THE ROYAL SOCIETY

The place of fundamental research in the European Research Area: the Royal Society response to the Mayor report

1 This document sets out the Society's views on the importance of fundamental research for Europe, the need to improve European performance at the highest levels while safeguarding its current underlying strength in depth within many of its Member States, and the potential role of a European Research Council. It was prepared by a working group chaired by Professor Julia Higgins, and has been endorsed by the Council of the Royal Society.

Background

2 Ministers at the 2000 Lisbon European Council agreed that Europe should set itself the objective of becoming 'the most competitive and dynamic knowledge-based economy in the world.' This led to the 2002 Barcelona European Council setting an equally ambitious and more specific quantitative target - to increase the total European research and development expenditure (OECD defined Gross Expenditure on R&D (GERD)) to 3% of GDP by 2010, from its present base of 1.9%[1]. Despite the fact that compared with the United States the shortfall of European R&D largely falls in the business sector in terms of both funding and performance (Figure 1), the quantity and quality of fundamental research[2] in Europe is of great importance to its future economic development. As fundamental research is largely resourced from public funds, this has led to a number of proposals for the establishment of a European Research Council (ERC) with a significant budget.

3 In order to place the various proposals in this area in context, the Society established a small working group (membership listed at annex A) to advise it on the current situation over the funding of fundamental research within Europe, and on specific proposals where appropriate. The working group's background paper on the funding of fundamental research in Europe is on the Society's website at http://www.royalsoc.ac.uk/policy/. This has been used by the Society to stimulate debate and to consider the latest proposals from the Expert Group, chaired by Professor Frederico Mayor (EGERC 2003) and set up during the Danish Presidency of the European Council, for the establishment of a European Fund for Research Excellence administered by an autonomous ERC.

4 The Society's background paper indicated that while the quantity of European fundamental research is comparable to that of the United States, there is probably a significant shortfall in overall quality and certainly a major shortfall in its overall impact[3]. The shortfall in impact is particularly noticeable in the standing of the highest quality research teams. Hence Europe's aspiration to be the most competitive and dynamic knowledge based economy requires the development and maintenance of more centres of research excellence within Europe that can compete at a world level, than are currently maintained by national funding bodies. There is thus a potentially legitimate role for central EU funding for this purpose, which is acceptable on the grounds of subsidiarity. It is, however, essential that the European scientific community scrutinises carefully the proposals in the Mayor report and any subsequent proposals from the European Commission, and that the detailed arrangements are generally acceptable to the community.

[1] The 3% target was for EU(15). With the enlargement to 25 states (EU(25)) the current overall GERD is only slightly below that for EU(15), because of the relatively low GERD and GDP for the accession states. Since many of these states expect that joining the EU will lead to a relatively rapid increase in GDP, in the short term it will be difficult for them to increase significantly the R&D share of GDP, and the EU(25) GERD is likely to fall further.

[2] The Royal Society's background paper used the term 'fundamental research' to cover non-propriety research, rather than 'basic research' because of the widely used more limited definition of the latter in the OECD Frascati Manual.

[3] The situation is, however, not so dire as reported in the fourth line of page 10 of the Mayor Report, where the figure for the total number of highly cited papers as a percentage of total number of scientific publications is put at 0.25% for the EU against 1.64% for the US. The actual figure must be higher than this, as this is lower than the figures for all the individual Member States (see annex D).

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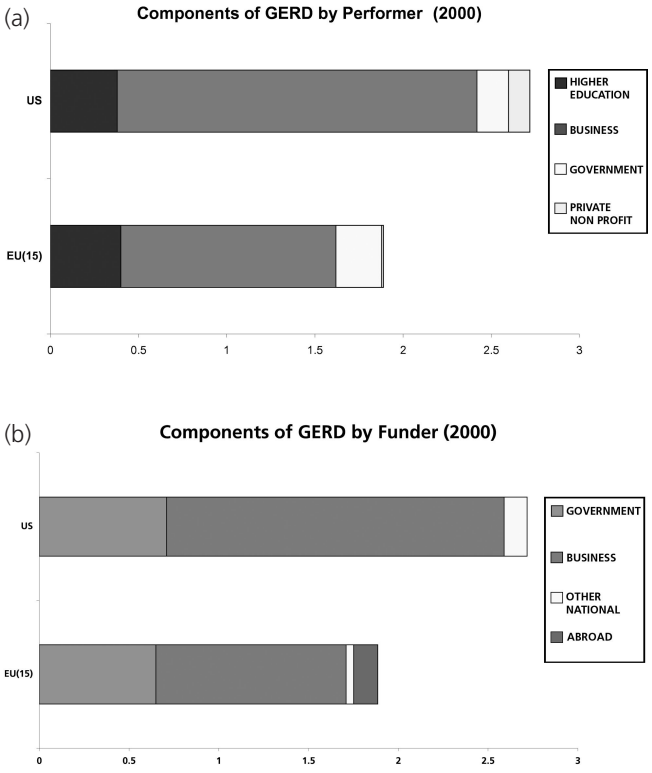
Figure 1. Gross expenditure on R&D



