European Strategy Forum
on Research Infrastructures

ESFRI

Regional Issues

ESFRI Working Group Report 2010

ESFRI European Strategy Forum on Research Infrastructures

ESFRI Regional Issues Working Group

Report 2010

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Introduction by Anneliese Stoklaska, Chair of the ESFRI Regional WG

Year 2010 has been a productive and inspiring time for the regional research infrastructure issues.

The importance of the development of research infrastructures of pan-European regional character has been highlighted by the European Commission. In a recent letter from the European Commissioners Máire GEOGHEGAN-QUINN and Johannes HAHN to former ESFRI Chair Carlo RIZZUTO it reads: “The European Commission has long since recognized that, in order for the European Research Area to reach its full potential and knowledge-based innovation systems in European regions to be implemented, new research facilities should be distributed throughout the EU in a balanced manner.”

The communication of the European Commission "Europe 2020 Flagship Initiative, Innovation Union" addresses the challenges and opportunities facing Europe in key areas where urgent and sustained efforts are required. It sets out clearly the key European, national and regional initiatives needed to create the Innovation Union and to include all actors and all regions as key elements in reaching the above goal. In this context, the Commission has called on Member States (MS) to considerably improve their use of Structural Funds for research and innovation projects.

In yet another recent Commission Communication "Regional Policy contributing to smart growth in Europe 2020", the Commission has once again underlined the significance of research infrastructures in nurturing knowledge based innovation systems and has recommended the use of the European Regional Development Fund (ERDF) for this purpose. The Communication also asks Member States and regions to develop 'smart specialization strategies' with a view to concentrating resources on the most promising areas of comparative advantage and avoiding duplication of efforts in a multi-faceted approach, this including developing world class research and ICT infrastructures.

These messages have yet to bring expected results with regard to the European EU landscape. While some important developments have taken place in 2010, notably the Czech Republic, Hungary and Romania have agreed to jointly coordinate the ELI project, and use Structural Funds for its financing, the mentioned above distribution of research facilities in Europe is as disproportionate as ever. Except for ELI, all other 46 projects included in the ESFRI Roadmap are either localised or coordinated by the EU15 Member States.

Following the WIRE conference in Granada, under the Spanish Presidency, the second WIRE conference, under the Hungarian Presidency, will be held in Debrecen and will focus on regional clusters and research infrastructures at regional level, seeking for ways to develop more synergies between regional and EU research policies and financial instruments. In particular, it is expected that development of smaller scale, regional research facilities, complimentary to the

research infrastructures of pan-European dimension, would help the low research intensity MS to contribute to the European research infrastructure landscape and to realize the goal of full utilisation of European intellectual potential.

The ESFRI Regional Working Group (WG Regio) in present composition started its activities in the second half of 2009. However, the idea of ESFRI giving the issues of regional research infrastructures special attention came up much earlier, with the integration of the EU10 Member States into the ERA, followed by Bulgaria and Romania, and lately with the association of the Western Balkan Countries to FP7. This was in recognition that these countries have all their specific requirements and expectations with respect to research infrastructures, and are in need of well-tailored policies.

The Working Group flourished significantly in its first phase of existence under Czech chair person-ship and was able to draw much advantage from related activities under the Slovenian and Czech EU Presidencies[1].

More recently, the WG Regio has been undertaking activities aiming for inclusion of the issues concerning regional research infrastructures within the broad scope of the European Innovation Union. The Group is conscious that, apart from strategic considerations and political actions, a better visibility and increasing attractiveness of regional activities and joint initiatives (as identified by the Assembly of European Regions) are pre-conditions for developing research infrastructure, networks and centres of excellence specific for the regions and thus promoting innovation in the most efficient way.

[1] After an initial work in 2007, ESFRI decided in its meeting of 7th December 2007 to extend the mandate of the Regional Issues WG up to March 2009. During that meeting, Jure Marn (SI) handed over the Chair to Nadezda Witzyanova (CZ) with the support of the delegates. In its meeting of March 2009, ESFRI decided to extend again the mandate of this WG until December 2010 and agreed at the unanimity to nominate Anneliese Stoklaska as new chair of this WG.

