COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 25.7.2008
SEC(2008) 2278

COMMISSION STAFF WORKING DOCUMENT

Accompanying document to the

Proposal for a

COUNCIL REGULATION

on the Community legal framework for a European Research Infrastructure (ERI)

IMPACT ASSESSMENT

{COM(2008) 467 final}
{SEC(2008) 2279}

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1. INTRODUCTION AND POLICY BACKGROUND

1.1. Introduction

This Impact Assessment accompanies the proposal for a "REGULATION on the Community legal framework for a European Research Infrastructure (ERI)", which is included in the Commission Legislative and Work Programme 2008[1] as one of the priority initiatives[2]. Indeed, as a result of the institutional and public debate following the 2007 Green Paper *The European Research Area: New Perspectives*[3], a number of key areas have been identified where effective action in partnerships between Member States would have the potential to deliver significant gains for Europe's research system and help to create a "fifth freedom" in Europe - the free movement of knowledge. In this document "Developing world class research infrastructures" is put forward as one of the pillars of an ambitious ERA vision.

The "Regulation on a Dedicated Legal Framework for new European Research Infrastructures" is one of five policy initiatives planned by the Commission in 2008 as a follow-up to the Green Paper. This EC Regulation aims to facilitate the formation of European consortia for the construction and operation of research facilities of pan-European interest. Complementing national or inter-governmental schemes, this Regulation would provide an easy-to-use legal framework with high commonalities on key issues, while leaving enough flexibility to individual consortia to develop rules for specific infrastructures.

This initiative is responding to an explicit request from the Member States for the Commission to act in this domain following the publication, in October 2006, of the ESFRI[4,] roadmap [5] identifying 35 major research infrastructure projects to be developed in the next 10 to 20 years. These European facilities would have a direct impact on the advancement of fundamental and applied knowledge. By providing efficient access to world-class scientific knowledge for large communities of researchers and users they would also influence Europe's wider competitiveness and understanding of society and the environment. This will also significantly increase the attractiveness of the European Research Area for researchers.

This report commits only the Commission's services involved in its preparation and the text is prepared as a basis for comment and does not prejudge the final form of any decision to be taken by the Commission.

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1 Commission Legislative and Work Programme 2008 COM(2007) 640 final, Brussels, 23.10.2007

2 Ref: 2008/RTD/034

3 COM(2007) 161, GREEN PAPER - The European Research Area: New Perspectives http://ec.europa.eu/research/era/progress-on-debate_en.html

4 ESFRI was set up in 2002. It brings together representatives from the EU Member States and Associated States and a representative of the European Commission. Its main scope is to support a coherent and strategy-led approach to policy-making on research infrastructures in Europe and to facilitate multilateral initiatives leading to the better use and development of research infrastructures. Information on ESFRI and its activities is available at http://cordis.europa.eu/esfri/home.html

5 The ESFRI roadmap for Research Infrastructures (http://cordis.europa.eu/esfri/roadmap.htm) deals with facilities, resources or services of a unique nature that have been identified by European research communities to conduct top-level research activities. See annex 2 and 4.

1.2. Policy background

Since the Communication of the European Commission *Towards a European Research Area* of January 2000 the idea of a common *a* European Research Area (ERA) has been the guiding principle for all Community R&D measures and a central pillar in realising the research goals of the Lisbon Strategy for growth, jobs and a dynamic and knowledge-based European economy. In this context, developing a European policy for research infrastructures has been the subject of high level discussions and reflections over the last few years.

Research infrastructures play an increasing role in the advancement of knowledge and technology and their exploitation. For example, radiation sources, data banks in genomics and data banks in social science, observatories for environmental sciences, systems of imaging or clean rooms for the study and development of new materials or nano-electronics, are at the core of research and innovation processes. By offering unique research services to users from different countries, by attracting young people to science and through networking of facilities, research infrastructures help structuring the scientific community and play therefore a key role in the construction of an efficient research and innovation environment. Because of their ability to assemble a 'critical mass' of people and investment, they contribute to national, regional and European economic development. They are therefore at the core of the knowledge triangle of research, education and innovation.

In the ERA Green Paper published in 2007 world class research infrastructures are put forward as one of the pillars of an ambitious ERA vision. However, as the frontiers of research evolve and become more advanced and as our technologies progress, research infrastructures are becoming *increasingly complex and more expensive*, often placing them beyond the reach of a single research group, region, nation or even continent.

Europe has taken a major step forward in the development of a more coordinated approach for policy-making in the field of research infrastructures with the establishment of ESFRI, the *European Strategy Forum for Research Infrastructures*. The Informal Competitiveness Council of 1-3 July 2004 in Maastricht (NL) welcomed the Commission's proposal to develop a strategic roadmap for Europe in the field of Research Infrastructures for the next 10 to 20 years and at the Competitiveness Council of 25-26 November 2004, the Research Ministers asked ESFRI to establish this roadmap in close collaboration with the European Commission.

In October 2006, ESFRI released the first ever European Roadmap for Research Infrastructures. The *ESFRI roadmap* contains 35 key major projects of pan-European interest. These cover a variety of fields ranging from Sciences & Humanities, to Environmental Sciences, from Energy to Biomedical and Life Sciences, or Physics. Research infrastructures are large-scale facilities, major pieces of research equipment, set of instruments, databases and networks that aid scientists in their work. Examples of such facilities in the Roadmap include large-scale laser systems, deep sea floor observatories, bio-banks, the European Extremely Large Telescope, a network of clinical research centres and an upgrade of the European Social Survey.

The sheer size of these projects (generally several hundreds of millions of Euros for construction and several tens of millions of Euros for operation) requires a *joint effort by European Member States*.

In the context of the European strategy to improve the framework conditions for research and innovation a modernised Community framework for State aid for research and innovation[6] and guidance for a more effective use of tax incentives for R&D[7] were adopted in November 2006.

At the Competitiveness Council of 21-22 May 2007[8], the Research Ministers noted that Europe's main global partners are strongly investing in modern large-scale research infrastructure and stressed the importance of starting the *implementation* of projects such as those contained in the ESFRI roadmap.

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6 OJ C2323, 30.12.2006

7 COM (2006) 728 of 22.11.2006

8 Presidency conclusions of the Competitiveness Council of 30 May 2007

Member States were invited to develop or strengthen their national roadmaps and strategies on research infrastructures and to develop long-term plans for the investments. In addition, the Council recommended them to coordinate their future activities, taking account of the orientation proposed by ESFRI, thereby generating economies of scale and enabling a more efficient development.

The European Council, in its meeting of December 14, 2007[9], reiterated its invitation to Member States and urged them to participate *more actively* to the implementation of European Research Infrastructures, in the context of the Lisbon objectives. The European Council, in its meeting of March 13-14, 2008[10], recommended also the increase of scientific e-infrastructures and the strengthening of *research infrastructures of pan-European interest*. More specifically in the field of energy, the Council in its meeting of February 28, 2008[11] highlighted the need to improve and enlarge the Community's world class knowledge base in particular by asking ESFRI to identify the need for European Research Infrastructures, in line with the European Strategic Energy Technology Plan put forward by the Commission.

However, a major difficulty for setting up new European research infrastructures, apart from scarcity of resources and the complexity of technical and organisational issues is the lack of an *adequate legal framework* allowing the creation of appropriate partnership with partners from different countries. Recent work carried out under the auspices of the ESFRI has recognised the limitations of existing legal instruments and identified a need to develop a new dedicated Community legal framework for setting-up European research infrastructures.

It is in that context that the Commission has included in its *2008 Legislative and Work Programme,* as a Priority Initiative, a proposal to develop a "REGULATION on the Community legal framework for a European Research Infrastructure (ERI)".

9 Presidency conclusions of the European Council of 14 December 2007

10 Presidency conclusions of the European Council of 13-14 March

11 Energy Council conclusions referring to the SET plan of 28 February 2008

2. PROCEDURAL ISSUES, EXPERT GROUPS AND CONSULTATION OF INTERESTED PARTIES

This proposal relates to Commission's work plan item Ref: 2008/RTD/034. The main analysis for the impact assessment was conducted between March 2006 and April 2008. Given the broad range of potential impacts, an inter-service group was established and held regular meetings between November 2007 and May 2008. This group was chaired by DG RTD and consisted of representatives from the following DGs and Services: DG INFSO, DG ADMIN, DG BUDG, DG ENV, DG MARKT, DG REGIO, DG TAXUD, DG TREN, the Joint Research Centre (JRC), Secretariat General and the Legal service.

A wide-ranging consultation of interested parties has been carried out to prepare this initiative. The impact assessment has drawn information coming from a variety of sources:

i) Analysis conducted by experts;

ii) Consultation of stakeholders and

iii) Contributions from an inter-service group and from an independent "sounding board" specifically set up to follow this initiative.

2.1. The Impact Assessment Board

A draft of this Impact Assessment was submitted to the Impact Assessment Board on 15 April 2008. In its favourable opinion dated 15 May 2008, the Board advised the Directorate-General for Research to elaborate more on the option Number 4 (see sections 5 and 6). DG Research therefore revised this report in line with Board's comments.

2.2. Consultation of experts

i) Opinion of the Member States (through ESFRI)

ESFRI brings together high level national policy officials, and has played an important role in promoting the case for developing a new legal framework for European research infrastructures. To tackle this issue and move it forward, ESFRI organised, in collaboration with DG Research, two workshops[12] with key stakeholders in 2006.

The first workshop, held on 23 March 2006, brought together ESFRI representatives, officials of the European Commission, directors of European research facilities and legal experts with in-depth knowledge of the subject. The main aims were to take stock of the experience with legal instruments used in establishing European research infrastructures, to identify examples of good practices, to elaborate upon the advantages and disadvantages of the existing legal forms and to define a set of criteria for the selection of the most suitable ones for new research infrastructures. A second workshop, on 14 December 2006, focused on the analysis of the legal forms that exist at Community level.

The two workshops showed the limitations of the existing legal forms at national, Community or international level for European research infrastructures and identified the need to carry out a feasibility study for a new European legal instrument.

[12] The reports of the workshops are available on the site http://cordis.europa.eu/esfri/policy.htm. They are also available in annex 5 and 6 of this report in pdf format.

ii) Opinion of an expert-group on the feasibility of a European legal instrument

A feasibility study on the creation of a European legal instrument for European research infrastructures was carried out during the first part of 2007. Legal specialists[13] were in charge of this study. The group concluded that a solution could be an EC Regulation based on Article 171 of the EC Treaty, providing a general common legal frame for research infrastructures of European interest. These conclusions were presented at the 4th European Conference on Research Infrastructures, in Hamburg, in June 2007 (see below). In their view, this regulation should only provide a framework, leaving sufficient amount of flexibility to the individual consortia to set up the adequate rules for the specific infrastructure.

iii) Opinions of the ERA expert group

As a means to further stimulate the debate on ERA issues, an expert group on research infrastructures was established[14]. The interim conclusions of this group were presented at the high-level Conference on 'The Future of Science and Technology in Europe' in Lisbon, Portugal, 8 to 10 October 2007[15]. In its final report[16], the group highlights that achieving the next generation of European infrastructures requires new legal and governance structures that can be more readily available. Experts also indicate that purely national legal bases as well as international agreements have proven either inadequate or too complex to comply with the needs of the research community. The group recommended developing an EU legal framework for Research Infrastructures based on Art. 171 EC Treaty.

