

# Internationalisation of Research: Institutional Innovation, Culture and Agency in the Framework of Competition and Co-operation (INNOCULT)

## Policy Paper

## Deliverable 9

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# 1 The General Context and Scope of the Project

The proposed INNOCULT study aims at analysing the ongoing research policies in Europe and tries to identify policies as much as strategies for the internationalisation of RTD, and, more specifically, for enhancing the opportunities for co-operation. Within these general aims, the project has concentrated on the public sector and, indeed, almost exclusively on the academic component of RTD.

The research objectives are in relation with research areas formulated in the Call for Proposals of DG Research.

Area	Research Objectives
<b>National Science and Technology Potential</b>	<ul style="list-style-type: none"> <li>• To understand the national science and technology systems</li> <li>• To appraise the efficiency of policy and policy making in science and technology and to provide a framework for assessment taking into account the ongoing internationalisation of research;</li> <li>• Understanding commonalities and diversities of national public science and technology systems;</li> <li>• To analyse the role of the internationalisation of research and the possible emergence of a trans-national common European innovation system for the institutional transformations;</li> <li>• To consider the importance of the emergence of such a European innovation system for the competitiveness of Europe vis-à-vis the United States and Japan.</li> </ul>
<b>Innovation in Public Institutions</b>	<ul style="list-style-type: none"> <li>• To gain deeper understanding of how, in what circumstances and under the influence of what factors can significant institutional innovations and transformations in publicly funded research performers occur;</li> <li>• To study the relative importance of a variety of internal (such as level of cognitive development and institutional maturity) and external (such as the elements of the broader socio-cultural and political environment) factors for these institutional transformations.</li> </ul>
<b>Socio-cultural challenge</b>	<ul style="list-style-type: none"> <li>• Understanding the different S&amp;T systems and the particular institutional system as result of the public political culture;</li> <li>• Understanding the regulative and prescriptive processes occurring within these as a result of cultural differentiation;</li> <li>• Understanding different reaction to the S&amp;T-systems in the internationalisation process.</li> </ul>

The study addresses three fundamental policy related questions:

- To what extent can one expect convergence of the RTD systems and policies in Europe?
- Is there a complementarity between the different national RTD systems; how can this contribute to the creation of a common European research area, and if not, how can this be improved?
- What role is played by the European agenda? How does this agenda, and, more specifically, the Framework Programme, influence national research policies and institutions and vice-versa?

In order to answer these questions, the INNOCULT considered both structural and socio-cultural factors that distinguish different national RTD policy regimes.

The study features an integrated and transversal approach and its goal is to provide a comparative view on institutional innovation and transfer in the public sector. The focus is on the original development and current modernisation efforts of the national innovation systems, especially ministries, public universities and public research organisations.

By focusing on European research programmes the study stresses a specific interest - often neglected otherwise – namely, the importance of stable networks for science and technology co-operation.

## 2 Conclusions and Policy Implications

### 2.1 From Government to Governance

- There is real evidence for a move towards governance. This mainly reflects movement within the state.
- The trend is not based on harmonization or convergence between European countries. This can be shown as well by the fact that bi- and multi-lateral programmes are not developed systematically beyond the European programmes. Internationalisation, while driven by a range of factors, some highly context-specific, is internally related to governance.
- While a cultural perspective on policy is usefulness in structuring the analysis, structural elements are of higher explanatory value.

The *policy implication* is that the conceptualisation of governance is of crucial importance. With respect to the European White Book on Governance bench-marking exercises might lead to an understanding of good governance ensuring the participation of the research communities in policy-programming.

Internationalisation is an on-going process, however, this process seems to lack direct support from most national governments; the strengthening of bi- and multi-lateral research programmes beyond the European Framework Programme might be an important strategy in this respect. Bi- and multi-lateral programmes should, however, be seen as additional activities and cannot replace national research policies or the European Framework Programme.

