POLICY FORUM: SCIENCE IN EUROPE

Implementing the European Research Area

Enric Banda

Although the idea of a European Research Area to promote coordination of European science and cross-border collaboration has received acclaim, implementation is being hotly debated. The following are the views of four prominent European spokesmen.

Over the past two years, a new political impetus has been given to European science through the concept of the European Research Area (ERA) articulated by Philippe Busquin, Commissioner for Research of the European Union (EU) (*1*, *2*). The ERA is a concept that attempts to catalyze coherence and to mobilize joint efforts across Europe with the aim of improving Europe's research capacity in global competition. No single country in Europe is able to compete with the American research effort, but working together and in the right way, we should be at least on par with our American competitors and colleagues. Busquin provided the badly needed political weight behind the idea, which was subsequently endorsed at the highest political level—the European Council of Heads of Government. However, there remain issues that need to be resolved.

The European Union's Framework Programme will be a contributor to the implementation of the ERA. However, the Programme is not primarily devoted to basic research and, furthermore, the great majority (95%) of funding available for research in Europe is nationally based within the research agencies of the various countries. Therefore, the ERA will never be properly implemented without a strong commitment from the EU countries.

What should we do now to make the ERA concept more concrete? We need to establish an appropriate structure at arm's length from the governments and avoid the problems of "juste retour" (in which the Member State's contributions are expected to be returned). This structure, a European Research Council (ERC), would use the best practices of national scientific funding through peer review and would be accessible to Europe's research community. Such a project, however, needs debate at all levels.

Who will provide the resources for an ERC? Ultimately, funds will need to come from national sources, perhaps augmented from the communal budget of the EU. This will not be easy to achieve because, paradoxically, scientific research—although by nature an international endeavour—is viewed as a national funding responsibility and national governments and their agencies jealously guard their independence and sovereignty. Realization of the ERC demands that governments at the highest level be prepared to honor their political commitments, overcome their suspicions and lack of interest in changing the status quo, and take a bold step forward.

Diversity of funding sources is healthy. I am not advocating the replacement of national systems by the ERC, but the use of the ERC to provide a new source of appropriate competition, to set a benchmark for national research endeavors, and thus to improve quality at all levels in the process of knowledge generation. The ERC should not be seen as just another bureaucracy but rather as a source of creativity.

We are not starting ab initio in such a design. The European Science Foundation (ESF) has been in existence as an association of national research funding agencies for more than a quarter of a century, concentrating on coordination mechanisms and support. Recently, anticipating the new needs for joint European funding, ESF has introduced its EUROCORE scheme for collaborative research (*3*). This is an open scheme in which national funding agencies, on a voluntary basis, come together to support a priority topic through a joint Call and Programme specification and a single international peer-review process, but with the grants being implemented at the national level. So we are halfway there already and accumulating experience daily on the operation of funding mechanisms at the European level. New internal structures in the ESF could be put into place to cope with added responsibility for funding. This is on top of the existing networking and cooperation experience which exists in Europe, and which is a European strength relative to the United States.

Strong European-wide organizations should be seen as reinforcing each other rather than being in competition. The Framework Programme would set European political objectives, and the ERC would provide the science base with a European support structure.

Europe must show its best face in setting up the structures that it needs for its research and development. It has done so in the past with the far-sighted vision of cooperative science exemplified in European Organization for Nuclear Research (CERN), European Southern Observatory (ESO), and European Molecular Biology Laboratory (EMBL). What it now needs is the same far-sighted vision in creating a European support structure for science.

References and Notes

1. See http://europa.eu.int/comm/research/area/preface_en.html
2. See http://cordis.lu/rtd2002/era-debate/era.htm
3. See www.esf.org/eurocores

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POLICY FORUM: SCIENCE IN EUROPE

Framework Programmes Evolve

Hans Wigzell

Europe is presently undergoing a most exciting period of transition. Via a cobweb of changes, a large number of nations are moving toward creating a federation of states, the European Union (EU). It is possible that in the end all of Europe, with Russia and Turkey, will be included. This is an experiment of a kind never tried before and it will be ongoing for many years. Strategic components for the success of this venture, such as research and innovation, will be dependent on well-understood, clearly organized structures with clear-cut organizations. The EU has chosen for the first decades of its existence to use a series of changing Framework Programmes to create what has been called a European Research Arena. Elements of these Framework programs aim to promote a European identity through such activities as supporting collaboration between scientists across national borders and encouraging movements of researchers between universities in different countries. A fundamental underlying principle has also been to link research with innovation, in a way that reduces the distance between basic research, applications, and products.

