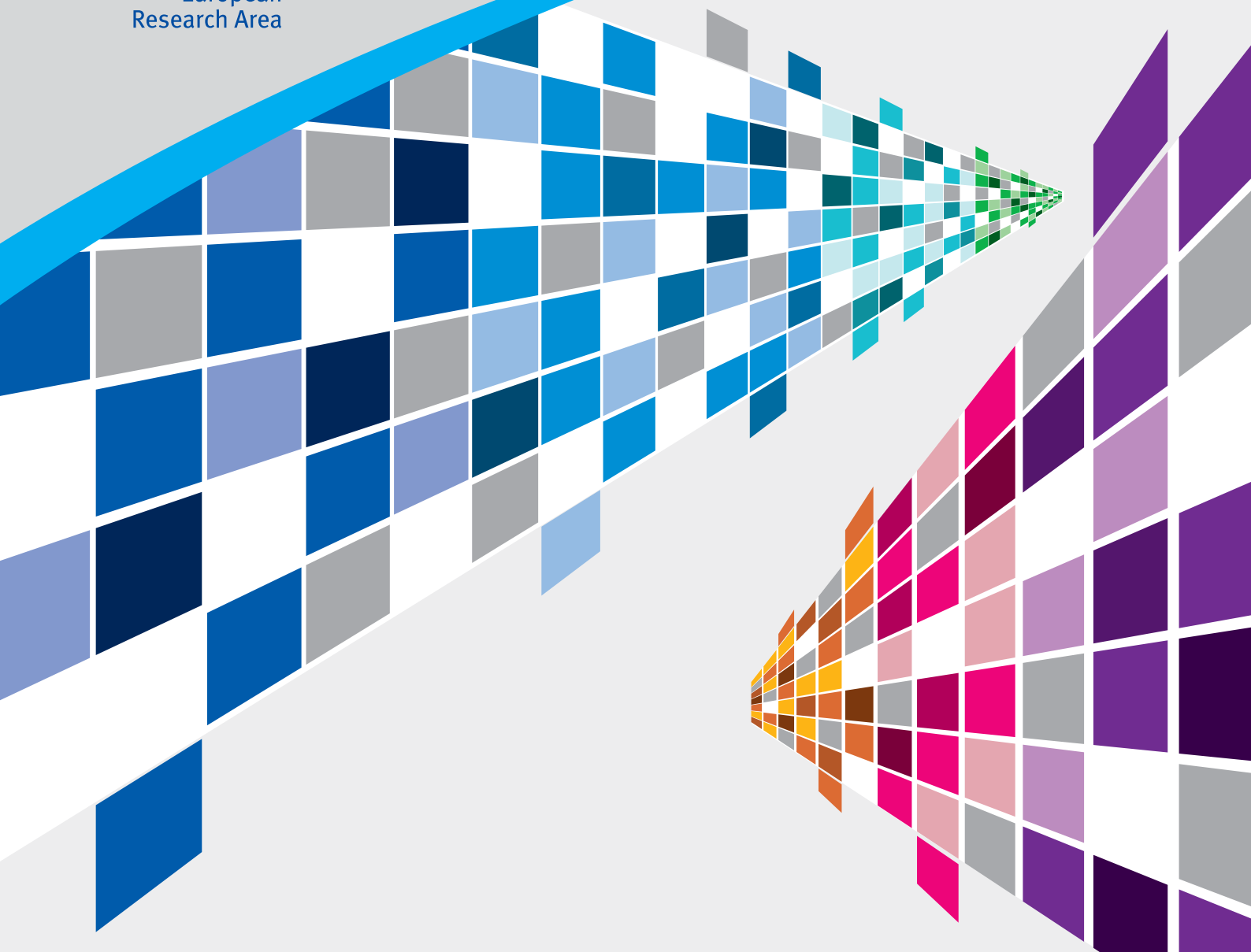




EUROPEAN
COMMISSION

European
Research Area



Executive summaries

**Reports of the ERA
Expert Groups**

RESEARCH POLICY



European Research Area

Interested in European research?

*Research*eu* is our monthly magazine keeping you in touch with main developments (results, programmes, events, etc.). It is available in English, French, German and Spanish. A free sample copy or free subscription can be obtained from:

European Commission
Directorate-General for Research
Communication Unit
B-1049 Brussels
Fax (32-2) 29-58220
E-mail: research-eu@ec.europa.eu
Internet: <http://ec.europa.eu/research/research-eu>

EUROPEAN COMMISSION

Directorate-General for Research
European Research Area
website: <http://ec.europa.eu/research/era>
Enquiry service: www.ec.europa.eu/research/enquiries

Executive summaries

Reports of the ERA Expert Groups

EUROPE DIRECT is a service to help you find answers to your questions about the European Union

Freephone number (*):
00 800 6 7 8 9 10 11

(* Certain mobile telephone operators do not allow access to 00 800 numbers
or these calls may be billed.

LEGAL NOTICE

Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use which might be made of the following information.

The views expressed in this publication are the sole responsibility of the author and do not necessarily reflect the views of the European Commission.

A great deal of additional information on the European Union is available on the Internet.
It can be accessed through the Europa server (<http://europa.eu>).

© European Communities, 2008
Reproduction is authorised provided the source is acknowledged.

These are the executive summaries, of the seven Expert Groups set up by DG Research of the European Commission in the context of the follow-up to the Green Paper "The European Research Area: New Perspectives" adopted by the Commission on 04 April 2007.

Expert Groups were set up for each of the six ERA dimensions identified in the Green Paper, and one on the overall vision and rationales for ERA.

The list of Expert Groups is as follows:

- EG 1: Realising a single labour market for researchers
- EG 2: Developing world-class research infrastructures
- EG 3: Strengthening research institutions
- EG 4: Sharing knowledge
- EG 5: Optimising research programmes and priorities
- EG 6: Opening to the world: international cooperation in S&T
- EG 7: Rationales for ERA

The overall objective of each of the Expert Groups EG 1 to EG 6 was to identify and define possible measures and actions concerning the relevant ERA dimension, taking into account existing expertise, available evidence and the major elements stemming from the debate launched by the Green Paper. Expert group EG 7 was tasked with developing and expanding rationales for ERA and refining or suggesting a reformulation of the ERA vision proposed in the Green Paper, based on an analysis of the main issues and factors affecting the efficiency, effectiveness and attractiveness of the European research system.

More information on the ERA Green Paper debate, public consultation and follow-up can be found at: <http://ec.europa.eu/research/era>

Table of Contents

1. Realising a single labour market for researchers	7
2. Developing world-class research infrastructures for the European Research Area	12
3. Strengthening research institutions with a focus on university-based research	15
4. Knowledge sharing in the European Research Area	18
5. Optimising research programmes and priorities	22
6. A wide opening of the European Research Area to the world	25
7. Challenging Europe's research: rationales for the European Research Area	28

1. Realising a single labour market for researchers

It has become increasingly evident that a more concerted strategy is necessary to address the human resources needs of the European Research Area (ERA). Such a strategy should establish realistic goals and develop clear methods for their implementation. The present Report addresses the Policy Options that the Expert Group 'Realising a single labour market for researchers' (EG Researchers) has identified in order to ensure more attractive careers for researchers and to progressively eliminate the obstacles hampering their mobility.

