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Added value of transnational research programming: lessons from longstanding programme collaborations in Europe

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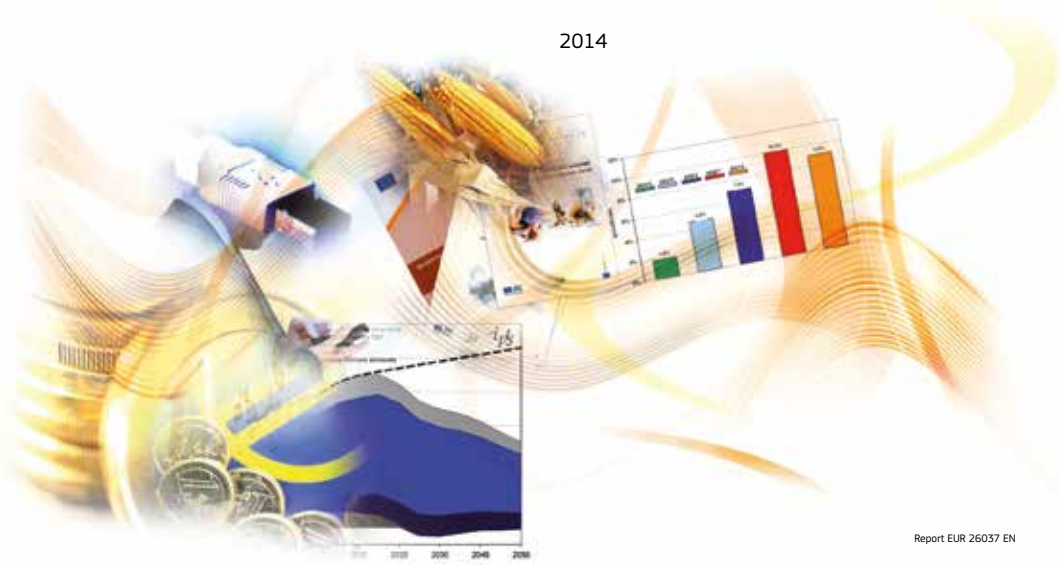
Mark Boden, Nida Özbolat

2014



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Contents

1 Introduction

This brief explores the wide variety of objectives, activities and outcomes of transnational research programming in Europe. Going beyond the goal of mobilising shared research funds, it examines how collaborative networks can contribute to the achievement of a broad range of objectives related to research and innovation. It centres on the development of an analytical framework, focused on the key motivations for establishing and participating in collaborative networks and the subsequent outcomes. These range from the primary aims that are core for the programme collaboration to secondary and even tertiary network aims that are beyond the stated objectives of the collaboration instruments used. The outcomes considered extend beyond the mobilisation of funds to implement joint calls.

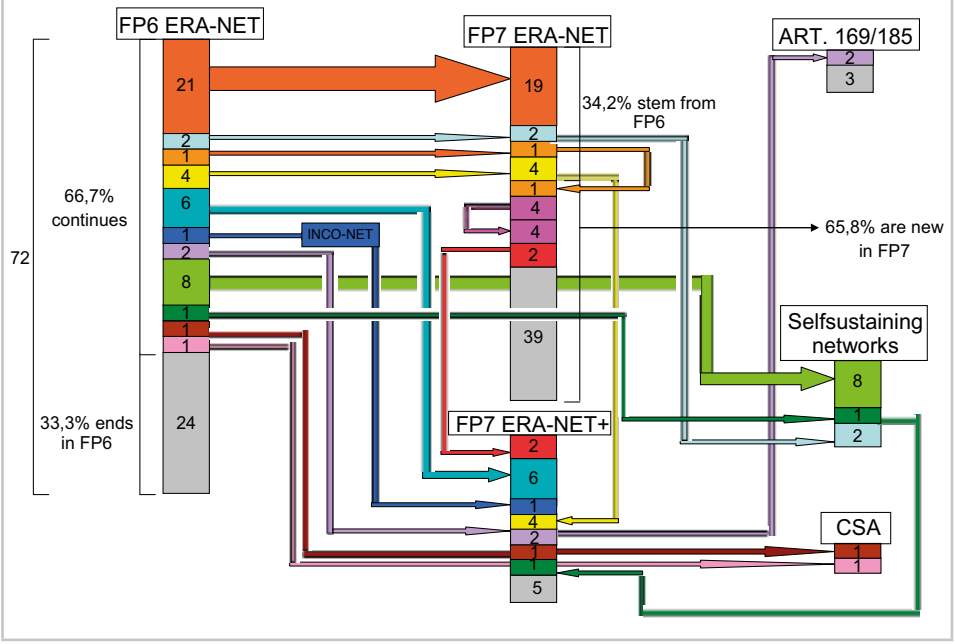
A central aim of the framework is to understand how transnational programme collaboration provides an environment that overcomes barriers to coordination. This can be analysed in terms of four main identified dimensions, (see Section 3), along which alignment is required, and which provide an indication of the degree of EU research integration (Luukonen & Nedeva, 2010). We define alignment here as coordination between and adjustment of different elements of a system aimed at increasing the efficiency of the entire system. In the context of joint programming, the term alignment is refers mainly to the alignment of national programmes. However, in this brief we consider alignment not just between national programmes but also along the four dimensions referred to above (e.g. alignment of research systems etc.). Using this concept of alignment, the framework analyses transnational research programming, building on case studies selected from longstanding programme collaborations in the EU.

The formulation of policy implications at the end of this brief takes into account the current policy context, in particular the communication from the European Commission (2011) on 'Partnering in Research and Innovation', which proposed new ways to organise transnational research and innovation (R&I) collaboration in line with the objectives of Europe 2020. In addition, the relevance of the proposed framework for measuring progress towards completing the European Research Area (European Commission, 2012) can be assessed. Seeking to better measure the impact of collaborative programming networks also reveals the complexity of alignment underlying budget pooling and offers arguments at regional, national level and European levels for increased collaboration in research programming.

