale multi-annual initiatives) are better to create momentum and make it easier to refocus efforts in an ever-changing world, while also allowing bottom-up engagement and reflections at regular intervals. In addition, it is important to work together to share experience, cultivate the right environment and identify the needed actions. In doing so, it is useful to carry out maturity assessments of open science operating culture in universities and research institutes. There are several barriers and bottlenecks that need attention. For instance: limited resources for training of stakeholders, high costs of scientific publishing which call for negotiation with publishers, inclusion of OS to the entire research evaluation system, and dealing with national copyright legislation.³⁰

Complementing the EU and national perspectives, the third presentation offered the JPI point of view. P. Monfrey presented the process and approach that lead to the Guidelines on Open Knowledge in JPI Climate. This was a two-year process (2014-2015) that included the development, based on multiple consultations with stakeholders, testing, amending and dissemination of the resulting guidelines. In brief the Guidelines include the following provisions:

- Internal accessibility. Access of working documents for all JPI Climate members and partners
- Open formats, by use of open formats, i.e. ODF (e.g. *.odt, *.ods, *.odp)
- Open licensing, by use of the Creative Commons Creative Commons license "CC0"
- Open Data. Research data and meta-data under Creative Commons license "BY" and "CC0", respectively.
- Data Management Plan (DMP) for publication, storage and preservation to be submitted and evaluated

²⁹ The European Open Science Agenda. Presentation by Jean Claude Burgelman, European Commission.

³⁰ The Open Science and Research Initiative in Finland Presentation by Sami Niinimäki, Ministry of Education and Culture Finland.

- Open Access publishing. (i) Open Access journals, books or proceedings (i.e. “gold” Open Access) or (ii) self-archiving of subscription-based formats incl. embargos (i.e. “green” Open Access).
- Publishing costs. Costs related to Open Access and Open Data to include in activities or research budgets [explicitly]
- Open Access publishing compliance. Incentives and controlling mechanisms to reassure a successful implementation of these recommendations.
- Access to Knowledge and Open Access in JP community. Promote in the ERA by cooperating with initiatives promoting [also these] common framework conditions.
- Open Knowledge in the climate research community. Invite actors involved in the climate research community to actively promote, design and implement comprehensive open knowledge policies.

Three levels of adoption were set in JPI Climate. The first one (Level 1) refers to the adoption of the Guidelines on Open Knowledge, both short version and standard version of the reference document. Level 2 refers to actively promote the Guidelines internally, i.e. when conceiving and executing strategic actions (e.g. joint calls, alignment measures) and operational activities (workshops and networking activities) within the context of the JPI Climate. Level 3 refers to actively promote the Guidelines at national level, i.e. to encourage every JPI member and associated member to embed the guidelines in their own research coordination activities. Progress is on-going with Level 3 being the more challenging one but vital for achieving alignment in relation to access to knowledge policies.

Triggered by these presentations, discussions were structured around three main themes. The first focused on dealing with objectives and focus of open knowledge policies in P2Ps, the second on means to enhance access to research data and research findings, and the third on means to manage access to research infrastructures. Discussants noted that OS actions have largely been geared by the research community with large players and publishing houses only recently becoming engaged. There seems to be a rising trend in following OS principles by the research community which needs to be supported by removing barriers and designing incentive-creating policies. However, policy should act as a facilitator and not as an imposer of services or criteria. There is limited room for top down prescriptions, but there is a need for incentives to apply OS while the openness criterion could become mandatory in public research funding and review processes. At the same time, measures are needed to harmonise interoperability and services for utilization of open research data. Training of trainers to spread OS philosophy is also key.

Developing an Open Science Cloud and open infrastructures at EU level is very important as is embedding open science in society to make science more responsive to societal and economic expectations. Building on existing experience is vital rather than re-inventing the wheel. The open access strategy of Finland provides key characteristics on responsibilities of funding agencies, a framework for performance indicators of open science at national and institutional level and for the research community. At the same time, the guidelines developed by JPI Climate can be seen as good practice to spread within the JPI community and beyond.

10. Working towards alignment

This session draws upon the presentations and discussions during Topic 4 'Commitment to JPI alignment and evaluation of impact' organised on the second day of the conference.

