

## EUROPEAN RESEARCH AREA BOARD

### **ERAB's recommendation to maximise High Risk – High Gain Research in the next Framework Programme**

In order to follow up on the European Research Area Boards' (ERAB) recommendation for the need for more frontier research in Europe as stated in ERAB's Annual report 2009, Chapter 5: "*An ERA to deliver excellence ... where risk-taking in research, regardless of its public or private origin, will be the guiding principle for ERA policy*", ERAB asked for a critical survey of how some of the most innovative public funding institutions worldwide support such research<sup>1</sup>.

ERAB makes no distinction between so called fundamental or applied research including technical developments, all of which can involve high risk.

In order to increase High Risk – High Gain research and innovation in Europe, ERAB recommends the following:

#### **1. Develop a "whole body" approach to Framework Programme (FWP) support across all aspects of high risk research.**

Fostering frontier research requires a well balanced combination of institutional funding, conditions guaranteeing a long term stable research environment, mission oriented frontier research programmes and frontier researchers. This is illustrated in the matrix below.

An ideal policy integrates and supports all boxes:

<b><i>Funding of</i></b>	<i>Institutions</i>	<i>Programmes/Project s</i>	<i>Researchers</i>
<b><i>Orientation</i></b>			
<i>Fundamental, Curiosity driven</i>	-	-	-
<i>Applied, Challenge and Solutions driven</i>	-	-	-

So far European research policies are mainly focused on programmatic funding. Institutional funding issues are largely the responsibility of the Member States and will remain so for the foreseeable future.

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<sup>1</sup> J. Leijten, H. Roseboom, R. Hofer (2010) "More frontier research for Europe. A Venture Approach for Funding High Risk – High Gain Research", Brussels, Joint Institute for Innovation Policy. The study explores how EU research funding models should be developed in order to contribute better to the realisation of more frontier high-risk research in Europe, **across** the whole spectrum of research. The study offers a state of the art literature review and an analysis of several funding schemes, funding organisations and general research policy initiatives.

Any future Framework programme should seek how to add European value to the mixed economy that exists between Member States. The European Research Council (ERC) is an excellent example of how this can be achieved. ERAB believes that the ERC model (if freed from the current bureaucratic constraints) should be considered for other areas of research, in particular for projects in emerging technologies. ERAB proposes the development of a portfolio vision on the whole set of different European and Member States' funding mechanisms (institutional, programmatic and bottom-up driven researchers funding) in order to create the best overall conditions for supporting frontier research in Europe. Particular attention should be given on how projects that cross or fall between the missions of funding organisations, such as those connected with grand challenges involving several disciplines and actors, could be supported without excessive bureaucracy.

## **2. Enable an active, flexible and entrepreneurial management of research programmes, with a strong orientation toward generating the best outcomes.**

Research shows that the following factors foster or impede scientific breakthroughs:

<i>Factors fostering breakthroughs</i>	<i>Factors impeding breakthroughs</i>
Organisational autonomy	Restrictive institutional environment
Scientific leadership	Departmental differentiation
Mission-oriented flexibility	Bureaucratic coordination
Personalised recruitment	Filling positions
Intellectual diversity/multi-disciplinarity	Uniformity of intellect
Communicative integration	Compartmentalised communication
Cognitive complexity	Specialisation of the mind

A funding model geared to deliver high risk research, therefore requires:

- 1) interaction with researchers (and with other stakeholders such as EUROHORCS, European Technology platforms, large charities. etc. ) in the programming stage by people that know how to challenge researchers and innovators;
- 2) flexibility in the development of the research, including opportunities to test ideas (both on application procedure and implementation of projects), good content related monitoring and evaluation, and the possibility to stop or to extend projects on the basis of how they perform and develop;
- 3) speeding up procedures, minimising the administrative burden and an overall shift of the focus from inputs to generating outcomes that demonstrate real added value in the form of key discoveries or practical solutions for example.

This requires mission driven programme managers with considerable responsibilities and powers who understand and can respond to the developing research/innovation environment without being restricted by unnecessary bureaucratic constraints.

## **3. Implementation of the FWP should be in the hands of outcome-oriented and mission driven institutions or management structures which are accountable for a well-defined and politically agreed set of strategic goals.**

Several necessary elements of the ideal type funding model are not compatible with the existing political and policy making environment in the European Union although many Member States do take this approach individually. It is therefore surprising that the FWP tends to be so restrictive given individual Member States are happy to take a more hands off approach themselves.

ERAB therefore proposes that the next FWP will be managed by a set of independent institutions at arm's length of Commission and Member States influence similar to those that exist elsewhere. These would be governed by independent councils such as is the case of the ERC. To make this possible, revision of the Financial Regulation will be needed.

In theory the present European agencies could play this role, but in practice the existing regulations lead to a strong input orientation, administrative complexities and inflexibility.

It is recommended to let this system of European Union research funding institutions adopt the modus operandi which is common practice in many Member States such that:

1. A limited number of funding institutions with a clear task oriented mission, based on a scientific and technical research agenda, and implemented under strong management through a regularly updated strategy.
2. The overall strategy is agreed with the EC and Member States (including the overall amount of funding, priority areas, etc.).
3. A high level forum for agreeing on which funding institutions will contribute to projects that range across the missions of individual funding institutions whether at a national or European level. There should be a single point of contact for proposers of such projects.
4. The individual institutions will be accountable for their overall budgets to the EC but will develop their own procedures for working with individual programmes etc. in order to encourage high risk-high gain developments.
5. The execution of the strategy is determined by the institutions, though they are held accountable for the outcomes.
6. The judgement of a success or failure of a programme should be done against the real outcome of the programme in terms of new discoveries, new insights, new technologies or any other worthwhile impact on society.
7. Achieving high risk – high gain research, requires a research management and leadership willing to take high risks.

**ERAB believes that unless there is a drastic change in how the FWP operates, Europe's ability to compete or cooperate in the global environment will significantly diminish. It therefore urges the decision making bodies in Europe to consider this issue a priority.**