

## Title

National patterns of trans-national research: the case of joint research programs

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## Abstract

Public research programmes, including the joint ones, has to be considered as policy instruments, thus tools through which nations States pursue policy objectives. It means that research programmes are able to represent the main goals of a national government and the concrete strategies the different actors involved, both national and supranational, put in place in order to pursue them. Looking inside the joint programmes is a way for shed light on the national policies and strategies toward trans-national research activity, either in the case of the European initiatives, and either in the case of the national ones.

One interesting aspect to investigate for understanding the reasons beyond the participation and the implementation of joint programmes is the nature and type of actors involved and the role they have in the different phases of the programme design and management. Motivations and rationales as well as impact of the programmes are affected by the key actors' choices; the multi-layered and multilevel research funding system allows for the presence of a constellation of actors, which in the case of joint programmes is supposed to be more complex than in the case of the national one. Joint programmes in fact involve different national States; moreover,

most of the time they require an action at the interplay between the national level and the European level.

In this respect, two main questions rise when the perspective of national States and the actor's role are concerned: a) why (under what conditions) national States decide to initiate or to participate in joint programming; b) what are the key actors involved and what role do they play?

The first question refers to the motivations that drive the decision of national countries to create or to join a joint programme; the second question refers to the actual participation, which reveals the strategies concretely pursued. Both the questions want to deepen the reasons of the different countries involvement in trans-national research activities, trying to figure out the factors that can explain different patterns among countries. Using a dedicated dataset on joint programmes in eleven European countries, and the information collected through nine case studies on joint programmes, it is possible to provide some insights addressing the two questions.

**Keywords**

Joint research programmes, transnational research, internationalization.

### Theoretical background and conceptual framework

From 2000s, policies developed at European level played a major role toward enhancing the awareness of the importance of internationalization of research (Trondal, 2002). The European Framework Programmes, the Lisbon strategy, and the new concepts toward the European Research Area-ERA (David and Metcalfe, 2007; ERAWATCH, 2009; EC, 2001; Id., 2007) are factors that are supposed to push the emergence of trans-national research, generating different effects, such as driving national government R&D allocation, setting specific schemes of project funding and incentives, changing the political rhetoric in terms of rationales and justification for public investment in R&D, but also modifying the awareness of research organisations toward the relevance of the non-national level of governance (Guzzetti, 2009).

Beside the policy initiatives at European level, an empirical analysis about the design of national research programs in 34 European countries (Optimat, 2005) showed that “national policies and programmes are being developed without any obvious alignment with the parallel situation in other countries”, thus transnational research activities are still underdeveloped, and many barriers can be detected linked to legal/organizational factors and to research capacity. In other words, little evidences of policy convergence emerged, as tendency of different countries to grow more alike by developing integrated policy instruments for trans-national research (Knill, 2005).

Addressing our questions about the why and the how integration and coordination through joint programming can occur needs a theoretical framework, which refers to the way in which the leading forces shaping the research and government dynamics act. For this purpose we can make reference to three recently developed perspectives.

The first perspective considers the different national agents moving within specific interaction spaces of the national research systems, which correspond to different coordination modes in public funding: project-based, mixed, and vertically integrated modes (Lepori, 2011). In the former mode, we can expect interaction spaces where different intermediaries (i.e. funding agencies) coexist, and where the State control can go from the repartition of funds between the different agencies to determining the funding allocation criteria; agencies in all the cases retaining at least the control on the selection of the beneficiaries. The vertically integrated mode is dominated by “umbrella organizations” acting as basic layers for research funding on the basis of an extensive delegation of the state; the mixed mode might include project funding in combination with other modes, as funding attributes to consortia and networks (i.e. centres of excellence), which then regulate the repartition of resources between the partners, or the higher education core funding mode, where the main funding relationships are those between the state and the HEIs. The balancing between the different modes shapes the national configuration of the research system, and the different modes of joint programming.