We have chosen an architectural image in order to highlight the complementary nature of the components of the tetrahedral structure that we have conceived. For each of the proposed **four cornerstones** we identify the obstacles and hindrances that, in our view, continue to hamper the development of ERA, and provide some 'case studies' in order to illustrate our concerns.

We then provide Policy Options, some of which have already been successfully tested and could therefore be generalised almost immediately, others could be implemented progressively.

The recommendations in this report are addressed to all bodies in receipt of public funds for research. This is meant to include the funding agencies who disburse funds and those who receive them, in the public and private sector (universities, research centres and companies). All must take individual and collective responsibility for the implementation of the recommendations; in our opinion they will determine whether Europe does indeed become a single labour market for researchers. We believe that the European Commission can take the lead by implementing the recommendations in the Seventh Framework Programme.

Obstacles and hindrances that continue to hamper the development of ERA

First cornerstone – attraction, ethical recruitment and retention of researchers

There are often substantial obstacles that threaten our capacity to maintain and boost the regional pool of skilled researchers needed to fuel the EU research and innovation system. Namely:

- a lack of transparent recruitment and career progression mechanisms;
- the complexity of employment application procedures;
- an imbalance between demands of the workplace and personal life;
- a lack of attractiveness for young talents;
- the remaining 'insufficiently equal' opportunities, particularly for women.

Second cornerstone – mobility in all its facets (geographical, sector, disciplinary and 'demographic')

Other issues continue to hinder the mobility of researchers within Europe as well as between Europe and third countries. These include:

- a lack of resources to support the direct and indirect costs of mobility;

- an insufficient weight given to mobility as a valuable component of the researcher CV;
- the persisting reluctance to move between the public and the private sector;
- the lack of a strategic approach to the accumulated experience of senior and/or retired researchers.

Third cornerstone – researcher-friendly social security and supplementary pension systems

Significant challenges remain in promoting an equitable and cohesive social system for researchers within the EU. These include:

- lack of awareness of social security and supplementary pensions rules and rights;
- the need to improve cooperation between national administrations, research authorities and institutions both in social security and supplementary pension areas;
- relatively little tailoring of social security rules of Regulation 1408/71 (883/2004) to individual researcher profiles (whether EU citizens or third-country nationals);
- need to exploit potentialities of current instruments to set up (a) pan-European Pension Fund(s) for researchers;
- the need to encourage the use of tax incentives to facilitate the participation in supplementary pension schemes.

Fourth cornerstone – The European Charter for researchers and Code of Conduct for their recruitment as a dynamic process

In March 2005, the Recommendation on a Charter for European Researchers and a Code of Conduct for their Recruitment was addressed by the EC to Member States. The 'Charter & Code' were undersigned by a considerable

number of (public) research institutions. Yet, there is scant awareness of this document among researchers and its implementation by institutions.

Policy options

For each of these Cornerstones, we have identified a number of Policy recommendations that address a wide range of stakeholders:

First cornerstone – attraction, ethical recruitment and retention of researchers

Any organisation in receipt of public funds for research, is required:

- to advertise externally any research position vacancy supported by those funds, especially on the European Researcher's Mobility Portal;
- to take concrete actions aimed at simplifying application procedures, thus encouraging participation by external applicants;
- to treat researchers, from the early career stages, as professionals, also in terms of remuneration and social security, irrespective of the type of contract;
- to clarify in a transparent manner the long-term career prospects of each position;
- to promote the achievement of scientific independence by the youngest stratum, through, for example, reserved funds such as the ERC Starting Investigation Grants;
- to insure that transferable skills are included in the evaluation procedures for researcher recruitment and career progression, to promote and assist the transition from team members to team leaders;
- to take positive and urgent actions for promoting fair gender representation among all (selection) committees, boards and governing bodies;
- to adopt a dual career policy, inspired by successful existing models;

- to allow researchers who are eligible for pregnancy (or parental) leave while working in a fixed-term contract to receive an extension of their contracts, and the associated funds, for the duration of their pregnancy and/or parental leave;
- to develop, when it is entitled to award doctoral degrees, structured doctoral programmes, moving away from the traditional, highly individualised apprentice model, oriented only to academic profession to a new model, oriented to a wider employment market, to give PhD graduates multiple career options in the Knowledge Society;
- to limit, whenever possible, the number of 'research products' (e.g. publications) to be attached to an application for a researcher position, in order to favour an assessment based on 'performance relative to opportunity', rather than on absolute performance.

Second cornerstone – mobility in all its facets (geographical, sector, disciplinary and 'demographic')

Any organisation in receipt of public funds for research, is required:

- to consider and value mobility in all its facets as an integral part of the researcher curriculum;
- to allocate incentives to compensate direct and indirect costs of mobility (e.g. in the case of intersectoral mobility, make best use of fiscal incentives for companies, grant incentives for the public institutions, and career incentives for the researcher);
- to avoid that talents attraction is practiced to the detriment of less developed regions, promoting Institutional partnerships, within which mobility of researchers is anchored to overall development projects for the partner institutions;
- to promote and support virtual mobility activities and infrastructures (e-conferences, e-seminars, electronic newsletters, thematic portals, e-fora and chats, video-conference infrastructure; virtual labs etc.), as effective and efficient complements to physical mobility;

Any organisation in receipt of public funds for research is encouraged to investigate how best to systematically involve retired senior researchers in value added activities such as non-salaried mentoring of early career researchers and the promotion of the excitement of science and research careers to school children and to the public generally;

At European level, the EC is urged to establish an 'international placement agency' for retired senior researchers who are willing to act as mentors, experts, conference organisers and peer reviewers. The agency would direct this highly valuable support at less well endowed research groups in Europe and in developing countries.

Third cornerstone – researcher-friendly social security and supplementary pension systems

The addressees are invited to take actions according to their responsibilities.

Information, training and cooperation between social security players

Addressed to: European Commission (EC), Member States (MS), Training and Reporting on Social Security (TRESS), ERA-MORE – Feasible in: mid-term

- to systematically organise EU and national training sessions on EU coordination Regulations for research institutions' staff and ERA-MORE Mobility Centres;
- to draft new, and spread awareness of existing EU and national social security info packages (websites, guides, etc.) for mobile researchers;
- to establish close cooperation between the EC, Ministries in charge of Research, the Administrative Commission on Social Security for Migrant Workers, TRESS network and ERA-MORE Mobility Centres to ensure information flows, exchange of good practice, best use of existing rules and assess feasibility and appropriateness of new rules to remove further obstacles to mobility of researchers.

Posting & ‘Article 17 agreements’ – (specific to researchers)

Addressed to: European Commission, TRESS and Member States – Feasible in: mid-term.

To promote, by gathering data on future application of both ‘Article 17 of Regulation 1408/71 agreements’ and EU rules on ‘posting’ of researchers, their wider application to the benefit of researchers by also making an extensive use of Recommendation 16/84 of the Administrative Commission on Social security for Migrant Workers to researchers.

Access to unemployment benefits and specific rule(s) on conflict of law – (not specific to researchers)

Addressed to: EC, MS – Feasible in: mid-term.
Within the context of EU ‘Action Plan for Mobility 2007-2010’ to:

- explore the feasibility of amending unemployment benefits exportation rules for migrant researchers/workers (Article 68 of Regulation 1408/71 (Art. 64 of Reg. 883/2004);
- explore the relevance and the impact of a specific rule of conflict of law applicable to ‘new forms of mobility’, in view of inserting them, if appropriate, in the EU legislation.