2 Network continuity under FP6 and FP7

Several examples of longstanding collaborations in research programming can be identified from programme collaborations over the last decade (2002-2013), employing a variety of combinations of instruments to support and sustain these collaborations. Figure 1 shows the trajectories of continuation of European research collaboration networks funded under FP6 and FP7. It reveals a high degree of continuity among different research collaboration initiatives in Europe, with two thirds of all actions initially funded under FP6[1] experiencing some form of subsequent continuation.

Figure 1: Trajectories of continuation of European research programming networks under FP6 and FP7 (2002-2013).



Sources: JRC-IPTS calculations based on NETWATCH data and 2013 Work Programme of DG Research and Innovation.

1 Including those specified in the 2013 Work Programme of DG Research and Innovation of the European Commission.

In general, while continuity has been supported well through FP7 funding (ERA-NET and ERA-NET Plus), most FP7 funding focuses on new networks: one third of FP7 ERA-NET actions represent a continuation of an FP6 ERA-NET, while two thirds are 'new' initiatives. Also evident is high diversity in 'modes of continuation'. In total thirteen different modes of continuation have been identified. Among the 11 self-sustaining networks identified, eight of them stem from an FP6 ERA-NET directly, while two were previously funded under both FP6 and FP7.

This high diversity in continuation modes suggests that different networks may require different cooperation instruments, depending on their needs. This brief focuses on four specific transnational networks, each with distinct trajectories of continuation. This analysis seeks to better understand their objectives, activities and added value.

3 Research funding networks in a wider policy context

The framework developed for the analysis comprises three core elements. Firstly, in the Partnering Communication of the European Commission (2012), collaboration in R&I is seen to build critical mass, facilitate joint vision development and strategic agenda setting, contribute to the evolution towards a programming approach in European R&I, and provide flexible structures to ensure that the size and scope of a partnership are appropriate to its nature and goals.

To address the perceived inability of existing governance systems to collaborate in tackling current and future, interconnected, global societal challenges (Könnölä et al., 2012), four key dimensions of co-ordination and alignment can be identified: systemic, horizontal, vertical and temporal (OECD, 2003; Könnöla et al, 2011; Könnölä & Haegeman, 2012). These four dimensions are inherent to the complexity of the societal challenges they seek to address. For transnational collaboration in research and innovation to contribute to tackling those challenges, barriers to collaboration must be overcome. This requires alignment along these four dimensions. More precisely:

- Alignment of structural and systemic differences in national research and innovation systems (Systemic dimension)[2]
- Horizontal co-ordination between research, innovation and other policy areas (such as competition, regional, financial, employment and education policies) (Horizontal dimension)
- Vertical co-ordination between local, regional, national and transnational policy levels (Vertical dimension).
- Temporal co-ordination ensuring that policies continue to be effective over time and that short term decisions do not conflict with longer-term commitments ('dynamic efficiency' or temporal dimension).

Transnational research programming plays a key role in supporting and encouraging alignment. A diverse set of four selected case studies illustrates below how programme collaboration supports these different alignment dimensions and contributes to removing barriers related to each of them.

Secondly, it is important to acknowledge and assess the interdependence between policy priorities, and their evolution. 'Well-coordinated research programmes and priorities' was defined as one of the six ERA dimensions in the 2007 ERA Green Paper (European Commission, 2007) while 'optimal transnational co-operation and competition' is one of five recently defined ERA priorities (European Commission, 2012). Transnational programme collaboration may however also contribute to other ERA dimensions and priorities. For monitoring and measuring progress, the different dimensions and priorities are usually considered separately. However, policies targeting one dimension may have an impact on the others. The case studies analysis reveals how

2 Within each policy level there may be an additional alignment need between the strategic/political level (the ministries) and the implementation level (most often through implementing agencies).

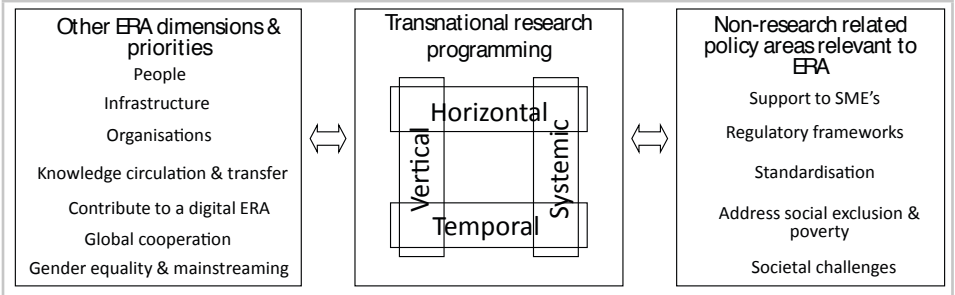
transnational research programming can contribute to the other ERA dimensions and ERA priorities. Given the time period covered by this brief, the dimensions and priorities are brought together and summarised in figure 2[3].

Thirdly, Europe 2020 includes policy actions related to ERA in other areas than the ERA dimensions and priorities, as identified in Haegeman et al (2012)[4]. Those policy actions are distributed among the seven Flagship Initiatives of Europe 2020[5]. Examples are support to SME's, regulatory frameworks, or standardisation. The case studies will be used to analyse how transnational programme collaboration can also contribute to each of these additional activity areas.

The three strands of the analysis allow for the development of a more complete picture of the impacts of programme cooperation policies on the completion of the ERA.

As mentioned above, the four case studies considered in this brief combine different instruments (ERA-NETs, Article 185s, Self-sustaining networks, etc.) over time. These have been selected to test the above framework, in order to examine how their respective activities contribute both to alignment along the four dimensions of co-ordination in transnational research programming and to the wider policy context. This analysis is based on documents produced by the networks (including the formal 'descriptions of work,' the final reports and the strategic research agendas, where available), interviews with network coordinators, and data collected and presented by the NETWATCH platform (NETWATCH, 2013).