2.3. Consultation of stakeholders

iv) Conclusions of the 2007 Conference on Research Infrastructures

The European Conference on Research Infrastructures, ECRI 2007, organised under the German Presidency, was an opportunity for more than 400 research stakeholders to debate the key challenges in this area. Participants included representatives from parliaments, ministries, funding agencies, industry, the European Commission as well as science administrators and decision makers of large infrastructure facilities. The conclusions of the conference underlined the importance of research infrastructures for capacity building, training of researchers and generation and transfer of new knowledge, and the active role of the European Commission in the field of research infrastructures. A special session was dedicated to legal aspects, where ideas for a new legal instrument for the development of European facilities were presented and discussed. For the implementation of the 35 projects on the ESFRI Roadmap, the conference concluded that an important factor would be the creation of a dedicated legal structure at European level.[17]

v) ERA stakeholders' consultation (2007)

Following the Green Paper on "The European Research Area: New Perspectives", the European Commission launched a broad institutional and public debate on what needs to be done to give renewed impetus to the achievement of ERA. The development of research infrastructures was one of

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13 Members of the expert group were: FISCHER-DIESKAU Christian (EC Honorary Director), TUTT Ann (CCLRC), JAHREISS Hans (Head of Administration ESO), GARCIA-GALLARDO Ramon (SJ Berwin LLP), MARIEN-DUSAK Ingrid (EC – DG INFSO), BAS-SANCHEZ Mila (EC – DG RTD)

14 The Expert Group was composed of: KROO Norbert (Chair), LAETHEM Bart (Rapporteur), CELIS Julio, ELIAS Peter, JAHREISS Hans, LAAKSONEN Leif, LEON Gonzalo, READ Malcom.

15 See *Interim Policy Options Paper of the ERA Expert Group "Research Infrastructures"*, http://ec.europa.eu/research/conferences/2007/fst/pdf/discussionpaper_en.pdf

16 Developing World-Class Research Infrastructures for the European Research Area, EUR 23320 EN 2008. Available also in annex 8 of this report.

17 *ECRI* 2007Conference, Hamburg, 5-6 June 2007: https://www.ecri2007.de/documentation/conclusions

the key issues. Stakeholders were invited to contribute to the debate by responding via an on-line questionnaire, though other forms of response were also encouraged[18].

A total of 685 responses to the online questionnaire were recorded, with 31% (211 responses) replying on behalf of an organisation and 69% (474 responses) in an individual capacity. While the majority of survey respondents were resident in Europe (the largest groups being resident in France (96), Italy (93), the UK (80) and Germany (70)), replies were received from third countries, including the USA (14), Australia (3), Canada (2) and China (1).

Most respondents to the online questionnaire (82%) agreed that a common approach was needed to develop the European research infrastructures identified by ESFRI (6% disagree and 12% had no opinion). On those respondent agreeing 81% also agreed that leadership for such a common approach should be taken by the European Union. In response to the question 'What action is required at the European level to facilitate the creation and operation of these new infrastructures identified by ESFRI?', there was a clear measure of agreement (58%) that a new European legal framework should be developed to support the creation and operation of new forms of research infrastructures, and that guidelines should also be established to facilitate such activity (72%). The respondents supporting a new legal framework stressed the need for flexibility given the diverse nature of research infrastructures.

As far as the views of the Europe's inter-governmental research organisations (EIROforum) are concerned, they believe that inter-governmental agreements still have a useful role to play. They indicate that establishing new agreements is often perceived to be cumbersome, but they claim that the long-term operational stability that is embodied in such agreements far outweigh the short-term additional efforts needed to initiate them.

European Research Performing Organizations (RPOs)[19] expressed the view that "a European framework to facilitate the emergence and operation of new forms of research infrastructures of pan-European interest was needed " and that "tax (VAT) and mobility of personnel problems have to be solved in flexible schemes that keep the acquisitions of existing pan-European institutions (e.g. ESRF, CERN, ESA, ESO) while avoiding the high-level agreements needed to implement them (intergovernmental treaties etc)".

vi) Meeting with currently involved stakeholders (2008)

A *Stakeholder Meeting* was organised on 3 March 2008 to explain to potential stakeholders the content a regulation based on article 171 EC Treaty, to ensure that it responds well to the expressed needs. Participants included representatives of the projects in the ESFRI roadmap, representatives of European research facilities and legal experts with in-depth knowledge of the subject.

A vast majority of experts agreed on the usefulness of a new legal form at Community level and on the broad orientation of the project of the Commission[20]. They expressed the wish for the legal form to bring some advantages e.g. provisions in the new legal framework would be necessary in the fields of taxation, public procurement rules and some staff rule. Experts from new Member States expressed the view that a new legal frame at Community level would be most useful for new Member states, which have no experience and may have no appropriate national legal form available. Although many staff and resources issues would not be solved by the ERI there was broad agreement that the new legal

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18 The on-line public consultation lasted from 1st May 2007 until 31st August 2007. The consultation has given rise to over 800 written submissions, opinions and recommendations. Their analysis can be found on http://ec.europa.eu/research/era/progress-on-debate/stakeholder-consultation_en.html.

19 Free form contribution received from the "Centre National de la Recherche Scientifique (CNRS)" of France, the "Consejo Superior de Investigaciones Cientificas (CSIC)" of Spain and the "Max Planck Society (MPS)" of Germany.

20 See summary conclusions under http://cordis.europa.eu/esfri/policy.htm

form would help to attract international staff and associated resources where they are going to be needed. Other staff related issues such as pay scales and pensions were considered too difficult to be dealt with in the Regulation.

There was a broad agreement on the projected legal base for the ERI (Art. 171 of the EC treaty) and on the need for an empowerment of the Council to the Commission to simply and speed up the process.

2.4. Sounding Board and Inter-Services Group

vii) Sounding board

A 'sounding board' was also set up, at the beginning of 2008, to support the Commission in its activities in the context of the work of the inter-service group[21]. This group, composed of five experts with in-depth experience in the field of research infrastructures, advised the Commission on the general objectives of the intended framework regulation and its content, on the preparation of a stakeholder workshop and on the Impact Assessment.

The sounding board was pleased with the work carried out for the impact assessment. It showed strong support to the option to develop a new Community legal instrument for European research infrastructures. In their view, such a legal instrument, complementing other existing legal forms, could facilitate and speed up the decision making process for new infrastructures. In order to be useful the new legal instrument should allow arrangements that are common in international organisations for procurements, exemptions of taxation, derogations from national laws and limitation of liability. The monitoring by the Commission should not generate any extra administrative burden for the infrastructure's management.

viii) Conclusions of the inter-service group

The inter-service group held six official meetings between November 2007 and May 2008. Several additional bi-lateral meetings were also organised between DG RTD and the other Directorates General and services involved to progress with the work. The Interservice Group concluded that, while the existing legal forms under which trans-national research infrastructures can be set up remain valid and useful, a new legal framework as suggested in the forecasted initiative would bring advantages and Community Added Value.

3. PROBLEM DEFINITION

3.1. Context

As mentioned in the ERA Green Paper in 2007, "a sense of urgency in revisiting ERA stems from the fact that globalisation of research and technology is accelerating and new scientific and technological powers – China, India and other emerging economies – are attracting considerable and increasing amounts of R&D investments. These developments bring new opportunities for Europe and the world. At the same time, they raise the question of Europe's ability to sustain a competitive edge in knowledge and innovation, which is at the core of the renewed Lisbon Strategy for Growth and Jobs. Addressing this question will be a major issue for the next three-year cycle of the Strategy, to be initiated in 2008". In addition our society faces many challenges, global or specific, in many areas. These include climate change, energy production, water supplies, the need for a sustainable environment, improvement in the quality of life, the threat of terrorism.

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[21] The Sounding Board was composed of: VIERKORN-RUDOLPH Beatrix (BMBF, Chair), BAINES Linda (CCLRC), FIONI Gabriele (CEA), MARN Jure (Univ. Maribor), GARCIA GALLARDO Ramon (independent expert), RODRIGUEZ Manuel (representative of ESRF), METZGER Maximilian (representative of CERN).

The Commission's recent Communication on the renewed Lisbon strategy[22] stresses that "Europe must also pool its resources for a new generation of large-scale facilities for future laboratories and instruments which are indispensable for staying at the forefront of frontier research over the next decades".

3.2. Critical role of research infrastructures for R&D in Europe

The existence of and access to leading research infrastructures is a major determinant in Europe's ability to sustain a competitive edge in knowledge creation and innovation. As identified in particular by ESFRI, high quality research infrastructures are of paramount importance because of the following factors:

- Research infrastructures are essential for ensuring the scientific advances that can help Europe to find solutions to many of the above-mentioned challenges (global warming, energy production, water supplies, a sustainable environment, health, etc).

- Research infrastructures provide essential tools to carry out cutting-edge research and a large part of excellent research is performed in and around such facilities. They serve as magnets for talented researchers and thus encourage the important interaction of researchers coming from different countries or disciplines.

- Research infrastructures play a key role in building the interface between science and industry. The landscape of Europe shows that, where research infrastructures have their site, often "technology clusters" or so-called technology parks can be found. The construction and operation of such facilities also create important supply and demand effects for new and high-tech equipment, being then the seed for spin-off products and/or start up companies.

- Research Infrastructures serve large scientific communities and many thousands of researchers and students from universities, research institutes or industry, from Europe and outside Europe, use them each year. Research Infrastructures should therefore contribute substantially to attracting the 600,000 or more young scientists that Europe needs to reach 3% of GDP investment in research.

- Research infrastructures stimulate the interest of young people to embrace scientific careers and train highly skilled people.

3.3. New challenges in the field of research infrastructures in Europe

However, there are a number of important trends which pose challenges for Europe when it comes to creating the new research infrastructures it needs in the coming years:

- As the frontiers of research evolve and become more advanced and as our technologies progress, the demands for new, upgraded and more elaborate research infrastructures are becoming *increasingly complex and expensive*. Scientific fields such as life sciences are also undergoing a *profound transformation*, fuelled by advances in high-throughput analytical techniques such as genomics and proteomics. In fields such as astronomy (for example research into the nature of dark energy or the evolution of galaxies) there is a need for ever more complicated and expensive research instruments and research services.

- At the same time, there is a trend towards the setting-up of more and more multidisciplinary and/or distributed facilities, to look at *complex and interacting systems* (e.g. environment, energy or human behaviour), a development which is associated with the increasing capabilities of communication, data treatment and storage.

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[22] Strategic report on the renewed Lisbon strategy for growth and jobs, Communication from the Commission to the European Council, COM(2007) 803 final, 11.12.07

3.4. Nature of the issue and problem that require action

These new trends mean that the costs of many envisaged new facilities cannot be met by individual Member States, and that they can only be constructed if several partners from different countries pool their resources. In other words, it is now necessary to create a series of key research infrastructures on a European scale, involving partnerships between interested Member States. This is the rationale for ESFRI's European Roadmap for Research Infrastructures (see annex 4).

However, the close international cooperation required to do this raises a number of serious problems. Organisations from different countries often find it difficult to cooperate, enter into partnerships and pool resources. Indeed, the setting-up of international consortia typically involves long and complex negotiations on e.g. governance, share taken over by each partner, "return" of investment, tax, procurement or liability issues.

For a given infrastructure, partners from different countries must find and develop an appropriate legal base in order to resolve these issues. However, while there are currently a number of different legal forms available under national, Community or international laws, recent work has shown that in most cases they are unsuitable for meeting the needs of new European research infrastructures. In particular the creation of international organisations requires long procedures due to the high number of formal steps. Moreover the staffs in such entities enjoy salaries and privileges which are not considered justified in most cases. Community legal forms such as EEIG, EGTC or ECS (see section 5.1.ii) are not fully appropriate, either because their objectives are out of the scope of Research Infrastructures or because they exhibit specific limitations (impossibility of participation of non EU countries, unlimited liability of members or upper limit for the number of employees). Although national forms were used in a few cases, they remain specific to each country and this feature remains a serious obstacle to the participation of other countries, not to mention that many countries do not have any adapted legal form in their national law. In addition, for all legal forms mentioned above, the exemptions on taxation which are generally required by members require specific and cumbersome negotiations with the national and local authorities[23].