Third-country researchers: agreements, information, Directive 2005/71 – (specific to researchers)

Addressed to: MS, EC – Feasible in: mid-term.

- to encourage (e.g. through a Commission or Council Recommendation) the signature of (or the amendment of existing) bilateral and/or multilateral social security agreements between EU Member States and non-EU countries including appropriate rules for mobile researchers;
- to set up more efficient information systems on social security agreements by for instance making full use of the European and National Researchers’ Mobility Portals;
- when monitoring the implementation of Directive 2005/71 on the admission of third-country researchers

to the EU, to pay specific attention to a correct application of Article 12 of that Directive concerning equal treatment with national as regards social security rights.

Pension subsidies attached to fellowships – (specific to researchers)

Addressed to: MS, EC – Feasible in: short-term.
Target group and pension pillars: research fellowship holders, supplementary and private pensions.

To introduce **subsidies** for research fellows who are not covered by any domestic pension system, by also facilitating their building up of pension rights with a financial institution (third pillar).

Setting up of a Pension Support Centre in the Member States

Addressed to: EC, MS – Feasible in: mid-term.
Target group and pension pillars: researchers (pilot group), statutory and supplementary pensions.

After assessing its legal and concrete feasibility, to set up a Pension Support Centre by also making use of existing information tools/services.

Promoting the setting-up of National Pension Registers in the Member States

Addressed to: MS, EC – Feasible in: mid-term.
Target group and pension pillars: researchers (pilot group), statutory and supplementary pensions.

To promote by the EC the setting-up of national information systems (pension registers) on accrued pension rights in each MS and promote their interlinking.

A Pan-European Pension Fund (IORP) for Researchers

Addressed to: IORP pension schemes – Feasible in: mid-term.
Target group and pension pillars: researchers, supplementary pensions.

For the EC to launch a feasibility study and furthermore stimulate the development of supplementary pension pan-EU schemes for researchers based on the ‘IORP’ Directive.

Promoting the introduction of tax incentives for participating in second and third pillar systems

Addressed to: MS, EC – Feasible in: mid-term.

Target group and pension pillars: all workers, supplementary pensions.

To promote by the EC national tax relief systems for contributions paid to supplementary (including 'IORP') schemes and to financial institutions managing private pension schemes.

Fourth cornerstone – The European Charter for researchers and the Code of Conduct for their recruitment as a dynamic process

Any organisation in receipt of public funds for research which signed the C&C is required:

- to promote knowledge and awareness of C&C; the EC should provide human, structural and financial means

for the management and organisation of a European information campaign including the establishment of an ERA and C&C promoters' network;

- to define and advertise a Human Resources Mission Statement, in line with the C&C spirit, focusing on the recruitment, career development and retirement procedures of their respective researchers; the European Commission should play a proactive role in the dissemination and promotion of the institutional HR mission statements;
- The European Commission is urged to design and promote a 'ERA – Researchers' Human Resources Label' indicating research institutions, which
 - participate actively in the network of ERA and C&C promoters;
 - advertise and monitor the implementation of their specific Researchers' Human Resources Mission Statement;
 - accept some form of external monitoring.

2. Developing world-class research infrastructures for the European Research Area

World Class Research Infrastructures as one of the pillars of an ambitious future ERA-vision...

The existence of and access to leading research infrastructures is and will remain a key determinant of Europe's competitiveness in both basic and applied research. Adequate research infrastructures, together with the needed critical mass of research skills are vital for promoting innovation, and offer the conditions required to carry out cutting-edge research and European capacity building. High-quality research infrastructures serve as magnets for talented researchers. Research infrastructures (RIs) also play a clear societal and economic role by generating ideas for new industrial, societal and political applications. The innovative results of research conducted in these infrastructures have a multiplier effect, creating new economic activities and fresh employment opportunities.

Policy overview and trends...

Up to now the EC Framework Programme has been the main financing instrument by which the EU has supported the networking and joint research activities of pan-European RIs, with special attention to ensuring transnational access of researchers to state-of-the-art facilities.

Europe has taken a major step forward in the development of a more coordinated approach for policy-making in the field of RIs with the establishment of the European Strategic Forum on Research Infrastructures (ESFRI), the e-Infrastructure Reflection Group (e-IRG), the release of the first ever European Roadmap for Research Infrastructures and by establishing the 'preparatory phase' instrument within FP7 which aims to facilitate the construction or upgrade of some of the ESFRI roadmap RIs.

Prioritisation is needed...

However the current policy is not sufficient. Budget constraints on governments and institutions alike make it difficult to meet the rising demand for funds to develop new initiatives or ideas. Consequently, prioritisation is needed.

The ESFRI-roadmap is widely recognised as an essential part of the decision making process for pan-European RIs. Based on the experience gained during this first exercise, ESFRI should further improve its methodology for assessing large-scale pan-European RIs, particularly with regard to the transparency of procedures and the involvement of relevant stakeholders.

Since Member States will continue to play a key role for decision making in the RI area, they should develop their national/regional RI planning to optimise synergy with the ESFRI activities. This will enable them to connect priorities defined at national/regional levels with the ESFRI roadmap. Moreover, coordination between the ESFRI roadmap and similar activities at national/regional level is an important component for a coherent RI policy, integrating both small and medium sized RIs with large-scale facilities.

More and better funding...

To speed up the implementation of the ESFRI roadmap, also taking in account the required investment for existing RIs at all levels, there is a need to improve the efficiency of their funding and to increase funding levels. Setting up of general guidelines for the evaluation of RIs should ensure better resource allocation. Consortia developing RIs should be stimulated to make innovative use of various financing instruments and mechanisms (Structural Funds, loans from the European Investment Bank, Public Private Partnerships, tax incentives, etc.) for the construction and longer term financing of

pan-European RIs. In parallel, Member States should increase their funding level for RIs to ensure both the implementation of the new ESFRI projects and to provide adequate funding for existing RIs. A significant increase of EU funding is essential to provide a catalytic and leveraging effects.

Creating a legal framework and transparent principles for management and access...

The implementation of new RIs, as well as improved networking and access to existing ones will require joint enterprises by the different stakeholders in an international environment. To achieve these goals the next generation of pan-European infrastructures will require legal and governance structures that can be more readily set up and used.

One option would be the creation of intergovernmental organisations with tailor made legal frameworks, based on best practice experiences from existing successful organisations (e.g. CERN, EMBL, ESO). However, the process of setting up such intergovernmental organisations is sometimes considered as lengthy, difficult and cumbersome. As an alternative solution, it is proposed to develop a new easy to use legal framework at a European level (through an EC regulation) to make available a new type of legal structure which may be used by the interested research institutions throughout Europe.

Guidelines for the management of pan-European RIs, as well as general access policy criteria for pan-European RIs should also be developed. The synergy between the Ideas, People, and Capacities specific programmes of the EU Framework Programme should be improved to further stimulate the visibility of RIs as valuable instruments for the European Science and Technology system. This includes better coordination schemes across these programmes to allow the use of funds in a synchronised and more effective way.

Deployment of the e-infrastructure...