10.1 Understanding alignment

The issue of alignment was stressed throughout the presentations and discussion of the conference as a vital factor affecting the performance of P2P networks. Increasing the alignment amongst national strategies and programmes is a crucial element of the Joint Programming Process that, even though mainly involving the JPIs, calls for the contribution of the total range P2P activities (JPIs, ERA-NETs, Art. 185s, etc.) as valuable experiences can be shared. The degree of alignment of national programmes at the various stages of the programming cycle can be both a pre-condition and an impact of successful joint programming activities. However, assessing the different levels of alignment existing before, or achieved during or after engagement in a P2P network, faces several challenges.

The specific workshop³¹ organised within the merit of the conference aimed at

- presenting a comprehensive overview on the issue of alignment covering all the different phases of the programming cycle accompanied by a selection of case studies to exemplify various modes and approaches to alignment;
- presenting an impact assessment framework that can serve the purpose of evaluating alignment modalities; and
- giving participants the opportunity to discuss current and novel alignment modalities at national and regional level as well as possible approaches for the evaluation of alignment in P2P networks.

Discussions were triggered by three presentations³². Alignment is a concept, whose elements and implications in the context of P2P are constantly evolving and need to be studied and analysed at the same time, as much seems to depend on it in relation to how successful P2P networks can become. There are varied perceptions as well as misunderstandings on what alignment is. Aligning national activities requires a paradigm change, i.e. to overcome the traditional way of organising our research funding following a purely national logic, to act primarily in a transnational logic, and focus on the real societal need for the wider public good rather than following national intervention logics. At the same time measuring impact is vital in establishing the added value of P2Ps and building a convincing case to ensure sustainable commitment from political leaders. Yet, the traditional indicators and the available statistical data are not suited for measuring the impact of trans-national interventions in the field of societal challenges.³³

ERA-LEARN 2020 have done important work on shedding light on the definition and modalities of alignment. Alignment refers to various levels of the programming cycle (planning, strategy, funding, implementation, evaluation and reporting, etc.) while it has to overcome several differences and incompatibilities across the different national and regional contexts. The diversity of national research landscapes (in terms of available

³¹ Topic 4: Commitment to JPI alignment and evaluation of impact, Day 2.

³² 'GPC Implementation Groups on Alignment and on Monitoring of JPIs' by M. Schmid, BMWFW & GPC; 'Current approaches to alignment – towards a typology' by C. Lesser, INRA/FACCE-JPI Secretariat & ERA-LEARN 2020; and 'Towards an impact assessment framework on alignment' by E. Amanatidou, UNIMAN & ERA-LEARN 2020.

³³ 'GPC Implementation Groups on Alignment and on Monitoring of JPIs' by M. Schmid, BMWFW & GPC.

funding, institutions, political context, etc.) leads to weak inter-operability between national rules and procedures for funding and executing transnational research, thus making alignment a great challenge. Building on the GPC definition of alignment³⁴ and examining a number of identified alignment modalities a typology has been built including 12 different categories that cover the totality of the programming stages. This is particularly useful in establishing a common understanding on alignment and its different aspects and dimensions as well as on the way towards operationalisation of alignment in the various programming stages.³⁵

While the work on alignment will continue in ERA-LEARN 2020 through studying in detail certain alignment modalities, some conclusions are already worth mentioning. Alignment is not only about organising joint calls for research. It can be achieved via various joint actions and instruments. A combination of actions undertaken “bottom-up” (by researchers, research performing organisations) and “top-down” (by Ministries, research funding organisations) may be the best solution. Needless to say, alignment needs strong political commitment, mutual trust and consensus-building at all levels as well as effective inter-agency and inter-ministerial coordination at the national level. Overall, while alignment seems to be perceived as a new concept in the area of trans-national cooperation in research and innovation, a lot of alignment-related activities are happening already, which call for room for mutual learning. (ibid.)

The discussions that followed the three presentations were structured in three themes: a) the challenges of evaluating alignment related impacts, b) alignment vs other impacts from participation in P2P, and c) alignment of research programmes and activities: obstacles and good practice elements. The lack of common understanding of what is meant by alignment was echoed in all three discussion groups, although not as a major obstacle but an ongoing challenge. Other obstacles hindering alignment were lack of interoperability in relation to national regulations and timeframes, miscommunication caused to some degree by language barriers and lack of transparency and scepticism about investing in trans-national research activities mainly due to lack of proof of positive impact.

However, it was acknowledged that alignment work has been part of the efforts of ERA-NETs and other instruments for a decade, usually not under the specific term ‘alignment’. There are good experiences at bilateral level of aligning procedures and regulations but this is clearly more challenging to achieve at the European level. The JPIs have faced this challenge from the onset and some have successfully aligned limited parts of funding systems, like interoperability of national timeframes in programme cycles.