The Framework Programmes have been

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loathed by many academic scientists, who describe them as Loch Ness monsters of bureaucracy—with each new Framework Programme, new rules and terminologies tend to appear every five years. The procedures involved in selecting grant rewards have also been considered impregnable and foggy. Suspicions abound of secondary decisions being made in closed rooms in a process very different from classical, quality-controlled peer-review systems. Some of the suggested very large structures in the most recent, 6th Framework Programme have added to scientists' anxieties. These structures would be very difficult to assess from the point of view of quality, competitive advantage, and evaluation of results. The mixture of research and commercial innovations being intertwined in the Framework Programmes has added to the confusion. I believe that the Framework Programmes have played an important part in starting to move European scientists together. Particularly relevant have been the programs supporting scientists so that they can spend time in other European laboratories, but also various collaborative projects encompassing several research groups across many countries. It is, however, my firm belief that the time has come to split the Framework Programmes and to create a more conventional European Research Council (ERC), an organization more clearly under control by scientists.

This ERC should not be used to replace the various national research councils. It should be used to support elite centers, large technical projects, and collaborative research projects using clear peer-review protocols. Likewise, it would support certain special big tech activities, like the European Organization for Nuclear research (CERN), that cannot be developed in an optimal manner at the level of the individual nations. It should be a logical professional and scientific hub for European science. NIH and NSF in the United States could at least in part be considered as role models for how such an ERC should function. In parallel it may be prudent to create a European Innovation Council (EIC) to professionally support the development of results of science and innovations into applications and products. This EIC would take care of the significant application part in the present Framework Programmes. Role models for such an innovation council can be found at the national levels in European countries, i.e., in my own country, Sweden. A logical time frame for the suggested changes could be to introduce them at the end of the 6th Framework Programme.

POLICY FORUM: SCIENCE IN EUROPE

Biomedical Research and International Collaboration

George Radda

There is an undeniable need for improved collaboration and strategic coordination in European research. The challenge is to deliver this in an efficient and effective manner without hampering the creative vision and innovation of the scientists involved. In some quarters, the concept of a European Research Area has prompted the notion that an overarching body, such as a European Research Council (ERC), might take on this role. Is an administrative structure like the ERC truly necessary? In modern biomedical science, networking and working jointly across borders are already intrinsic parts of leading-edge research. Few scientists need encouragement to form alliances with colleagues in other countries, and scientists will choose quality in preference to geography in seeking partnerships. A measure of the extent of international collaborations is that in a survey of research publications by Medical Research Council (MRC)–supported scientists in 1996, 40% cited support from non-UK funders.

Our role as funders of science is to facilitate, nurture, and build collaborations. It is my view that in biomedical research we need a dynamic and flexible system to meet the constantly changing needs of science. This can be achieved if funding organizations of individual countries establish a synergistic and coordinated working relationship to improve collaboration in particular areas where true added value can be achieved.

In the UK, we took a major step forward in cancer research by establishing the National Cancer Research Institute (NCRI). This has been created to coordinate all aspects of cancer research in the UK, from basic research to clinical trials. The NCRI brings together the major cancer research charities, the MRC, and the UK Government's Health Departments with input from the pharmaceutical industry. It operates under a simple administrative structure, which coordinates the activities of the participating bodies, while allowing them to retain their own identities and vigor. The NCRI also provides a focal point for international collaborations in cancer research.

We at the MRC are always ready to explore new initiatives with our partners in other countries in Europe and beyond, particularly in the area of clinical trials. For example, we established a successful collaboration with the US Veterans Association and Canadian Institutes of Health Research, so that jointly we can fund larger, more powerful, and hence shorter, studies than can be achieved nationally. Such interactions also help best practice in trial design and management, and maximize the effectiveness of the investment of the three funding bodies. The first study of this group, the $12 million OPTIMA clinical trial for the evaluation of clinical management strategies for HIV patients, was launched recently.

In Europe, the Pasteur Institute, other French organizations, and the MRC are taking a lead role within the European Community in the development of a broad and coherent response to the ongoing emergency caused in developing societies by the major communicable diseases: malaria, tuberculosis, and AIDS. The aim is to establish a European Clinical Trials Platform (ECTP) to accelerate the development of new clinical interventions against their diseases. Again, the method envisaged is to network the relevant national research programs of key European Union (EU) Member States, in this case in collaboration with developing countries in sub-Saharan Africa.

National research organizations can also participate in cross-border research through their research institutes. For example, MRC Units and Institutes are involved in many international collaborations. In the European arena, these include more than 60 major research and training networks funded by the 5th EU Framework Programme. We believe in nurturing closer links between national centers of excellence in key strategic areas where mutual benefit can be identified, both with partners in Europe (for example, in mouse genomics) and the United States (in cardiovascular research). This follows our view that effective and productive collaboration

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