The vision for a future European Research Area and a coherent RI policy must include the deployment of e-infrastructure, as they are the integrating mechanism, the glue between regions and different scientific disciplines.

Europe should reinforce its e-infrastructure strategy by boosting the creation of virtual collaborative communities of researchers, ensuring the inclusion and participation of students and researchers from all over Europe in the highest levels of the knowledge society. A world leading European Network with a global perspective, smooth access and coordinated high-performance computing provision (such as GÉANT and its global extensions, Grid, etc.) should be further developed.

A trustworthy management system must provide seamless access to shared resources of all types and generic virtual presence tools must facilitate virtual research communities. Education and training programmes should be put in place both to accelerate the exploitation of the e-infrastructure by younger researchers and to improve their availability to wider user communities.

Europe should develop a coherent and managed layer of scholarly and academic research resources by bringing together Europe's research repositories and significantly increasing the number and quality of the knowledge resources available. A programme of research and co-ordination should help Member States to address the issues of establishing, managing and joining up research repositories.

Europe participating in global research infrastructures...

An increasing number of research infrastructures are now being developed at the global level. There is a need to identify or create an appropriate forum where global RIs can be discussed and carried forward at a high level and where Europe should speak with a common voice. A set of strategic guidelines should be developed to help prioritise European involvement in global RIs. In addition, the European Commission should stimulate the creation of specific mobility (access) schemes to enable researchers to engage with RIs outside Europe and vice versa (for non-European researchers).

Towards a strategic coordination mechanism for RIs...

To ensure the effective implementation of a coherent policy for pan-European RIs there is a need for a 'strategic coordination mechanism' at EU level, involving all relevant

stakeholders (Member States, ESFRI, e-IRG, the scientific community, Research Performing Organisations, industry ...). This mechanism should facilitate, in particular, an evaluation of RI initiatives, the better addressing of funding issues and resolution of problems of location of the new RIs. This mechanism should integrate the e-infrastructure strategy. Small and medium-sized RIs of pan-European interest should be taken into account to ensure an optimum use of the regional capacities.

Building on the existing experience of actions to support RIs within the EU Framework Programme for RTD, the European Commission would be in the best position to take a central role in developing this strategic coordination mechanism. It could be a European Research Infrastructures Programme modelled, for example, on the successful European Fusion Programme with well integrated national and European actions.

3. Strengthening research institutions with a focus on university-based research

The overall objective of the Expert Group (EG), launched in the context of the follow-up to the Commission's Green Paper on 'The European Research Area: New Perspectives', was to identify and define possible measures and actions regarding the strengthening of research institutions with a focus on university-based research (Ubr). The EG sought to provide an overview of recent initiatives, current challenges and existing trends, identifying new possible evidence-based policy initiatives and assessing the various policy options and their potential impact.

The report highlights some of the problems and challenges for Ubr, focusing on four key areas that were selected by the EG. It proposes eight recommendations and further policy actions that can be undertaken at institutional, national and European level, which could provide added value for the European Research Area. It also examines the assumptions and preconceptions within the Green Paper, highlighting areas where it was considered the debate needed to be redefined.

Specific Recommendations

Recommendations 1 and 2 relate to 'Funding and Autonomy', Recommendations 3, 4 and 5 to 'Governance, Accountability and Performance', Recommendation 6 to 'Collaboration and Partnerships', Recommendation 7 to 'Human Resources'; and a final recommendation 8 to the need for a coordinated effort designed to make progress in addressing these priority areas.

While total investment in higher education in the EU is about 1.1% of GDP, on a par with Japan, this is below the level of key competitors such as Australia (1.5%), Canada (2.5%), USA (2.7%) and Korea (2.7%). Dedicated investment in R&D also remains a challenge, only 1.84 % of GDP in EU-27, and below the level in the USA, Japan or South Korea. The EG strongly believes that additional investment in Europe's universities is urgently required. Further public investment in universities is not a cost, but an investment in the development of the knowledge society and the future of Europe and the well-being of its citizens.

RECOMMENDATION 1

The EG supports the Commission's proposal in the Communication on the modernisation agenda for universities on the need to devote within a decade at least 2% of GDP (including both public and private funding) to a modernised higher education sector. This will require Member States to set out clear strategies and goals for investment over this period and to set out a process that can evaluate and monitor progress.

The ability to increase and diversify the sources of public and private funding depends on the level of financial and managerial autonomy given to universities. Recent research undertaken by the European think tank 'Bruegel' points to the positive correlation between research performance, greater autonomy and additional funding. Also, as stated in the 2007 European University Association (EUA) 'Lisbon Declaration', institutional autonomy is needed to accommodate the diverse institutional missions and should include academic autonomy (curricula, training programmes), scientific autonomy (research), organisational autonomy (university structure) and human resources management (recruitment, salaries and promotion).

RECOMMENDATION 2

In order to improve their research performance, universities should be given sufficient institutional autonomy, including financial and managerial autonomy, academic and scientific autonomy as well as organisational and staffing autonomy. This will allow them to face current and future societal and economic demands and redefine their missions and strategies accordingly.

Increased investment and institutional autonomy must go hand in hand with the setting up of mechanisms to ensure full transparency and accountability to society. This requires new governance systems and professional management of resources. The development of more robust cost accounting systems will help provide better management and information as well as ensuring transparency and

accountability. It will also help universities to achieve financial sustainability, through better informing their pricing strategies and their need to secure better cost recovery from both private and public sources of funding.

RECOMMENDATION 3

Universities need to adapt to operating in a more autonomous environment by strengthening transparency and accountability and demonstrating an efficient and effective use of funds. This will involve developing a better understanding of their research performance and costs, as well as achieving 'state of the art' governance and professional management structures. A commitment is also required on the part of public and private bodies that fund research in universities to better recognise the full costs of research they support or commission.

In order to improve the quality and relevance of university research performance, there is a need to develop adequate and appropriate assessment and quality assurance mechanisms for research, as well as a set of appropriate incentives to encourage universities to improve their research performance. The linking of research funding to performance is one way to do this, though should not neglect broad based research capacity or impede the development of new and emerging areas, where excellence cannot yet be demonstrated.

RECOMMENDATION 4

Member States should increase the focus on supporting the best research teams and individuals wherever these may be found, through mechanisms that can identify and fund excellence in research in relation to universities' variously defined research missions and strategies. However, this should not be done at the expense of the need for continuous support for broad based research capacity and the encouragement of new and emerging areas.

Universities should be able to differentiate their activities based on their own strengths looking for excellence and relevance in strategically selected areas or research domains at regional, national and/or international level. The EG believes that as well as developing incentives to strengthen research performance, it will be important to develop incentives to improve universities delivery wider missions such as excellence in education; enhancing knowledge exchanges across universities and research institutions; sharing information with the business community and public authorities (health, transport, etc.); advising the government; and sharing knowledge with the general public.

RECOMMENDATION 5

It is important that knowledge exchange with other research institutions and the business community, as well as knowledge sharing with the society at large, are recognised as being of strategic importance, serving the public interest. This means that incentives and funding mechanisms need to be developed to encourage universities to focus and differentiate their activities in the delivery of their interlinked missions and compete in different ways and environments.