5 There are many benefits flowing from fundamental research as set out in annex B, other than just the research results themselves, and these benefits accrue at all levels from the institution, city, region, state, Europe and the world in general. At least two points flow from this and earlier paragraphs in connection with the proposals for an ERC:

(a) only fundamental research projects of the highest international standing should be funded at a European level by this mechanism, with the funds overseen by an autonomous body empowered to take decisions purely on the quality of the research proposal, and answerable to its sponsoring body or bodies only for the achievement of its overall mission and on its financial probity and effectiveness. The body administering the funds must have the full confidence of the scientific community, and must quickly establish a reputation for excellence in funding decisions and in its cost effective operation;

(b) at this stage, particularly where public funds in many Member States are under severe pressure, it is important that this European research-funding dimension does not diminish the current national budgets for fundamental research. Not only would top- slicing national budgets be self-defeating in contributing to an overall increase in R&D expenditure, Member States should be encouraged to increase their own current funding levels. Hence, the European component should be funded from central resources, as proposed by the Mayor report. While, of course, central funds are ultimately provided by Member States, initiatives to increase the innovative capacity of the Union should be accorded a high priority within the existing central funding, and need not be used as a reason for increasing the current cap on central funds.

6 There is a danger of trying to load any new institution with too many activities at the start. This should be guarded against. The prime role of any new funding arrangements must be to support the highest quality research proposals, and establishing suitable arrangements for this must be the first task. Only when this has been achieved should other activities be considered, including any proposals for the ERC to take over other fundamental research-based activities within the Framework programme, such as those associated with researcher mobility. Similarly, if it were seen to be appropriate to use the ERC to develop the scientific potential of weaker regions and in particular the transition from EU(15) to EU(25) and beyond, this should only be part of a second or later phase. Furthermore, these secondary activities should only be taken on if they can be seen as distinct and transparent activities funded through an ERC from appropriate EU budgets. Many of these potential later phase activities require a more in-depth understanding of the existing situation than is currently available.

The Mayor proposals

7 The overall thrust of the December 2003 Mayor proposals is significantly more focused than some previous contributions to the debate. In particular, we support the establishment of a European Fund for Research Excellence (EFRE) from central EU resources, to be administered by an autonomous body that would take decisions purely on the quality of the research proposals, using a rigorous and transparent peer review process, and for the EFRE to cover all disciplines, including the arts, the social sciences and the humanities as well as the natural sciences. The single criterion for considering proposals must be research excellence. In the rest of this paper the arrangements are referred to as an European Research Council (ERC) although it should, at least initially, have a more limited role than some would associate with a research council.

8 There is only one additional funding task that the Society would suggest should be considered as part of the initial work of the ERC, and that is the support of the highest quality postdoctoral researchers through relatively long-term fellowships (eg five year with possibility of extension up to a further five years) to be held at the European institution or series of institutions of the fellow's choice, with the possibility of a year outside of Europe during the appointment. Such a scheme would complement the Marie Curie Fellowships currently supported under the Framework Programme. A possible model is the Society's own University Research Fellowships (details in annex C).

9 We also agree that an important initial task for the ERC would be to build up a detailed picture of the European research landscape. While this is not essential for the proposed initial tasks for the ERC, the present paucity of

consistent information at an institutional level of detail is hindering the development of other support measures for fundamental research supported by the Commission that might be seen as a second phase of development for the ERC.

10 It will be essential for the ERC to establish itself quickly as a body with a high degree of credibility for supporting research excellence and for cost effective operation. This in itself is a strong reason for restricting its initial terms of reference until it has secured this reputation.