Another perspective represents the European dynamics as shaped by the interaction between research spaces and disciplinary spaces. The notions of “global research field” and “localized research spaces” as to the organization of European science have been presented as possible way for conceptualize the tensions existing between the pushing coming from the research field, which deal with an international arena and from the research space shaped by the conditions existing at the local level (Nedeva, 2012). These tensions affect the way in which programmes are designed and managed; a possible way for solving the tensions between the local and the global would be to expand the research spaces as a result of social processes

which are driven by the presence or the absence of some conditions: an influential group supporting the change, the institutionalization of the expansion, and existence of some support from the national organizational actors.

Barré et al. (2012) propose a further framework for understanding the dynamics of integration and coordination of the ERA, which are useful for the analysis at the crossroad of political actors and political functions. As to the former for analytical purposes, the authors outlined that in order to understand dynamics toward the ERA, one can distinguish between the level of involvement of the different national (ministries, funding agencies, research performers, with special attentions to public research organizations and firms), and supra-national actors (the European Commission). In fact, actors can be individually or jointly involved at the political level (handling the orientation function and deciding about the general objectives and the level of financial resources to mobilize), at the intermediary level (managing the programming and funding function, thus dealing with the concrete programme design) and at the research performing level (dealing with the concrete research activities). Countries differ as to the way in which the functions of orientation, programming and research performing are distributed among national actors, putting one organization in charge of different functions or delegating functions from one organization to another.

Furthermore the EC itself can play a different role, acting either as facilitator (not providing funding but for instance an overall framework for collaboration as in the case of ERANET), either as full partner (providing funding but not performing research, thus implicitly inviting all the Member States to join), or it cannot play any role.

Having in mind the mentioned approaches, we develop a conceptual framework for the characterization of the countries toward transnational research.

### Methodological choices

The paper grounds the analysis on the evidences collected during the JOREP project funded by the EC. JOREP data allow going inside the national landscape of 95 joint research programmes, distinguishing them on the basis of their degree of integration (distinguishing between integrated, coordinated and collaborative schemes, Lepori et al., 2011), and on the basis of the role the Europe play (funding role, facilitator, no role since the initiative is a national or regional one).

The paper takes a comparative perspective aimed at analysing convergences and differentiations among countries, which affect the processes of internationalization as detected by the joint programming.

We assume that ERA countries are, to a large extent, free a) to initiate Joint programmes with other countries, b) to decide whether to participate in existing joint programmes, and c) how much budget to allocate to them.

We also assume that countries present different patterns of transnational research according to: i) the size (large countries vs small countries and medium-size countries based on the intensity of the R&D investment; ii) the presence of specialized actors for certain type of program funding (as for instance countries where the Research Councils are more prominent actors of science-oriented funding schemes); iii) a national specialization in given research fields. Differences in joining and participation by funding allocation might reflect different levels of internationalisation of national research policies, a different organisation of national funding structures, or a different specialization and strength of the local research community.

We thus suppose each country to have a specific profile regarding its involvement in European initiatives vs. national bilateral or regional programmes; investigating the elements that have a more prominent role shaping the profiles of the countries' strategies is the main aim of the paper.

Finally, we consider that the intermediary level is assuming a prominent role for designing and implementing national strategies of trans-national research, where the political level maintains a role that is more related to the general decisions about the key sectors of investigation, and

the general level of financial resources mobilized, than to the concrete strategies of participation.

To test this, we analysed some items between the eleven European countries included in the dataset analysed; among others we look at convergences and differences in: a) the number of participation to joint programming, distinguishing between European initiatives, and national ones; b) the number of participation to joint programming, distinguishing between programmes on the basis of their level of integration; c) the amount of funding transferred and in the part; d) the type of budget dedicated to each programmes in order to highlight the importance of delegation and intermediaries in different countries; e) the establishing agencies for joint programmes, type of agencies participating, and the relevance of 'formal participations' (participation without budgeting).

Furthermore, some insight about the national strategies come from the case studies developed in eleven European countries (Czech Republic, Denmark, France, Germany, Italy, Norway, the Netherlands, Poland, Spain, Switzerland, UK), covering joint programmes characterized by their different type of integration (integrated, collaborative and coordinated), which allow to control and to some extent justify the evidences derived from the data analysis.

