

European Strategy Forum
on Research Infrastructures



ESFRI

EUROPEAN STRATEGY FORUM
ON RESEARCH INFRASTRUCTURES

ANNUAL REPORT
2005-2006



>Foreword



It is my pleasure to present ESFRI's fourth annual report. The year 2006 has been focused on the preparation and the development of the first ever European Roadmap for Research Infrastructures. Following the conclusions of the Informal Competitiveness Council of 1-3 July 2004 and the meeting of the Competitiveness Council (November 2004) ESFRI took on board this challenging task. International teams of high-level experts were involved in the Roadmap process; their input was of key importance to give the end product of the roadmap credibility and quality. This report as well the previous one illustrates the overall roadmap process.

During the reporting period ESFRI continued to seek for contacts with already existing organisations, which are of importance for the construction of new research infrastructures in Europe. This cooperation gave important input to the work of ESFRI in general, but explicitly in developing the Roadmap. We would therefore like to thank these organisations for the excellent collaboration.

It was also of enormous value that the forum decided in December 2005 to create an Executive Board. Important issues could thus be prepared in advance and later discussed and agreed in the ESFRI meetings.

The 4th European Conference of Research Infrastructures on 5-6 June 2007 in Hamburg will look at the best governance models, at the development of a common European strategy, and at the international dimension of Research Infrastructures.

Mid 2007 will be also be the time when my Chairmanship of ESFRI is ending. It was a very busy and exciting period. I would like to take the opportunity to thank all for their trust and support.

A handwritten signature in blue ink that reads "John Wood". The signature is fluid and cursive, with the first name "John" and the last name "Wood" clearly distinguishable.

Prof. John WOOD
Chairman of ESFRI



Overview

- ESFRI new executive structure
- Research Infrastructure Policy
- Roadmap
- Communication issues
- Future activities

A NEW ESFRI STRUCTURE

ESFRI was set up by the Member States in 2002 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 development, construction and use of research infrastructures in Europe.¹ While the first period was mainly shaped to clarify the mission and the functionality of the forum, during the following years, ESFRI started examining subjects such as for example how research infrastructures can contribute to capacity building in Europe as well questions about the structure and the management of international research infrastructures².

Following the revision of the ESFRI Charter (agreed during the ESFRI meeting in September 2005 in London) the forum decided to set up an Executive Board to "assist the Chair in the planning of ESFRI activities". The Board is composed of the ESFRI Chair, the Commission representative and three ESFRI members selected by consensus.

The new Executive Board is formed for the current period by John Wood (Chair), Robert-Jan Smits (EC), Carlos Alejaldre (ES), Jacek Gierlinski (PL) and Eeva Ikonen (FI). Additionally the three chairs of the Roadmap Working Groups (RWGs), Ruth Barrington, Carlo Rizzuto and Bjorn Henrichsen were invited to attend so long as the roadmap process continued to constitute a core part of ESFRI's activities.

The first Executive Board meeting took place on 23 January 2006 in Brussels. During this occasion Carlos Alejaldre was nominated as vice-chair³.

¹ For further information, please refer to <http://cordis.europa.eu/esfri/>

² This work needs important contributions which are prepared in advance by ad-hoc working groups.

³ Carlos Alejaldre was nominated during Summer 2006 as one of the Directors of ITER. He therefore resigned his position within ESFRI and was replaced in the Executive Board from October 2006 by Beatrix Vierkorn-Rudolph.

RESEARCH INFRASTRUCTURE POLICY

Third Conference of European Research Infrastructures, Nottingham – United Kingdom – 6-7 December 2005⁴

The third European Conference on Research Infrastructures contributed towards clarifying the long-term scientific needs in relation to European research infrastructures, including the challenges posed by handling, processing, archiving and transmitting increasingly large amounts of data generated by scientific works. It addressed the possible international dimension of the new generation of research infrastructures, as well as their regional or trans-regional impact. The conference presented and discussed the work of the European Strategy Forum on Research Infrastructures (ESFRI) in the development of a coordinated European Roadmap and highlighted the possible role of the Community financial instruments and of the Seventh Framework Programme in particular in relation to research infrastructures.