### 2.2 Universities and Research Organisations

- There are some significant differences between research organisations and university research. The most important difference seems to be that universities claim to be more affected by the recent policy changes than research organisations.
- The most important changes in the universities are related to goal-setting and evaluation cultures. These changes appear not to have been fully implemented and are more often referred to by the research managers than by researchers. In contrast, priority setting and evaluation seem to happen routinely within research organisations where external evaluations have led to regular internal assessment strategies.

- Another aspect is employment strategies and career patterns. As a general rule, research organisations are more flexible than universities. This is in part related to different funding strategies. In both types of institutions, the flexibility has increased in the recent past. Stability in employment and clear career patterns are more likely to be found in research organisation than in universities.
- There are quite relevant national differences between universities, less so between research organisations. However, both the university systems and the research organisation can be differentiated according to structural elements like size, age and mission.
- With respect to internationalisation, both at universities and research organisations the individual career strategies and researchers' interests form part of the institutional strategies.

The ***policy implications*** are that evaluation and priority setting are very important tools for the increase of quality and internationalisation of research. Given the nature of science and research, however, the individual strategies of the researchers represent the key variable to understand success and failure. In this respect, specific attention has to be given to employment strategies, qualification processes and carefully designed incentive structures.

Core funding is still a very important element in the funding structures of universities and research organisations. Whilst in research organisations the core funding is clearly related to research as such, the structure of the core funding is more complex in the university system. Whilst the pressures to increase the funding sources on both universities and research organisations might be a (reasonable) result from governance, core funding is an important tool to ensure a reasonable base for institutional stability, especially when related to goal-orientation and evaluation.

### 2.3 **Research networks**

- Networks are very effective and efficient ways of international collaboration in the field of research.
- The European Framework Programmes have had a remarkable influence on networking. Yet they have been relatively less effective in creating new research networks than in augmenting existing research networks.
- Institutions participating in EU programmes have different features than national research institutions.
- Some countries are more prepared than others to become integrated in the European research area. There are variations across programmes, yet in general the bigger countries – UK, France and Germany – as well as the Nordic countries are more active and more successful.

- There is a high sustainability of networks both at the institutional and individual researcher level. Most of the researchers and institutions are involved in more than one project – a comparatively high ratio is even engaged in different programmes within the European Framework Programme. This hints to the existence of cornerstones for the (further) development of the European research area.
- Problematic with regard to the further development of the European Research Area is the low knowledge and interest of European researchers in the European policy agenda, such as mobility, subsidiarity and social policy (including sustainability).

The ***policy implications*** are that there exist cornerstones for the (further) development of the European Research Area. It is true that policy co-ordination among the Member States is a very relevant goal not yet achieved in a satisfying manner. There have been no systematic bi- and multi-lateral programmes, and a mutual learning process towards successful governance has still to take place. Still, it is important for the New Framework Programme to keep the successful elements of the 4<sup>th</sup> and 5<sup>th</sup> Framework Programme into consideration.

Given that transnational research tends to be dominated by quite a different set of actors than national research, the Framework Programme should take care to understand that National Centres of Excellence do not necessarily transform into transnational Networks of Excellence. There are structural differences between national centres and internationally active research organisations and university institutes on the one hand and National Research Centres on the other. The Commission should build upon those networks which have proven to be successful and sustainable whilst ensuring their openness to new researchers and institutions prepared for trans-disciplinary task-oriented “Mode-2”- research.

## **2.4 Conclusions with respect to the 6<sup>th</sup> Framework Programme and the European Research Area**

The European Research Area ( ERA) is already an existing reality: the framework programme played a decisive role in making it sustainable. The data suggest, however, that it was built bottom-up, based upon ongoing scientific co-operation on the bilateral and multilateral levels among research communities as well as between research communities and industries. Those activities might have never led to fully developed research projects without the means allocated to the successfully bidding consortia. A relevant part of such consortia, however, were based upon networks which existed prior to the submission and funding of one or more project proposals to the European Commission.

The calls for proposals under the Framework Programme did in fact increase the research activities as much as the numbers of actors involved in the networks: successful bidding allowed aspirations to turn into reality and shaped the research

activities. Unsuccessful bidding, however, did not stop the networks but rather seems to have inspired new activities, including - eventually - the successful re-submission of proposals. Research related networks build up their own core-groups. Those core-groups seem to prevail regardless of the concrete outcome of applications.