11 The Society strongly endorses the Report's call for the decisions on the distribution of the EFRE to be totally independent of the Commission, except for the delivery of its agreed mission and financial audit arrangements. As the report indicates, there is a range of legal options for the ERC, and these will have to be considered carefully. At least one of the options suggested – that of an EU Executive Agency – is unlikely to provide a sufficient degree of autonomy if set up under Regulation 58/2003. However, we understand that it should be possible to establish a more autonomous agency within the current EU Treaty, although there may not be existing models to guide this process. Similarly, the governance arrangements also need careful investigation, especially the arrangements for the appointment of members of the first governing body and for their replacement, and also the respective powers of the governing body (Senate, as proposed in EGERC 2003) and the executive Board of Directors, including the chief executive.

12 The two key appointments are first that of the chairman of the governors, and then subsequently the appointment by the governors of the chief executive.

13 The governance and administrative arrangements must also be such that non-financial accountability is ensured. It will be essential for there to be an early evaluation of the ERC over the way that it is functioning with respect to the selection of the research programmes – for example to examine how the funds are being distributed in relation to the quality of teams receiving support. It will also be necessary to establish some longer-term milestones and appropriate performance indicators against which the performance of the ERC can be judged over say five to seven years. Both these short and longer-term reviews must have the full confidence of the academic community and the arrangements for these will need careful consideration before the Council is established.

14 It will be essential for the ERC to keep closely in touch with Member State funding agencies for fundamental research. Where appropriate, the Council could coordinate jointly funded infrastructure projects on a voluntary contribution basis.

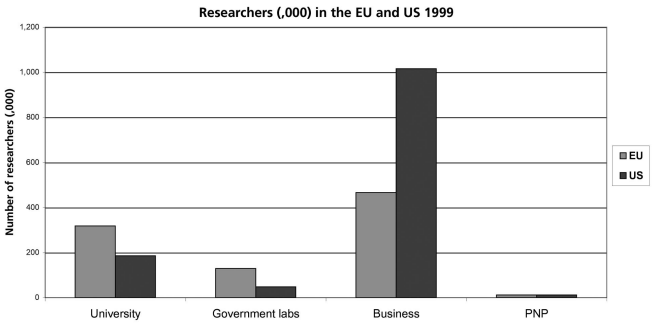
15 It is difficult to determine the most appropriate level of resources that should be provided, but the Fund is unlikely to make a sufficiently large impact if the annual spend by year five is less than € 1bn, and € 2bn (about 5% of current EU(15) expenditure on R&D undertaken in higher education (HERD)) may well be optimal in the longer term.

16 There are many other issues that require early resolution, including:

- the need to ensure subsidiarity;
- the mechanism to be used to determine the distribution between broad discipline areas;
- the mechanism for handling interdisciplinary areas;
- the minimum size of grant that will be provided; this may well have to vary significantly across disciplines;
- the basis for funding research overheads;
- the relationship with national funding bodies;
- the relationship with existing pan-European research bodies such as ESA, CERN and EMBO; and
- the handling of IPR resulting from ERC funding.

17 Finally, while increasing the impact of European fundamental research is necessary for a future innovative and dynamic economy, it will not be sufficient merely to establish the European Fund for Research Excellence and an ERC. Efforts to establish these must not detract from other initiatives to boost the innovative capacity of European businesses at all levels. Furthermore, in addition to the significant differences in the funds provided by business and used by business in intramural R&D, there is a major difference in the number of business researchers in the US and Europe as shown in Figure 2. However, the additional researchers and other highly skilled people will not be forthcoming unless young people perceive that European business is likely to expand its innovative capacity significantly, and that business research is a desirable career aspiration.

Figure 2. Number of research staff



18 The Society's detailed comments on the Mayor proposals are set out in annex D.

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Annex A

Royal Society Working Group on fundamental research in Europe

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Annex B

The purpose of fundamental research

1 Fundamental research is largely supported by public funds because of a breakdown in the market economy in this area, the research having such long payback times that an individual firm is unlikely to get a sufficient return to justify its investment. However, since most research is done in other countries – this is true even of the US - it is important to consider why individual states invest in fundamental research. Recently a number of commentators supporting the pooling of resources have said that it is paradoxical that national states are unwilling to pool their funds for fundamental research as this would make the production of new knowledge more efficient.

2 However, there are six overlapping reasons for funding fundamental research:

- to maintain and develop knowledge, skills, and long-term research infrastructure, for unforeseen eventualities and also a capacity to keep in touch with and understand developments occurring elsewhere in the world;
- to solve problems – eg to underpin solutions to societal problems such as those in the health, social, economic, environmental areas;
- to fuel economic activity, new and better/cheaper products and new and better/more efficient services;
- to train PhDs and post docs and to provide within universities an exciting and challenging learning environment for first degree and masters students;
- to retain existing expertise, and to attract inward migration of skilled people;
- to retain business investment and to attract 'foreign' companies/capital.