2



The University of
Nottingham



Conclusions of the 3rd RI Conference

1. Confirmed the importance of Research Infrastructures for "Capacity Building".
2. Underlined the importance of the ESFRI Roadmap.
3. Called for an open, transparent and ongoing roadmap process.
4. Highlighted the need for continuous support to existing Research Infrastructures.
5. Insisted on the need for more "opening-up" of existing Research Infrastructures.
6. Stressed the growing importance of better "data storage and security" at EU level.
7. Recommended that ESFRI and the EC, together with relevant stakeholders, should take the initiative to study legal and management aspects of research infrastructures.
8. Proposed reflections over an action plan for 'global projects'.

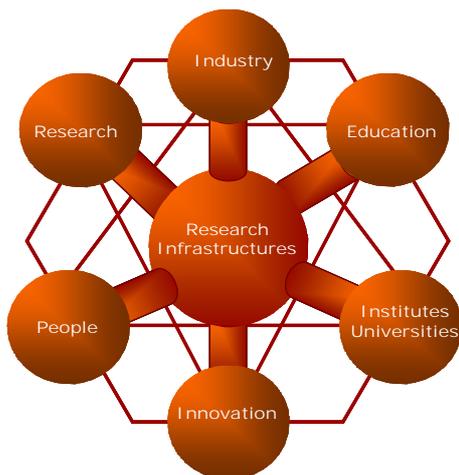
⁴ For more information, please consult: <http://www.nottingham.ac.uk/ecriuk>



Prof. John Wood, Sir Keith O'Nions and Commissioner Potocnik
Third European Conference on Research Infrastructures, Nottingham 6-7 December 2005

Capacity Building

During the reporting period, ESFRI continued discussing "capacity building" and how research infrastructures contribute to capacities in the different fields. A group of several member states was set-up to prepare a proposal for an analysis of concrete cases.



During several meetings delegations presented specific research infrastructures and their impact on capacity building⁵. Belgium described the example of IMEC, which generates a lot of knowledge⁶, in particular in converging technological fields. The French delegation illustrated the LETI case⁷, based in Grenoble, very similar to the IMEC case. ESFRI noted that the nano-technology topic will become increasingly relevant in the future and that there is an increasing need to share part of the research investment and of the technological risks, having as a consequence the attraction of a broader range of stakeholders.

The ESFRI members stated also the high impact of pan-European research infrastructures concerning personal interactions of researchers coming from different countries and disciplines, their training affect for young scientists and their attractiveness recruiting high educated scientists globally. These subjects will specifically be explored in the future debate.

⁵ All presentations are available on the ESFRI website at <http://www.cordis.lu/esfri/meetings.htm>

⁶ For example IMEC has more than 43000 hours of training provided per year.

⁷ About 30 start-up companies have been created since 20 years with about 1600-2000 jobs created. Several success stories can be highlighted: ST, SOITEC, SOFRADIR.



Analysis of Legal Issues

ESFRI started working during this period on the compilation of information and discussing experiences about different legal forms for establishing new pan-European research infrastructures involving several Member States. A specific workshop was organised on 23 March 2006 in Brussels. The workshop 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 presentations covered a number of examples of European research infrastructures based on national, Community and international law. Through their presentations, speakers highlighted the implications of the different legal forms on a range of organisational and managerial issues such as governance, finance, human resources and access policies.

The workshop raised important observations, which are motivating ESFRI to envisage organising follow-up meeting(s). A second workshop will take place on 14 December 2006, exploring whether a new European legal form might help to solve many of the problems currently identified.

Conclusions of the March 2006 Workshop

1. There is no "one-size-fits-all" solution for the establishment of a new pan-European research infrastructure.
2. Very large facilities, distributed facilities, applied research facilities, basic research oriented facilities, may require different legal forms.
3. Form follows function! The purpose/mission of the facility has to be defined before choosing the appropriate legal form. This requires for each of the new research infrastructure to be created a well-thought preparatory phase before construction.
4. Mixing of public/private partnership or mixing of European and non European partnership may influence strongly the choice of the legal form. This choice will also be influenced by the possible involvement of the EU and the level of this involvement.
5. Experience with the set up of research infrastructures under Community law is very limited. GALILEO is the only project established as a joint undertaking under Article 171 of the European Union Treaty (other joint undertakings had previously been established under the EURATOM treaty). This model seems well adapted to the need of large industrial projects but can be used only when the EU is the main player.
6. The recent experience of ITER shows that an intergovernmental treaty is still a valid and sound model for creating new large international research infrastructures.
7. Many of the new pan-European research infrastructures will not be single-sited but distributed. This might necessitate developing new approaches. A new European legal form (positioned between national law and the status of an international organisation) might help to solve many of the problems identified.
8. Last but not least, the success and stability of a new pan-European research infrastructure to which different countries contribute either in kind, personnel or cash, require clear commitments to allow the long term operation of the infrastructure and permit to safeguard the initial investments made.