Discussants noted that national coordination is of crucial importance in progressing towards alignment. Inter-ministerial and inter-funding agency communication at national level is part of the solution. It would be useful to analyze how different countries organize their joint programming participation and to showcase successful examples. For instance JPI Oceans can explain how they synchronized different time schemes of national programmes. In JPI AMR in-country coordination is a prerequisite for European alignment and joint activities

³⁴ “Alignment is the strategic approach taken by Member States to modify their national [research] programmes, priorities or activities as a consequence of the adoption of joint research priorities in the context of Joint Programming, with a view to improving the efficiency of investment in research at the level of Member-States and the European Research Area”. (ERAC-GPC 1305/1/14 Rev1. Report of the GPC Working Group on Alignment. Brussels, 30 Oct 2014).

³⁵ ‘Current approaches to alignment – towards a typology’ by C. Lesser, INRA/FACCE-JPI Secretariat & ERA-LEARN 2020.

whereas in JPI Water, the agreed SRA structures the work that needs to be carried out at national level. The forthcoming work under ERA-LEARN 2020 on studying certain alignment modalities is very important.

10.2 Assessing alignment

Whereas, a certain degree of alignment is a precondition for successful performance of P2P networks, it can also be an impact from participation in P2Ps as the latest ERA-LEARN work showed. The work on the typology and analysis of alignment modalities under ERA-LEARN is crucial for identifying preconditions as well as areas of impacts that are essential for building an impact assessment framework for alignment. There are different levels and modalities of alignment that need to be assessed - alignment is not a single concept but is spread (or its pre-conditions are spread) within several different types of impacts rather than being a single impact on its own. There are activities as well as structures, processes and governance mechanisms that can lead to alignment impacts. An impact framework on assessing alignment can be built based on broader impact assessment theories and practices of research programmes and JPI specificities some of which are reflected in existing JPI impact assessment frameworks. However, we need to think of the programme theory underlying JPIs before jumping to logic frames or other impact frames. Impact achievement can be enhanced or hindered by specific conditions that may be programme but also non-programme specific which are not captured in logic frameworks. This task can also benefit from the long-standing theories and practices of impact assessment of research programmes, notwithstanding the impact assessment frameworks that have already been built for particular JPIs.³⁶

However, albeit the importance of alignment both as a condition and an impact from trans-national research activities, P2Ps lead to other, equally important types of impacts that should not be neglected in establishing the added value of P2Ps networks. Discussants identified three main areas of impacts: on policy; on society and on research systems. At the policy level JPIs represent and can act as a global actor by delivering a political agenda and representing Europe in the international community with a common voice on specific issues (such as global change, urbanization etc.) .JPIs are the proper vehicle to develop and serve a European vision as well as a means of science diplomacy. They can also help in raising awareness among politicians on global challenges, showing results and success stories, also in order to solicit investment in research. They represent a platform for cooperation with non-EU countries as well as a forum for cooperation with stakeholders and industry/SMEs at both national and European level. In relation to society, JPIs provide a link between research and society by playing a role in raising awareness of scientific issues on society. Their outreach and communication can be enhanced by showcasing solutions and results. In relation to national research systems JPIs are a test-bed where to explore and test new instruments, pivotal solutions and ideas. They help create critical mass of research infrastructure and results, by sharing data, infrastructures and capacities and provide flexibility as they enable shifting investments on specific research tracks within the same identified societal challenge. JPIs also lead to some cross-cutting impacts in relation to developing a community, building trust, and developing standards.

Assessing alignment in P2Ps needs to recognize the different dimensions of alignment or the lack of them in particular cases. For instance what is the role of interoperability in the cases where no national programmes exist in the research area in question? Alignment relates to cooperation of different Ministries across

³⁶ 'Towards an impact assessment framework on alignment' by E. Amanatidou, UNIMAN & ERA-LEARN 2020,

countries as well as within the same country under a specific area (multi-disciplinarity). Alignment may also refer to establishing synergies between H2020 and ESIF to facilitate funding at national level of P2Ps in the cases where national budgets are co-financed by ESIF. Another dimension is the adoption of (parts of) SRIAs in national strategies and designing common road-maps. Alignment is also linked to the maturity of JPIs which may be reflected in actions such as launching a joint call without EC support. As much as defining impact indicators are important, and certain ideas already exist in the P2P community, they need to reflect all these different dimensions and levels of alignment. Thus, it is important, apart from establishing common understanding to share, disseminate and utilise existing knowledge and experience.