Figure 2: Transnational research programming in a wider policy context



3 Note that ERA priority 1 'More effective national research systems' is already covered by the systemic dimension, and is therefore not repeated here.

4 Less relevant issues from Haegeman et al (2012) have been omitted for the context of the analysis: review of the EU state aid framework, and monitoring aspects. Contribution to societal challenges has been added to the framework, due to its increasing importance in research.

5 For an overview of Europe 2020 and its seven flagships, see http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/flagship-initiatives/index_en.htm.

4 Findings from the cases

4.1 Description of the cases

From all the networks presented in figure 1, four cases were selected, covering different continuation modes, different thematic areas and a diversity of objectives[6] . The selected cases are: WoodWisdom, EuroNanoMed, Era-Chemistry and BONUS. Their trajectories of continuation are visualised in figure 3. Below each of the networks is briefly introduced.

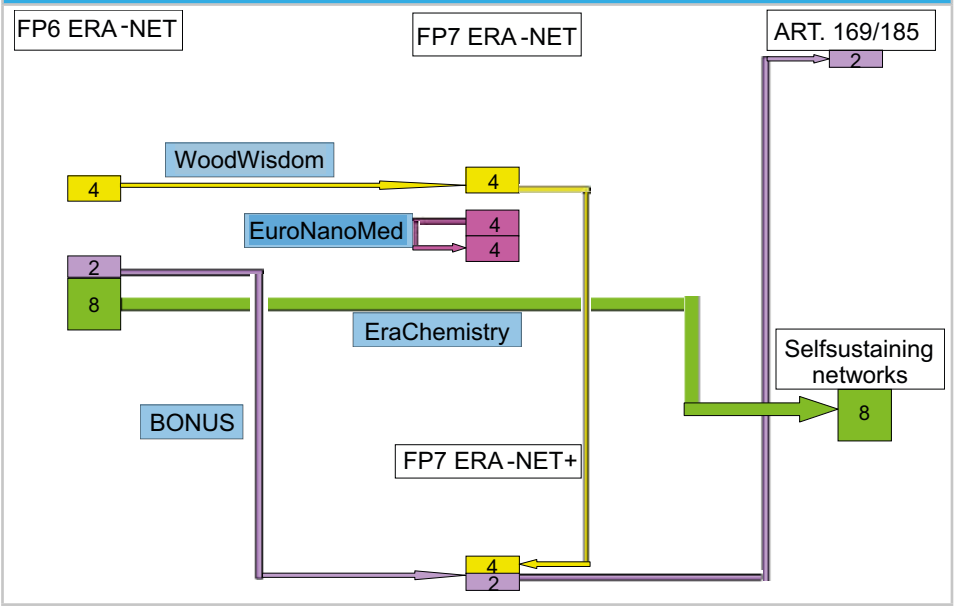
WoodWisdom started in 2004 under FP6. It launched a first joint call for research on forest-based research (FBS), and currently focuses on the whole innovation chain, supporting the transformation of the European forest-based industry (FBI) and sustainable forest management for increasing resource efficiency and adapting to and mitigating climate change effects. It comprises 20 organisations from 13 Countries. Added value of the cooperation cited by the network includes the development of competences among researchers and research managers related to collaboration and leadership in medium-sized projects (between 0.5 and 2 M euro per project); access to expertise that is not available at national or regional level; higher visibility of FBS in the European Science Community; the creation of critical mass and the possibility of larger projects; and of integrating RD&I along the whole innovation chain and the FBI value chain.

EuroNanoMed started in 2009 as an FP7 ERA-NET, and focuses on increasing the competitiveness of the European nanomedicine players through the support of transnational[7] translational research and technological development projects. Collaboration at European level makes it possible to overcome the lack of sufficient players at national level in the field to achieve critical mass. The ERA-NET aims to represent a fast, efficient, light and innovative funding instrument, as a complement to FP7 large scale projects with higher funding but which are more complicated and time consuming to use. The network originates from a working group of the European Technology Platform on nanomedicine, and currently includes 20 funding organisations from 17 countries and regions. The long-term vision of EuroNanoMed is a European-wide integrated programme with coordinated funding.

6 The idea of the case selection was to reflect the high diversity of practices within collaboration networks, rather than to be fully representative.

7 A key feature of the network is the collaboration between the academia, industry and clinical/public health communities, which aims at 'translating' research into practical applications for end-users.

Figure 3: Selected cases and their continuation routes



BONUS started8 in 2003 as an FP6 ERA-NET, and targets the integration of research funding with environmental policy to strengthen the knowledge based management of the environmental problems of the Baltic Sea. In an extraordinarily complex research landscape, with many programmes of different configurations and diverse funding sources being implemented simultaneously, the coordination of such activities in the Baltic Sea states means it is possible to achieve the critical mass required in strategic research and development areas. The pooling of resources in the BONUS project has had the added value of creating Baltic-wide projects, involving all of the Baltic countries. Further added-value of pooling the resources of the BONUS members has been to enhance opportunities for cross-disciplinary collaboration. While it is not possible to say whether any of the projects would have been funded from other sources, such multi-disciplinary cooperation between Baltic States had not previously existed.

The FP6 **ERA-Chemistry** network originated from the European Research Councils Chemistry Committees (CERC3). The ERA-NET, with 14 members from 12 countries, aimed at establishing a European Research Area in curiosity-driven basic and applied chemical research. The main experience of ERA-Chemistry lies in developing and executing transnational calls with small groups of applicants (mostly bilateral and trilateral proposals with applicants from two or three countries). The added value of the network includes the establishment of a flexible network structure enabling research organisations of various forms and with different interests to participate, and the establishment of active dialogues of researchers and administrators. The network currently continues as a self-sustaining network. Main instrument of ERA-Chemistry is the 'Open Initiative', an annual open (non-thematic) call in the field of chemistry,

8 The start of the network was partially motivated by the need for research support to two related policy processes at the time: the EC Strategy for the Baltic Sea region and the EU Integrated Maritime Policy (IMP).

first issued with six European partner councils in 2008, allowing researchers to choose their research subjects and best cooperation partners freely, and now continuing with three countries (Austria, Germany and Hungary).