These factors were clearly identified by potential stakeholders of the 35 major European infrastructures on the ESFRI Roadmap. The stakeholders also urged ESFRI and the EC to find a solution avoiding lengthy and complex legal negotiations, which will inevitably delay the setting up of these important facilities. What is required, if Europe is to be able to launch rapidly and efficiently the new infrastructures it needs, is to identify *a legal framework* adapted to the specific problems of cross-border cooperation and financing[24]. The stakes are high and stakeholders agree that there is no time to lose in finding a solution[25]. If this is not possible this means that the scientific and technological advances resulting from the operation of these infrastructures will be significantly delayed, and that Europe will thus progress more slowly towards its Lisbon and ERA objectives. In particular, progress towards the knowledge economy will be slower, as will the potential benefits to citizens and society

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23 For example, in the case of FAIR and X-FEL, the discussion between the potential partners started in 2004 and are not yet finalised. In addition to the negotiations on the amounts and nature of contributions, which are the key issue, it is clear that taxation issues had to be clarified before the partner states could put forward any contributions. For lack of better alternatives, it was decided that the new facilities should be built and run by a German limited liability company (GmbH). Representatives from the partner countries spent a lot of time to understand how they could work within such an organisation and make their influence weigh. This part of the negotiations could have been significantly speeded up if all partners had been able to start on an equal footing with a Community legal form that would have helped to solve taxation issue.

24 In a recent article in NATURE (Vol 447/24 May 2007) we can read "There is no perfect model for international research infrastructure, but intergovernmental organizations have historically been successful because they are legal entities with customized governance that allows independent operation but continuous external performance evaluation. However, such organizations take years to establish. Simultaneously setting up multiple entities with differing combinations of member states for various ESFRI projects seems to us impossibly difficult. Achieving the next generation of European infrastructures will therefore require new legal and governance structures that can be more readily adapted to support successful ESFRI projects".

25 Lisbon Presidency conference, October 2007

from the scientific advances these infrastructures will produce in relation to the environment, energy, health and so on.

3.5. Which groups or regions will be affected?

This new initiative will affect a wide range of players. Firstly, researchers will be affected by the more rapid creation of infrastructures in a number of disciplines. Not only will this affect the many scientists who will work at these facilities and be able to conduct cutting-edge research, but it will also have an impact on thousands of scientists from universities, research institutes and industry, both from Europe and outside Europe, who will be able to access these new facilities.

As mentioned above, the rapid construction and operation of such facilities will also have further impacts on industry, in terms of accelerating important supply and demand effects for new and high-tech equipment, sometimes leading to spin-off products or start up companies. Building these infrastructures more quickly can also accelerate the benefits of an enhanced interface between the scientific and industrial research communities, for example through stimulating the formation of "technology clusters" or technology parks.

Within the European Union (EU), the new Member States are also in a position to benefit from this new initiative. A survey on existing research infrastructures[26] carried out in 2006 showed that, at the beginning of the 21st century, such infrastructures were predominantly built in EU-15 rather than in EU-12 and that the gap between the EU-12 and EU-15 Member States in regard of research infrastructures was continuing to increase. Thus a legal form at Community level would be especially useful in new Member States and in Member States where no large research infrastructures exist.

3.6. Treaty base and subsidiarity principle

The right for the Community to act in this field is set out in several articles of the Treaty which make provisions for research coordination and cooperation.

Article 165 stipulates that "*the Community and the Member States shall coordinate their research and technological development activities so as to ensure that national policies and Community policy are mutually consistent*". It also allows the Commission, in close cooperation with the Member States, to "*take any useful initiative*" to promote such coordination.

In addition, Article 171 stipulates that *"the Community may set up joint undertakings or any other structure necessary for the efficient execution of Community research, technological development and demonstration programmes*"[27].

In order for Community action to be justified, it is also necessary for the subsidiarity principle to be respected. This involves assessing two aspects. Firstly, it is important to be sure that the objectives of the proposed action could not be achieved sufficiently by Member States in the framework of their national constitutional system (necessity test). Three options are proposed to tackle the identified problem: (1) Coordination action at European level for the development of best practices; (2) Development of Joint Undertakings and (3) Development of a dedicated legal framework at Community level. The Community is best placed to implement these options, on the basis of Article 165 for the first one, and through Article 171 for the two others.

The second aspect to consider is whether and how the objectives could be better achieved by action on the part of the Community (test of European value-added). The rationale for a European action stems from the trans-national nature of the problem (setting-up of legal frameworks between Member States). Alternative solutions exist through the setting up of inter-governmental agreements, however – as already mentioned - the administrative and legal processes which typically have to be followed under such intergovernmental schemes are sometimes considered as too lengthy, difficult and cumbersome.

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[26] Reference to the Survey realised in 2006– http://www.ec.europa.eu/research/infrastructures

[27] Treaty establishing the European Community; see Official Journal C 325 of 24 December 2002.

4. OBJECTIVES

4.1. Policy objective

i) General objectives

The overall objective of this proposal is to help Europe address the various opportunities and challenges it is confronted with through the timely development of efficient European research infrastructures (ERI) which would in turn:

- Help strengthen the development of an efficient European Research Area by better integrating and leveraging national efforts, avoiding sub-critical facilities, building a European identity and placing Europe as a world leader for high-level research services, therefore supporting many of the Lisbon objectives;

- Help Europe to "pool its resources for a new generation of large-scale facilities which are indispensable for staying at the forefront of research over the next decades"[28] ; providing researchers with the research facilities they need, increasing therefore European attractiveness and potential for capacity building and reinforcing the image of Europe as a place to conduct leading edge and cost-efficient basic research;

- Help to better tackle social and environmental challenges such as climate change, energy production, water supplies, quality of the environment, quality of life and societal issues, through excellent research services provided by such new European Research Infrastructures, including e-infrastructures;

- Contribute to long-term economic competitiveness, through the acceleration of scientific advances in Europe favoured by such new European facilities and knowledge-based growth.

ii) Specific objectives

It should be remembered that providing world class research infrastructures (ERI) will create unique opportunities to carry out cutting-edge research; to attract the best researchers from across the world; to train highly qualified students and engineers; and to boost technology transfer and innovation[29].

Achieving these objectives can be assisted by the development of a *favourable legal environment* by the efficient use of specific articles of the Treaty, namely articles 165 and 171 (and article 172 for its implementation) stimulating in turn an easy-to-use process and the timely launch of a new generation of European research infrastructures (ERI).

It is important:

- To stimulate the setting-up of any structure necessary for the efficient execution of research, technological development and demonstration Community programmes;

- To simplify the complex process of developing new European research infrastructures, accelerate their construction and avoid uncoordinated activities.

To ensure that national policies and Community policy are mutually consistent: the Commission may take any useful initiative to promote such coordination.

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[28] Recommendation of the Strategic report on the renewed Lisbon strategy for growth and jobs, Communication from the Commission to the European Council, COM(2007) 803 final, 11.12.07

[29] ESFRI roadmap report; ISBN 92-79-02694-1, 2006

iii) Operational objectives

The implementation of new European research infrastructures (such as those identified by ESFRI) requires Europe wide partnerships and their timely establishment. In addition the development of basic research in Europe needs the development of more favourable conditions. The operational objectives of this proposal are in this context:

- To ease and speed up the process of setting-up and operating new European research infrastructures (ERI), in particular through a cost-efficient decision-making procedure;

- Based on the ESFRI roadmap identifying 35 potential new projects, to increase the number of European research infrastructures, in shaping a legal instrument that might correspond better to their needs;

- To help develop further the European policy for research Infrastructures, complementing the advancements already achieved since 2004, in particular through ESFRI.

4.2. Consistency with horizontal objectives of the European Union

The rapid setting-up of new European research infrastructures – as identified for example by ESFRI - would enable an easier and quicker achievement of the horizontal objectives of the European Union:

Growth and Jobs: The construction, operation and maintenance of such facilities create indeed important supply and demand effects. For example, the generation of today's CCD cameras (consumer products), or the use of specific software for ophthalmological examinations have their roots in the technological developments done in the last twenty years in the large optical astronomy observatories;

"Sustainable Europe": European research infrastructures help to better understand our environment or to develop new Energy approaches. As identified by the Energy Council of 28 February 2008, research infrastructures help to improve and enlarge the Community's world-class knowledge base of researchers and research institutes, including by reducing barriers to mobility, attracting world-class human capital, improving science education, in the field of renewable energy technologies (SET plan);

"Knowledge Society": European research infrastructures are key for the efficient access to world-level scientific knowledge by large communities of researchers and users. It should be remembered that the Internet was born in CERN many years ago. Today millions of kilometres of fibre optics link the different scientific centres of competences, research centres and universities, as the backbone of an efficient, quick and reliable scientific communication and information system.

Europe as a world partner: The rapid development of European research infrastructures will largely impact the attractiveness of the European Research Area. Already Australia, India, Russia and the USA have shown considerable interest in a participation in the development of the ESFRI projects.

Better regulation (and simplification): Finally, through an optimisation of the legal framework at European level, the Council could allow a quicker and efficient process for the management of the different files related with the setting-up of new European research facilities using a single legal base instead of several national ones.

5. POLICY OPTIONS

Four policy options have been considered in relation with these objectives. These policy options are presented below in an order of increasing importance of the intervention:

- Option 1: The "no specific action at European level" option corresponds to the present situation, where, each consortium, through an ad hoc process, tries to identify among existing legal forms the one which could be the most appropriate for their project;

- Option 2 corresponds to a "light" form of intervention from the European Commission, helping those involved in building European infrastructures to identify problems and needs, to exchange information about how to tackle these problems and to establish best practices.

- Option 3 corresponds to the setting-up of Joint Undertakings by the Community, according to Article 171 of the EC-Treaty, on case by case basis, every time that a need for such setting-up occurs;

- Option 4 is a more direct response to the problem at hand. It proposes a Community's legislative action to provide a new legal instrument adapted to the need of European research infrastructures complementing existing forms at national and European level; it also considers the empowerment from the legislator to the European Commission for conferring the "European Research Infrastructure" status.

5.1. Option 1: No specific action at European level

Under this option, stakeholders in new European research infrastructures projects have to find by themselves the legal instrument that would best correspond to their needs. The "no EU action" is a standard scenario that must be taken into account in the evaluation of impacts. It provides a benchmark against which to measure other options.

Existing research infrastructures are operating under a variety of legal forms or legal frameworks. These have been examined as regards their suitability for research infrastructures during the last two years (see section 2) and are briefly described below. They are regrouped into the three following categories according to their legal base: international law, Community law or national law.

i) Legal framework available under international law

Intergovernmental agreements

Organisations established through intergovernmental agreements and have a legal personality which is governed by international law. For example, the *European Organisation for Nuclear Research (CERN)* was founded in 1954 as the first European research organization based on an inter-governmental agreement and was a model for other scientific organizations such as the European Molecular Biology Laboratory (EMBL) and the European Organisation for Astronomical Research in the Southern Hemisphere (ESO). A more recent example is the *International Thermonuclear Energy Reactor* (ITER)[30]. A list of existing Intergovernmental research infrastructures is given in annex 3.