1. Objectives of the ESFRI Regional Working Group

Research infrastructures (RIs) are at the very heart of the knowledge triangle of research, education and innovation. By providing access to users from different countries, by attracting young people to science and through networking of facilities, research infrastructures help to structure the scientific community and therefore influence creation of an efficient research and innovation environment. RIs also play an increasingly important role in the advancement of knowledge and technology and in their exploitation, not only at the pan-European level, but even more at the regional level.

It is important to stress that these research facilities, irrespective of their size or pan-European or regional character, to be considered as European RIs in the sense of this report, must comply with the requirement of world class scientific excellence and open access to all potential users, either European or worldwide.

ESFRI is working to develop a coherent view on regional issues associated with RIs. The ESFRI Roadmap opens broad opportunities to involve and exploit the potential for scientific excellence and technological growth of all EU Member States.

However these Member States, which constitute the convergence and outermost regions (further referred to as COR) are involved in the ESFRI Roadmap projects almost exclusively through:

- participation in construction and exploitation of the new infrastructures localised in the EU15 MS, and
- setting-up components of distributed infrastructures again coordinated by the EU15 MS.

Their ambitions to attract the siting and coordinate a large multidisciplinary infrastructure are yet to be fulfilled.

Addressing this challenge, and stimulating activities leading in the long term to a more balanced distribution of RIs in Europe, remain the key objectives for the WG Regio. With this in mind, the Group obtained a formalised structure and developed its Terms of Reference which had been agreed upon by ESFRI.

Accordingly the specific objectives of the WG Regio include:

- to take stock of experiences in different EU regions, with particular attention to COR, regarding construction and exploitation of RIs, both of pan-European and regional character,
- to enhance the understanding of the role of regions in the development of the European RIs policy,

- to promote full utilisation of human resources and intellectual potential of COR via their participation in planning, construction and exploitation of pan-European RIs and in hosting regional RIs,
- to reflect on the best use of Structural Funds and other Community financial instruments for investment in RIs,
- to reflect on the involvement of EU regions in “long term sustainability” issues of maintaining and upgrading of RIs.

In this context, topics such as the vision for financing construction and operation of regional RIs, and in particular of “Regional Partner Facilities” need to be addressed. Furthermore, studies will have to be made on the socioeconomic impact of RIs at regional level and the interplay between regional funding instruments, the Framework Programmes, Structural Funds and national resources. The WG Regio aims for a better understanding of the status and the developments in the field of regional RIs and in what manner various expectations and desires of the COR and Associated Countries can be met.

In the future, and with these aims in mind, the Group will be pursuing a wide range of activities, relevant to the above objectives, in particular stimulating and initiating data gathering and development of evidence based strategies. Major examples of such activities include:

- assessing the role of regions in establishing RIs (an assessment of regional input to RIs based on a survey of all the ESFRI projects);
- assessing cooperation of different regions in the RIs matters (an assessment of action already taken or plans for establishment of a RI as interregional cooperation, either concerning large pan-European or regional RIs);
- monitoring the involvement of COR in the EU policy making for RIs, (examine activities of such bodies as the “Salzburg Group” etc.; examine national roadmaps with regard to number of projects, funding mechanism, coordination with ESFRI Roadmap and other national roadmaps);
- assessing the use so far of Structural Funds for RIs based on a survey of appropriate authorities,
- providing suggestions for measures aiming to strengthen and exploit the human resources and intellectual potential in COR.

The balanced distribution and development of RIs in all EU regions constitutes the overriding long-term goal of these activities.

2. The Regional Dimension of Europe and the Vision 2020

"The Challenge is to ensure that all of Europe's regions benefit"

Regions can play a "motor" role in the overall context of economic growth based on research, technology and innovation, in particular contributing to European research policy for the benefit of citizens - stimulating development and generating wealth and jobs. The regions should have an important role in bringing Europe faster into the knowledge based economy, by providing links between the European institutions and local communities, stimulating research and innovation efforts and mobilizing cooperation of universities and research organisations with regional and local authorities and business communities. The regional and local authorities can also play a significant role in providing support for training and mobility of researchers or facilitating construction of laboratories, in harmony with the expectations of local populations.