THE ROADMAP



In the context of developing Research Infrastructures of European interest, the Council of the European Union welcomes the development of a strategic Roadmap for Europe in the field of Research Infrastructures and the role of the European Strategy Forum for Research Infrastructures (ESFRI) in this context.



Extract from the Competitiveness Council
Conclusions, 25 – 26 November, 2004

Preparation of the Roadmap

ESFRI agreed in June 2005 on the basic rules "for making the process", ensuring that all initiatives, to be reviewed by the Roadmap Working Groups (RWG) and their Expert Groups, have been scientifically & technologically assessed using the same transparent and fair procedure. From early autumn 2005, 15 Expert Groups started therefore analysing the needs of specific scientific areas. For about nine months, almost 1000 high-level experts from all fields of science and technology were involved and consulted in the process of preparing the road-map. Their input was of key importance to give the end product credibility and quality.

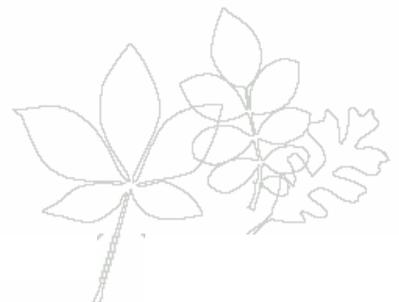
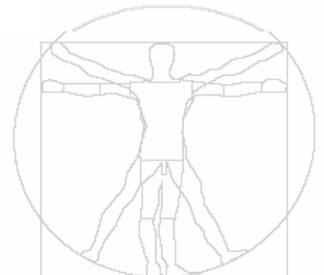
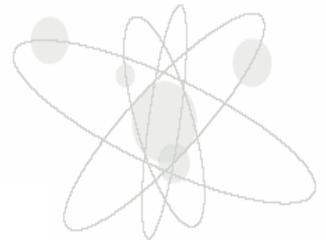
A valuable input for the preparation of the roadmap was also given by experts from the inter-governmental research organisations in Europe (the members of EIROforum). In this context ESFRI noted that a continuous debate and inter-action with these organisations is crucial for future updates of the roadmap.

Drafting and Review Group for the Elaboration of the Roadmap

During its meeting on 24 March 2006, ESFRI decided to set-up a drafting group to begin writing the Roadmap document. This group was composed of the Executive Board members, the chairs of the Roadmap Working Groups and the ESFRI Secretariat.

Likewise ESFRI decided to set-up an editing Review Group to act during summer 2006. The task of the review group was to look at the current draft; avoiding re-writing it, but ensuring that the final ESFRI report would be as clear and easy-to-read as possible and usable by decision-makers. It was further endorsed not to include more than 40-50 projects in the first roadmap.

ESFRI agreed that in the first edition there will be a part in which lessons learned are reported and corrective actions for the future editions will be mentioned.



Approval of the Roadmap

During its meeting of 28-29 September 2006, ESFRI agreed on a first list of 35 mature proposals for new (or major upgrade of) facilities of pan-European interest covering the following fields⁸:

Social Sciences and Humanities	Materials Science
Environmental Sciences	Astronomy, Astro-particles, Particle Physics, Nuclear Physics
Energy	
Biomedical and Life Sciences	Computation and Data Treatment

ESFRI insists that the Roadmap is an ongoing process, and that a revision will already start in 2007.

Communication of the Roadmap



“ EU Forum unveils Strategic Roadmap for Research Infrastructures, Brussels, October 19, 2006 ”

The Roadmap was officially launched by a press conference held in Brussels on 19 October 2006, where the Chair of ESFRI, John Wood, presented a final copy of the Roadmap to the European Science and Research Commissioner Janez Potocnik. Congratulating ESFRI, Commissioner Potocnik said: “Research infrastructures are a critical element of building research excellence in Europe. Not only can they support the work of European scientists, but world-class facilities attract the best scientific minds from around the world. We can’t afford to have 25 separate approaches to such facilities and the work of ESFRI has been extremely important in providing a common European approach. This is the European Research Area in action.”

