

GOVERNANCE AND CO-ORDINATION OF S&T POLICIES IN THE EUROPEAN RESEARCH AREA*

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1. Introduction

The need to co-ordinate European Science and Technology (S&T) policies has been recognised for more than three decades,³ and predates the Single European Act of 1986 which transferred the competencies for a common European research and technology policy to the European Commission, and resulted in the implementation of the Framework Programmes (FPs). In spite of the multiple initiatives, and continuous discussions, to achieve better co-ordination of national and community S&T policies, progress has been very limited. Similarly, the idea of creating a European Research Area (ERA) – a common playing field for these policies - has a long history,⁴ and, although the ERA extends beyond the EU27 nowadays, in many aspects, it still remains “an idea”. Nevertheless, the term “European Research Area” has made its official debut in the Lisbon Treaty, which states that:

* The views expressed here are those of the authors and do not necessarily reflect those of the European Commission.

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³ For example, such recognition resulted in the creation of the Scientific and Technical Research Committee of the EU (CREST) in January 1974.

⁴ Antonio Ruberti’s (Commissioner for Research and Education 1993-95) already called for a “European scientific and technological space” and, in the recent years, the ERA idea has been revitalised by Commissioners Philippe Busquin and Janez Potočnik, and has been instrumental in the design of FP6 and, especially, FP7.

“The Union shall have the objective of strengthening its scientific and technological bases by achieving a European research area in which researchers, scientific knowledge and technology circulate freely, and encouraging it to become more competitive, including in its industry, while promoting all the research activities deemed necessary by virtue of other Chapters of the Treaties.”

Such a role for the ERA has now received a clear positioning in Community priorities as, in the March 2008 European Council’s conclusions, the ERA is placed at the core of the “*fifth freedom*”, namely, the free movement of knowledge, ideas and researchers in Europe.

This “*fifth freedom*” is often held “prisoner” by too many barriers and regulations which keep the European research landscape fragmented and characterised by weak competition. Yet, to guarantee an open, integrated, and competitive European Research Area, important policy and institutional reforms are still needed. Some of these reforms affect EU policies; others affect national or regional policies and institutions. Many of them have already been mentioned in the context of “the ERA Green Paper” and its subsequent discussions. We would like to emphasise, at EU level, the importance of having a proper legal framework for the setting up of competitive European transnational R&D institutions, which work with financial rules based upon trust and proper S&T evaluation, and, at national and regional level, the need for the reform of public universities and other research performing organisations.⁵

These reforms are necessary conditions, but, in order to achieve the Lisbon objectives, two additional weaknesses need to be addressed. First, most R&D public funds are in the hands of national and regional governments, and, while this shows the commitment of national and regional governments to “build local R&D capacities”, this goal is often not pursued with an open and competitive ERA perspective, which results in fragmentation, weak competition and, possibly, “distorted specialisation”. Second, the “complexity” of EU funding (the EU financial rules, the existing instruments for policy co-ordination and co-operation, *etc.*) often acts as a deterrent for scientists and innovative firms, and limits both the leverage capacity of the EU R&D policies, and the ability of the EC to lead intergovernmental initiatives. As we argue below, although important steps have been taken to re-address this situation – mainly, the creation of the ERC (European Research Council) – further decisive steps must be taken in order for the scientific and technological potential of the ERA to flourish.

⁵ See, for example, “Report of the ERA Expert Group on: ‘Strengthening research institutions with a focus on university based research’”, January 2008.

In conclusion, the central argument of this document is that, to implement the “fifth freedom”, there is a need to develop an *open, integrated, and competitive European Research Area*, and that this task requires policy and institutional reforms at the EU and national (regional) levels, as well as “**better governance and co-ordination of S&T policies**”. More specifically, in line with the **Ljubljana 2008 process**, we recommend an in-depth review of the current governance of the ERA to implement R&D policies, following basic principles of “trust and efficiency”, making national and regional policies openly competitive, increasing the leverage effect of EU policies, and developing autonomous S&T agencies, with a European mandate, to implement co-ordinated intergovernmental policies.

In the next two sections, we discuss what we think is the main “rationale for the ERA” and some basic principles for R&D “policy delegation and governance”. In Section 4, we review some current trends in the ERA governance. Section 5 and the concluding Section 7 contain our main policy recommendations, while Section 6 reviews the legal basis for our proposal of setting S&T agencies with an European mandate.