In order to encourage the growth of innovative enterprises and to improve the operation of key interfaces in the innovation system, a coherent approach to the Member States' regional innovation strategies is necessary. It is widely accepted that the potential of regional economies adapt so as to be able to face the competition and the technical progress according to their innovation potential. This varies greatly among regions in quantitative and qualitative terms. Less developed regions still have substantial needs for catching-up in this context.

Cohesion policy can help all EU regions to build up research and innovation capacity, to stimulate and support innovations in the social area, and to exchange good practice through trans-national and inter-regional co-operation. Once all regional actors have reached a sufficient level of capacity to compete successfully in European framework programmes, this capacity should be further developed by continuing the exchange of good practices, stimulating a multi-national approach and connecting players together in concrete problem solving initiatives. National and regional policy makers and administrations have a central role in ensuring the effective exploitation of the potential for synergies between FP7 and future FP8, the CIP and the Structural Funds through the establishment of mechanisms for these authorities to act in a co-ordinated manner.

Innovation is most effectively addressed at regional level, as physical proximity fosters the partnerships between actors in both public and private sectors. The formation of regional clusters (e.g. centres of competence) is often the key to the successful promotion of research, technological development and innovation. The capacity of regional decision makers and entrepreneurs to turn knowledge, skills and competencies into sustainable competitive advantage is crucial to regions' economic performance. However, European regions vary considerably in their capacity to absorb and develop knowledge and technology. This impedes their growth prospects and is likely to reinforce the considerable disparities in prosperity across the EU which have widened following recent enlargements.

In the context of the vision 2020, the challenge is **to ensure that all Europe's regions benefit from these new opportunities and that no region is left behind**. To this end, Europe and its regions have to deliver smart, sustainable and inclusive growth, to find the path to create new jobs and to offer a sense of direction to our societies. Under the flagship of "*Innovation Union*" the regions should have to improve the framework conditions and access to finance for research and innovation in order to ensure that innovative ideas can be turned into products and services that create growth and jobs.

To reach the transformational change of the Europe 2020 strategy, the contribution of the stakeholders at regional and national level needs to be enhanced. Regional and local authorities should help to implement the strategy, working in partnership and taking action in areas within their responsibility. The new challenges (*Globalisation, Demographic change, Climate change*) facing the EU are of increasing complexity and they call for a more structured and strategic mix of Community, national and regional policies. Taking into consideration however, that many EU regions are still lagging behind in terms of Research, Development and Innovation, the "EU 2020" strategy should ensure that incentives and policy means are not exclusively oriented towards the "excellent" regions of the ERA.

In this context, the Regional Policy can contribute towards reaching the Europe 2020 objective of smart growth by mobilising the full innovation potential of all EU regions and supporting advanced ones to remain ahead and lagging ones to catch up[2].This has also been recognized by the Assembly of European Regions, held in November 2010 (see extract on the next page).

[2] COM(2010)553, 06.10.2010, item 2.1.

Extracts of the "Istanbul Declaration"

Adopted by the Assembly of the European Regions in November 2010

Challenge for Europe 2020 - an effective research and development policy

The challenges Europe faces for the next decade are manifold. Ensuring quality education, developing skills, managing demographic change, achieving equal opportunities, securing global competitiveness, reducing poverty and unemployment and fighting climate change are among the most significant ones. A Europe built on innovation will be crucial to meet those challenges and is key to economic recovery. In this context all innovations, ranging from practice- to technology-based innovations, from soft to hard sciences and from fundamental to applied research, without forgetting the arts and humanities, have something to contribute. (…)

In this context, we, the member regions of the Assembly of European Regions:

1. Recognise that ambitious R&D policies are crucial means to fulfil the objectives of EU 2020 and implement them in a way that Europe becomes a strong knowledge based economy; (…)

2. Deem education to be critical in creating a climate of innovation and entrepreneurial spirit including the promotion of mobility; (…)

3. Believe that regions are key when it comes to enabling and reinforcing cooperation and interaction between the most important R&D actors, education, research and industry; (…)