In addition, John Wood wrote personally to each of the Ministers for Research in the Member and Associated States “The role of ESFRI in fostering incubation and stimulation will be exercised to bring as many of these projects to a point where decisions by ministers are possible. This requires in the first place discussions and decisions at national level in particular as regards the lead role one country or several countries may wish to take for certain projects. These reflections might encourage the development of national roadmaps and the earmarking of dedicated national budgets for the construction of Research Infrastructures with a European/international dimension, which ESFRI would welcome”.

⁸The ESFRI Roadmap may be downloaded in its entirety from the ESFRI website at www.cordis.europa.eu/esfri



Overview of National Roadmaps

During the preparation of the European Roadmap for Research Infrastructures it became apparent that the existence of national roadmaps and especially the methodology used would give an important contribution to the preparation of a European one.

ESFRI therefore discussed during their regular meetings the different approaches and experiences of the member and associated states.

While for instance United Kingdom is assigning 12 projects under construction and 20 under preparation to their national roadmap⁹, Italy is preparing – similar to Germany – a national roadmap by disciplines. In Germany four projects above 50 M€ were approved so far (XFEL, FAIR, HALO, HFML) based on a review procedure from the German Science Council and different committees on physical science; two other projects are under current review: Aurora Borealis and BESSY-FEL.

Denmark and Sweden also carried out studies, published in December 2005 and October 2006 respectively, on the needs for further investment in research infrastructures. Ireland will also publish its Roadmap towards the end of 2006.

ESFRI publishes links to national roadmaps on its internet pages.

The ESFRI Roadmap for new Research Infrastructures and the 7th Community Framework Programme¹⁰

7

ESFRI was continuously informed about the preparation of the 7th Community Framework Programme for Research (FP7). This programme will continue supporting the optimisation of the access to and use of the best research infrastructures existing in Europe. It will also facilitate the creation of new research infrastructures of Pan-European interest across all fields of science and technology. FP7 activities will be implemented through a two stage approach:

§ the Commission will launch a first call for proposals, restricted to the projects in the ESFRI Roadmap, in support of a preparatory phase prior to the actual construction phase. This phase will involve a catalytic support to the finalisation of the organisation plans, the legal structure, the management and multi-annual planning of the facilities and the final agreement between stakeholders and the funding bodies.

§ Only projects which have all elements allowing the signature of a consortium agreement will proceed to the actual construction phase. Member states financial input will remain predominant. FP7 financial support for the construction phase may however be provided to those priority projects for which there is a critical need for such support, and in particular through a contribution to the Risk Sharing Finance Facility (RSFF) of the European Investment Bank (EIB).

⁹ Under construction, for example, are Diamond, ISIS, High Performance Computer, James Cook ship.

¹⁰ For more information on the Seventh Framework Programme please consult <http://ec.europa.eu/research/fp7/>



ESFRI and contacts with other organisations

EIROForum¹¹: Colin Carlile, current chair of this organisation, presented EIROForum at the 15th meeting of ESFRI. ESFRI is looking for a process of dialogue and in this context this organisation expressed its wish to cooperate, offering their experience for the Roadmap process. ESFRI was also informed that from 1 July 2006, the General Director of ESRF will be the new Chair of EIROForum.

CERN: T. Akesson representing the CERN Council presented during the 17th meeting the current work of a strategy group, created mid-2005, developing a specific roadmap for particle physics. Projects being identified, all at global level, refer to a multi TeV electron-positron collider, a 0,5 TeV linear electron-positron collider, the LHC upgrade, and the next generation of neutrino beam¹². R. Aymar, Director General of CERN, invited ESFRI to hold its 19th meeting in Geneva.

GSF: J. Kjems presented regularly during 2006 the different GSF activities being undertaken at international level. Referring to the 2007-polar year, he highlighted the possible setting-up of a globally coordinated research programme. As some of the ESFRI members are participating in the GSF (and the EC as observer), there is a good potential for information exchanges. To reinforce such exchanges J. Wood will be invited to present the roadmap at a future meeting.

ERF: During ESFRI's 18th meeting, A. Wagner presented this grouping (European association of national Research Facilities Laboratories (offering international access)). It groups facilities in the physics, materials and life science fields. A. Wagner highlighted the need to consider in a global and consistent view existing and new RIs.