The development of partnerships with other research institutions, technology centres and the business community – including both multinational research intensive companies and regional small and medium-sized enterprises (SMEs) – will bring further opportunities for universities to participate in the joint production of knowledge through the evolving 'open innovation' system and the opportunities that it offers for new collaborations to share the benefits of research results. However, these partnerships should not become formalised legal structures driven by political considerations that may lack the necessary flexibility to respond to constantly changing demands. The EU added value should be, therefore, that of a facilitator and not that of a regulator.

RECOMMENDATION 6

Collaboration and partnerships with other research institutions and the business community bring opportunities to universities to participate worldwide in the joint production and application of knowledge. It is therefore important to promote the conditions, mechanisms and incentives to encourage more structured partnerships that create synergies and enhance capacity across the research and innovation ecosystems.

Although the issues of mobility of researchers and development of research careers are analysed by another ERA EG on Researchers, the EG felt that it was important to emphasise the need for human resources development in universities. At present, in many European countries, structural rigidities, over-regulation by government bodies and lack of staffing autonomy present difficulties for the management of human resources at universities to achieve necessary reforms. Greater autonomy should allow universities to develop institutional strategies to enhance the career development of researchers and their conditions for recruitment and employment – and hence address the needs identified in initiatives such as the European Commission’s Charter and Code for Researchers, the ERC Starting Grants and Marie Curie Actions.

RECOMMENDATION 7

Universities will need greater autonomy to reform rigid recruitment, compensation and promotion mechanisms. More effort will also be needed in the training and career development and funding of early-stage researchers, particularly post-doc level, and promoting both inter-sectoral and geographical mobility within and outside Europe to meet the opportunities offered by European funding schemes and employment opportunities in the global economy.

During the course of the work of the EG, the results of the public consultation on the ERA Green Paper were

taken into account. In addition, attention was given to the November 2007 Council Resolution on *Modernising universities for Europe’s competitiveness in a global knowledge economy*, and the approval by CREST of a new OMC (Open Method of Coordination) initiative through the setting-up of an OMC Working Group on ‘research active’ universities.

RECOMMENDATION 8

We welcome the proposal for a CREST OMC Working Group to explore approaches to improve the excellence of research in universities. This should explore the reform of universities with regard to issues such as funding, autonomy, research performance and assessment, involving Member States and universities in an equal footing. In addition, a complementary, bottom-up policy coordination initiative through the OMC-NET instrument would allow preparatory work in advance of the practical implementation and take-up by universities of the agreed recommendations. Universities, Member States and EU institutions – in particular, Eurostat – should coordinate as to guarantee ‘comprehensive, comparable and reliable data’ on performance and costs indicators of Higher Education Institutions.

4. Knowledge sharing in the European Research Area

The ERA Green Paper identified access to knowledge generated by the public research base and its use by business and policy makers as being at the heart of the ERA and concluded that knowledge transfer must improve in order to accelerate the exploitation of research and the development of new products and services and, to facilitate this, European PROs and universities should be given incentives to develop skills and resources to collaborate effectively with business and other stakeholders.

The Expert Group focused on the management and exploitation of intellectual property rights, primarily in the context of collaborative research, contract research and consultancy, company creation and growth, with a view to the increased use of knowledge maximising the benefits to the European economy.

The Expert Group concluded that Europe needs a coherent system that embeds knowledge sharing in policy and practice in **all** aspects of the ERA 'ecosystem'.

Knowledge sharing in Europe could be improved to ensure that all stakeholders (PROs, funding bodies, industry and the wider community) find knowledge sharing easier, speedier, and more cost-effective.

Effective knowledge sharing involves building responsible and sustainable partnerships between PROs and industry, but both need to have realistic expectations about the fundamental terms on which publicly-funded knowledge is shared.

The Expert Group recommends that the Commission issues a Recommendation to Member States on:

- a code of practice for knowledge sharing at pan-European level from which the principles of codes of practice at Member State level or national knowledge sharing strategies might be drawn; and
- clearly understandable principles which stakeholders can apply to their research collaborations and which

Member States should be encouraged to adopt at national level in codes of practice or a national knowledge sharing strategy;

- the adoption by Member States of a Code of Practice which meets the challenges of globalisation and increasing international competitive pressure will help to send a signal to third countries and international research partners that the European Community has common values and standards for the management of intellectual property in research collaborations.

It is essential that PROs and industry abide by the same practices; PROs cannot implement guidelines or any code of practice unless industry is willing to act in a way that complements them.

Any Code of Practice for PROs must be fair to both PROs and industry; it should create a situation which attracts and facilitates engagement from research staff, institutional administration, funding bodies, industrial partners, and industrial end users.

The proposed Code of Practice on Knowledge Sharing should provide guidance to PROs and researchers on how to manage intellectual property professionally and compliance with it will raise awareness of the need for effective management of intellectual property.

If a Code of Practice is to be effective, compliance with it needs to be monitored and encouraged.

Administrative support to manage intellectual property and to carry out knowledge sharing on a practical, day to day, basis is a prerequisite of effective knowledge sharing, and capacity building within PROs and within small and medium sized enterprises is necessary if there is to be effective knowledge sharing between them.

Effective knowledge sharing depends on knowledge transfer staff being competent and professional in their

management of intellectual property. Europe needs to establish an accepted baseline of competency for knowledge transfer staff.

The development of accredited training for knowledge transfer professionals and the recognition of knowledge transfer as a profession should be encouraged.

Funding is essential to building capacity.

The Expert Group recommends that the Commission issues a Recommendation to Member States to the effect that recurrent, dedicated, funding streams should be introduced by Member States for those PROs that commit to undertaking knowledge sharing and that implement good practices (for instance, having a policy on intellectual property and its exploitation that encourages knowledge sharing and promulgating that policy; rewarding staff for successful knowledge sharing; having an exploitation function within which trained staff are recognised and rewarded; having mechanisms in place to measure and to report progress; and having measures in place to build capacity to undertake knowledge sharing).

There is evidence (from the Higher Education Funding Council for England¹) of a direct correlation between recurrent funding, institutional commitment and increased knowledge sharing activity which, in turn, results in more funding and more direct income from knowledge sharing activities.

The Commission should ensure that all funding instruments in the ERA address the principles set out in the Code of Practice for Knowledge Sharing and require demonstrable compliance by PROs that receive funding.

Funding bodies should insist that applications for funding are accompanied by plans for the exploitation of the results of research and should require reports on knowledge sharing activities, should monitor compliance with the funding terms and where necessary impose sanctions for non-compliance.

There should be harmonisation of funding conditions in areas such as the ownership and exploitation of intellectual property, giving PROs initial ownership of the intellectual property rights and the freedom to negotiate suitable terms with industry. It is important that the

terms imposed by philanthropic funders do not create a barrier to effective knowledge sharing.

Member States should provide funding for the protection of the results of research.

PROs should be allowed to retain the revenues from knowledge sharing to be used to support research and knowledge or their core activities.

There will be a need for some PROs to pool resources and cooperate with other institutions in order to build capacity and capability for professional knowledge sharing.

The championing of knowledge sharing from the top of organisations is essential and PROs need to recognise that knowledge sharing is an important part of their mission – as important as the research itself – and to have a clear knowledge sharing strategy.

All the staff of a PRO need to understand the PRO's goals in relation to knowledge sharing and liaison between researchers and knowledge transfer staff is key.

Awareness of the potential for the exploitation of intellectual property of all kinds, including copyrights and database rights, should be encouraged within PROs.