Implicit in many of these are the key roles that fundamental research plays in maintaining culture and a community's standing within the world.

3 From these it can be seen that there are significant localised benefits from fundamental research activity including:

- maintaining expertise across a wide range of disciplines, with people able to pick up and run with new ideas wherever they are generated – includes being available to provide advice to regional and national governments;
- providing the entry ticket to the international research community, sometimes through formal collaborations, but at other times just through attendance at conferences and informal contacts;
- maintaining an interface between universities and the business and wider community;
- educational benefits.

4 The case for a European dimension to the public funding of fundamental research rests largely with the need to increase the quality and impact of European research, and hence should be involved with funding the highest quality European research teams.

Annex C

Royal Society University Research Fellowships

The Royal Society University Research Fellowships (URFs) are awarded for research in any of the natural sciences (including agriculture, mathematics, health and human sciences, technology and engineering).

The scheme aims to provide outstanding young scientists, who should have the potential to become leaders in their chosen field, with the opportunity to build an independent research career. It provides funding for postdoctoral researchers for up to 10 years and fellows undertake teaching and administration duties only on a voluntary basis, which allows them to concentrate on their research for an assured length of time. There are currently 296 URFs in post.

Eligibility: Applicants must have a PhD or equivalent research experience, and must have at least two and not more than seven years' full-time postdoctoral research. Career breaks such as maternity leave, EU national service and voluntary service overseas can be discounted, but teaching experience and/or time spend in industry since the award of a PhD should be included in the total amount of postdoctoral experience. Part-time work will be counted pro rata. URFs are open only to European Union citizens who are either currently employed in the UK or, if not employed, have at some time been resident in the UK for a continuous period of three years other than for the sole purpose of receiving full-time education.

Length of tenure: Appointments are tenable for five years in the first instance (with the possibility of extension in two instalments up to a maximum of 10 years)

Place of tenure: Fellowships are held in a UK university, but fellows can apply to spend one year of their fellowship abroad with the agreement of the head of department in the UK and the proposed university abroad.

Value: Research fellows are paid on the non-clinical academic and academic related staff (Lecturer A and B) salary scales which currently run from £22,191 to £33,679 plus three discretionary points up to £37,629. Starting salaries will be set at a point on this scale, with London Allowance where appropriate, and will rise incrementally each year. A limited number of merit increments will be awarded each year to reward outstanding performance. Research expenses will be available (up to £13,000 for the first year and up to £11,000 annually thereafter) together with relocation expenses and a contribution to baggage costs for successful applicants from overseas and their families.

Number offered: Around 30 available for 2004.

Annex D

Detailed comments on specific proposals in the Mayor report

(Extracts from the Mayor report are italicised)

1 Supporting fundamental research

The present European system of funding basic research is far from optimal. At present, this is mainly the responsibility of the member states, which vary greatly in both resources and decision-making, and the inputs from the EU are very small.

A main purpose of the new funding scheme for European research should be to identify and support the very best researchers and research teams and ensure that they are adequately funded on a level that makes them truly competitive on a global scale.

While the Royal Society agrees that there are aspects of the funding of basic or fundamental research within Europe that is not optimal, it does not help to overstate the position. The Society believes that much of the funding of fundamental research is best handled at a national or in some cases regional level, and it is most important that this support is not undermined. Nevertheless, there is a potential European dimension to the funding of fundamental research within the Union, and not all of this is being addressed within the current Framework Programme.

The Society agrees that the main shortfall in support for fundamental research at a European level is a mechanism to ensure that the very best research is being adequately funded so that it can compete on a global scale.

2 European Research Council

The EU should establish a European Fund for Research Excellence, which over the first 3-5 years would rise to provide a grant volume of at least € 2billion per year. Its scope would cover all fields including social sciences and the humanities.

An autonomous European Research Council should be established to administer this fund, with the primary task of supporting investigator driven research of the highest quality selected through European competition, by creating and supporting nodes of excellence in European Universities and research institutions.

Funding decisions should be based on scientific criteria, using a rigorous and transparent international peer review process. It should encourage interdisciplinary and risk taking projects, especially in emerging research areas.

The governance structure for the ERC should give it full autonomy in research matters, granting decisions and funding policies, while being accountable for finance and mission to the Union and other sponsors.