4. Commit to strengthen cooperation between all the regions of Europe in order to connect regional actors and enable them to share experience, foster active cooperation & joint innovation;

5. Recognise (the importance of boosting) “Research Driven Clusters” where regional authorities can catalyse cooperation between the regional business sectors and the regional research systems;

6. Underline that an easier and strengthened access to finance is important (…); call therefore for an expanded use of financial instruments to support research and innovation;

7. Underline the importance to reach an agreement on the EU patent (…);

8. Stress the need for European support programmes to better engage with SMEs and call for the continued simplification measures, effective coordination and streamlining of programmes; (…)

9. Claim to open up the decision-making process for the next EU Framework Programme (…)

10. Believe that a true partnership is needed between regional, national and EU actors in application of the subsidiarity principle as enshrined in the Lisbon Treaty.

11. Stress the importance of promoting the future development of synergies in the use of the main EU funding sources and research and innovation, in the regions; (…)

12. Underline that the enhanced multi-level governance is vital to overcome the fragmentation and duplication efforts to increase the efficiency of policies and fully harness Europe’s potential;

13. Take up the challenge of innovation by exploiting the asset of regional diversity, (…) supporting intra- and inter-regional cooperation and leveraging innovation (…).

3. The EU landscape for Research Infrastructures

The Roadmap was first published in 2006 and updated in 2008 and again in 2010 to include in particular the RIs responding to the long term, grand challenges in the Biological and Medical Sciences and Energy area. The response of the EU Member and Associate States to the ESFRI Roadmap has been very positive, with now 48 proposals for facilities included. Furthermore, 28 Countries have, or are in process of developing, national roadmaps, and are effectively prioritizing existing and new RIs against the EU benchmark introduced by the ESFRI Roadmap and the criteria for pan-EU RI.

This inevitably will contribute to the desirable evolution of the EU landscape for RIs. However, so far this evolution, apart from several positive aspects, includes also numerous threats which give reasons for concern. They are briefly outlined in the following.

- The prime success is that out of 48 RIs included in the ESFRI Roadmap 2010, 10 are now in the implementation phase.
- A number of these RIs include COR as partners.
- Most of the EU12 MS have developed their national roadmaps. An analysis of the 34 running Preparatory Phase ESFRI projects funded under FP7 has shown a link to more than 400 regional research facilities in all the EU regions.
- On the other hand, the effects of the financial crisis and the limited research budgets continue to be major obstacles to a faster implementation of the Roadmap and the upgrading of the existing facilities.
- After a decade of activities by ESFRI, only one project from the ESFRI Roadmap is to be coordinated and constructed in the EU12 MS, with the use of Structural Funds.
- While construction of new RIs and upgrade of the existing ones can be supported by the availability of Structural Funds and other financial instruments, the operation of these facilities is hampered by the fact that the related costs shall be borne almost exclusively by national research budgets, which could be subject to cuts in public spending. As of date, the support from the EU Framework Program is very limited and inadequate.

Concluding the EU landscape for RIs is undergoing dynamic changes. But this welcome trend is yet to bring improvement and better balance in RIs distribution. This will require specific actions towards the pooling of the existing national resources augmented by the available EU funding. Furthermore, both streams of such funding should be better focused on activities which contribute to the full utilisation of intellectual potential across the EU regions.

4. Regional impact of Research Infrastructures

The establishment of a presence of RIs of a regional or international dimension in COR can act as a driving force to develop an innovation ecosystem and this can be activated either locally or in collaboration between regions through an appropriate European RI policy.

The need for these regions to be competitive in attracting the best researchers is also a driver to develop cutting edge technologies, education and management, and these “research related” aspects have a strong economic value when transferred to the local economic and educational systems. It has already been demonstrated that the economic impact on the nearby communities is significantly bigger than the expenditure in the infrastructure itself, typically a factor three for those which use advanced technologies.