11. Conclusions

Significant experience has been gained over the years in designing and implementing P2Ps in research and innovation. While this is being recorded and translated in good practices, tool-boxes and impact analyses for the benefit of all P2Ps in supporting projects like ERA-LEARN 2020, it is important that they are disseminated widely across interested countries. It is timely now to adjust lessons learnt and good practices across different contexts, instruments and initiatives.

Without diminishing the importance of overcoming technical barriers of P2Ps, it is characteristic that the issues currently occupying the P2P community have shifted from more technical (such as simplification, harmonisation and interoperability) in the past years to more strategic issues (widening participation, strengthening the international dimension, engaging stakeholders, open access and alignment). This may indicate changes in the mind-sets of policy makers reflecting acknowledgement of joint programming as valuable means to deal with certain societal challenges that cross national borders.

Building a convincing case for P2Ps should be continuously supported by evidence of impacts and added value. Work in this area has been quite important and will continue. Results from recent evaluations (such as the JPI evaluation) are encouraging even though progress has been slower than anticipated. At the same time, methodological work is needed in the field of impact assessment to address societal impacts of P2Ps in complex trans-national contexts, alongside evolving concepts such as alignment.

Barriers are still strong at national level. Achieving alignment and committing efforts and resources to public-public partnerships is a big challenge for Member States, but it is commonly acknowledged that there is strong potential of P2Ps in dealing with grand challenges in a coordinated, more effective and efficient way. The role of the EC is important at various levels, i.e. in improving simplification, and interoperability across the different instruments, in sharing the knowledge gained and spreading good practice elements, in facilitating links between different sources of funds (H2020, ESI Funds) but also in supporting networking under the different partnering initiatives.

Joint programming is not just another approach but a new way of thinking that needs to be adopted at all levels (institutional, programme, national, EU). As noted by the Chair³⁷ of the second day of the conference, the keywords are **'Commitment', 'Capacity', 'Co-creation and Co-production', 'Coherence', 'Collective learning', 'Collaboration', 'Communication', 'Co-existence', 'Cohesion', and 'Compromise'**.

³⁷ Ken Guy, Wise Guys Ltd.

Annex: Agenda Annual Joint Programming Conference

Building and Sustaining Commitment to Public-Public Partnerships

14/15 January 2016

MCE Management Centre Europe, Rue de l'Aqueduc 118, 1050 Brussels

In collaboration with



12h00 – 13h00 **Registration of participants and welcome lunch**

13h00 – 14h30 **Plenary session 1 - Building & Sustaining Commitment**
(chair: Kristin Danielsen, RCN)

Welcome and introduction

Fabienne Gautier, Head of Unit ERA Policy and Reform, DG Research & Innovation

ERA-LEARN 2020 – support platform for the Public-Public-Partnerships

Roland Brandenburg, FFG, ERA-LEARN 2020 Coordinator

The FACCE JPI Experience: maturity and cooperation with ERA-NETs

Niels Gøtke, Head of Division, Danish Agency for Science, Technology and Innovation

Small country in vast P2P partnerships landscape

Petra Žagar, Ministry of Education, Science and Sport, Slovenija

Romanian profile in P2Ps

Ioana Ispas, National Authority for Scientific Research and Innovation, Romania

An analysis of the performance of networks: emergence of impacts and good practice

Effie Amanatidou, University of Manchester

14h30 – 15h30 **Plenary session 2 - Looking to the future**
(chair: Kristin Danielsen, RCN)

Key findings and conclusions of the High-Level Expert Group Joint Programming

Juan Hernani, Chairman of the Expert Group

Lund declaration 2015

Joakim Appelquist, VINNOVA, Director International Division

Joint statement JPI chairs

Patrick Monfray, ANR, JPI Climate chair

What do JPIs need to become really big players in the ERA

Martin Schmid, Vice-Chairman of the GPC

Round table discussion with Q&A

15h30 – 16h00

Coffee break

Delegates move to Parallel Sessions

16h00 – 18h00

Parallel workshops day 1: Lessons learnt and the way forward**Topic 1: Experiences with ERA-NET Cofund under Horizon 2020**

ERA-NET Cofund actions under Horizon 2020 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. Research funders and ministries involved in ERA-NETs had to adapt to the modifications and simplifications (e.g. unit cost for additional activities) that were introduced. The workshop will allow participants to contribute to an assessment of the first ERA-NET Cofund actions under Horizon 2020, to take stock of the first experiences in their implementation, identify critical issues that need to be addressed by consortia and Commission Services in their preparation and implementation and discuss possible adjustments.