The Society supports the formation of a European Fund for Research Excellence (EFRE) as a basis for developing a European dimension to the support of fundamental research at the very highest level, and that this should provide a crucial key to the future development of Europe's knowledge economy. Such support must be targeted at the very highest international quality research, and complement the activities of national support bodies. In addition to including the social sciences and humanities the coverage should include the arts. The Society also suggests that the Fund be used to support some of Europe's highest quality young post postdoctoral researchers on long-term (5 years extendable by up to a further 5years) fellowships, located at the European institution or series of institutions of the fellow's choice.

While there is no 'right' figure for the level of resources that would be required, a target by year 5 of less than € 1bn pa would not be worthwhile, and the suggested figure of € 2bn may well be optimal, particularly in the longer term. It should be a prime responsibility of the new ERC to make the case within a year for confirming the required level of funding by year 5 of its operation.

The funding should be found from within the present central EU resources, and should not be found from levies on national research resources. The funds should be found by re-prioritising EU funding outside the R&D area and need not lead to proposals for increases to the cap on EU expenditure levels.

The ERC must be established as an autonomous body with a peer review structure capable of ensuring that decisions on funding were taken purely on the quality of the research proposal. The body should only be responsible to the EU for its overall mission and the propriety and cost effectiveness of its use of the available funds.

3 Background data

The ERC needs to develop a comprehensive and deep knowledge of the European research landscape in order to guide its own work.

The Society believes that in conjunction with Eurostat, national statistical agencies and other national centres with relevant expertise, the ERC needs to build up a detailed picture on the European Science Base; at present information at a detailed level is fragmentary and not collected on a comparable basis. Such detailed information is also essential for any expansion of the ERC's work. It is also important to determine accurate EU wide bibliographic figures that eliminate double counting of publications.

4 Developing the ERC

At a later stage in the development of the ERC, additional tasks may be considered, complementing or replacing existing national and European funding mechanisms. Some examples of additional tasks, which have been suggested to us, are:

- *Programmes of support for a wider access to international, large-scale research programmes as well as to major European and international research facilities and infrastructures*

- *Programmes for research training, mobility and career development in order to increase the number and the quality of researchers for the future and recruiting those of high talent to Europe*

- *Programmes to inspire, guide and link the development of competitive research capacity in weaker regions, geographically or thematically*

- *Mechanisms for improved collaboration between national research funding organizations*

With time the ERC will build up increasing experience and science-driven knowledge of the European and international research system and it will thus be natural to ask for the advice of the ERC in many research policy matters.

However, such expanded tasks will depend on the future development of research funding policies in Europe, and of course on a successful development of the primary task of the ERC.

The Society agrees that the ERC must concentrate on building up its prime mission, and not be deflected onto other matters. It is essential that it establishes a reputation for excellence. In time, as a second or later phase of development, it may well be able to take over activities currently undertaken through the Framework Programme and ESF. However, if and when it does so, the arrangements and particularly the sources of funding must be transparent, and must not deflect the ERC from its main objective of supporting the highest quality fundamental research in Europe.

5 Basic research in Europe

The report lists a number of areas where Europe lags behind the US:

- *The number of scientific publications per capita is slightly higher in the USA than in the EU (926 publications per million population in the USA compared with 818 in the EU-15). But the ratio of highly cited scientific publications is much higher in the USA than in the EU (the USA has 1.64 % of the total number of highly cited papers as percentage of total number of scientific publications, Japan has 0.59 % and the EU has only 0.25%).*

- *Out of the 101 Nobel prizes in chemistry, medicine and physics awarded in the last 15 years 68 went to the USA and only 23 to Europe.*

When European countries collaborate in research they can achieve the highest international quality and are able to take the lead. There are specific areas of research where there is a high level of excellence in Europe and there are areas of truly European collaboration. CERN, ESA, ESO and EMBL are all examples of successful ….However, for disciplines where there is no need for sharing large-scale facilities or other critical resources there are (with few exceptions) no comparable mechanisms for European level collaboration. The same is true for interdisciplinary and emerging areas of research.

Another example of this relative weakness is research aimed at solving major global or international problems. Individual European countries make valuable contributions to research on environmental challenges, climate change and the difficulties faced by developing countries, but these efforts need to be strengthened at the European level.

While the Society agrees that the impact of European fundamental research is significantly less than that of the US, the situation is not so dire as suggested by the EU figure of 0.25% quoted in the first bullet point. All of the EU(15) individual nation states are higher than this and eight are over 0.9%. It is not straightforward going from national to EU wide statistics, and more in-depth investigation in this area must be accorded a high priority.