These agreements are concluded by intergovernmental conventions between states and other international subjects. Usually they are made of a number of standard provisions. These encompass the legal personality, the establishment of the organisation and its purpose, the members and organs, an accession clause and the settlement of disputes.

These organisations operate under their own rules and by laws regulating a wide range of issues such as staff rules, financial rules and procurement procedures. The financial contributions of Member States are either fixed by negotiations (*ITER*) or calculated according to the net national income of each country (*CERN*). Prior to the agreement, there are often long discussions between the partners about the funding of resources, the site and all other necessary elements to commission and to operate the facility.

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[30] The Joint Implementation Agreement was signed on 21st November 2006 (Annex to Council of the European Union 212731/06 of 21.9.2006)

This legal form typically allows significant advantages such as tax exemptions (VAT and salary taxes)[31]. Regarding staff policy, the specific status of personnel (international civil servant or United Nation types), with privileges and immunities, makes it possible to attract very highly skilled collaborators. The 50 years experience of *CERN*, and the more recent experience of *ITER*, makes it feasible to emphasise the well established long-term advantages, constraints and/or parameters, which can be drawn from an intergovernmental agreement or convention.

ii) Legal frameworks available under Community law

European grouping of territorial cooperation (EGTC)

This is a new cooperation instrument at Community level, based on Article 159 of the Treaty, for the creation of cooperation groupings in the Community territory. The objective of an EGTC is to facilitate and promote cross-border, trans-national and/or interregional cooperation between its members, primarily regional and local or other public bodies, but covering national authorities as well, with the aim of strengthening economic and social cohesion[32]. This may include using it for research purposes, as research is recognised as a tool for fostering regional development. EGTCs can be set up by national research authorities only and may therefore, in some cases, be used for the purpose of European research infrastructures.

European Economic Interest Grouping (EEIG)

The EEIG is explicitly designated as a means to "cooperate effectively across frontiers"[33]. Its purpose is to facilitate or develop economic activities of its members. The activity of the EEIG must be related to the economic activities of its members and may not replace them. It can be formed by at least two natural persons or companies as well as other legal bodies governed by public or private law (including chambers of commerce, research centres, universities, local authorities) from at least two different Member States of the European Economic Area (EEA). The EEIG has legal capacity and may represent its members towards third parties. The members of the grouping have unlimited joint liability for its debts of all kind.

The European Cooperative Society (ECS)

Its purpose is to complete the EU internal market and to provide a legal framework for cooperatives on a Community scale[34]. It is considered that the operating principles of cooperatives are "different from those of other economic agents" in the sense that they require a democratic structure and distribution of net profits on an equitable basis, with a very strong employees' participation. As with all cooperatives under domestic law, its main feature is the supply of goods and services. Consequently, its focus is the participation in economic activities, which rules out the suitability for scientific large scale facilities.

European Company (also known as *Societas Europaea* SE)

This legal framework derives from Council Regulation (EC) No. 2157/2001 of 8 October 2001 and Council Directive 2001/86/EC as regards the involvement of employees. Following a long discussion on how to enable public limited companies (i.e. plc) to carry on their business on a Community scale, this regulation aims at facilitating the creation and management of companies with a "European dimension".

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31 "Very Large Scientific Facilities in Europe: Analysis of Institutional Co-operation", OCDE/GD(95)80.

32 The (Regulation (EC) No 1082/2006) is the first EU instrument offering a legal framework to set up a legal body under Community law for territorial cooperation.

33 Council Regulation (EEC) No 2137/85 of 25 July 1985 on the European Economic Interest Grouping.

34 Council Regulation (EC) No. 1435/2003 of 22nd July 2003.

A European Company can only be created if existing companies in more than two EU Member States (MS) are concerned. It is exclusively foreseen in 4 cases: i) by the merger of two or more existing public limited companies from at least two different EU Member States; ii) by the formation of a holding company promoted by public or private limited liability companies from at least two different MS; iii) by the formation of a subsidiary of companies from at least two different MS and iv) by the transformation of a public limited company which has, for at least two years, had a subsidiary in another MS. The European Company addresses primarily the needs of large companies, whose capital is divided into shares. They may operate under a European form, on the basis of the rules of the SE Regulation and SE Directive as implemented by the MS.

iii) Legal frameworks under national law

Companies

Companies are often used to set up research infrastructures in Europe because they are well adapted to public-private needs and are better integrated into the legal framework of the country where the research infrastructures are located (e.g. French *Société civile*, UK *Limited liability Company* (Ltd), German *Gesellschaft mit beschränkter Haftung* (GmbH)). There are many different legal types, most of which are limited liability companies. The shareholders have a limited liability in proportion to their contribution to the capital. One distinguishes non-profit making companies in which members wish to develop a specific activity from commercial and profit-making ventures in which the shareholders invest a capital essentially for their financial interest. Generally, companies can be set up with partners, public or private, coming from the host country and/or from any other state.

Foundations

This legal form is typical for non-profit organisation, governed by national law. In The Netherlands, this legal form is commonly used for research organisations. It emphasises the non-profit character of the research work and allows for a flexible governance structure with a board consisting of representatives from the stakeholders/financing parties and a management, reporting to the board, but having full authority for the daily management of the organisation.

AISBL (international non-profit organisation under the Belgian Law)

This legal form is typical for non-profit organisation, governed by the Belgian national law, but allowing international partners and activities. It allows for a flexible governance structure with a board consisting of representatives from the stakeholders/financing parties and a management, reporting to the board, but having full authority for the daily management of the organisation.

5.2. Option 2: Coordination action at EU level for the development of best practices

Option 2 corresponds to a "light" intervention from the EC and is a "soft" option between option 1 (no EU action) and option 4 (new legal framework). It could be implemented by the European Commission by bringing together those people who are currently experiencing the problems in setting up European infrastructures and establishing codes of good practice so that each new partnership does not have to re-invent the wheel.

The Commission, in particular, could ensure that the results of the work carried out on legal issues within the EC funded "*Preparatory phase for the projects in the ESFRI Roadmap*" are disseminated as widely as possible.

The purpose of the "preparatory phase" instrument, based on a variable geometry approach, is to provide catalytic and leveraging support to the ESFRI projects[35] helping them to reach the level of maturity required to enable their construction. The EC contracts provide a framework to facilitate decision-making between the partners and to address many critical issues that need to be resolved to make the project move forward. EC funding is providing support, in particular, to clarify the specific needs of each project and to identify the most appropriate legal and financial basis for the new infrastructures.

In addition, the support to possible ERA-NETs projects could be an efficient way to help Member States coordinating their Research Infrastructures-oriented actions.

The dissemination of the information coming out of these projects should be of great benefit to stakeholders. This information could be further compiled into practical guidelines comprising a compendium of possible legal forms identifying their main strengths and weaknesses. In the future, this should avoid each consortium having to repeat the same assessment work and to converge more quickly to the best legal form.

5.3. Option 3: Development of Joint Undertakings

Under this option the Community would develop Joint Undertakings for the new European research infrastructures projects. The decision to set up a joint undertaking, based on Article 171 of the EC-Treaty[36], is made by the Council based on a proposal from the European Commission. The statutes or the articles of association of a joint undertaking are not fixed anywhere and therefore it is a legal instrument which theoretically leaves a lot of freedom to the founding members.

This possibility has been used recently, for the *GALILEO* satellite navigation system and for the FP7 Joint Technology Initiatives "Clean Sky", "ENIAC", "IMI" and "Artemis". The *GALILEO* experience shows that the joint undertaking is an adequate structure for a large scale project. It ensures the coherent management of all funds allocated to the project. The governance structure is robust with a clear line of authority and responsibility covering scientific, technical, administrative and commercial aspects of the facility. Decisions taken by the Administrative Board are implemented by the Executive Committee, assisted by the Advisory Committee under the guidance of the joint undertaking Director.

However, the setting up of Joint Undertakings requires a very strong Community involvement. In all the above examples this ended up with the Community becoming a member of the joint undertaking and the main financial contributor. The structures thus created have all the characteristics of "Community bodies" with the corresponding characteristics and constraints i.e. application of the Staff Regulation for the labour and social security law, of the Protocol on Immunities and of the Financial Regulation of the European Communities.

Considering the present situation in Europe where Member States wish to continue to play a central role in the development and financing of research infrastructures, the limited funding available for research infrastructures at Community level and the possible subsequent administrative and managerial difficulties, it is clear that the development of Joint Undertakings for the new European research infrastructures could be only considered in exceptional circumstances.

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35 Thirty four ESFRI projects are now supported for the "preparatory phase" following the first FP7 call for proposals (Call: Infrastructures-2007-1: "Research infrastructures" part of the Capacities Programme).

36 Article 171 - The Community may set up joint undertakings or any other structure necessary for the efficient execution of Community research, technological development and demonstration programmes. Article 172 - The Council, acting by qualified majority on a proposal from the Commission and after consulting the European Parliament and the Economic and Social Committee, shall adopt the provisions referred to in Article 171.

5.4. Option 4: Development of a dedicated legal framework at Community level

The legal basis is Article 171 of the EC-Treaty[37] which gives power to the Community to set up joint undertakings *or any other structure necessary* for the execution of Community research. This interpretation of statutory powers in the Treaty is corroborated by Article 163 paragraph 2 of the EC Treaty which empowers the Community to remove any legal and fiscal obstacles for research institutions to enable collaboration beyond borders.

Article 171 EC Treaty requires that each European Research Infrastructure (ERI) is set up by the legislator. This means that each ERI would have to be adopted every time by the Council in the consultation procedure upon proposal by the Commission. The proposed Regulation, however, would provide an empowerment to the Commission, subject to a Comitology procedure, and therefore would provide a quicker process, as well as "batch per batch" approvals instead of individual decisions. In addition to providing the main characteristics of the legal form for ERIs, the foreseen Regulation would set out the rules and procedures concerning their establishment:

– The founding members should take the initiative and draw up the Statutes and further accompanying documents required and submit the application to the Commission.

– It will be then up to the Commission to examine the file and adopt a decision to create the "European Research Infrastructure (ERI)".

– The decision establishing the ERI would come into effect after publication in the Official Journal of the European Union. The Statutes would be annexed to the Decision. An amendment to the key elements of the Statutes would have to be adopted similarly.

This option is based on the extensive work carried with ESFRI, legal specialists, stakeholders, the sounding board and the inter-service group, which led to the identification of a gap currently existing at European level since there is no provision for a legal form dedicated to European Research Infrastructures. In addition, the following features that a new legal form ideally should have were identified:

– it must provide a legal personality which is recognised in all Member States;

– it must reflect the spirit of a truly European venture, although allowing participation of non-European countries;

– it should be flexible enough to adapt to the requirements of the different ERIs, easy to use and speeding up the process of setting up the infrastructures;

– it should provide some of those privileges and exemptions which are allowed at a national level to international research organisations.

The *flexibility* needed to adapt to the requirements of specific infrastructure[38] would be provided by the specific statutes to be adopted by the members of each infrastructure, in complement to the common legal framework defined by the Regulation.

Some key characteristics of an ERI to be defined by the framework Regulation are:

i) Membership:

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[37] The use of Article 308 EC Treaty could have been used, but only in the absence of any other possibility allowing attaining one of the “objectives of the Community”. This was not the case since article 171 provides for this possibility.

[38] There may be different requirements for research facilities in medical and nuclear sciences in comparison to astronomy or environmental disciplines.

The membership of ERIs will be limited to Member States, third countries and international organisations with the possibility of participating countries to mandate public or private entities with a public-service mission to exercise their rights and duties on their behalf.