Topic 2: Evaluation of Joint Programming – key issues

In order to better assess the Joint Programming process and the 10 Joint Programming Initiatives (JPIs) the Commission has established a group of high-level experts evaluating the progress made in Member and Associated States on Joint Programming to address Grand Societal Challenges. The workshop will offer the possibilities to discuss with the experts their preliminary findings with a particular focus on options to address key issues that have been highlighted. This will be reflected in the final report that is due to be published in early 2016.

Topic 3: Widening participation in Public-Public Partnerships

The workshop will focus on how to increase participation in P2P from countries which have been less active so far. Possibilities of using Structural Funds for financing activities within JPIs and other P2Ps will be discussed. The discussion will be based on the preliminary findings from the JPI-evaluation on reasons for lower participation from some countries, lessons learned from the Smart Specialization Strategies process, and experiences from relevant member states.

Topic 4: Internationalisation of Public-Public Partnerships beyond Europe

The Workshop will focus on the exchange of experience on how to establish cooperation with funding organisations from e.g. America, Africa or Asia. Practical examples of P2P networks with international participation will be presented as an input. Workshop participants will intend to identify challenges and hurdles and aim to elaborate opportunities for cooperation beyond Europe.

18h00 – 19h30

Reception at MCE

09h00 – 09h30 Plenary session 3

(chair: Ken Guy, Wise Guys Ltd.)

What you ever wanted to know - ERA tools for Public-Public Partnerships

Joerg Niehoff, DG Research & Innovation

09h30 – 11h15 Parallel workshops day 2: Horizontal issues

Topic 1: ERA-LEARN 2020 – How can the IT platform better serve community interaction, mutual learning and P2P promotion?

The workshop will present and discuss the results of a the user needs online survey carried out prior to the conference, with a specific view on IT. Additional functionalities of the WEB platform to be discussed may include means of intensified interaction in between P2P experts like blogs, or features for the support of joint monitoring, assessment and promotion of P2P initiatives.

Topic 2: Engaging stakeholders in Public-Public-Partnerships

For P2Ps to achieve critical mass in addressing major societal challenges, involvement of a wide range of actors, research funders, research communities from academia and industry as well as end users need to be integrated. Most of the P2Ps have developed some measures for including different stakeholders. The workshop will 1) inform participants on new concepts of societal interaction in research, 2) highlight good practice approaches for stakeholder engagement among P2Ps, and 3) provide the opportunity to discuss strategies for specifying the role of stakeholder engagement in developing and implementing R&I programmes and to explore options on how to involve relevant societal actors in research activities.

Topic 3: Strategies for fostering open knowledge and open access in research

Open knowledge and open access strategies are critical issues to be addressed by P2Ps in order to increase dissemination and take-up of research results. In particular for publicly funded research, open knowledge strategies help to foster transparency and promote good-science. The workshop provides an opportunity to review and discuss current approaches performed by P2Ps and benefits and challenges encountered in the implementation of strategies for fostering open knowledge.

Topic 4: Commitment to JPI alignment and evaluation of impact

Alignment of national programmes refers to various levels of the programming cycle (agenda setting, policy design, implementation, monitoring and evaluation) and has to overcome several differences and incompatibilities across the different national and regional contexts. At the same time, countries need to commit shares of the national research budgets and decide which P2P initiatives to take part in. The workshop will 1) present a comprehensive framework for the monitoring and evaluation of Joint Programming activities, 2) present a comprehensive view on alignment covering all the different phases of the programming cycle, 3) give participants the opportunity to discuss on the current approaches and to debate on current and novel alignment modalities at national and regional level.

11h15 – 11h45 **Coffee break**
Delegates move to Plenary Session

11h45 – 13h30 **Closing plenary**
(Ken Guy, Wise Guys Ltd.)

Report on parallel sessions days 1 and 2
Moderators/Rapporteurs of parallel sessions

Conclusions
Fabienne Gautier, Head of Unit ERA Policy and Reform, DG Research & Innovation
Roland Brandenburg, FFG, ERA-LEARN 2020 Coordinator