2. The rationale for an Open Integrated and Competitive European Research Area

The standard rationale for public R&D policies is the need to re-address market failures in the production and diffusion of knowledge and innovations due to the wedge between private and public returns on R&D investment. For the EU, the subsequent question is whether, following the “subsidiarity principle”, such public policies should be left to the Member States, or should alternatively be centralised or integrated through policy co-ordination. The standard rationale for not delegating R&D policies to the national or regional level is the existence of “economies of scale, or other policy externalities”. But even when there is a need for setting R&D policies at a supranational level, the question remains as to whether it is more efficient to implement them through central EU institutions or through multilateral co-operation; while centralisation can more easily guarantee the internalisation of economies of scale, intergovernmental policy co-ordination may allow for a better “adjustment of R&D and innovation policies to local circumstances and preferences” (van der Horst *et al.*, 2006).

It is worth considering these arguments in more detail to see the role that they should play in shaping EU-wide R&D policies. Economies of scale resulting from *the presence of heavy fixed costs* are certainly present in large research infrastructures. In fact, most historical intergovernmental initiatives on Big Science have addressed this problem. However, political reasons apart (such as those for the Galileo programme), the optimal

size is unlikely to be EU27. Instead, the issue is how to guarantee that the necessary infrastructures are built while avoiding unnecessary duplications.

Similarly, as with private firms, internalising the fixed costs of universities, research and technology centres requires different optimal sizes. These are dictated by the extent that they can benefit from economies of scale and scope. There are *economies of scale associated with specialisation*; that is, in the production of R&D from previous specialised knowledge and in a specialised environment. But there are also important *economies of scope* associated either with the ability to share fixed costs across different areas of specialisation (for example, computing, libraries and other services), or with *internal knowledge spillovers* across different research activities (for example, applying similar techniques in different projects).⁶

However, as has been understood ever since Adam Smith, “the gains from economies of scale and scope” are not only dictated by technological considerations, but crucially “depend on the extent of the market”. In particular, the “efficient critical mass” of, for example, a research centre crucially depends on whether the centre focuses its activity on servicing a local market (for example, in the adoption of existing technologies), or on competing in the global knowledge economy. In the latter case, efficiency often dictates that the “subsidiarity principle” – of only depending on local public funding – may not be adequate. It is not just that local funds may be too limited, but – more importantly – that there may be knowledge spillovers that extend beyond local boundaries.

On the other hand, there are strong arguments in favour of decentralising certain policies where “market failures”, if they exist, may be more properly addressed at local level. Similarly, one cannot assume that a large scale operation is needed to compete internationally; take, for example, the technological and innovative SMEs, which often benefit more from supportive local policies than from large and more complex EU programmes. In favour of decentralisation, there is also the argument that local policies may enhance diversity, resulting in knowledge creation and learning from different policy experiences (van der Horst *et al.*, 2006).

While traditional arguments – accounting for economies of scale and scope, and spillovers – provide a useful framework of reference, one must recognise three major shortcomings in the above discussion. First, it starts – as is usual in public finance literature – by assuming that the EU market for the production and diffusion of knowledge and innovation is at work, and only needs to be corrected for its “market failures”. Second, it does

⁶ See, for example, Henderson and Cockburn (1996), who analyse these different forms of economies of scale and scope in the context of the pharmaceutical industry. Their analysis shows the increasing importance of economies of scope.

not recognise that correcting some “market failures”, such as fully exploiting increasing returns to scale and scope, may result in other “market failures”, such as *diminished competition due to excess concentration* (which, as we discuss below, is a problem with some of the current FP7 initiatives). Third, it has the standard “subsidiarity flaw” of not recognising that whether a policy should be undertaken at a given governmental level (EU, national or regional) or in a specific institutional form (centralisation vs. co-ordination) depends on the efficiency – and political economy – of the institution which has to implement the policy.⁷ As we will see afterwards when discussing ERA-Nets, the fact that a particular policy could be better implemented through the bottom-up co-ordination of national agencies needs to be matched with their institutional capacity to set up and perform such a complex process. These shortcomings are particularly important with regard to an ERA of (at least) 27 countries, since they bring to the fore the role and complexity of the ERA, as well as the question of how governance issues should be addressed within it.

While, at the EU27 dimension, there are almost no “*technological economies of scale and scope*”, the “extent of the European market of ideas, researchers and innovations” plays a determining role in generating social returns to R&D and shaping the specialisation and optimal size of R&D actors. “Smart specialisation” in the Global Knowledge Society is not achieved through a clever foresight-political process, but by letting ideas, innovations, and researchers *compete without barriers, in a large, open and fair field*, as the ERA can be. However, while the development, integration and regulation of an EU market remains a central element of the “EU identity, the higher education, R&D and the innovation market remains fragmented with “national and regional boundaries” often defining the scope of competition.