The participation of private legal entities with a commercial character is excluded by the nature of the ERIs (orientation towards basic research activities, constructed and operated by public funds, widely open to the European scientific community). The objective is to help Member States (and Associated States) to develop Research Infrastructures which they cannot realise at national level because of lack of resources, competences or because of a much wider scope than the national one. The nature of existing national research facilities is public (this is the case in all fields e.g. the synchrotrons Soleil (FR) or Diamond (UK) in physics, oceanographic boats in the field of environment or databases on ageing in social sciences) and the development at European level should reflect the public nature. In addition, the opening to public private partnerships would exclude the possibility to obtain advantages such as VAT exemption, generating therefore more difficulties in the negotiation of the agreement between different Member States (see complementary remarks in chapter 6). The opening to public private partnerships might in addition raise issues of State aid and/or generate potential claims for distortion of competition or limitations in the access to such facilities; however, the public nature of such facilities should not exclude the possibilities of collaboration projects with industry or possible sponsorship from industry.

ii) Seat:

It is foreseen that an ERI shall have its seat in a Member State or in an Associated State to the Community Research Framework Programme. In this later case there would need to be an instrument (e.g. international agreement) or a specific declaration from the Associated State stipulating that it is bound by the stipulations of the Regulation.

iii) Applicable law:

An ERI shall be governed by

a) the Community law and, in particular, the Regulation;

b) by the law of the State, where the ERI has its statutory seat, in matters not regulated by Community law

c) in derogation from letter (b), by the law of the States in which the ERI operates, and

d) by its Statutes and by its implementing rules adopted in conformity with its Statutes.

ERIs will not be "Community bodies"

Care will be taken to ensure that ERIs will not be "Community bodies" under Article 185 of the Financial Regulation. The cumulative conditions for considering an entity as a Community body are as follows. It must: a) be a body set up by the Communities; b) have legal personality and c) actually receive contributions charged to the Communities' budget.

Whereas each ERI would correspond to the first two options it is not foreseen that the Community itself would be a primary financer and therefore condition c) would not apply. However, this will not exclude the possibility for an ERI to benefit from Community funds in the context of calls for proposal to the EC Framework Programme.

Desired characteristics of a dedicated legal instrument

The following describes shortly the main characteristics of a dedicated legal instrument for European research infrastructures (ERI) as they emerge from the consultation of stakeholders :

Nature: The nature of the ERI - its scientific non-commercial character - and its purpose - to provide world-class research services to researchers with due attention to the principle of excellence - will need to be guaranteed. The "European" character should be clearly defined and could be seen as fulfilling two cumulative conditions in terms of membership and of pan-European interest. These characteristics would have to be recognised at its creation through appropriate procedures. An ERI would also be subject of a periodic international evaluation.

Membership: The ESFRI Roadmap includes infrastructure projects initiated by governments only. Therefore, membership is limited to Member States, third states and intergovernmental organisations.

Seat: The ERI's central administration should be located in the EU or within an Associated State.

Statutes: The statutes should be proposed by the founding members themselves, indicating the basic principles for the management of the research infrastructure; a particular obligation within these statutes will be to demonstrate the nature of a European Research Infrastructure.

Organs: The ERI should identify its organs and their competences in its statutes. The following organs at least should be foreseen: (1) an assembly of members which should have the widest possible competences; (2) an executive director - or board of directors - who implements the ERI's policies and is the ERI's legal representative.

Staff: The basic principles of employment will be defined in the Statutes thereby offering stakeholders the maximum of flexibility.

Liability of members: Provisions for limited liability of the members in respect of the obligations of the ERI are to be provided.

Exemptions: VAT exemptions could be provided by the states where the ERI will have its seat or where its facilities are located, as it is the case for international organisations. Arrangements common in international organisations for public procurements could also be requested if appropriate.

6. ANALYSIS OF IMPACTS OF THE POLICY OPTIONS

The identified four policy options consider the use of specific legal forms to create Europe wide partnerships for the construction and operation of European Research Infrastructures.

In sub-section 6.1 we summarise, in general terms, the indirect economic, social and environmental impacts that the research infrastructures to be developed would have. In section 6.2 we assess the different options by analysing their strengths, weaknesses and impacts on the policy objectives stated in section 4.1. Finally, in section 6.3 we draw overall conclusions, provide a comparative assessment of the different policy options and identify, on that basis, the preferred option.

6.1. Economic, social and environmental impacts of research infrastructures

i) Socio-economic impacts

Knowledge in general and scientific knowledge in particular is the basis of competitive, modern economies. That is why Europe's ability to sustain a competitive edge in knowledge creation and innovation is at the core of the Lisbon Strategy for Growth and Jobs. The existence of and access to leading research infrastructures plays a key part in maintaining Europe's competitiveness in research and innovation.

The example of the Grenoble scientific polygon is often given as a key example for its strong socio-economic impacts. Major research infrastructures were implanted here during the second half of the 20th century: ILL (Neutron scattering), ESRF (Synchrotron Radiation) and EMBL (Structural biology). Several research laboratories are also on the same site: those from CEA, CNRS, from the Joseph Fourier University; ST Microelectronics Laboratories; a very large nanotechnology laboratory (MINATEC) as well as an Engineering and a Management school. This represents about 6000 persons; including 1100 post-docs and PHD students, 5000 publications, and 300 patents per year. This example shows that state-of-the-art research infrastructures with the appropriate critical mass of scientific research skills offer the conditions that are required to carry out cutting-edge research and to develop the required high level human capital.

Research infrastructures also play a clear societal and economic role by generating discoveries and opportunities for new industrial applications. For example the work carried out during the recent years in several research facilities in the Copenhagen-Malmö-Lund region has today led to the so-called "Medicon Valley", a Danish-Swedish science, innovation and business cluster set up in an INTERREG project. It is a striking example of how collaboration across borders can pay off and how science can drive economic development. The legal structure behind Medicon Valley is based on contracts between the involved universities. In ten years, this region has established itself as Scandinavia's strongest life-science cluster. Around 300 companies, employing 40,000 people, are currently engaged in R&D activities and ten to 15 start-up companies are established every year.

The landscape of Europe shows that, where European Research Infrastructures have their site, often “technology clusters” or so-called technology parks can be found. Such strategic centres offer better possibilities for interdisciplinary research and greater attraction to high-tech firms. The innovative results of research conducted in these infrastructures have therefore a multiplier effect, creating new economic activities and fresh employment opportunities. Moreover, high-quality centres attract talented researchers and as such, they are powerful tools for stimulating their trans-national mobility.

ii) Environmental and societal impacts

Society faces many challenges. These include global warming, energy production, water supplies, a sustainable environment, the threat of terrorism, or quality of life for an ageing population. For example, the simulation of global warming and reduction of the ice in the arctic and Antarctic regions is based on the continuous monitoring of various parameters by well-cooperating distributed facilities from different countries and on the efficient use of high power computers treating data filed for many years in large digital scientific repositories.

As another example, the current results of the SHARE ESFRI project (dealing with the setting-up of a pan-European database (15 countries today) on health, ageing and retirement) show that improving health generates higher employment among older workers and thus pays for itself; woman live longer but men are less sick -- and this differs according to socio-economic status; analysis of data also shows that family support for the elderly is not vanishing, it is still strong not only in the Mediterranean but also in the North of Europe.

The future of our planet needs research on biodiversity and implies keeping collections of plants, seeds, etc. In addition, biodiversity e-science enables "distributed large scale" research. This will be the only way to participate in new developments in this area. This also corresponds to the objectives of

the ESFRI LIFEWATCH project currently being developed as a major component of the European contribution to GEOSS.

These few examples show that research infrastructures are one key instrument in bringing together a wide diversity of stakeholders to look for solutions to many of the above-mentioned problems. They can be seen as a focal point for such interactions, in addition to inspiring new research ideas and attracting young enquiring minds.

iii) Which European S&T system actors and stakeholders would be affected?

In the first place the community of individual researchers and of companies, universities and research institutions carrying out research would be positively affected by the creation of new European research infrastructures. Research infrastructures, via their contributions to the achievement of the Lisbon Strategy for Growth and Jobs also have the potential to affect the lives of all European citizens. In addition, the impacts of research infrastructures spread beyond the EU, as they affect the global research community (as participants) and societies worldwide (as beneficiaries).

Apart of the new facilities to be built (see ESFRI roadmap), there are today more than 600 identified research infrastructures within the different Member States which could benefit from integration into distributed structures, managed at pan-European level to increase their efficiency. More than 25,000 engineers and technicians work in these facilities, which in turn serve more than 240,000 scientists[39].

As already mentioned, the new Member States and those States which do not currently host European Research Infrastructures would be positively affected by such a new legal framework.

[39] Survey realised in 2006 by the EC and the ESF– see http://www.ec.europa.eu/research/infrastructures

6.2. Main strengths, weaknesses and impacts of the different policy options

Option 1: No specific EU action

This is an option where the Community would not act. Member States will continue using the existing instruments, with identified inconveniencies. The table below summarises most of the main strengths and main weaknesses of the current legal forms and frameworks. This information was gathered following the extensive consultation carried out between 2006 and 2008 and shows that the existing legal instruments all have strong limitations for the implementation of new European research infrastructure.

legal form	Main weaknesses	Main strengths
Inter-governmental agreement	• Heavy and lengthy negotiation procedures for reaching a formal agreement between Member States • The salaries, privileges and immunities for staff not considered justified for most ERIs • Difficulty to modify / amend such agreements	• Sound and complete convention or treaty (mission, function and structure) binding the partner on a long-term solid ground. • Clear management and governance. Attractive salaries, privileges and immunities for staff. Advantages such as tax exemptions (VAT and salary taxes) • Possible co-operation with non-EU states
Companies (e.g. Diamond (UK), SOLEIL (FR)	• Legal forms for companies are specific to each country (some countries do not even have such legal forms). There is reluctance by partners from different countries to accept a foreign legislation • Does not clearly reflect the spirit of a truly European endeavour that should correspond to a European research infrastructure	• Well integrated in the country where the research infrastructure is located • Clear management, governance and accountability; avoid also high costs of intergovernmental institutes. • Flexibility: partnership (public, private, European, non European); staff policy • Usually, private procurement regulations
EGTC	• Aim of the EGTC of strengthening economic and social cohesion could limit openness and scientific development possibilities of the research infrastructure. • Non-European institutions / authorities can only become members of EGTC under certain conditions. • The EGTC as a legal body has unlimited liability for its debts (up to its assets), but as a rule there is a residual unlimited liability of its members, if assets are not sufficient. • The Regulation does not offer any specific rules or derogations on taxation, staff rules or public procurement.	• Can be attractive for medium size European research infrastructures using Cohesion Policy funds; can even be used for large scale European research infrastructures outside Cohesion Policy Funds, where national authorities would be the EGTC's members. • As a legal instrument under Community law, EGTC provides for the required European image. • Can be the solution for such infrastructures where non-EU members are neither needed nor wanted anyway.
EEIG	• Difficulty for non European countries to join • Unlimited liability/joint liability of members • Upper limit of number of employees	• None since not appropriate for ERIs.
European C. Society (ECS)	• Not appropriate for ERIs since they are for groupings of economic nature	• Idem above.
European Company	• European Company addresses public limited companies that already exist and have their seat in the EU Member States. This does not coincide with the set-up of new research infrastructures.	• Idem above.
Foundations	• Laws from some countries other than The Netherlands or Germany are restrictive for foundations	• Clear management and governance but accounting rules adapted to industrial use • Avoid costs of intergovernmental institutes and allows flexible staff policy

The following table summarizes the fitness for purpose of such an option:

Policy objectives	Option 1: No specific action at European level
Ease and speed-up the process of setting-up new European research infrastructures	No impact according to current situation. Stakeholders would have to find on their own the best legal solution for their problem. Clearly, according to the experience of the last 20 years in Europe, the national of intergovernmental routes are not easy. The example of the Intergovernmental organisations, such as CERN, ESO, EMBL, etc, shows that several years are required to set-up such facilities, due to the international Treaty needed to be set-up first. As far as national schemes, the reluctance of other MS to enter into a partnership based on another national law generates long negotiations, as shown with the current negotiations on the XFEL or FAIR projects. The existing EGTC scheme could however prove to be quite relevant for the setting-up of some partnerships.
Increase the number of European research infrastructures across ERA	The current situation in Europe shows that no new research infrastructure has been set-up since the last 22 years apart of ITER (where the EC had a leading role). Clearly, this option - meaning no specific action from the European Commission – would not lead to any impact on this criterion.
Contribute to the further development of a European policy for research infrastructures	The efficient and timely implementation of any policy depends on the availability of tools, be they financial incentives or legal instruments. A major step has been done since two years with the development of the ESFRI roadmap and the emergence of 35 new projects. Almost 3 over 4 research / science stakeholders in Europe believe today that a European legal framework should be developed to support such development. In not acting in this field the Community would clearly not follow-up its political ambitions nor support the development of a true European policy in this field.
Provide a cost efficient procedure for setting-up new European research infrastructures	As explained above, the time and human resources needed when using national or intergovernmental frameworks generate a low cost-efficiency. The EGTC scheme could however be quite cost-efficient, as the approval by the national authorities has to be done within three months after the submission of the necessary documents. However, more experience is needed.
Provide all the features that a legal form should have for European research infrastructures	Only some of the existing schemes have the potential to provide the features (see details on page 23) that a legal form ideally should have for European research infrastructures. The only schemes possible seem to be the ones used by the current intergovernmental organisations.
Increase of the positive image of the EU at international level through the reinforcement of ERA	This option, meaning no specific action from the European Commission, would imply that the EC will be seen as passive, not using its power of initiative to improve the efficient execution of Community research actions.
Contribute to achievement of socio-economic, environmental and societal impacts	This option would not stimulate the emergence of a number of new ERIs, therefore the indirect positive socio-economic, environmental or societal impacts as described in section 6.1 would be difficult to be largely increased according to the present state of the art.

Option 2: Coordination action at EU level for the development of best practices

Coordination is clearly an activity for which the European Commission has a long and positive experience. It would help stakeholder converge more quickly to the best possible existing legal forms corresponding their needs. This will not remove, of course, the inherent limitation that existing legal forms have as regards their utilisation fro ERIs.

The information below summarises the main strengths and weaknesses of such an option.

Main strengths

- Helps stakeholder identify the current legal form best adapted to their needs;
- Through coordination and joint reflection work, this option may indirectly contribute to the long-term development of a European decision-making process for ERIs;

Main weaknesses

- Coordination actions are not sufficient to develop a more favourable environment for the timely development of European research Infrastructures;
- Does not really ease the existing processes;
- Does not really increase the dynamic image of ERA.

In addition this option, meaning just a coordination action from the European Commission, would not totally correspond to the needs expressed by the research and science stakeholders nor lead to an optimal timing for the development of new research facilities at European level.

Coordination has its limitations. As indicated by the coordinator of BBMRI (an ESFRI roadmap project currently in its "preparatory phase") "*BBMRI, as such a distributed infrastructure, with biobanks related to hospitals and to research institutes faces the fact that such biobanks do not have an independent legal status. A European status should help facing this complexity by providing the possibility for these institutions to accept the European status for one of their activities, i.e. biobanking. BBMRI should also be able to recruit staff for the network: these could be in different centres but receiving the same salaries, which will help reducing brain drain from low income states*". Coordination would clearly not help in developing for European infrastructures formed as "distributed" structures.

This option should, however, be continued and further developed in parallel to the development of a new legal framework. This would allow implementing the ESFRI roadmap faster, as a complementary combination of both options offers flexibility and choice of legal forms adapted to the individual case, while ensuring strategic coherence and excellence.

The following table summarizes the fitness for purpose of such an option:

Policy objectives	Option 2: Coordination action at EU level for best practices
Ease and speed-up the process of setting-up new European research infrastructures	A coordination action could simplify the work of stakeholders by helping them to identify amongst existing legal forms the one best adapted to their needs. However, existing legal forms have inherent limitations as regards their utilisation for European research infrastructures and therefore the impact of this action, according to stakeholders, can only be very limited. The simplification of the work to be carried though this sharing of information would speed the time needed for the required legal work. Current experiences (e.g. the FAIR and X-FEL projects) show that one or two years could be gained according to a situation where no coordination would exist. However, for the same reason as above the impact can only be very limited.
Increase the number of European research infrastructures across ERA	The impact can only be moderate since existing legal forms have in most cases several limitations. The coordination in the frame of the Preparatory Phase of the today 34 ESFRI projects would increase the awareness of the different stakeholders across ERA with the possible consequence of more initiatives being launched.
Contribute to the further development of a European policy for research infrastructures	Such coordination activities might only involve Member States to a very limited extent. Therefore, their impacts on the development of a European policy and/or decision-making process for research infrastructures will be limited. Coordination actions are also not sufficient to develop a more favourable environment for the timely development of ERIs.
Provide a cost efficient procedure for setting-up new European research infrastructures	This sharing of information and exchange of good practices would provide a more cost efficient procedure since it would avoid each consortium having to repeat the same assessment work and to converge more quickly to the best legal form. However again since the Community would answer only a minor part of the real problem the impact can only be very low.
Provide all the features that a legal form should have for European research infrastructures	Only a solution developed under inter-governmental agreements can provide all the required features. However, only very few projects would need such an approach.
Increase of the positive image of the EU at international level through the reinforcement of ERA	Pure coordination actions could only have a moderate impact on the problem at hand and therefore, necessarily, cannot contribute effectively to the reinforcement of the ERA and to increase the positive image of the EU.
Contribute to achievement of socio-economic, environmental and societal impacts	This option could stimulate the emergence of some new ERIs, therefore the indirect positive socio-economic, environmental or societal impacts as described in section 6.1 could be moderate.

Option 3: Development of Joint Undertakings

This option needs a Community approach. The decision to set up a joint undertaking would be made by the Council based on a proposal from the European Commission. This structure ensures the single effective management of a programme combining various funding sources from the public and private sectors. This possibility has been used for the following Joint Undertakings recently set up: Clean Sky, ENIAC, IMI and Artemis. Few years ago, GALILEO was also set-up as a Joint Undertaking.

However, it should be noted that there has been no research infrastructure implemented following this procedure during the last 20 years. Indeed, although it seems a rather good structure for managing industrial research activities, the negative impacts of Joint Undertakings, when applied to several new research infrastructures (more than 30 during the next years) are for example the difficulty for non European Countries to join or the necessary repetitive work which is implied at Commission and Council level, and which will not be optimum in a time-efficiency perspective.

The information below summarises the main strengths and weaknesses of such an option.

Main strengths

- Clear management and governance;
- Sound and effective financial rules ensure the effective management of major programmes combining public and private sources of funding;
- May contribute to the long-term development of a European decision-making process for ERIs;
- Adapted to industrial use.

Main weaknesses

- Long negotiations at Council level which require very strong Community involvement and which do not speed up the overall process;
- Non easy-to-use instrument by European stakeholders since it needs initiative from the European Commission;
- Does not really provide the foundations for a European policy for research infrastructures;
- Difficulty for non European countries to join;
- Often considered as Community Bodies whenever the Community has to contribute.

This option, corresponding to a clear pro-active action from the European Commission, would nevertheless lead to a time consuming process, since the setting-up of every new research infrastructure would need an ad-hoc legislative process at Commission and Council level.

The following table summarizes the fitness for purpose of such an option:

Policy objectives	Option 3: Development of Joint Undertakings
Ease and speed-up the process of setting-up new European research infrastructures	The use of Joint Undertakings requires the initiative of the European Commission. It implies case by case decisions by the Council, following the procedure of Article 171. The procedure would be the same as for any EC initiative, requiring repeated discussions at Council level for everyone of the foreseen new European Research Infrastructures. For the stakeholders and for the Commission (who will need to organise a long preparatory phase before each initiative), this option will not be simple nor easy. If resources are available, notably at Commission level, the process of setting-up new research infrastructures will be sped-up according to the current situation. The example of the JTIs approved during the last few months shows that the overall legal process could be done in around one year, per project.
Increase the number of European research infrastructures across ERA	The proactive attitude of the Commission would have as a consequence a rather high impact on this criterion, with the conditions that sufficient resources are available. This option, based on specific Commission initiatives, could allow a take-up of some of the 35 ESFRI projects.
Contribute to the further development of a European policy for research infrastructures	A major step has been done since two years with the development of the ESFRI roadmap and the emergence of 35 new projects. In acting in this field the Community would clearly follow-up its political commitments and respond to the needs of the stakeholders. However, just setting-up Joint Undertakings cannot be seen as supporting sufficiently the development of a true European policy in this field.
Provide a cost efficient procedure for setting-up new European research infrastructures	Using article 171 for the setting-up of Joint Undertakings requires a proactive attitude of the European Commission. In addition, for the various projects envisaged, such an option would imply the development of individual procedures. Such an option requires the availability of human resources, the estimated amount of which would be around two person-years per project for the EC, i.e. around 70 person-years for the 35 ESFRI projects, and about ten times more from the stakeholders' side[40].
Provide all the features that a legal form should have for European research infrastructures	Such a scheme would allow providing many features that a legal form ideally should have for European research infrastructures.
Increase of the positive image of the EU at international level through the reinforcement of ERA	This option implies that the EC will be seen as active, using its power of initiative to improve the efficient execution of Community research actions. However, the heaviness of the procedures might not totally increase the positive image of the EU at international level. In addition, ERA would be reinforced through the emergence of new entities, but not really strengthened on its legal framework.
Contribute to achievement of socio-economic, environmental and societal impacts	This option, if resources are available, could stimulate the emergence of more new ERIs, therefore the indirect positive socio-economic, environmental or societal impacts as described in section 6.1 could be medium to high.

[40] Based on the current experience of DG RTD with RI projects and JTIs

Option 4: Development of a dedicated legal framework at Community level

The trends in the research infrastructure field are both (1) the increased complexity and cost of such facilities (requiring de-facto cooperation between several Member States), and (2) the development of distributed facilities, where several existing facilities need to integrate their activities at pan-European level to respond to the ever increasing scientific and societal challenges. In both cases the setting-up of international consortia is needed.

Considering that many different partners from different countries would need to participate in the setting-up of such new entities, an important advantage of a dedicated legal instrument at European level is that such a Regulation would provide a legal personality which is recognised and applicable with immediate effect in every EU Member State and would provide the required conditions for effective work at European level.

Such status would also allow to better access funding sources, in particular EIB.

The Regulation would provide for an empowerment from the legislator to the Commission (EC) for conferring a status of "European research infrastructure" – ERI. This would ease the application process. The Regulation would be complemented by clear procedures by which this status will be conferred by the legislator.

- This would make it possible for interested entities to take the initiative and to draw up the statutes based on this framework regulation;
- This would ensure recognition of a reference scheme all over Europe;
- By providing an empowerment to the EC, ultimately a lot of time will be gained for the foreseen 30+ new large facilities which are foreseen within the next ten years[41].

Taking again the example of BBMRI, *the European status should enable to face the complexity of integrating different national biobanks, the possibility for the different national member institutions to accept the European status for one of their activities and to provide integrated, multinational services to research institutes and laboratories; a European status would help extending the network to other centres and eventually build or set up new entities required by the network, for example a BBMRI - IT centre*.