4.2 Key findings on the four dimensions of policy coordination

4.2.1 Barriers to and motivations for transnational research collaboration

From the analysis of these four networks, a set of motivations for, and barriers to, coordination along the four dimensions are identified and are presented in Figure 4. These complement earlier work (see Könnölä & Haegeman, 2012) in this field.

Certain of the issues presented in Figure 4 can be considered as both a barrier and a motivation. An example is the issue of some countries focusing only on basic or applied research, which can be considered a barrier to collaboration. In the case of Euronanomed, this also constitutes a motivation. While the achievement of critical mass in the field is difficult at national level, transnational programming enables complementarities to be exploited.

Figure 4: Barriers to and motivations for transnational research programming along the four dimensions of policy coordination

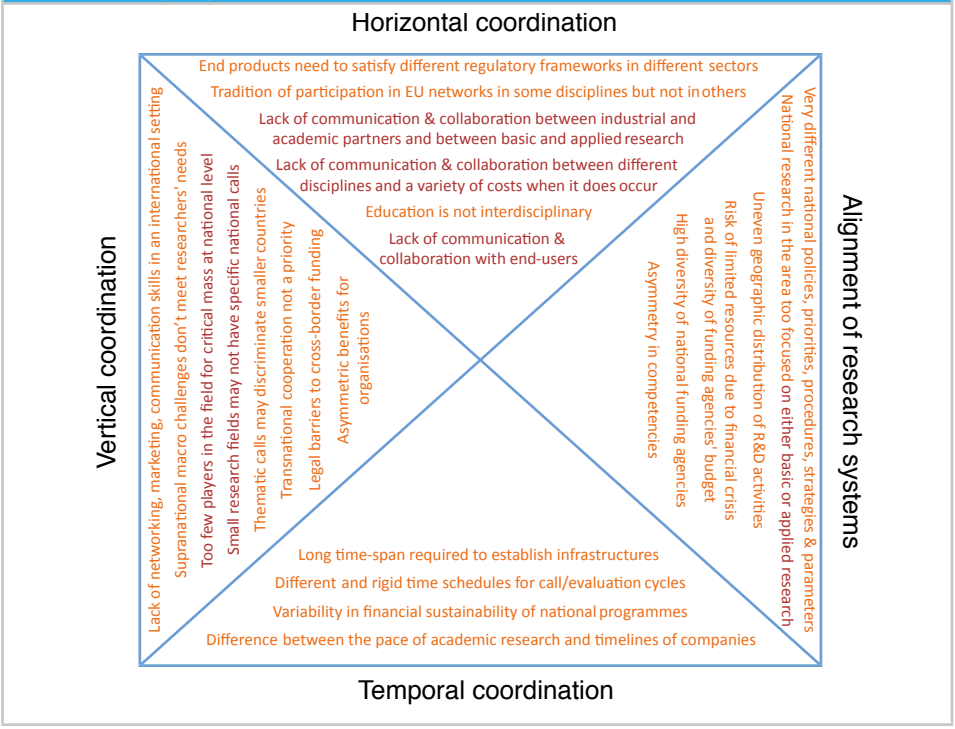
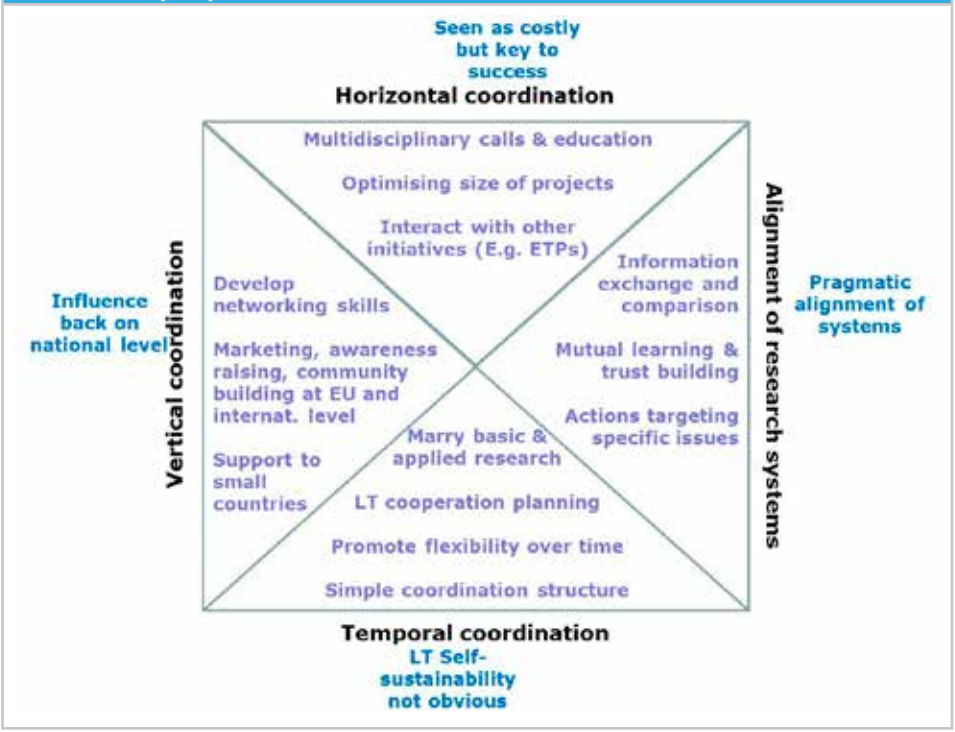


Figure 4: Barriers to and motivations for transnational research programming along the four dimensions of policy coordination

4.2.2 Actions supporting the alignment of research programming along the four dimensions

In each of the four case studies, actions were identified that help address the barriers, and support the motivations identified in Figure 4. In some cases the action can help both to realise a motivation and to overcome a barrier. For example, a motivation to cooperate at the EU level, to achieve vertical coordination between the national and EU levels, is that it is not possible to achieve the required critical mass at the national level. Meanwhile, a barrier to vertical coordination is the lack of networking, marketing and communication skills at the international level. Therefore, actions to coordinate and raise awareness that overcome the latter, a barrier, will help to realise the former, a motivation. Categories of activities according to each dimension are presented in figure 5. Examples of each of the categories of activities are presented in Annex 1.