A model form of IP policy for PROs should be prepared and the use of model agreements and other tools encouraged where appropriate.

Researchers and students need to be aware of the basic rules of intellectual property and ought also to have some basic entrepreneurship training, but this should not try to make researchers (or students) experts in intellectual property law, usurping the role of professional knowledge transfer professionals.

A key obstacle to effective knowledge sharing is that success in knowledge sharing is not taken into account in the career progression of most researchers. Promotion within the PRO system should depend, to some extent, on successful interaction with industry, and PROs should be encouraged to develop transparent and merit based promotion mechanisms, as well as financial incentives for research staff.

Mobility between industry and PRO researchers should be encouraged and Member States should develop schemes to support academics working in industry and vice versa.

¹ <http://www.hefce.ac.uk/pubs/hefce/2007/07%5F17>

Benchmarking knowledge sharing activities would provide an incentive for knowledge sharing.

The equivalent of the United States Bayh-Dole Act should not be introduced in Europe - the position of Europe in the 21st century is very different from that of the United States in 1980, although some elements of Bayh-Dole Act may be usefully introduced in Europe.

Those aspects of the Bayh-Dole Act that may be useful, such as improving the management of intellectual property rights, could be effectively introduced through the conditions imposed by Member States and their agencies who fund research.

The Expert Group has serious reservations about the impact of any attempt to require manufacture in Europe on the willingness of industry to fund research in Europe. However, the Expert Group does wish to see the ownership of intellectual property rights retained in Europe where that generates revenues for Europe.

Introducing legislation would take time and may not be necessary in order to facilitate knowledge sharing if steps are taken as quickly as possible by means of a Recommendation from the Commission to Member States to implement a Code of Practice on knowledge sharing and funding conditions are used to encourage knowledge sharing.

Fear of breaching the State aid rules, uncertainties about how to apply them, and the length of time and costs involved in the notification and clearance procedures may be barriers to knowledge sharing. Resources that are currently spent in trying to understand and apply the rules and dealing with the Commission could be invested in research and used to innovate and create links between PROs and industry. There is a need for operational guidance and for the Commission to review the effects of the State aid rules on innovation and knowledge sharing.

One of the potential difficulties facing PROs is that tax advantages or exemptions given to them and their status as charities or not-for-profit organisations may depend on them acting in a non-commercial way or within narrowly-defined objectives that are inconsistent with effective knowledge sharing.

There is no real need for significant change in intellectual property law in Europe, but initiatives such

as a European unitary patent system and the London Agreement, co-operative alliances between national patent offices and the use of provisional patent applications have clear benefits.

The high costs of patenting are a disincentive to knowledge sharing but are largely due to professional fees and the costs of patent litigation. This needs to be addressed by making the cost of filing patent applications cheaper and making patent litigation more streamlined, without encouraging the patenting of weak inventions or abusive litigation.

Prior user rights for patents should be recognised in all Member States and their inclusion in the proposed Community Patent is welcome.

The experimental exception for patents should be broadened and clarified.

The abolition of professor's privilege is not a priority, but the default position should be that the PRO owns the intellectual property rights in the results of publicly-funded research. Where there is professor's privilege, the PRO should have the right to manage the intellectual property rights, to engage with industry in connection with their exploitation, and to continue to use the intellectual property after the professor has ceased to be employed by the PRO.

PROs should have contracts with research students giving the PRO ownership of the results of the research.

Issues of joint ownership should be addressed so as to enable a sensible exploitation strategy to be implemented.

The Expert Group concluded that there is no need for a grace period for patents in Europe unless Europe moves to mandatory open access for the results of research. Those funding research should not mandate open access, but should make it one of the options available for the use of the results.

The Expert Group suggests that priorities for action in Europe to help create more effective knowledge sharing between PROs and industry are:

- for the Commission to provide practical operational guidance in relation to the State aid rules and to consider the potential detrimental effect of the State aid rules on knowledge sharing;

- the introduction of recurrent funding from Member States to PROs specifically for knowledge sharing, provided on condition that the PRO has proper plans and strategies for knowledge sharing and that achievements are measured;
- capacity building and the establishment of standards for professional knowledge sharing in both industry and PROs;
- the introduction of a Code of Practice for Knowledge Sharing;
- consistency in relation to the management and ownership of intellectual property rights in the terms imposed by funders of research;
- Member States review of any legal and fiscal measures that are not conducive to, or impose needless complexities in relation to, knowledge sharing;
- consistency between legal and intellectual property systems of the Member States.

5. Optimising research programmes and priorities

This report is written by the European Research Area Expert Group *Optimising Research programmes and priorities*. The Green Paper on “The European Research Area: New Perspectives” (April 2007) spells out that a core objective of the European Research Area has been to ensure the coherence of European, national and regional research programmes and priorities on issues of European interest. It observes that since 2000 not enough progress has been made on this matter. The Expert Group has discussed these issues, examined the evidence available and developed policy options for the future.

There are many **drivers** for the optimisation of the European research area. Many stem from increased globalisation and internationalisation of research and development. Science and industry are already far ahead in thinking and working across borders, European research policy has been slow to catch up. Today’s fragmented and sub-critical research efforts need an **optimised framework for the funding and execution of research**. Although the architecture of such an optimised framework can be outlined, it needs further debate at a high political level, such as the EU Competitiveness Council, to endorse real improvements in the current legal and political arrangements for research policy.

The **European Research Area** initiatives have stimulated debates and considerations at national and regional level, and between member states, on the role European and international dimensions in national and regional policies and programmes, and on the opportunities offered by trans-border coordination and cooperation between regional and national programmes in Europe. Coordination and cooperation between research and technology policies and programmes in Europe presents a huge opportunity for mobilising the research potential, capacities and capabilities across all European regions. Even though the ERA Green Paper observes that not enough progress has been made on ERA, there is evidence from existing experience that trans-national collaboration has many benefits. Despite the **potential benefits** and **enabling factors**, a variety of **obstacles**

need to be removed, some of which will require decisions at the highest political level.

There are multiple trans-national collaboration mechanisms available already; these are portrayed in Chapter 3. However, there has never been a thorough high-level debate or analysis to show how the **portfolio of all these trans-national research mechanisms** contributes to the European challenges and the achievement of the Lisbon goals. Nor have they ever been examined in terms of the way they contribute to or hinder the establishment of an optimal framework for intra-European research coordination. In addition, there is still room for improved coordination of existing programmes and initiatives that are currently operated at the national or regional level only.

A key element of the rationale for more joint actions is to tackle the fragmentation in the research efforts in Europe. However there is still little empirical evidence as to what **fragmentation** and **critical mass** mean for different research domains; which level of fragmentation is counterproductive (being inefficient on a European scale and not providing an adequate level of competition to ensure excellence) and what level of fragmentation is necessary to maintain diversity and competition in the system, ensuring that alternative routes are explored to tackle a problem or to find opportunities. This issue needs to be analysed for different domains, types of research and from a global perspective.

A first and difficult step to take in developing trans-national collaboration is the identification of **joint visions, common goals and priorities** on a European level that ask for a European approach. Only then can common agendas be set about what joint research programmes should be launched or maintained. At the moment there is **not an evident place or platform** to conduct the trans-national debate at a sufficiently high level and which will address the entire portfolio of mechanisms. Existing tools are in use in Europe that could help with such processes such as Foresights, Technology roadmaps and other interactive processes

for stakeholder involvement. A differentiated approach to different types of research (frontier, applied, societal research) is also important.