The typical profile of European research networks - their success as much as their shortcomings - have to be understood as the characteristic of the already existing European research area. In this light it would not be reasonable to re-invent an entirely new research structure, the less so after the completion of five Framework Programmes.

There is certainly a need for stability and long-term planning to increase the quality of research. There are two ways to stimulate such a stability, the **bottom-up** oriented competitive way in which the framework programmes have operated up until now and the "**Eurostat model**" based upon a central European research "factory" and national "centres of excellence".

The **first approach** is the typical approach of the framework programmes. It combines the traditional academic peer-reviewing procedures with the interest of the European societies, the Member States and the economy. The latter is ensured by the quite impressive consensus-building process underlying the development of the framework programmes.

The **second approach** seems to be favoured by some political actors. Combined with an increase of outsourcing beyond proposal evaluation ( e.g. project evaluation and auditing, etc.) this approach is expected to reduce the workload (and responsibility) of DG Research, enforce a more coherent research policy among the Member States, foster the steering and co-ordination capacity of the European Commission and thus implement a true understanding of the subsidiarity policy as laid out in the European Treaties.

There are, however, **major problems** with such an approach. Whilst this model might be appropriate for EUROSTAT given its mission (most of the relevant statistics are still nation state based, thus EUROSTAT has a strict "comparing nations" mandate) such an approach does not reflect the reality of trans-national and international research in the European framework. The development of research within the Framework Programme shows the combination of different expertise across Europe in a truly interdisciplinary spirit rather than being strictly comparative. In this respect European research shows a commitment to excellence.

Furthermore, a lot of excellent European research is developed by institutions with a high international standing within the research communities but with lower national significance. On the other hand there are clearly national "Centres of Excellence" with no significance in international collaborative research which might be explained by their mission and/or the political influence of the Member States' governments.

The Framework Programmes have led to a new type of research beyond the traditional dichotomy "applied vs. basic". This research could be characterised as a

mullet-faceted truly interdisciplinary and task-oriented research based upon excellent independent research units, often in collaboration with both public research organisations/universities and potential users. An interesting role can be assigned to the consulting companies as well; they often see their role somewhere between the users and the researchers and more often than not have an important influence in the management of the research networks. In the successful cases this seems to lead to excellent research which is efficiently managed and - to a variable degree depending on the topic - applicable and/or policy-relevant..

This does not mean one should ***neglect the mandate of the Commission in the co-ordination of the national research policies***, a function actively undertaken by the Commission supported by various on-going benchmarking exercises. This task has, however, to be understood as a ***distinct function*** from that of devising European and international research programmes like the Framework Programmes. European research programmes and research for Europe is in many ways distinct from national research policies and programmes.

The experiences made with the framework programmes allow, however, some insights for the improvement in terms of their implementation.

- To increase competition the Commission has already given a lot of infrastructure support for applications. Various information meetings have been organised related to the specific calls, and the information packages seem to be efficient and comprehensive. Given the amount of work related to the preparation of an application and the risk involved, the Commission might, however, consider financial support for those applications, e.g. in the form of lump sums. These could be awarded to projects which meet a certain threshold in the evaluation process. Another possible criteria could be a two-step procedure in which the Commission selects project ideas which could be funded for fully developed proposals.
- It is relevant to note here that some Member States have already developed such schemes. The problems with this are obvious: on the one hand, these uneven conditions disturb the competition between the research teams from different countries as there are unequal conditions between the Member States; on the other hand, there is a danger of political influence. Austria, for instance, has recently introduced new rules according to which such preparation funds can only be obtained when submitted to a central organisation which has to obtain the approval from the respective ministries - a clear contradiction to the principles of independent research.
- Instead of "Centres of Excellence" the Commission should rather stimulate "Networks of Excellence". Such "networks" should be allowed a combination of exchange programmes, research activities and dissemination routines on a long-term perspective, evaluated on the base of a programme proposal (rather than individual projects) and forgoing experience, attractiveness for new partners and the understanding how to integrate them (to avoid closed shops), and monitored during the programme time. The timeframe here should be 5 - 10 years.

