

A Venture Approach for Funding High Risk – High Gain Research

Summary of „SIS 2009 ERABSTUDY“, November 2010

In its first 2009 annual report the European Research Area Board set the vision and goal for realising “*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 2009, Chapter 5). In other words, ERAB wants to see more frontier research with more impact in Europe. To support ERAB in finding pathways to realise the vision the European Commission commissioned a study to the Joint Institute for Innovation Policy, which was executed around the summer of 2010. The study explored how EU research funding models should be developed in order to contribute better to the realisation of more frontier high-risk research in Europe.

The study builds on the concept of frontier research as was defined by the 2005 High Level Expert Group Report “Frontier Research: the European Challenge”:

“... classical distinctions between ‘basic’ and ‘applied’ research have lost much of their relevance at a time when emerging areas of science and technology often embrace substantial elements of both. The report therefore adopts the term frontier research, rather than basic research, to reflect this new reality. Frontier research, because it is at the forefront of creating new knowledge, is an intrinsically risky endeavour that involves the pursuit of questions without regard for established disciplinary boundaries or national borders.” (p. 18)

Frontier research is combining blue sky curiosity driven work on the one end with solving well identified problems on the other, in an environment which fosters taking risks and new fast-growing fields of science and technology. Scientific excellence and working on economic and social impact are seen as closely intertwined.

Based on a literature review and an analysis of several funding schemes, funding organisations and more general research policy initiatives the study concludes that there are three key lines of action needed to work towards the goals set by ERAB:

Development of a coherent vision and approach of the overall European research portfolio is needed.

The literature review and a closer look at research funding across the globe shows that the general characteristics of the research environment and the conditions for research are more important for fostering frontier research than the specific funding conditions of a research programme. Fostering frontier research requires a well balanced combination of institutional funding conditions guaranteeing a longer term stable research environment, mission oriented frontier research programs and frontier researchers.

So far European research policies are mainly focused on programmatic funding. Institutional funding issues at large are a responsibility of the Member States. And the European Research Council is funding excellent researchers at the European level in addition to Member States’ researchers funding. People interviewed during the study generally agree that there is a value added to European research funding mechanisms. Individual researchers, research groups and – so far more limited – research institutes are exposed to their best peers.

The study advises to develop 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 frontier research in Europe. In combination with the broad definition on frontier research given above the overall portfolio can be expressed as in the table below.

The European research portfolio

Funding of	<i>Institutions</i>	<i>Programmes/projects</i>	<i>Researchers</i>
Orientation			
<i>Fundamental, Curiosity Supply driven</i>	-	-	-
<i>Strategic, Challenge driven</i>	-	-	-
<i>Applied, Solutions Demand driven</i>	-	-	-

Challenging frontier research programmes and a venturing researchers' environment require active management.

Literature review and case studies lead to a number of conclusions with regard to an “ideal type” programmatic funding model. The following points seem to be particularly important:

- fostering frontier research requires interaction with researchers (and with other stakeholders) in the programming stage by people that know how to challenge researchers;
- fostering frontier research requires 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;
- fostering frontier research requires speeding up procedures, minimising the administrative burden and an overall shift of the focus from inputs to generating outcomes.

These points all refer to the need for an active and entrepreneurial type of management of research programs, with a strong orientation toward generating the best outcomes. They require a special type of mission driven programme managers with considerable responsibilities and powers.

Implementation should be in the hands of outcome-oriented and mission driven agencies 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 very well compatible with the political and policy making environment in Europe. Political consensus mechanisms have difficulties in dealing with developing challenging and disruptive research programmes, (political) powers may enter into selection procedures in particular for strategic and applied research, content-related criteria change too easily with changing political priorities, bureaucratic control has difficulties in handling flexibility in research, etc.

Therefore there is wide agreement that fostering European-level frontier research also requires programme development, selection and implementation of projects at arm's length of Commission and Member States influence. In theory the present European agencies could play this role, but in practice the regulations lead to a strong input orientation, administrative complexities and inflexibility.

It is advised to adopt a system in which the European agencies can operate along lines which are common practice in many Member States. The prime examples are agencies with a clear mission that is implemented through a regularly updated strategy (updating ranges from annual to once every four or five years). The strategy is agreed with the government (including the overall amount of funding, priority areas, etc.). Next the agencies are largely independent in how they want to realise the strategy. And on the same regular basis they are held accountable for the outcomes.