To take the debate a significant step further and to make the overall picture transparent to all stakeholders in Europe, the Expert Group has proposed in Chapter 5 to base the existing portfolio of trans-national research mechanisms more transparently on four pillars and to elaborate an **ERA-Frame** to develop common guiding principles for future trans-national collaborations, particularly in the form of ERA-NET mechanisms, but also for other new joint programmes.

The full portfolio of mechanisms for the implementation of European, national and regional research policies can by and large be considered to consist of **four pillars**:

1. the **European Framework Programmes for Research (FP)**, which focus on the main global research challenges, where projects have a substantial size and many stakeholders should be involved, such as in large collaborative projects with research and business partners. The FP can also cover cutting-edge technologies, where only a few new technology companies and research institutions are involved, and which are not yet organized at a large scale;
2. an **ERA-Frame**, which could be established to encompass all programme coordination activities such as ERA-NETs, JTIs, Article 169 measures and potentially new joint programmes where cross-border research and innovation activities create added value. The ERA-Frame would require a **new Council Decision to establish a common set of principles and operative guidelines to optimise the implementation of this particular pillar**;
3. the **Inter-governmental Agreements for Research** which include existing inter-governmental bilateral and multilateral programmes such as COST, EUREKA and EIROForum as well as potential new ones; their legal basis is set in various frameworks, on a case by case basis. [The common guidelines outlined above could, in some cases, be relevant for these mechanisms as well];
4. **national and regional programmes**, which focus on the development of national and regional research and innovation systems, (where cross-border activities are not a first priority), where research

contains logical and strategic national priorities (e.g. military research) or where research is very close to the market and therefore very competitive. **However such programmes could be opened** to non-residents on a voluntary basis, with the careful management of the aforementioned problems.

For pillar two, there is now a need at European level to develop **common guiding principles, rules and criteria** – or a so-called **ERA-Frame** for trans-national collaboration – particularly for the ERA-NET mechanisms, but also for new joint programmes. This is an issue that should be addressed and agreed by the **Council** and has in part already been recommended by the 2006 ERA-NET Review.

The introduction of the ERA-Frame would also present a starting point for **strategic discussions, at both the European and national levels**, on which research problems should be tackled at which level, which instruments are the most appropriate and how more coordination can be stimulated. Preparing such an ERA-Frame at the European level also requires the development of **national and regional strategies and criteria** for the launching of and participation in joint programmes. Clearly defined added value for the different actors has to be ensured. In addition, the extent to which programmes should coordinate and cooperate with programmes from, or be open to, third countries should also be defined. In the interest of the research communities, it will be most important for the future development of the European research and innovation system to reduce the overall complexity of the policy mechanisms. Improved joint programming involving existing and new programmes asks for clearer **frameworks, principles and guidelines** to overcome the existing barriers. In all this the **perspective of the users of research programmes** should prevail.

The Expert Group advises that,

under the aegis of the EU Competitiveness Council, the Member States should:

1. develop a **common vision** with priorities for **trans-national** research, encompassing regional, national, intra-European and Community funding;
2. establish an ERA-Frame: a set of common principles and operative guidelines to optimise the implementation of existing and new ERA structuring mechanisms;

3. implement more **strategic, sustainable and efficient trans-national programming and coordination** of national research programmes and between national funding organisations to fulfil the vision, using **differentiated** approaches for frontier science, applied research and societal research;
4. **eliminate legal barriers and administrative obstacles** for collaboration in trans-national programmes and initiatives;
5. ensure the **involvement** of programme owners, programme managers and research actors in the whole policy design and implementation process;

the European Commission should:

1. **evaluate** all ERA mechanisms individually and systemically to support the development of a common framework of principles and operative guidelines (ERA-Frame);
2. together with Member States and stakeholders, provide **common guidance** and **tools** for the implementation of each of the different ERA mechanisms;
3. develop material to demonstrate and share, inter alia in an interactive mode, **good practices** and results from trans-national coordination and joint programming.

6. A wide opening of the European Research Area to the world

The investigation carried out by this Expert Group has concluded that the international dimension is an integral component in the making of a genuine European Research Area and will be increasingly so in the coming years. The Group therefore welcomes the attempt made by the Green Paper to consider the international dimension on a par with other core priorities of S&T policy. A more bold recognition of the external dimension has already occurred in recent policy statements and actions, most notably in the 7th Framework Programme. The Expert Group urges integration of the policies for international cooperation as a vital component of a successful European Research Area (ERA). The wealth of initiatives and ventures that are under way within the ERA should explicitly address also how to relate to and often integrate third countries.

This investigation has also found it desirable to increase coordination within the wealth of initiatives taken by EU member countries as well as among the various EU sponsored ventures. EU member countries carry out a large number of bilateral and multilateral science and technology ventures with non-EU countries. It is neither possible nor desirable to centralize these initiatives at the EU headquarters. For cultural, historical, economic, geographical or linguistic reasons, individual countries are often in a better position to undertake and to develop successful cooperative ventures with third countries. However, even when a specific member country has established traditional strong linkages with third countries or when it is developing them, it is vital that the knowledge generated and the benefits are not confined to the countries involved but are disseminated across the whole ERA. Greater information on the ventures undertaken by member countries is therefore needed to support European economic development and well-being.

The activities directly carried out by European institutions are quantitatively small in comparison to those undertaken by member countries. Nevertheless, they emerge as

qualitatively crucial. There are several advantages in maintaining a variety of initiatives and ventures, also under several institutional schemes (Framework Programmes, EUREKA, CERN and the other international organizations, etc.) since often this allows more responsiveness to the needs of stakeholders and of the scientific and technological communities. A greater exchange of information about the involvement of non-EU players could however make both international cooperation more effective and the EU presence more visible.

The EG found that a long-term strategy of scientific and technological cooperation with non-European players needs to be explicitly justified. The various member states and institutions that concur to the ERA should be convinced not only of the vital importance of international cooperation, but also of the need to perform it in coordination and association within a European Framework. Governments, academic institutions, corporations and individuals outside Europe should perceive the EU as a unitary player.

The public consultation on the Green Paper has already provided a wealth of information on the options of stakeholders and public opinion. It might however be useful to engage in a public debate about the justification for international cooperation in science and technology, involving policy-makers, the academic community, the business world and the citizenry.

The EG identified four main rationales for opening up:

1. Economic competitiveness
2. Responding to global challenges
3. Meeting the demographic and educational challenge of human resources
4. Promoting political cooperation, dialogue and trust

1. The EU economy should also rely on sources of knowledge from non-EU countries. European companies already perform a substantial amount of R&D and other knowledge-based activities in other continents. The ERA should facilitate this access to external sources of knowledge but it should also attempt to disseminate them across Europe.
2. ERA should make more visible its contribution to the generation of knowledge beneficial to everybody. It has been suggested to select and make more visible a few flagship ventures that could signal the willingness of the ERA to address scientific and technological activities that can be considered global public goods.
3. The European demographic decline will also affect the possibility of recruiting scientists and engineers of the future. The issue is relevant for collaboration with non-EU countries since it is very likely that a large part of the next generation of scientists and engineers will be born outside Europe, the US and Japan. This in turn requires that appropriate policies for the training, circulation and admission of non-EU scientists and researchers should be adopted.
4. EU S&T cooperation has wider political implications and is a tool of the overall EU external policy. The EG discussed to what extent S&T policies should also be associated to EU Common Foreign and Security Policy. A closer exchange of communication with the representatives of EU foreign policy could be beneficial to maximize the effectiveness of S&T policies towards third countries.