ESA: During the 18th meeting of ESFRI held in Brussels on 28-29 September, Dr. David Southwood, Director-General gave a presentation to the Forum on the ESA Science Programme. This presentation was of great interest to the ESFRI delegates and demonstrated some clear common concerns.

ESF: B. Andersson, Secretary-General presented ESF and its recent changes during ESFRI's 16th meeting. ESF's actions cover science strategy, science synergy and science management. As far as Research Infrastructures are concerned, this issue is followed by different committees with a central coordination (Neil Williams took over from Hans Karow in 2006). Current actions include a survey of existing RIs in Europe, which is a work jointly carried out with EUROHORCS and the European Commission, a report of which would be available by the end of the year.

¹¹ <http://www.eiroforum.org/>

¹² The ad-hoc advisory group reported on 14 July in Lisbon to the CERN Council

COMMUNICATION

Development of electronic communication tools



To ensure an open and transparent process the ESFRI Internet pages are regularly updated and in parallel with the progress of all ESFRI activities.¹³

During the 17th meeting of ESFRI, CIRCA, an information and communication tool for the ESFRI delegates was presented and commented on. It will assist in communicating in 'real time', since it is centrally managed, has no restriction on capacity, is safe (password-protected), and can be used as an historical archive. Some interest groups can have a dedicated area within CIRCA.

Development of other communication material

The ESFRI brochure was published in autumn 2006 giving information about the role of ESFRI. Presented as a folder, the individual fiches can be regularly updated.

9

Relations with Industry Representatives

The exchange of information between the European Technology Platforms (ETPs) and ESFRI is ongoing, but the main input from the ETPs is scheduled for the first ESFRI Roadmap revision to be started in 2007

Relations with the European Parliament

In early 2006, the ESFRI Chair met with Mr V. Prodi, European Parliament rapporteur for the Capacities Specific Programme. John Wood took the opportunity to report on the current activities of ESFRI and to explain their interaction with the 7th Framework Programme. A "hearing" is also to be organised in the European Parliament to present the first ESFRI roadmap.

International Level

ESFRI agree to continue developing its contacts at international level, in particular with global players such as the DoE or the NSF (USA), the MOST and Academy of Sciences (China); the MEXT, METI, CSTP, NISTEP, RIKEN, and, of course, at the Global Science Forum (OECD) level. Visits to China, Japan, India and Australia were required in October and November 2006.

¹³ <http://cordis.europa.eu/esfri/>

FUTURE OUTLOOK AND ACTIVITIES

It is expected that 2007 will be another very busy year for ESFRI.

A primary preoccupation of the Forum during the next months will be to **stimulate and monitor the implementation of the Roadmap**. The ESFRI Delegates will continue to support national initiatives towards this objective and will also work together with other ESFRI delegates to follow-up on specific measures that will be put in place to monitor its implementation.

Additionally, in 2007 ESFRI will start preparing a **First Revision of the Roadmap** for new Research Infrastructures. This will include taking into account lessons learned during the first process, and reviewing and optimising the operation of the Roadmap Working Groups.

ESFRI will also continue its reflection work towards **a coherent approach to policy making on Research Infrastructures in Europe**. This will include exploring issues such as capacity building, opening-up of national research infrastructures, data storage and security, legal aspects of pan-European Research Infrastructures, institutional development and international cooperation.

The **Fourth Conference on Research Infrastructures will take place in Hamburg, Germany in June 2007**. Following the previous European conferences on Research Infrastructures which took place in Strasbourg in 2000, in Trieste in 2003, in Nottingham in 2005, the fourth European conference will take place in Hamburg on June 5-7 2007. This Conference will look at best governance models, at the development of a common European strategy and at the international dimension of Research Infrastructures.



ESFRI's 17th Meeting, Vienna, June 2006
With thanks to the Austrian Delegation to ESFRI

On behalf of ESFRI, the Chair would like to conclude by warmly thanking the United Kingdom, Austrian and Finnish ESFRI Delegations who kindly extended excellent hospitality to the Forum during the reporting period.



Contact

ESFRI Secretariat

Postal Address

European Commission

SDME 01/66

B-1049 Brussels, Belgium

ESFRI@ec.europa.eu

Tel: 00 32 2 299 25 39

Fax: 00 32 2 299 21 02