The Society agrees that the highest priority is to ensure that the very best quality teams in Europe are funded at the appropriate level and enabled to cooperate with other teams across the EU and, where appropriate, make strategic alliances with teams outside of Europe. However, any collaboration must be science driven, not imposed or even encouraged artificially by any top down mechanism. There needs to be the right balance between cooperation and competition.

The Society believes that national funding bodies should continue to play a major role in this area, and are generally well coordinated. While an ERC would be able to strengthen this coordination, this is not a priority task in the first year or so, unless the proposals otherwise fit into its prime responsibility.

6 People issues

The knowledge base depends primarily on talented and skilled people. The challenge is to strengthen the knowledge base both in numbers and quality: by targeting the researchers who can create excellence and competitiveness in private research-led companies, universities and research institutions. There is a need to intensify and improve the training of new researchers of high quality for industry, society in general, the higher education institutions and the research institutes. Not only must large numbers of scholars and scientists be trained, but Europe must also take care to give the best of them a career in research……. Measures should be taken to develop career possibilities for both men and women. The best should be retained in Europe and be given adequate resources to allow them to take on important research challenges.

Given the foreseeable demographic development in the next ten to fifteen years, there will be a shortage of highly qualified researchers. Europe and its member states should train enough scholars and scientists and help create leaders for the research centres and research groups in the universities and research institutes. Without such nodes of excellence and vital and leading academic research centres there is a risk that European industry will shift more of its investments in R&D to other countries where the knowledge base is stronger.

While private investments dominate the total R&D effort, companies and private organizations are dependent on the public investments and the quality of the publicly funded research efforts. Only if public sources, national and European, create a broad base of trained people and first-class research establishments will the big private and research-dependent industries continue to invest in Europe to the necessary extent.

National commitments to increased public investments in research, combined with and strengthened by a new European research policy for basic research, are therefore of paramount importance. There are several European initiatives to these ends, predominantly the Training and Mobility Schemes of the EU Framework Programme and the Marie Curie grants. But more has to be done.

At present the number of researchers in relation to the total labour force is much higher in Japan and the USA (9.3 and 8.1 per thousand in Japan and the USA respectively, compared with 5.4 in the EU-15). However, when it comes to training of new researchers the EU-15 (calculated on the present membership) is doing well (0.56 new S&T PhDs per thousand population in the EU compared with 0.48 and 0.24 in the USA and Japan respectively).2 But Europe has difficulties to retain the best of them, to make the very best use of them and also to attract the very best from other parts of the world.

The Society believes that prime responsibility for education and training should be retained at a Member State or further devolved level. However, there are major issues that need to be considered on a European basis, some of which are already being addressed within the Framework Programme:

- First it is essential to be able to attract and retain some of the very best researchers within the European science base. This will however, need more than just the availability of research grants, it will also require improvements to the career structure within European universities and fundamental research institutes.

- It will be difficult to attract significant numbers of additional researchers unless there is a perceived prospect of a significant increase in the number of business R&D posts within Europe.

The Society's suggestion that the ERC should support the highest quality young postdoctoral researchers on long-term fellowships should help to retain them within Europe against the competition from attractive positions in the United States and elsewhere.

7 Infrastructures and shared resources

Europe has been very successful in some areas where it has established intergovernmental agencies (high energy physics, molecular biology, space, astronomy etc). However it is not sufficiently organised to respond effectively when new needs arise or to be a credible partner in new research areas. There are weaknesses in the present system for discussing and deciding on new investments in big facilities, and for updating existing facilities…and growing efforts of ESFRI (the European Strategy Forum for Research Infrastructures), such matters are largely being decided in isolation both by country and by subject and without systematic involvement of the research community. The consequence is that, while each investment may be well justified within a national and subject context, it may be less optimal seen from a wider European perspective and in comparison with other subject areas. Improvements in this have been made, but more is needed based upon ESFRI efforts and experiences.

In the future, the ERC could well discuss with national funding bodies the development of large scale infrastructure projects, and in appropriate cases contribute to the cost.

8 The scientific potential of weaker regions

Areas of Europe where the R&D systems are less well developed at present will also gain by long-term programmes aimed at building a strong research base. In the short term, there is an evident tension between the principle of competition for excellence and building research capacity in areas and subjects where research is relatively weak. But by encouraging excellence in such areas, involving the best researchers in the effort, and by training young researchers in other European laboratories and university departments, standards can be raised. Incentives to attract highly qualified researchers to stay in, or return to, such areas should be created. The task of building broad and solid research bases in the different countries must, as at present, be a task for the national bodies, possibly also supported by the EU structural funds, European Investment bank and other possible sources of funding.