The experience of the existing RIs, supported by a large body of case studies, shows that they play an important role in the regions, improving the interaction of the research sector with businesses and citizens alike, leading to improved efficiency, effectiveness, productivity and ultimately to increased competitiveness and potential growth, e.g.:

- returns to the contributing regions and institutions during construction and operation, through the involvement of their industries/providers;
- returns to the peripheral territory, in terms both of direct expenditure for operation (personnel, provisions, utilities, etc), and by attracting other activities (shops, restaurants, hotels, etc);
- direct financial returns, due to the industrial or commercial exploitation of research and technological developments;
- educational returns, in terms of training of researchers and technical/managerial people who may move to the local environment and to partner institutions/industries;
- returns from the knowledge production and from being part of international networks.

There is a clear “territorial structuring effect” generated by large RIs, which has a higher value and innovation potential for regions, especially when compared to the more traditional infrastructure investments like roads, airports, power lines etc., although these are of course badly needed for an increased quality of life in – and openness of – regions.

The establishment of RIs in areas where regional clusters or special economic environments already exist, facilitate both the ready supply of skills and services as well as an effective absorption of high quality people and technological advances related to RI's construction and exploitation. For historical reasons and because of

their high cost, existing large RIs are exclusively located in regions of the largest EU Member States.

Therefore the opportunity to build or upgrade RIs in a more regionally balanced way, as well as to reinforce their human resources, by the use of the convergence policies and the Structural Funds, matches the need to develop an inclusive and territorially harmonized ERA. However, current efforts at regional, national and European levels for reinforcing RIs of pan-European interest need to be strengthened and further developed. , Strategic planning and prioritization, on the basis of scientific excellence, is essential in creating research and innovation-friendly systems and environments. These should be implemented by means of cross-border, transnational and inter-regional cooperation addressing issues of common interest. Hence, the efforts to increase the capacity of regions across Europe to access, use, construct and operate modern RIs must be continued in a coordinated manner, involving the Commission and Member States. This is in particular the case for the continuation and extension in the next programming period of the "integrating activities" funded under the Framework Programme.

Catalyzed by the emergence of large-scale RIs of pan-European relevance, the development of regional RIs should create particularly important ways of capacity building of COR, which needs to be pursued. Regional RIs help to concentrate regional human capital and stimulate turning science and innovation into key instruments of regional development. By such means, regional RIs could contribute towards a more harmonised development of the European Research Area, to enhance ‘brain circulation’ throughout Europe, while at the same time reducing the risk of ‘brain drain’.

In planning to establish regional RIs, Member States should better use the capacities of ESFRI for setting-up upgraded evaluation procedures, peer reviews and/or new set of indicators related to their national and regional facilities.

In this respect, the concept of “*Regional Partner Facilities (RPF)*” is an important development. In essence it means a regional RI associated with a research facility of pan-European character. RPF must be a facility of national or regional importance in terms of socio-economic returns, training and attracting researchers and technicians. Moreover, the quality of the facility including its service, management and open access policy must meet the same standards required for pan-European RIs. However, rules for recognition of a facility as RPF are yet to be developed, including, among others, regular peer-reviews. However, the benefits of being a RPF are not yet sufficiently explored and appropriate funding opportunities will have to be elaborated.

Considering that research and innovation are central to European growth and competitiveness, the ESFRI Regional WG strongly recommends achieving a good balance between fostering existing centres of excellence and enabling new ones to emerge, associated with regional RIs. The strategy is to link these facilities to

efficient networks and to stimulate the development of regional RIs in coordination with other interested regions. Therefore the important role of regional RIs (including e-infrastructures) in contributing to sustainable regional development, economic growth and attracting new generations of scientists and engineers cannot be understated.

However, there is still the need for a consistent strategy of Europe's regions and MS by setting their own priorities and developing their own roadmaps. It requires a focused approach within regional research and innovation strategies, including the identification of flagship projects. They should also increase their investments in existing and new RIs, combining in the most efficient and effective way the instruments and funds available. This need for synergies has been stressed by the key EU institutions, namely: the Council[3], the Parliament[4] and the Commission[5]. In this context, the Commission has produced the "Practical Guide to EU funding opportunities for Research and Innovation"[6] and is exploring with Member States and regional authorities how far the Regional Policy can provide financial support to the construction of RIs foreseen in the ESFRI roadmap[7].

