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# The governance of Frontier Research in comparative perspective: What role for the European Research Council?

Robert Kaiser  
University of Munich

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## Overview

1. What is Frontier Research?
2. What governance mechanisms exist for Frontier Research?
3. Why we should have a European Research Council?
4. How a European Research Council could promote Frontier Research?



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## What is Frontier Research? (I)

Frontier Research can be characterized as “targeted basic research” as it:

- creates fundamental new knowledge for perceivable use,
- is a risky endeavor made outside established technological trajectories,
- is based on approaches which often transcend organizational or disciplinary borders.



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## What is Frontier Research? (II)

Frontier Research takes place primarily in so-called science-based technology fields (industries). Their major characteristics are:

- the predominance of inter- or trans-disciplinary research,
- the dependence on close interrelations with the public science base,
- the execution of research in an “open innovation” environment.



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## What is Frontier Research? (III)

### The *Affymetrix* GeneChip:

- The company was established in 1992 with public support of 450.000 EUR from the *Small Business Innovation Research* Program (SBIR).
- Its founder, Steve Fodor, and other company scientists received more than 5 million EUR through *NIH grants* provided for a feasibility study.
- Along with industrial and academic partners, the firm obtained more than 20 million EUR from the *Advanced Technology Program* (ATP) to develop a marketable product.



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# The governance of Frontier Research (I)

## The Problem:

- Frontier Research challenges the functional differentiation between specialized agencies for basic and applied research as well as the disciplinary differentiation within funding agencies,
- Frontier research takes place within public research organizations and within industry, but it is not necessarily organized as “Verbundforschung”.
- And ... What about commercialization ???



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## The governance of Frontier Research (II)

Possible (successful) solutions to the problem:

1. The “coordinated model”: is based on new modes of coordination between specialized agencies for the funding of basic and applied research (examples: Sweden and Switzerland).
2. The “supplementary model”: is based on specific support mechanisms for different phases of the innovation process provided by sector-specific “researching” research funding organizations (Example: the NIH).



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## The governance of Frontier Research (III)

However: both models hardly qualify as “best practice” for the European Research Council

- The *coordinated model* seems to work best in innovation systems which are characterized by a relatively small number of actors and by the existence of a variety of informal governance mechanisms (esp. in Switzerland).
- The *supplementary model* seems to require “monopolistic” agencies with a high amount of internal research capacity.



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# The rationale for a European Research Council

What is the European added value?

- It makes use of the larger European “research market”,
- It has to differentiate itself from existing national and European funding mechanisms,
- It has to be coordinated with instruments at all territorial levels that support the commercialization of Frontier Research.



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# Conceptual principles for the European Research Council (I)

The European dimension:

- No requirement for transnational research teams,
- Evaluation based only on scientific excellence and “market potential”. No hidden cohesion agenda.
- Adequate funding, reasonable duration of project evaluation procedures, a clear-cut separation from objectives of the framework program.

(cf. Report of the High Level Group of Experts, 2005)



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## Conceptual principles for the European Research Council (II)

The ERC in the ERA:

- Limitation of support mechanisms to project-based funding, institutional funding should remain under national responsibility,
- Clear focus on short-term research activities, funding of training activities should remain out of scope,
- No need for national co-funding, project-based business co-funding should be possible.



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## Finally ...

... there are still a number of open questions:

- concerning the proportion of investments in science-based technologies provided by the ERC and the framework program,
- concerning a long-term need for own ERC research capacities,
- concerning the necessity of coordination with European and national funding schemes.