### Discussion and conclusions

Some of the results can be summarized along the following remarks.

National participation to European integrated initiatives when Europe provides funding is driven by the need to align the funding agencies with the supra-national goals and topic of the programmes. When the integrated initiatives are driven by the funding agencies themselves it is interesting to observe that they also perform the main functions of the programmes, leaving to the ministry level the orientation function. Moreover a symbolic role of the European initiatives emerges, which is less important in the case of integrated programmes, than for the coordinated ones. It means that the more Europe plays a strong institutional and funding role, the more national countries are pressured to participate and to commit funding.

Bilateral with non-ERA countries are signals of national strategies toward internationalization, and in many cases the ministries are committed for the management, with few exceptions where the bilateral is an outcome of the merging of a strategic political interest with a long-standing collaborative research activity (i.e. DG-US). Data and information show that several national actors are entitled of different functions with respect to joint programmes. Different combination of the functions can be also detected at national level; as far as the evidences collected by the JOREP project are concerned, the configuration of the distribution of functioning among actors is an item that seems linked to the national coordination mode of funding in the country.

Joint programmes where the European policy level play a facilitator function appear to be affected by the tensions between the local research space and the global disciplinary field; moreover, it is true that when Europe provide funding for joint programmes, and the amount of resources mobilized is important, the orientation function and the role of national ministries for setting general objectives and providing funding are more prominent than in the case when Europe plays only a facilitator function. The latter event allows for a more important role of funding agencies and intermediaries, even in the countries where this function is played by research performing organizations.

Finally, funding agencies, are more and more moving as autonomous actors for designing joint programming, and for shaping the linkages between countries. In this respect a key role of research councils emerged. The presence of consolidated praxis of research funding and high levels of mutual trust between agencies allow countries to move forward trans-national research programming, adopting coordinated or integrated research funding schemes rather than building a joint supra-national funding agency (as in the case of ESF). This fact suggests us a further research question to be explored about how to characterize the involvement of

research performing organizations at different policy levels, in countries where funding agencies do not exist, or do not play a central role in transnational research.

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### References

Barré, R., Henriques, L., Pontikakis, D. & Weber, K. M. (2012). Measuring the integration and coordination dynamics of the European Research Area. *Science and Public Policy*, (0)

David P., Metcalfe S.(2007), Universities and public research organisations in the ERA, Paper for the 8th June 2007 Brussels Meeting of the EC (DG-Research) Expert Group on “Knowledge and Growth”

ERAWATCH (2009), Monitoring progress toward the ERA, <http://cordis.europa.eu/erawatch/index.cfm>

European Commission (2007) Green Paper: The European Research Area: New Perspectives COM(2007) 161 final

European Commission (2001), The international dimension of The European Research Area, COM (2001) 346 final. Brussels.

Guzzetti (2009), The ‘European Research Area’ idea in the history of Community policy-making, in Delanghe H, Muldur U, Soete L, European Science and Technology Policy. Towards Integration or Fragmentation?, Edward Elgar, UK, 64-77

Knill C. (2005), Introduction: Cross-national policy convergence: concepts, approaches and explanatory factors, *Journal of European Public Policy*, 12, 5, 1-11

Lepori, B. (2011). Coordination modes in public funding systems. *Research Policy*, 40(3), 355-367

Lepori B., Reale E., Langfeldt L., Larédo P., Nedeva M., Chassagneaux E. (2011). Institutional logics and actor’s strategies in European joint programs. S&T Indicators Conference, Rome, 7-9 September 2011, <http://www.usi.ch/personal-publications.htm?id=395>

Nedeva, M. (2012). Between the global and the national: Organising European science. *Research Policy*, (0)

OECD (2002), Frascati Manual, OECD, Paris

Optimat (2005), Final Report. Examining the Design of National Research Programmes, EC, DG Research, December

Trondal, J. (2002), Why Europeanisation Happens. The Transformative Power of EU Committees, ARENA working paper 3/02.