[3] Conclusions of 17 May 2010
[4] EP Resolution (EP:A7-0138/2010, P7_TA(2010)0189; May 2010
[5] COM(2010)553 and SEC(2010)1183, 06.10.2010
[6] SEC(2010)1183, item 3.2.
[7] COM(2010)553, item 4 and SEC(2010)1183, item 3.3.1.

5. The EU Cohesion Policy and use of Structural Funds

There are still large disparities between EU Member States and regions in the fields of innovation and R&D, which have detrimental effects on EU competitiveness at the global level. The reduction of these disparities is a key task for the EU Cohesion Policy. In that context, it invests in four key elements: R&D and innovation, entrepreneurship, ICT take-up and human capital development.

Research and Innovation (i.e. including research infrastructures) activities are eligible for 86 billion € from the Cohesion Policy, as shown by analyses carried out at DG REGIO and DG EMPLOYMENT. From this amount, 10 billion € are foreseen in Code 02 "RTD infrastructure and centres of competence in a specific technology". A study undertaken jointly by the DGs for Research and Cohesion Policy reveals that all ESFRI Roadmap projects are potentially eligible for at least one of the three types of funding from the Cohesion programmes (*Convergence, Regional Competitiveness and Employment and European Territorial Cooperation*). Therefore, Structural Funds provide a critically important source of funding for regional RI.

Few analyses are done at European level concerning the use of Structural Funds for support of mid to large-scale research infrastructures that show a growing impact of these schemes, especially for the COR. Examples of the use of Structural Funds for RIs in some of the convergence MS are shown below:

- in the Czech Republic, the national Operational Programme (OP) "Research and Development for Innovation" has allocated almost 70 % of the total funding (2070 million €) to priorities like European Centres of Excellence and Regional R&D centres and new RI, such as the ESFRI Roadmap ELI project;
- in Hungary, efforts are being undertaken to ensure support from national OP "Economic Development" for priority R&D and innovation to encourage competitiveness (34 % of the total budget devoted to it), including the development of the Hungarian ELI pillar;
- in Poland, of the 8,25 billion € earmarked for the OP "Innovative Economy" just over 1 billion € has been spent on RI, however of exclusively national or local character;
- in Romania, one of the priorities of the OP "Increase of the Economic Competitiveness" is dedicated to research and innovation for the technological development. Part of this budget for research is dedicated to reinforce the RI within the 7 Romanian regions according to the national priorities, including the third ELI pillar;
- in terms of e-Research Infrastructures, in Spain (case of Estremadura), support through Structural Funds has been provided to the "Technological and Scientific Network of Extremadura (RCTE)" which in turn supports innovation through the connection of 12 industrial parks, hospitals and local

governments; in addition, support through the framework of SP-PT Interreg IIIA project has been provided for a cross border fibre which connects Extremadura to Portugal (FCCN) from Badajoz.

As most of the resources for RIs from Structural Funds have already been earmarked, it is necessary to look at the future programming period (2014-2020), in order to ensure further support for these new developing facilities. Financial support provided at the European level attracts support at national and regional level – the synergy is quite strong and leveraging effect might be very important.

Support through the Cohesion Policy for emergence of new research Centres of Excellence (CoE) is closely connected to the development of national RI roadmaps. These roadmaps usually define projects from the perspective of both the European and national level and, in some cases, allocate funds for their realization. In Romania, for example, expenses for the maintenance and use of the national facilities (listed in roadmap) are supported from the funds coming from the NASR (National Authority for Science & Research) state budget; in Poland projects included in the national roadmap will get priority treatment when applying for support from the state budget; in the United Kingdom the Large Facilities Capital Fund was established (administered by the central Government) apart from the government departments, regional development agencies, charities etc., to support investments in large UK facilities.

The coordinated emergence of regional RIs and regional CoE is an ongoing process that helps to boost the competitiveness of COR and supports the inclusion of highly specialised centres into the ERA. The support of these centres should continue from all available sources – European, national and regional.