The European Commission will ensure the overall coordination of this initiative. The European Added Value will be mainly linked with a better time and cost efficiency referring to the other possible options. It should be noted that this would not necessitate much more resources than those presently used (FP7 resources) to follow the preparatory phase of the new research infrastructures projects.

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41 The four main factors for the quicker setting-up of a European research infrastructure are:

(1) the time saved in avoiding the repetition of negotiations, project by project, to analyse and discuss the best legal form for such international research organisations, with related advantages and disadvantages, since this analysis would already be done at the time of setting-up the new regulation,

(2) the time saved in trying to find alternative solutions to deficiencies of existing instruments, the new legal framework providing an "on-the-shelve" complementary tool filling a real gap at Community level,

(3) the fact that such international bodies being normally exempted from VAT would avoid discussions between Member States and Associated States about a possible unbalance in the "return on investment" made by these countries in case that another legal form, not subject to exemption, would be chosen.

(4) the time saved in avoiding discussions in each national parliament related to the approval of a needed international agreement, in the case that this new legal framework would not exist, whereas its existence would automatically allow for such recognition in every Member State.

The following table summarizes the fitness for purpose of such an option:

Policy objectives	***Option 4: Development of a legal framework at Community level***
Ease and speed-up the process of setting-up new European research infrastructures	The development of a new legal framework at European level would allow filling a gap in the existing legal instruments available, would help in the harmonisation of current processes and, through the empowerment by the Council to the European Commission, could simplify and ease the overall process. The procedure would avoid repeated discussions at Council level for everyone of the foreseen new European Research Infrastructures. This option would allow Member States funding authorities to significantly reduce the time needed for the identification and the analysis of a suitable legal form by all interested financial partners. Considering the XFEL experience, proposing such a legal framework that can be easily adopted by all partners could have speeded up the ex-ante process by two years. The example of the JTIs approved during the last few months shows that the overall legal process could be done in around one year.
Increase the number of European research infrastructures across ERA	As under option 3, the proactive attitude of the Commission will have as a consequence a positive impact on this criterion. This regulation would allow a rapid take-up of many of the ESFRI projects (see again annex 2). This may also affect positively the Member States with no real experience in this field.
Contribute to the further development of a European policy for research infrastructures	In acting in this field the Community would clearly follow-up its political ambitions and respond to the needs of the stakeholders. In addition, the setting-up a European legal framework for new European Research Infrastructures will be seen as supporting the development of the ESFRI roadmap and of a true European policy in this field.
Provide a cost efficient procedure for setting-up new European research infrastructures	The first step relates to the setting-up of this regulation. In the second step, i.e. proposing a new ERI, the initiative will come from the stakeholders. The third step, i.e. approval of the ERI will need the follow-up of an evaluation and selection procedure for which the Commission is quite experienced. In addition, for the various projects envisaged, such an option would allow for batch per batch procedures. The total human resources needed would hardly exceed the current resources for the follow-up of the ESFRI preparatory Phases under FP7, i.e. around 35 person-years for the 35 ESFRI projects, and about ten times more from the stakeholders' side[42]. This means a 50% gain according to option 3.
Provide all the features that a legal form should have for European research infrastructures	As under option 3, such a scheme would allow providing many features that a legal form should have for an ERI, according to the wishes expressed by the research stakeholders. However, not passing through a formal Council procedure, this option would add much more flexibility than under option 3.
Increase of the positive image of the EU at international level through the reinforcement of ERA	This option implies that the EC will be seen as active, using its power of initiative to improve the efficient execution of Community research actions. In addition, the efficiency of the procedure would increase the positive image of the EU at international level. In addition, ERA would be reinforced through the emergence of new entities, as well as strengthened on its legal framework.
Contribute to achievement of socio-economic, environmental and societal impacts	This option, under the current human resources provision, would be the one stimulating the emergence of the maximum of new ERIs, therefore the indirect positive socio-economic, environmental or societal impacts as described in section 6.1 could be high.

[42] Based on the current experience of DG RTD with RI projects and JTIs

In summary, the following main strengths and weaknesses of the foreseen instrument are:

Main strengths

- Responding to European political ambition, able to tackle current challenges (e.g. internationalisation of research; achievement of critical mass; development of distributed facilities; development of reference models);
- Contributing to building an EU identity around flagship scientific facilities;
- Providing for all the features that an ideal legal form should have for European research infrastructures, namely
  - a legal personality which is recognised in all Member States;
  - advantages which are allowed at a national level to international research organisations;
  - flexibility to adapt to the requirements of the different specific infrastructures;
  - open to non-European countries.
- Increase of the positive image of the European Union at international level;
- Easy to use and speeding-up the process of setting up an ERI, if the Commission is empowered to take the decision to create it.

The stakeholders' consultation realised during the last two years, including the representatives of the ESFRI projects, has shown a declared interest to potentially use such a Community legal framework. The stakeholders also indicated that its impacts, apart of its harmonising and European nature, would be linked with the possible advantages which could be conferred to such new legal entities, advantages[43] which should be compared with those benefiting the international research facilities when established in a specific Member State.

Such a legal framework will also indirectly support the reinforcement of a *coordination mechanism leading to a better decision-making at European level*, which is clearly lacking at European level for new research infrastructures of pan-European interest (in line with ESFRI recommendations).

In addition to being a legal form aimed at easing the setting up of the European infrastructures on the ESFRI Roadmap, the ERI will allow the participation of non EC countries, which will have positive impacts, either because they will bring contributions needed for the projects or because the infrastructures have to be located in specific sites outside the EU. During the setting up phase, the existence of this Community legal form should induce a marginal burden on Associated States, which are already familiar with Community procedures. As for third countries the induced burden should be similar to the one necessary for setting up an international organisation.

Main weaknesses

- Risk of bureaucratization that may delay and limit the use of this new legal form.

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[43] VAT exemption for example is mainly intended to avoid that taxes financed by other States all accrue to the host country. VAT exemption should thus facilitate negotiations. On a broader level, as research infrastructures are mainly financed by public authorities, VAT exemption should have no net direct impact on the budgets of the Member States. The indirect medium-long-term socio-economic impacts resulting from scientific and technological advances made possible by research infrastructures should largely counterbalance the loss due to VAT exemption from the host country.

- Lack of possible interest from stakeholders if ERI legal status does not bring additional advantages compared to competing legal forms, or at least the same advantages as existing research facilities in the frame of intergovernmental arrangements.

6.3. Overall conclusions and comparative assessment of the different policy options

The main conclusions concerning each option are reported below together with a summary table comparing the impact of each policy option on the policy objectives.

Option 1: No specific EU action

This option corresponds to the situation few years ago: each consortium, through an ad-hoc process, tries to identify the existing legal form that could be the most appropriate for their project, according to three possible legal bases: international, Community or national law. Experience shows that the creation of international organisations tends to bind the partners on a long-term solid ground. However, this implies heavy and lengthy negotiation procedures. Moreover, the salaries, privileges and immunities for staff are not considered justified for most new ERIs. On another side, Community legal forms such as EEIG, EGTC, ECS or EP are not fully appropriate, either because their objectives are out of the scope of Research Infrastructures or because they exhibit specific limitations. Although national forms were used in a few cases, they remain specific to each country and this remains a serious obstacle to the participation of other countries. Existing legal forms are therefore not 100% tailored to the specificities of today European research infrastructures and this has been the main conclusions of the work carried out by ESFRI and the European Commission during the last two years. In addition, in not acting in this area, the Community would not be playing its natural role to help Member States to catalyse and leverage their actions in the field of research infrastructures.

Possible implications: *Under this option the development of new Research Infrastructures of European interest is likely to remain a very slow, case by case, process. The European Research Area is likely to remain fragmented and it will remain difficult to follow its evolution since the Community will not be a major actor.*

Option 2: Coordination action at EU level

Option 2 corresponds to a "light" form of intervention from the European Commission, helping those involved in building ERIs to identify problems and needs, exchange information about how to tackle these problems, establish best practices, etc. The Commission, in particular, already ensures that the results of the work carried out on legal issues within the EC funded "*Preparatory phase for the projects in the ESFRI Roadmap*" are disseminated as widely as possible. This information could be further compiled into practical guidelines comprising a compendium of possible legal forms identifying their main strengths and weaknesses. As explained in the conclusion for Option 1, existing legal forms have inherent limitations as regards their utilisation for ERIs. Although collecting information about these legal forms will not remove these limitations, this could help consortia to converge more quickly to the most appropriate legal form.

Possible implications: *Under this option stakeholders are able to identify more quickly the most appropriate legal forms but the development of new ERIs will remain highly specific to a given country or project. The coordination of the different funding sources at EU level will be eased but the image of ERA will remain weak.*

Option 3: Development of Joint Undertakings

Option 3 corresponds to the development of Joint Undertakings by the Community, according to Article 171 of the EC-Treaty, on case by case basis, every time that a need for such setting-up occurs. The statutes of a Joint Undertaking are not pre-defined and, therefore, this leaves a lot of freedom to the founding members

However, the development of Joint Undertakings requires a very strong Community involvement resulting in the European Commission becoming a member and main financial contributor. This results in the creation of "Community bodies" with the corresponding characteristics and constraints (application of Staff Regulation, Protocol on Immunities and Financial Regulation of the European Communities).

Possible implications: *Considering the present situation in Europe where Member States wish to continue to play a central role in the development and financing of research infrastructures it is clear that creation of Joint Undertakings for the new ERIs could be only considered in exceptional circumstances.*

Option 4: Development of a dedicated legal framework at Community level

Option 4 proposes adopting a framework Regulation on the basis of Article 171 of the EC Treaty which contains empowerment of the Commission to set up, by decision, each individual ERI.

The membership of an ERI would be open to Member States, third countries and international organisations with the possibility of participating countries to mandate public or private entities with a public-service mission to exercise their rights and duties on their behalf. The Member States will be the key actors in the setting up of the new entities and will be their primary financers. The Community only intends to have a catalytic role. As such, the proposed approach will be completely different from the one related to the JTIs (where the Commission is a key member and financier) and the newly created entities will never be considered "Community bodies" as under option 3.

The Regulation will include only the minimum elements to provide the essential features that a legal form for research infrastructures ideally should have i.e. a) to provide a legal personality which is recognised in all Member States and b) to provide those privileges and exemptions which are allowed at a national level to international research organisations. The flexibility needed to adapt to the need of a specific infrastructure will be provided by the statutes which are not pre-defined by the Regulation and would have to be developed by each consortium according to their specific requirements.

The advantages of this option are in its "fit-for-purpose" character, and a better time efficiency of the overall process, needed for the timely setting-up of new ERIs. In parallel, as under option 2, the Commission will continue its coordinating role through the support of the "*Preparatory phase for the projects in the ESFRI Roadmap*".

Possible implications: *The development of ERIs will be boosted by the initiative of the Commission filling the existing gap at EU level. This will allow the Member and Associated States together with the European Commission to steer the cost-effective development of many flagship projects of pan-European relevance, and in support of the Lisbon objectives. The Community will be seen as play a leading role in the setting-up of these consortia. The image of ERA will be strengthened.*

Summary assessment of the four policy options

The following table compares the impact of each policy option on the policy objectives. It clear identifies option 4 as the most effective and efficient to achieve the policy objectives of the proposal.