Figure 5: Categories of activities of longstanding research programming networks along four dimensions of policy coordination.



It should be noted that networks differ in terms of emphasis in relation to the dimensions of coordination.

- For the EuroNanoMed network the horizontal dimension appeared as the most important one, reflecting the project focus on increasing the competitiveness of the European nanomedicine sector.

- For the Woodwisdom network there has been an evolution in the emphasis of the coordination dimension addressed. The network started as a means to enable access to expertise not available at the national or regional levels, which meant that vertical coordination had the most attention. However, as the focus has shifted to the whole innovation chain there is increasing emphasis on horizontal coordination.

- For BONUS there have been two main foci: systemic alignment and horizontal coordination. Systemic alignment issues relate to the objective of forming the network and partnership for Baltic Sea research bringing together the funding agencies from different countries that had little prior cooperation. As BONUS is developing an ecosystem approach to the management of the Baltic Sea, including environmental and marine science, social science, policy and the private sector, there has been a strong emphasis on horizontal coordination. Vertical issues were also addressed, but were less important than the other dimensions.

- For ERA-Chemistry the emphasis has been on vertical coordination. The project started with a broad range of objectives, which aimed to support different dimensions at the same time. This variety reflected the activities of the network until the end of the FP6 funded ERA-NET period. Afterwards, during the self-sustaining period, ERA-Chemistry has mostly focused on the establishment of a flexible structure for transnational joint calls that aims to address the different needs of funding and research organisations simultaneously. In this manner, the joint activities conducted by ERA-Chemistry have become more oriented to local and international policy levels; namely to vertical coordination.

When addressing the barriers associated with the alignment of national R&I systems, some of the categories of actions undertaken by these four networks are not surprising, such as the exchange and comparison of information procedures, best practice and priorities. Other aspects are less tangible such as developing confidence and trust and building decision making capacity through trial and error. Another aspect relates to targeting specific issues arising from the lack of alignment. This may include developing specific procedures for calls, supporting new partners with their application and funding strategy, and tools to help find partners. An important problem identified in interviews refers to the diversity of the funding agencies' participation budget, with solutions being to mobilise resources external to the network participants such as allowing participation in calls by non-network members, or to find creative solutions for transferring budget between countries9. Overall, it seems that the systemic alignment problem is not addressed in a systematic way, rather the problems are identified and solutions are found to circumvent the problems. One interviewee indicated the importance of political will in overcoming differences between national systems.

Actions to overcome barriers to and support motivations for vertical coordination can relate to the coordination with pre-existing European entities or the organisation of networking events and stakeholder forums to engage at the European level. Such activities can also be extended to entities outside the EU. An activity that can support the participation of small countries constitutes the use of non-thematic

9 One example is taking advantage of research staff that has part time contracts in two different countries, and to propose to the consortium to allocate the research time of that staff to the research organisation of the country where most budget is left for project funding. Another example is to propose to consortia to shift some of the coordination tasks to organisations from countries that have more available budget left.

calls, as thematic calls focus on areas in which small countries are not active. Interestingly, there are cases of feedback effects from transnational cooperation to national level policies. Examples are the creation of national programmes in places where they did not exist yet before the start of the cooperation, or coordinated lobbying by the network to address legal or administrative issues at national level.

Many of the horizontal barriers relate to a lack of prior cooperation between disciplines and types of research and the users of the research, which can be entrenched from the educational backgrounds of participants, the differences in experience of cooperation between different disciplines that now need to work together. Activities identified that address such barriers include interdisciplinary summer schools and doctoral programmes, or multidisciplinary call topics with multidisciplinarity as an evaluation criterion. Optimising the project size was also noted as a practice to address multidisciplinary research in the most effective way, a certain project size is required to achieve the required critical mass, but should not be so big as to add unnecessary complexity to cooperation activities. Another set of activities refers to establishing links with other initiatives. These include other networks in similar areas but undertaking different types of research of other EU level initiatives such as European Technology Platforms. Regular stakeholder events can also be organised drawing on a wide range of relevant participants.

Temporal issues hampering collaboration can, for example, relate to different timeframes for academic research and those of companies, different national policy cycles or diverging sustainability of national programmes in terms of budget. Activities addressing temporal barriers include exploring complementarities between shorter term applied research and longer term basic research. Developing a long term-cooperation framework is seen as important for the longer term financial sustainability of the programme cooperation. Barriers to temporal coordination also have some similarities with those associated with systemic alignment such as diverging and rigid schedules for calls, evaluation procedures and access to infrastructures that need to be overcome. Actions addressing these issues include the promotion of coordination and flexibility, and it needs to be ensured that this approach is maintained over time and that the network itself, and the successful research consortia, do not become inflexible for the incorporation of new partners, including those from industry.

4.3 Key findings on other ERA dimensions and priorities

Although different networks attach varying importance to each of the ERA dimensions and priorities, the activities of the four networks have clearly addressed two dimensions more than the others: people and knowledge circulation & transfer (Figure 6). Activities identified with regard to 'people' address networking and mobility of researchers and the removal of obstacles to geographic mobility. These long-standing networks have undertaken activities not only funding the joint projects but also enhancing networking and communication through conferences, events, workshops, and other platforms. Special attention is also given to young researchers by means of summer schools, specific measures in joint calls and specific information to support and encourage young researchers for joint activities.