- The interaction between the research communities and the administration of DG Research is in general quite satisfactory. This is based upon the rule that the evaluation of proposals and the assessment of the projects are carried out without any direct influence of DG Research, e.g., done by peer-reviewing. This clearly indicates that further out-sourcing would not be appropriate.
- The general term - which is in part relevant to the evaluation of project proposals - is the "European Added Value". This term refers obviously to the subsidiarity principle and is a valid argument in favour of the development of the European Commission's Framework Programmes. However, there should be a specific research area developed for genuinely European research. This is valid for research undertaken for research tasks which are cross-boundary by mission (like environmental research, and sustainability, research on European governance, but also on social policy issues as much as economic ones with respect to the harmonisation debates). Another example are large-scale facilities which are in a sense not just an "Added Value", but "genuinely European" by their very nature.
- This brings up the question of the organisation of the Framework Programmes. Whilst the framework programmes cover a wide field of research topics which are quite relevant to support a wide range of excellent research activities within the institutional set-up there is not enough flexibility. The need to complement research activities by different action lines was criticised by research groups who participated in FP4. The different application schemes for non-EU participants (at FP4 time INCO) was one of the problems; another one was the separation of mobility schemes for young researchers from the research studies as such. Another complaint is the way in which research projects are combined (by concerted actions and/or research networks); a more stable infrastructure based upon more flexibility in funding would be topical.
- Among the genuine European research tasks there is in the infrastructure perspective the question of the most beneficial use of the knowledge gained as much as of the tools and the databases.
- Dissemination should be stronger incorporated in the research plans and the Commission has here a specific role in making available good dissemination models. Dissemination in the past has just simply been either an add-on to a project or a specialised task tendered under separate calls. This sort of out-sourcing does not provide the feed-back necessary for innovative research when dissemination is understood as a permanent interaction process between the researchers and the interested audience.
- Use of knowledge necessitates the public availability of the research results, the tools developed (which are sometimes the "results") and the data obtained. Up until now there is no enforcement of public availability of results; no database from which the results (e.g. deliverables) of the European research projects could be obtained; and it is up to the researchers to define whether a deliverable is public, restricted, or confidential and thus not available at all to the interested research communities. There is obviously an

urgent task for clear rules to be set on this issue. As a general rule, deliverables should be open and accessible as public money was involved in the development of the knowledge, tools and data. In shared-cost actions this should be at least possible for a reasonable fee. And there should be a central database from which information on the projects and its deliverables is available.

- With respect to the databases there is a need for further activities. In addition to the data-sets available at EUROSTAT, sometimes however at debatable costs, a lot of data-sets have been created for specific projects. As the data covers quite often relevant information for other projects this is clearly a sub-optimal use. On the other hand, the project specific data need often some extra-work to prepare in a format which is ready for general use and supported by a user-friendly documentation.

To **summarise** the findings of a research carried out among researchers participating in four relevant programmes of FP4: ***there exist already the cornerstones of a European research area with a commitment for excellence***. Its participants are quite well connected internationally, quite often even beyond the EU-15 research communities. The functioning of the framework programmes has been rather supportive to its sustainability and the research communities are quite aware about the changes ongoing and voice opinions in how far the experiences have been taking into account when devising new programmes.

There is a scope for incremental changes, and there is some innovation necessary to support “networks of excellence”. However, the principles of the framework programmes so far are heavily supported by the research communities.

These can be summarised as

- ***bridging the gaps between the scientific approaches and the societies’ needs*** by public tenders, but run and evaluated by scientific principles (peer-reviewing, independence of the research work as such from non-scientific influences),
- ensuring the ***quality of research and its efficient organisation*** by inviting a pluralistic and interdisciplinary research community and providing the framework for fair and efficient competition,
- thus ***opening the research markets in a regional and institutional perspective*** and keeping the market open for all qualified participants in order to make social cohesion work.