As indicated above, when the ERC has built up a detailed picture of the European Science Base it will be in a position to advise on and administer programmes to develop the scientific potential of weaker regions. However, this must not detract from the ERC's major role and should be funded through the appropriate EU and other funding streams (such as EU structural funds) in a transparent way.

The Society commends the recent ALLEA position paper on this subject (ALLEA 2004)[4], and its proposals for developing the scientific potential of new Member States.

9 Operational perspectives

The ERC must operate as an autonomous body with its basic expertise derived from the international research community. ……..This will be essential if the ERC is to obtain trust and credibility within the research community and with society at large.

The ERC must work according to its own decisions, and keep its independence from national concerns or other particular interests. We believe that a certain measure of healthy competition between the various R&D funding organizations and a diversity of funding sources are desirable in order to achieve a highly competitive, risk-takin and innovative research system.

[4] All references are to the list at the end of the main paper.

As previously stressed the Society would only support the establishment of an ERC if it were totally autonomous with its basic expertise derived from the research community.

10 Funding of the ERC

The budget needed for the creation of the ERC should come from the European Union. How this can be done depends on the EU Treaty.

Additional resources for particular purposes should later on also come from other sources of funding (national or international research funding bodies, charities, private funding institutions) but the bulk of the funding must be from the EU. Crucial to the success of creating an ERC is that it is accompanied by a general increase in funding of R&D in Europe. Only if such an increase in funding is forthcoming, will the purpose of the ERC be fully achieved. The ERC should therefore be created as an addition to existing and well functioning national or European R&D activities.

The Society agrees that the resources for the European Fund for Research Excellence should be come from the EU, and be additional to the existing EU R&D resources.

While additional resources may later come from sources other than central EU funds, these should be on a voluntary basis. It is likely that the ERC, as a significant European R&D funder, would develop close relationships with other major European funders, and in appropriate cases there may be jointly funded projects, especially underpinning strategic research infrastructure. The Society would not expect that in the foreseeable future the ERC itself would be funded through regular subventions from national bodies.

11 Accountability

The ERC must be accountable to the European Union and other sponsors as a major new European entity and an important instrument for building up the ERA. The ERC must be accountable not only for the funds received and distributed by it, but also for its funding principles, its overriding priorities and its actions.

The Society believes that appropriate accountability principles must be defined at the outset. Particular care must be taken to ensure that this does not distort the autonomy of the ERC in terms of scientific decisions. In addition, there needs to be accountability to the European research community, and we are not convinced that the proposed Advisory Forum, while a helpful suggestion, in itself fully meets this requirement.

12 Governance

It is of the utmost importance that both researchers and politicians trust and have confidence in the new body. The ERC will need a governing body which we propose is called the Senate, an executive body, the Board of Directors, and an advisory body, the Advisory Forum.

The members of the Senate should be highly respected personalities with a deep knowledge of research and research management and with a high standing in the political system and in society. The majority should be highly respected scientists and scholars. The members of the Senate should be appointed and act in their personal capacity. A small Scientific Implementation Committee, consisting of eminent researchers and experienced research managers and covering broad subject areas, should be set up to give advice about the creation of the ERC. This includes nominations of the first executives and members of the Governing body.

The Senate will carry strategic decision-making functions. It will appoint the Chief Executive and the other members of the Board of Directors. The Senate will decide on the strategic plans and the overall priorities in accordance with the general guidelines from the sponsors. The Senate shall approve of the principles of procedure for the operations of the ERC. It will ensure that the activities are carried out in accordance with the principles of scientific autonomy, academic quality assurance, and research-based priority setting. It will decide on the overall distribution of funds according to the budget lines. In fulfilling these functions, the Senate should allow for flexibility in implementing new initiatives. It will ensure that all operations are appropriately evaluated. An important task for the Senate is to interact with the relevant spectrum of scientific and political institutions and representatives of European society. This may involve representative organisations for universities, national and European research organisations and national research councils.

The Advisory Forum should facilitate this interaction. It will give the Senate and the Board of Directors important feedback from the European research community and will be a channel of communication between the ERC and universities, research institutes, national research councils, other funding organizations and European bodies of research such as the ESF. The Advisory Forum will also facilitate the establishment of non-permanent committees and panels of the highest academic level for the preparation of new funding initiatives, for peer review of proposals and for programme evaluation.