Across the four main rationales that justify S&T collaboration, it has forcefully emerged that what the EU can provide and receive from the various countries is often profoundly different.

The Report has also made a number of specific recommendations, the most important of which are:

In terms of coordination:

- make optimal use of the new initiatives following variable geometry arrangements for strengthening international cooperation;
- strengthen synergies and complementarities between FP7 and EUREKA and COST;

- optimize the use of research infrastructures for strengthening contacts and cooperation with neighboring countries and for supporting the international dimension of Community research.

Special attention was devoted to the science and technology agreements (STA) between the Community and certain third countries.

- STAs should be made more transparent by ensuring the involvement of member states and partner countries;
- ensure the coordination between STAs and new FP7 schemes that are also addressing policy coordination;
- strengthen the EU S&T Counsellors and their networking with EU member states' representatives in third countries;
- integrate the S&T dimension more prominently in summits between the EU and third countries.

It was strongly perceived by the EG that different countries will be able to provide and receive different benefits from international cooperation. The EG attempted to single out the unifying principles that should inspire international cooperation and how they should be applied differently in the various contexts.

- the identified common principles that should guide S&T cooperation with all types of third countries are: a) reciprocity, b) free mobility of scientists, c) mutual benefit and joint agenda setting. This requires the EU to look carefully at the related policies of visas to aid mobility of scientists and conflicts in IPRs when such cooperation is undertaken;
- rationalization of the multiple instruments and fora for agenda-setting in S&T cooperation with countries that have overlapping memberships is urgently needed to promote the coherence of S&T policies towards emerging market, neighbourhood and developing economies;
- it is recommended that any S&T cooperation dialogue with a country or a group of countries should be based upon an analysis of their S&T capabilities and the level of economic development that prevails in that country or group of countries. The proposed

research themes and their ability to respond to global challenges should also be assessed;

- the historical links between new member states with Russia, China, India and other countries should be better exploited by using their knowledge in devising agreements with such countries. However, care should be taken to ensure that continuance of these pre-existing links does not become an impediment to their own successful integration within Europe;
- when the EU is planning cooperation agreements with third countries, it should also pay attention to regional organizations of which they are part, with a view to gaining access to other countries also participating in that agreement.

The problem of priority settings and coordination in S&T cooperation has also emerged, and the main recommendations are the following:

- a more comprehensive information system on S&T opportunities and perspectives would be beneficial for international cooperation. It would also be useful if the ERAWATCH and INNO-POLICY TRENDCHART could collect data specifically on science and technology agreements between different countries and policy stances concerning international cooperation per se;
- it is strongly recommended that the unit within the Directorate currently responsible for this activity is empowered to ensure the internal coherence of Commission activities in this sphere;
- the Expert Group recommends the setting up of a 'European Strategy Forum for International Cooperation' (ESFIC), organized along the lines of

ESFRI, to act as a focal point for the development of a coherent approach to international cooperation involving European partners.

The Recommendations suggested here confirm the strategic importance of linking the European Research Area to other parts of the world. Some important innovations introduced in FP7 already allow for a greater integration to occur and the fact that the Green Paper has considered international collaboration as one of the six principal dimensions of ERA is an important signal. The external dimension of ERA should not to be considered as a separate policy, but it should be integrated it in the bulk of activities carried out at both the national and European levels.

The existing instruments in the hands of the European Commission and of the other European research organizations can play a qualitative role far greater than their mere financial quantitative amount. Increasing coordination among the wealth of initiatives underway within European institutions is therefore required. The greatest amount of resources and instruments available for international cooperation do not sit within European institutions, but rather with national governments. In line with the Lisbon Strategy of 2000, it is therefore necessary to integrate and mobilize these resources in order to achieve the ambitious target of making Europe the largest and most competitive economy of the world. In order to achieve this, Europe also needs to become the continent of the world with the greatest level of interaction, collaboration and exchange with the scientific and technological communities of the other continents. The European Research Area has many good reasons to pursue this strategy. And it also has all the assets to make it possible.

7. Challenging Europe's research: rationales for the European Research Area

This report presents a rationale for a **European Research Area** that has a **clear purpose** which is **meaningful to Europe's citizens and political leaders** and **relevant to its key actors**. While there is a pressing need to improve the effectiveness of the public research system, the ultimate justification of the resources and commitment needed to achieve this lies in increasing the value of the contribution that public and private sector research makes, and is seen to make, to Europe's economic, social and environmental goals.

The central means to achieve this is to engage the research system in **Europe's response to a series of Grand Challenges** which depend upon research but which also involve actions to ensure innovation and the development of markets and/or public service environments. Challenges may be rooted in economic, social or scientific goals but share a need to demonstrate their relevance at the European level, their feasibility in terms of Europe's capability to engage with them, and a clear research dimension such that they gain the commitment of the research community and pull-through the necessary improvements in its efficiency and effectiveness.

A **research-friendly ecology** is needed to allow actors and institutions to work together in productive networks. Sub-criticality in Europe at the level of research institutions inhibits their ability to configure themselves to address interdisciplinary problems and opportunities and to work well with business. A new approach to networked specialisation is needed to address this. This links to an approach to cohesion which is based upon research institutions being supported to engage more fully with their regional context and local users.

The actors in ERA form the main locus of action and this report identifies key needs for each sector including:

- promotion of **transnational peer review** for research funding;

- support for the move towards greater **strategic space and autonomy for universities**;
- active steps to develop a true **European market for applied research services** in the RTO sector;
- continuation of moves towards a more **innovation-friendly market** for business and the conditions whereby innovation creates value in ways that benefit Europe;
- a focus on elimination of barriers to cross-sectoral mobility for researchers.

A step change in the quality of dialogue and linkages between supply and demand for research forms our third major theme, the need to re-orientate strategic and applied research in Europe in close support of the full range of policies that Member States have agreed should be articulated at European level. This involves the Framework Programme and national programmes, linked through ERA-NETs and other instruments engaging much more effectively with policy needs in areas such as the environment, transport, energy, agriculture and health. Gaining full impact from these recommendations will require that consideration be given to the effective allocation of responsibilities and procedures within Commission Services and Member States.

None of our recommendations work against the measures proposed in the Green Paper. Current efforts to address evident deficiencies in the research system should proceed and be strengthened. The focus here is on the additional needs and measures required in order to make **the compelling case for a real shift of resources** in the forthcoming budgetary round, equipping the research community to make its central contribution to the future economic and social well-being of Europe's citizens.

European Commission

Executive summaries

2008 — 28 pp. — A4, 21.0 x 29.7 cm

How to obtain EU publications

Our priced publications are available from EU Bookshop (<http://bookshop.europa.eu>), where you can place an order with the sales agent of your choice.

The Publications Office has a worldwide network of sales agents. You can obtain their contact details by sending a fax to (352) 29 29-42758.



Publications Office

Publications.europa.eu