In the EU Communication on "Regional Policy contributing to smart growth in Europe 2020" [8] it says that "a three-pronged approach is needed to help regions to realise their full potential: (i) develop world-class research and ICT infrastructure, building on existing regional scientific excellence through Structural Fund support, (ii) establish networks of research facilities for less research-intensive countries and (iii) develop Regional Partner Facilities (RPF)." In particular, the Commission encourages the Member States and regions to consider the possibility of using the Structural Funds to support the construction of research infrastructure; for instance, possibilities for funding the ELI project (Extreme Light Infrastructure) are being explored[9].

Moreover, in this Communication, the Commission calls the national and regional authorities to develop smart specialisation strategies to maximise the impact of Regional Policy in combination with other Union policies[10]. These strategies should focus on a limited number of priorities based on the regional strengths, on the

[8] COM(2010)553, item 3.4
[9] SEC(2010)1193, item 3.3.1.
[10] COM(2010)553, item 3 and SEC(2010)1183, item 4.

potential of cooperation between EU regions and on the need for coherence between the priorities defined at the different levels of governance.

What is not yet fully exploited at EU level are best practices for the combination of resources for supporting construction and follow up operation of the large scale and regional RIs alike. Administrative burdens and different types and forms of grants often hamper or even prevent access to a variety of instruments. The current rules for RPF and ERIC to be eligible under Structural Funds are vague. These rules should be made more specific and clear in the next programming documents.

6. Actions at European level

Two conferences have highlighted the complexity of regional RI issues, the first one held under the Slovenian EU-Presidency in 2008 in Brdo, the second one held in 2009 in Prague. Both events gave a picture of the various methods of how to approach the vast field of regional research policy issues and how to overcome the general "Push me – pull you" mentality of many actors on the regional stage.

- Shortly after the Brdo Conference, the European Council came up with conclusions on "European Research Infrastructures and their regional dimension" as adopted at the Competitiveness Council in May 2008 which stressed the importance of new models and best practices for increased funding of RI and optimization of available funds.

- The Prague Conference focused – among others - on the role of regional RI as a pre-condition for increased regional competitiveness, and on the need of a comprehensive policy for the development of RI throughout the continent. The European Council recognized this need and invited the Member States and the Commission in its conclusions on "The Research Infrastructures and the Regional Dimension of ERA" to promote "… activities leading to a balanced distribution of RI throughout Europe as well as further use of existing financial tools, in particular the Structural Funds, for the building of research infrastructures and Regional Partner Facilities…", thus highlighting the importance of these facilities for the socio-economic development and competitiveness of regions and the promotion of cohesion in the EU.

Apart from these European events, an Austrian initiative, called the "Salzburg Group", has independently contributed to raising awareness towards regional RIs issues. Starting in 2007 former Austrian Federal Minister for Science and Research, Dr. Hahn, who is now the Commissioner for Regional Policy, invited ministerial colleagues from Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia, Slovenia and Switzerland, later on also from Cyprus and Malta, to discuss topics of common interest, including regional RI matters.

This year's Salzburg Group Meeting mainly dealt with "Possible Funding Options for Research Infrastructures in the Frame of the EU Cohesion Policy" and "The role of RI for attracting and keeping excellent researchers in a region", and it turned out to be a useful review of information already provided to the ESFRI WG Regio during the last year.

All these high level political recommendations call for improved and well coordinated means at European level. They imply the necessity, in the frame of the next Financial Perspective, to dedicate increased resources (human and financial) at European level for such coordinated efforts.

7. Awareness and Communication issues

Research infrastructures act as a real "knowledge triangle" between research, education and innovation. Therefore the spectrum of its stakeholders is very broad, ranging from researchers on the one side to policy makers on the other. Communication towards them needs different channels and instruments.

A good example of communication towards different types of stakeholders is the presentation of RIs during the Open Days 2010 event.

Communication between RI

Common challenges on a large spectrum of issues, related to the data aspects of RIs, standards, distributed access management etc., appeared during the preparatory phase of many of the ESFRI projects. Thus a call in WP 2011 was opened to initiate clustering of ESFRI facilities in the same areas (social, life, environmental sciences, physics, etc.) "to exploit synergies, to optimise technological implementation, and to ensure a larger harmonisation and interoperability between these research facilities." This illustrates the necessity of a good communication between different RIs in order to tackle common issues and find effective solutions.