Evaluation and monitoring of performance are important for the development of the organisation and systematic learning from experiences, as well as for control of results. Programmes undertaken by the ERC should have well-defined objectives in terms of impact and results in order to allow for the systematic building up of experience, and for early correction of mistakes. New programmes should not be undertaken unless also a clear decision about the evaluation of the respective programmes has been made.

The Society believe that the proposals make an appropriate starting point for consideration of the governance arrangements, and would not at this stage wish to comment in detail. Of crucial importance will be the mechanism for appointing the members of the first Senate and the arrangements for securing future membership. It is crucial for members to have the full confidence of both the

European academic community and the wider community, which we presume is what is meant by 'high standing in the political system and in society', and for the majority to have recognised expertise in both research and research management.

It is crucial for members of Senate to have the full confidence of the research community, and it is important to consider further the arrangements for ensuring accountability.

13 Institutional requirements

The legal framework for the ERC will ultimately depend on the outcome of negotiations between the Member States, the European Parliament, and the Commission. Nevertheless, we should like to emphasize that in any case the following requirements have to be met:

The ERC must be able to operate independently in order to establish its reputation as a research funding institution of highest quality and thus earn its credibility in the European research community and in society at large. The decisions of the ERC on research priorities and funding issues must be protected from any undue outside intervention.

With excellence as the ultimate goal of an ERC, the Board of Directors must be in a position to appoint committee members, advisers and evaluators irrespective of their country of origin or other non-research related considerations. In all research funding matters the Board of Directors should be accountable to the Senate, whilst for financial and other organisational matters there may be the need to deal with them in an appropriate institutional setting which gives the sponsors appropriate influence and control.

It will be vital for the success of the ERC that it can operate in a research-friendly, non-bureaucratic manner, eg by making grants and awards instead of negotiating contracts and by avoiding cumbersome auditing procedures.

14 Legal options

There may be several ways in which ERC can be set up such that it has legal status and that the conditions for autonomy and accountability are met.

One option is to incorporate the ERC as an organisation in one of the EU member states and apply the legal framework of that state for setting it up, while ensuring that it is accountable to the sponsors and that the financial responsibilities are met.

A second option is to set up the ERC as an interagency body or a consortium of national actors like national research councils and other appropriate bodies. The contribution from the EU could then be based on the principles outlined in §169 of the present treaty. It must be done in such a way that requirements for 'juste retour', national or others, are avoided.

A third option would be to establish the ERC as an intergovernmental organization, instituted by a set of European states according to a Memorandum of Understanding. Though this model has proven very useful in the past, cf eg CERN and EMBC, it is hardly possible for this kind of body covering such a broad science policy objectives, as opposed to a single area of research.

A fourth option is to establish it as a European entity, such as eg an EU (executive) agency. This agency option will impose organizational, financial and auditory mechanisms and regulations on the ERC, which seems difficult to combine with the required autonomy. It seems also difficult to make the granting procedures simple and non-bureaucratic, as required by the research community.

New developments in the European legislation may open for other options which are better suited for the ERC. However, in order to get the ERC started a solution has to be found within the present treaty and frame of legislation.

The Society sees problems with all of these legal options and clearly much work still needs to be done. We are particularly concerned that the forth option, of establishing the ERC as an executive agency of the EU, would not lead to the required level of autonomy. However, while this is probably true for one established under Regulation 58/2003, we understand that there are other arrangements under the Treaty for establishing more autonomous agencies, although very little case law.

15 The way forward

In starting up the ERC, great care should be taken to establish a consistent and long term policy of evolution and growth. The best executives and members of the Senate and the Advisory Forum must be attracted and chosen independently of narrow national considerations. The new organisation must be given a stable support from its sponsors to develop and be able to maximize its efficiency without undue interference.

It is crucial for the credibility of an ERC that its implementation is a gradual process, with funding increased as the new organisation demonstrates its competence and ability to deliver results. During this transitional period the ERC will need to concentrate on instruments or areas of early focus where the most value added will be generated. A more detailed study of the European research landscape and building up of expertise along with the initial phase for the ERC can help shape its development.

The Society agrees that it is important to establish the ERC within long-term arrangements for funding of fundamental research that allow for evolution and growth, but that the Council should be given time to establish itself as a credible organisation of the highest quality with its limited initial programme before progressing to a wider portfolio.

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