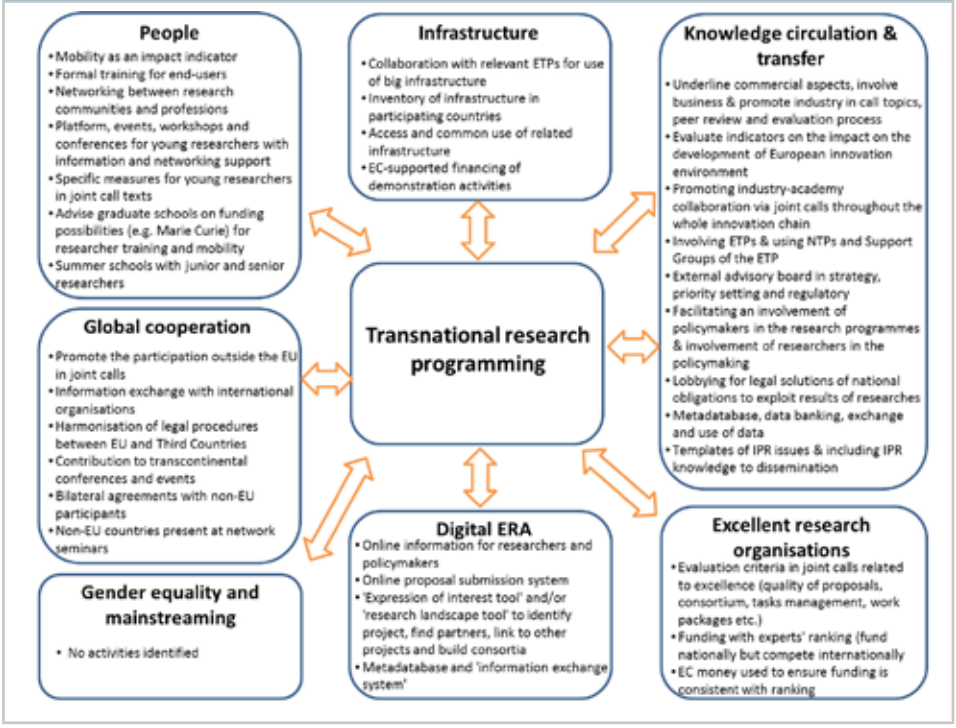
Examples of effective knowledge sharing among different stakeholders and knowledge transfer between scientific institutions and industry have been identified. The cases analysed show an integration of commercial and industrial aspects in different programming stages, such as inclusion in call topics, peer review and evaluation processes. In some cases, involving the ETPs has become a prominent strategy. Templates dedicated to IPR issues have been developed in project consortia and proprietary knowledge has been included in the dissemination activities of the networks.

It can be claimed that the stakeholder involvement of the networks has been enhanced during the networks' life-time with more active dialogue and knowledge sharing between different stakeholders (e.g. researchers, administrators and policymakers). Increased knowledge circulation and improved

cooperation with industry and business have been emphasised, moving away from rigid task divisions between industry and academia. The researchers' involvement in the policy-making and in addressing the needs of industry has been put on the research agendas of the networks. This reflects the routine procedures observable in the external advisory boards (with academics, industry and users), expert groups facilitating the communication between different stakeholders, scientific advisory boards taking into account the policy issues and so on. It should be underlined that these changes do not refer to a structural shift of the target groups of these networks, but should be seen as an improvement in possibility of more industry-oriented research in future.

The integration and establishment of world-class research infrastructure, which is one of the long-term ERA dimensions, has been supported by specific activities, which mostly involve collaboration with the relevant ETPs for the use of big infrastructures, an inventory of the infrastructures in participating countries suited for the research currently undertaken and searching for ways to share of the laboratories. The activities are more focussed on making the best use of existing research infrastructures, rather than establishing new ones.

Figure 6: Transnational research programming and other ERA dimensions and priorities



With regard to the realisation of the digital ERA, online services for proposal/evaluation of the joint calls procedures, information tools for different types of researchers, building up meta-databases (sometimes available for other initiatives) and online information exchange systems between programmes and researchers are some interesting initial steps.

Several activities were observed in relation to global cooperation, which emphasise the wider opening up of activities to neighbouring regions of the EU and addressing global challenges on a global scale, as well as activities related to supporting excellent research organisations that can compete and cooperate all over Europe. Finally, it is surprising that none of these networks has identified any specific activity to support gender equality and gender mainstreaming in the research environment. It was confirmed in the interviews with coordinators that this is not really a priority for the networks included in the case studies.

As can be seen from figure 6, the networks analysed conduct a wide set activities that relate to the different aspects of ERA, especially with regard to the ERA dimensions. Not surprisingly, some of the policy areas that are new in the recently adopted ERA priorities (such as gender balance and digital ERA) are not very much taken up by the cases. Also big differences exist between practices of different networks, illustrating that there is no systematic approach among networks to address all ERA aspects in a holistic way. A key issue that came up several times in the interviews was the need to focus on simple processes that have proven to work well, which should only be changed if a clear need or problem arises.