Policy objectives	Option 1	Option 2	Option 3	Option 4
Ease and speed-up the process of setting-up new European research infrastructures	Generally Low	Generally Low	Moderate	High
Increase the number of European research infrastructures across ERA	Very Low	Moderate	Moderate	High
Contribute to the further development of a European policy for research infrastructures	Very Low	Moderate	Moderate	High
Provide a cost efficient procedure for setting-up new European research infrastructures	Generally Low	Generally Low	Low	High
Provide all the features that a legal form should have for European research infrastructures	Depends on scheme	Depends on scheme	Moderate	High
Increase of the positive image of the EU at international level through the reinforcement of ERA	Very Low	Moderate	Moderate	High
Contribute to achievement of socio-economic, environmental and societal impacts	Generally Low	Moderate	Moderate	High

7. MONITORING AND EVALUATION

A monitoring and evaluation system will be put in place to monitor the European research infrastructures that are set up, and to assess the extent to which the new legal framework has met its objectives.

7.1. Continuous monitoring

The European Commission will ensure the overall coordination of this initiative. A regulatory Committee will support the European Commission in the management of the new legal framework.

In addition, whenever they are officially approved, each ERI will be asked to provide annual reports and to send them to the European Commission and the financing Member States. These reports will provide an overview of activities for the year in the question, as well as detail of budgetary issues, and should allow the European Commission and Member States to verify that the infrastructure is still complying with the conditions necessary for the European status.

It should be noted that this would not necessitate much more resources than those used presently to follow the preparatory phase of the new research infrastructures projects under FP7.

7.2. Evaluation

Five years after the adoption of the legal framework, an evaluation will be carried by a panel of experts reporting to the Member States and the European Commission in order to assess:

- The take-up of the legal framework (i.e. number of new or upgraded European infrastructures using the framework);
- To what extent it has managed to deliver its anticipated benefits, and, in particular, its ease of use, and how far it has helped to speed up the creation of European research infrastructures;
- The need to review or adapt the legal framework.

Annexes

1. Glossary
2. List of ESFRI projects: future potential of ERIs
3. List of existing intergovernmental research organisations
4. The ESFRI roadmap for Research Infrastructures
5. Report of the Workshop on Legal forms of European research infrastructures (March 2006)
6. Summary of the Workshop on the most appropriate legal instruments for ERIs (Dec 2006)
7. Report of the Feasibility study on the creation of a legal instrument for ERIs (June 2007)
8. Report of the ERA Expert Group: Developing World-Class Research Infrastructures for the European Research Area (February 2007)

Annex 1

Glossary

AISBL	Association Internationale Sans But Lucratif
Artemis	Embedded Computing Systems - Joint Technology Initiative
BBMRI	Biobanking and Biomolecular Resources Research Infrastructure
CCD	Charge-Coupled Device
CERN	European Organisation for Nuclear Research
EC	European Commission / European Community
CLEAN SKY	Aeronautics and Air Transport - Joint Technology Initiative
ECRI	European Conference on Research Infrastructures
ECS	European Cooperative Society
EEIG	European Economic Interest Grouping
EGTC	European Grouping of Territorial Cooperation
EMBL	European Molecular Biology Laboratory
ENIAC	Nanoelectronics 2020 Initiative - Joint Technology Initiative
ERA	European Research Area
ERI	European Research Infrastructure (legal instrument)
ESA	European Space Agency
ESFRI	European Strategy Forum for Research Infrastructures
ESO	European Org. for Astronomical Research in the Southern Hemisphere
ESRF	European Synchrotron Radiation Facility
GDP	Gross Domestic Product
GEOSS	Global Earth Observation System of Systems
IAC	Canaries Astrophysical Institute
ILL	Institut Laue-Langevin
IMI	Innovative Medicines Initiative - Joint Technology Initiative
ITER	International Thermonuclear Energy Reactor
JTI	Joint Technology Initiative
JRC	Joint Research Centre
R&D	Research and Development
RPO	Research Performing Organisation
SET plan	Strategic Energy Technology plan
VAT	Value Added Tax

Annex 2

List of ESFRI projects: future potential ERIs

Areas	Acronym	Project name	Countries participating
Social Sciences and Humanities	CESSDA	Council of European Social Science Data Archives	AT, CH, CZ, DE, DK, ES, FI, FR, GR, HU, IT, NL, NO, RO, SE, SI, UK
	CLARIN	Common Language Resources Initiative	AT, BG, CZ, DE, DK, EE, ES, FI, FR, GR, HU, HR, MT, NL, NO, PL, PT, RO, SE, UK
	DARIAH	Research Infrastructure for the Arts and Humanities	CY, DE, DK, FR, GR, HR, IE, NL, SI, UK
	ESS Survey	European Social Survey	BE, BG, CH, DE, ES, ESF(INO), FR, IS, NL, NO, SE, SI, UK
	SHARE	Survey of Health, Ageing and Retirement In Europe	AT, BE, CH, CZ, DE, DK, ES, FR, GR, IE, IL, IT, NL, PL, SE, SI, UK
Environmental Sciences	A. BOREALIS	European Polar Research Icebreaker	BE, BG, DE, FI, FR, IT, NL, NO, RO, RU
	EMSO	European Multidisciplinary Seafloor Observation	DE, ES, FR, GR, IE, IT, NL, NO, PT, SE, TR, UK
	EUFAR	European Fleet of Airborne Research	DE, ES, FI, FR, GR, IT, PL, PT, UK
	EURO ARGO	Global Ocean Observing Infrastructure	BG, DE, ES, FR, GR, IE, IT, NL, NO, PL, PT, UK
	IAGOS	In-Service Aircraft for a Global Observing System	DE, FR, UK
	ICOS	Integrated Carbon Observation System	BE, CZ, DK, ES, FI, FR, DE, IT, NL, SE, UK
	LIFE WATCH	Infrastructures Network for Research in Biodiversity	BE, ES, DE, DK, FI, FR, IT, NL, NO, PL, RO, SE, SI, SK, UK
Energy	HIPER	High Power Experimental Research Facility	CZ, DE, ES, FR, GR, IT, PL, PT, RU, UK, US
Biological and Life sciences	EATRIS	European Research Infrastructure for Medecine	DE, DK, FI, FR, IT, NL, NO, SE, UK
	ECRIN	Infrastructure for Clinical Trials and Biotherapy	AT, BE, CH, DE, DK, ES, FI, FR, HU, IE, IT, SE, UK
	ELIXIR	Upgrade of European Bio-Informatics Infrastructure	AT, BE, CH, DE, ES, FI, FR, DE, GR, HR, IS, IE, IL, IT, NL, NO, PT, SE, UK
	INFRAFRONTIER	Infrastructure for Phenome - and Archivefrontier	DE, DK, ES, FI, FR, GR, IT, PT, SE, UK
	INSTRUCT	Integrated Structural Biology Infrastructure	AT, BE, CH, DE, ES, FI, FR, DE, GR, HR, IS, IE, IL, IT, NL, NO, PT, SE, UK
	BBMRI	Bio-Banking and Biomolecular Resources	AT, DE, EE, ES, FI, FR, HU, IE, IS, IT, MT, NL, NO, RO, SE, UK
Material Sciences	ELI	Extreme Light Infrastructure	BG, CZ, DE, ES, FR, GR, HU, IT, LT, PL, PT, RO, UK
	ESRF Upgrade	European Synchroton Radiation Facility	AT, BE, CH, CZ, DE, DK, ES FI, FR, HU, IS, IT, NL, NO, PL, PT, SE, UK
	ESS	European Spallation Source	CH, DE, ES, FR, HU, IT, LV, SE, UK
	European XFEL	X-Ray Free Electron Laser	CH, DK, FR, ES, HU, IT, PL, RU, SE, SK, UK
	ILL Upgrade	Institute Laue Langevin	AT, BE, CH, CZ, ES, FR, DE, HU, IT, PL, UK, SE
	IRUVX-FEL	Infrared to UV & Soft X-Rays Free Electron Lasers	DE, IT, SE, UK
	PRINS	Research Infrastructures for Nano-Structures	BE, DE, FR, NL
Astronomy, Astrophysics, Nuclear Physics and Particle Physics	ELT	European Extremely Large Telescope	BE, CH, DE, DK, ES, FI, FR, IT, NL, PT, SE, UK
	FAIR	Facility for Antioproton and Ion Research	AT, DE, ES, FI, FR, IN, IT, PL, RO, RU, SE, UK
	ILC-HiGrade	International Linear Collider	AT, BE, BG, CH, CZ, DE, DK, EL, ES, FI, FR, HU, IT, NL, NO, PL, PT, SK, SE, UK
	KM3NET	Cubic Kilometre Neutrino Telescope	CY, DE, ES, FR, GR, IE, IT, NL, RO, UK
	SKA	The Square Kilometre Array	AU, CA, DE, ES, FR, IT, NL, UK, US, ZA
	SLHC-PP	Large Hadron Collider Upgrade	AT, BE, BG, CH, CZ, DE, DK, EL, ES, FI, FR, HU, IT, NL, NO, PL, PT, SK, SE, UK
	SPIRAL 2	Système De Production d'Ions Radioactifs en Ligne	BE, BG, CZ, DE, ES, FR, HU, IL, IT, NL, PL, RO, UK
Computer and Data Treatment	EU-HPC	European High-Performance Computing Service	AT, CH, DE, FI, FR, ES, GR, IT, NL, NO, PL, PT, SE, UK

Annex 3

List of existing European Intergovernmental Research Organisations

European Intergovernmental Research Organisations	Participating countries	Founding texts	Legal form
CERN - European Organisation for Nuclear Research	Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Italy, the Netherlands, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, United Kingdom	Intergovernmental Convention (1954)	Intergovernmental Organisations
ESO - European Organisation for Astronomical Research in the Southern Hemisphere	Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Portugal, Spain, Sweden, Switzerland, United Kingdom	Intergovernmental Convention (1962)	Intergovernmental Organisations
ILL - Institut Laue-Langevin	Austria, Belgium, Czech Republic, France, Germany, Hungary, Italy, Poland, United Kingdom, Spain, Sweden, Switzerland	Intergovernmental Convention (1967)	Company (société civile) under French law
EMBL - European Molecular Biology Laboratory	Austria, Belgium, Croatia, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom	Intergovernmental Convention (1969)	Intergovernmental Organisations
ESA - European Space Agency	Austria, Belgium, Denmark, Germany, France, Ireland, Italy, Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom	Intergovernmental Convention (1975)	Intergovernmental Organisations
IAC - Canaries Astrophysical Institute	Denmark, France, Germany, Spain, Sweden, United Kingdom	Intergovernmental Convention (1979)	Consorcio Público
ESRF - European Synchrotron Radiation Facility	Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Hungary, Israel, Italy, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, United Kingdom	Intergovernmental Convention (1988)	Company (société civile) under French law

Annex 4 to 8

Annex 4 The ESFRI roadmap for Research Infrastructures:

ftp://ftp.cordis.europa.eu/pub/esfri/docs/esfri-roadmap-report-26092006_en.pdf

Annex 5 Report of the Workshop on Legal forms of European research infrastructures (March 2006):

ftp://ftp.cordis.europa.eu/pub/esfri/docs/march-2006_en.pdf

Annex 6 Summary of the Workshop on the most appropriate legal instruments for ERIs (Dec 2006):

ftp://ftp.cordis.europa.eu/pub/esfri/docs/conclusions_2nd_legal_workshop_141206.pdf

Annex 7 Report of the Feasibility study on the creation of a legal instrument for ERIs (June 2007):

ftp://ftp.cordis.europa.eu/pub/esfri/docs/recommendation-specific-expert-group-2006_en.pdf

Annex 8 Report of the ERA Expert Group: Developing World-Class Research Infrastructures for the European Research Area (February 2007)

http://ec.europa.eu/research/infrastructures/pdf/ri_era-expert-group-0308_en.pdf