Communication with policy makers

Support by policy makers is critical for the decision to host and build the infrastructure – which has impacts both at European level (international visibility, cooperation among different states) and at local level (new working places, attractiveness for SMEs, regional impact for the hosting region). It is therefore important to communicate to them the positive as well as the negative aspects of the operational phase of the new RIs, e.g. the need for financial support of the operational costs.

Communication with researchers, technical and administrative staff

It is necessary to communicate about the importance of RIs to researchers and technicians alike, and also to administrative staff and RIs managers. Projects such as RAMIRI, financed from FP7, are needed especially for those who are engaged in managing RIs.

Communication with students

The awareness of PhD students might be achieved through university courses dedicated to project management, where different programmes of R&D funding could be presented including FP7 with focus on RIs. Introduction of special courses on RIs might be an option as well. Study visits in RIs in their field might also be interesting.

Communication towards citizens

Taking into account that large sums of money are invested in RIs, it is essential to communicate the RIs´ pan-European mission towards citizens to ensure their approval to build them. This should be done by public outreach activities – e.g. RIs open days (with visits to RIs labs), researchers' night, projects from FP7 programme Science and Society, articles in non-scientific periodicals. It is also important to "educate" the journalists so that they are able to communicate appropriately towards the public – we propose site visits, participation at major conferences, information days or special workshops for journalists. Following the recommendation from the 2008 WG Regio, initiatives such as articles on CORDIS website or in CORDIS Focus should continue.

8. Conclusions and Recommendations

Conclusions:

- Regional research and innovation activities (development of regional research infrastructures and/or clusters; linkages with industrial development zones; development and support of centres of excellence; establishment of science and technology parks; mobility of researchers etc.) have a significant influence on structuring and enhancing global competitiveness of European research capacity as a whole

- The knowledge-based economic and innovative impact of RIs for the regional industries arises from easier availability of technicians and young people trained in a competitive environment, from opportunities to address international markets and from continuous turn-over of international visitors and users.

- The opportunity to build or upgrade RIs in a more regionally balanced way, by the use of the convergence policies and Structural Funds, matches the need to develop an inclusive and territorially harmonized ERA.

- The national roadmaps have involved most of the EU12 MS, where the regional policies are now making a positive impact.

- The regional RIs could be instrumental in involving COR into the European RIs landscape, in facilitating "brain circulation" throughout Europe, as well as reducing the risk of "brain drain".

- e-infrastructures should have an essential role in acting as an integrating mechanism between MS, regions as well as different scientific disciplines, and also contributing to overcoming digital divide.

- Use of Structural Funds should enable optimal contribution of RIs to the smart specialisation strategies defined and implemented in the context of the Regional Policy.

- The ESFRI Roadmap opens opportunities to involve and exploit the potential for scientific excellence and technological growth of COR through their involvement in the construction and access to new infrastructures, by setting up parts of distributed infrastructures or regional RIs or attracting sites of pan-European RIs.

Recommendations:

- A three-pronged approach is needed to help regions to fully realise their potential: **(i)** develop world-class RIs building on existing regional scientific

excellence through Structural Fund support, **(ii)** establish efficient networks of RIs within the whole European Research Area and **(iii)** develop regional RIs.

- For ESFRI Roadmap facilities, in particular those involving COR, for which construction/implementation phase is foreseen between now and 2012, the applicability of the Cohesion funding should be verified.

- Member States and regions should explore the possibility to include ESFRI Roadmap projects, anticipated to start after 2013 to be included in the future national or regional Operational Programmes.

- Member States should set visible targets and sustainable support for operational costs and involvement of priority ESFRI projects or regional RIs.

- Member States should complete the process of development of national roadmaps for RIs.

- An intensive awareness campaign and dissemination of information regarding RIs, both of pan-European and regional dimension, to all possible stakeholders should be launched in order to promote wide understanding of benefits for the local economy and community.

- Member States should better use the capacities of ESFRI for setting-up upgraded evaluation procedures and new set of indicators related to their national and regional RIs.

- ESFRI should develop a vision for financial support to regional RIs, through various EU financial instruments, in analogy to those available to large, pan-European facilities.

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