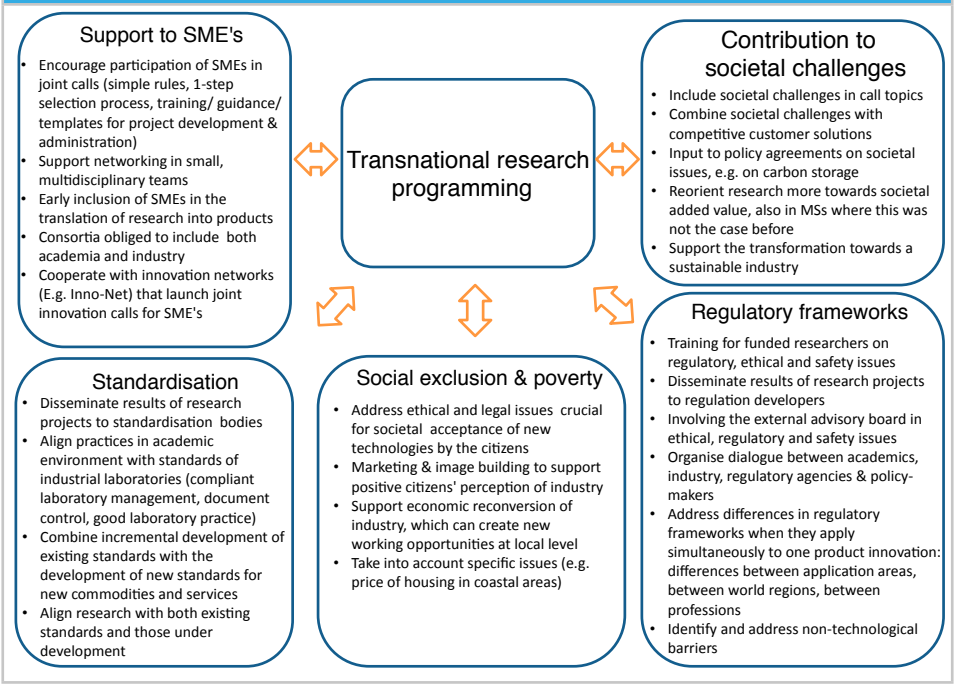
4.4 Key findings on non-research related policies relevant to ERA

When looking at ERA in the context of the Europe 2020 Flagship Initiatives, the Europe 2020 commitments connect ERA to a set of non-research related policy areas. Activities from the cases that relate to these areas are presented in Figure 7.

As is the case for the above mentioned four coordination and alignment dimensions as well as for the ERA dimensions and priorities, the contribution of the selected networks to non-research related policy areas relevant to ERA also varies between individual networks. Overall a wide set of activities was identified in the areas of reviewing regulatory frameworks, contribution to the formulation of standards, and support to SMEs. Activities on regulatory frameworks relate to both training and dialogue with regard to identifying problems and barriers and debating solutions. Standardisation activities focus both on improvement of existing standards and developing new ones. It can also refer to aligning and standardising practices between public and private laboratories, in order to facilitate collaboration. Support to SMEs can relate both to facilitation and support measures, and to obligations to involve SMEs. Other activities refer to cooperation with innovation networks or the relevant European Technology Platform, e.g. with the aim to include SMEs from an early stage in translation of research results into applications. No links where identified with the knowledge and innovation communities (KICs). Most networks also have a focus on addressing societal challenges, e.g. through

direct inclusion of societal challenges in call topics, through contribution to policy formulation, or to transforming a whole innovation chain of an industry towards sustainability. The need to developing competences to measure the societal impact of research was indicated (WoodWisdom). With regard to the European policy on inclusion, the activities focus mainly on societal acceptance of research, especially with regard to ethical and legal issues. There are some indirect connections to social issues, such as economic reconversion of old industrial sites (WoodWisdom) or the price of housing in coastal areas (BONUS). No issues on social inclusion could be identified at the stage of research priority setting (e.g. the issue of affordability and equal access to healthcare is not considered by Euronanomed as relevant at the research programming stage but only at the stage of commercialisation). At EU level this is especially relevant because inclusiveness is a key priority in the European 2020 strategy on smart, sustainable and inclusive growth.

Figure 7: Transnational research programming and non-research related policy areas relevant to ERA.



5 Policy implications

Qualitative evidence from the four cases supports the view that transnational research programming networks develop a 'pragmatic' alignment along four dimensions of policy co-ordination: when a barrier or problem arises, a practical solution is sought, not necessary a systemic solution. This pragmatism also includes that different degrees of relevance may be assigned to different dimensions of policy coordination among different networks, and changes in the degrees of relevance may occur over time.

It was also found that the activities of the networks partially address other ERA dimensions and priorities. In particular, the activities identified relate to 'people' and 'circulation and transfer of knowledge'. Not surprisingly, activities focusing on the new elements in the ERA priorities compared to the ERA dimensions are only marginally present, especially in relation to the digital ERA and to gender mainstreaming aspects.

With regard to non-research related policies relevant to ERA, the results suggest a substantial support to SME's and to the review of standards and of regulatory frameworks. Most activities also contribute to addressing societal challenges. However, one of the key difficulties reported here is the lack of competences for measuring the societal impact of the research conducted by the projects funded through joint calls. Finally significant social inclusion issues have not been identified in any of the networks. As inclusion is one of the three pillars of Europe 2020, this is an important finding in the current European policy context.

With regard to impact of those findings on policy design and implementation, the following issues can be considered:

- When measuring progress towards completion of the ERA, consideration of interlinkages between the different ERA priorities and dimensions, may enable the synergies between them to be better captured. This analysis takes as a starting point the priority of transnational research programming, but also other ERA priorities or dimensions or non-research related policy areas can be taken as a starting point instead, e.g. how does the people dimension on ERA affect transnational research cooperation.

- With regard to assessing the impacts of collaboration networks in transnational research programming, different sets of indicators can be developed that take into account both how the four dimensions of policy coordination are addressed and how networks impact the wider European research and innovation system.

- In the context of Horizon 2020 and the Partnering Communication, there is an opportunity to connect partnering instruments better to the different ERA priorities and to non-research related policies relevant to ERA in Horizon 2020, in particular with regard to gender issues, the digital ERA, inclusiveness and the measurement of societal impact of research results. In addition, with regard to simplification of the partnering instruments as foreseen in the Partnering Communication, the need for both flexibility10 and light administrative

10 The Euronanomed network reports that the choice for opting again for an ERA-NET as follow-up of the initial ERA-NET (and not for an ERA-NET+) is based both on the need for a light instrument with limited administrative obligations, and the wish to launch more than only one joint call as part of the network (In an ERA-NET+ only one joint call can be launched). These issues appeared to be more important than receiving top-up funding from the European Commission for launching a joint call.

burden were reported by networks as important issues.

- The wide set of activities undertaken in the context of transnational research programming networks suggest that transnational collaboration on research can also catalyse collaboration on related topics and policy areas, and thus create added value that goes beyond research. In this regard the results may offer additional arguments both at regional/national as well as European level to support and increase participation in transnational research networks.
- At the same time the cases also revealed a variety of barriers to increased collaboration, reflecting the complexity of transnational programming and the need for alignment along systemic, horizontal, vertical and temporal dimensions. This shows that, for transnational programming to be successful, a wide range of conditions need to be fulfilled. Incorporating this multidimensional nature of programme collaboration more explicitly in future partnering instruments may make this complexity more understandable and easier to address.

6 Conclusions

This brief has used case studies to explore how collaborative research programming networks can contribute to a broad set of objectives related to research and innovation, ranging from the primary aims that are at the core of the programme collaboration to secondary aims with regard to research and even tertiary network aims going beyond research policies.

The results have relevance for the way progress to the ERA is measured, for developing indicators for measuring impact of programme collaboration networks, for reviewing the research and innovation partnering instruments at European level, for seeing research programming networks as catalysts for collaboration in related areas, and for making barriers to programme collaboration more explicit and thus easier to address.

7 Acknowledgements

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ANNEX 1

Examples of activities of longstanding research programming networks in relation to the four dimensions of policy coordination.

Table 1: Actions related to the four dimensions of policy coordination for transnational research

	Identified actions that address barriers and motivations
Alignment	**Information exchange and comparison**
	'Information exchange system' between national research programmes, infrastructure and research activities and mutual recognition of national procedures
	Collect and benchmark the information on national evolution and funding procedures, research priorities and best practices
	Mutual learning and trust building
	Mutual learning meetings among project coordinators, researchers, EC, peer review panel & funders
	Strong focus on establishing confidence & trust between funding partners
	Use of trial-and-error helps building good decision-making capacity
	Visiting programmes between the organisations participating in the ERA-NET
	Establish central secretariat, experts groups and external and scientific advisory boards
	Target specific issues
	Jointly agreed processing and evaluation schemes to harmonise/simplify rules for transnational proposals
	Support new partners with their application and strategy for funding
	Offer solutions for possible funding blockages (e.g. transnational funding, budget reduction, top-up the shortfall of countries contributions by EC funding, participation through in-kind contribution etc.)
	An 'expression of interest' tool helps applicants find partners
	Seek complementarities between shorter term applied research/longer term basic research
	Define a clear role for the commercial sector in joint programmes
	Open for partners outside the funding countries and mobilise additional funding beyond the network partners when launching/undertaking relevant projects

Vertical	**Coordinate and raise awareness at EU/international level**
	Priorities of the network are co-ordinated with the priorities of the ETP, with Work Programmes of FP7 and with relevant international research agendas
	Specific activities focus on improvement of the skills to communicate, network and promote their work in a European setting (for programme managers, academics and industry)
	Stakeholder forums reinforcing stakeholders engagement at European level
	Co-operation with international research and innovation initiatives/organisations (E.g. IEA, FAO, etc.)
	Peer review involves external reviews by international experts
	Transcontinental event embedded in external congresses and conferences
	Influence on national level
	Joint R&D programmes supporting the creation of new national R&D programmes where they do not exist yet.
	Co-ordinated lobbying (Bottom-up and top-down) can address problems with national regulations limiting possibilities to finance specific entities and finance R&D support beyond the national level, including the obligation to exploit the results of research at national level
	Help smaller countries
	Incorporating funding agencies from newer EU countries
	High flexibility for small countries by means of transnational non-thematic (or broad themes) calls
Horizontal coordination	**Interact with other initiatives and stakeholders**
	Forge links and collaborate with networks in similar areas, including other EU initiatives, but that are focussed on different types of research.
	Collaborate with relevant European Technology Platform and draw from their strategic research agenda
	Regular meetings, workshops and conferences with a wide variety of relevant stakeholders and experts.
	Utilise findings and instruments from other domains
	Implement multi-disciplinary approach to activities
	Encourage interdisciplinary approach through educational activities
	Multidisciplinary call topics that bridge gaps between research disciplines, producers, consumers and society and give such issues high priority in evaluation
	Optimise size of projects
	Optimising the number of researchers/organisation per project
Temporal coordination	**Promote coordination and flexibility throughout duration of network**
	Allow flexibility in calls and consortia agreements to accommodate all national time-frames
	Exchange information and coordinate activities to synchronise annual deployment schedules for research infrastructure use
	Identify complementarities
	Seek complementarities between shorter term applied research/longer term basic research
	Long-term planning
	Develop a long-term cooperation framework and consider alternative financial and administrative models including the optimum size of network

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Abstract
This brief explores the wide variety of objectives, activities and outcomes of transnational research programming in Europe. Going beyond the goal of mobilising shared research funds, it examines how collaborative networks can contribute to the achievement of a broad range of objectives related to research and innovation. It centres on the development of an analytical framework, focusing on the key motivations for establishing and participating in collaborative networks and the subsequent outcomes. Case studies are used to explore how collaborative research programming networks can contribute to a broad set of objectives related to research and innovation, ranging from the primary aims that are at the core of the programme collaboration to secondary aims with regard to research and even tertiary network aims going beyond research policies. The results have relevance for the way progress to the ERA is measured, for developing indicators for measuring impact of programme collaboration networks, for reviewing the research and innovation partnering instruments at European level, for seeing research programming networks as catalysts for collaboration in related areas, and for making barriers to programme collaboration more explicit and thus easier to address.

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