Specialisation, competition and decentralisation

An open and competitive ERA “suggests that, from an overall efficiency standpoint, R&D should be concentrated where the aggregate return on each euro spent is the highest, which may involve spending less in some countries and more in others” (Pissany-Ferry and Sapir, 2006). The ERA is still far from fulfilling such a recommendation and there is ample room for improvement in this direction. Yet, taken to its logical conclusion, such a policy for the ERA may not only be “politically unfeasible”, but even inefficient.

To see why it may be inefficient, it is sufficient to consider the case where “R&D economies of scale and scope” call for the concentration of resources in few EU locations (and institutions) with the consequent competitive research funding being concentrated in these locations, resulting in other regions of Europe falling

⁷ Here, the term “institutions” is used in a broad sense to include “policies”, “co-operative agreements”, *etc.*

increasingly behind in such EU-wide competition. R&D policy is not a re-distributive policy and thus should not try to revert this trend towards concentration on grounds of fairness. However, leaving aside the fact that diminishing returns-to-scale and the proper use of network-information technologies may limit the extent of such trend towards R&D concentration, the above argument neglects the important economies of scope that can be present at local level. In particular, the level and composition of the human capital of a region is a determinant factor in its growth, and is also a factor in integrating a less technologically advanced region with more advanced ones, and in developing locally-based innovations. For example, the complementarities between research and teaching activities implies that research-depleted universities are seldom institutions that excel in knowledge dissemination; as a result, a weak university system may preclude a region from “building competences” that should allow it to compete and specialise in the global knowledge economy. *A far-sighted region must specialise, but specialisation cannot be in having a higher education system without a competitive R&D component.*

A reluctance of the national and regional governments of the less technologically advanced regions to transfers towards more productive regions usually reflects a lack of understanding of the potential gains from competition, or the selfish interests of the direct beneficiaries of local (uncompetitive) R&D policies, but it may also reflect a commitment to R&D and human capital development in the corresponding state or region. It may also reflect the fact that many EU citizens have a strong preference for living within their region or nation, which helps to preserve European cultural diversity. Not surprisingly, relatively large and technologically advanced countries, being more self-sufficient, are less willing to co-operate in EU R&D initiatives than countries which, being further away from the frontier, have more to gain from such co-operation. In fact, in spite of all its drawbacks, the “transnational co-operation” of the Framework Programmes (together with an intelligent use of Structural Funds) has helped to develop an R&D base in European regions far from the frontier.

3. Governance and institutional design

As has been argued above (in relation to the “subsidiarity flaw”) that, in assigning competences to different governmental levels or agencies, one must take the relative efficiency of these organisations in implementing these competences into account. For example, even if there may be gains from having a centralised EU implementation of R&D funding, cumbersome procedures at European Commission level may completely erode such an advantage. However, such cumbersome procedures may only be the result of “operating under mistrust”, of delegating policies from Member States to the EU institutions which do not allow them the proper legal and financial framework to operate these policies. Alternatively, the predominance of “local interest groups” (for example, of local incumbent firms or research centres deterring entry), with a lack of proper competition at local level, may distort the implementation of national and regional R&D policies so as to justify their centralisation at a higher level, even when the objective is to satisfy local R&D needs.

Institutional design should not only take into account potential inefficiencies that may arise at different levels due to organisational or political-economy considerations, but also dynamic inefficiencies due to time inconsistencies, which are pervasive in R&D policy. For example, while the potential long-term social returns on public investments in R&D may be understood, often other more pressing needs stand in the way, and the corresponding investments either do not take place or are not properly implemented. A good “governance design” should avoid such time-inconsistencies. This throws a new light on stable co-operative agreements. Co-

operation between different governments (or governmental levels) may be a way to build up *commitment*, since pre-committed budgets for intergovernmental projects tend to be more isolated from “other budgetary needs”. In fact, research centres tend to have more autonomy when they do not depend upon a single authority. On the down side, however, intergovernmental governance of R&D centres may also result in political blockage, with centres not operating properly unless there is intergovernmental consensus.

Strategic delegation to “autonomous” funding agencies

Central Bank independence has proved to be an efficient institutional response to time-inconsistencies, which are pervasive in monetary policy. Through Central Bank independence, monetary policy is “strategically delegated” to agents who – being independent of the everyday political process – are less prone to time-inconsistencies. Yet, Central Bank independence, as much as the creation of other types of independent authorities, has been a means through which sensitive reforms have been implemented, especially in areas where strong local interests have impeded the concrete definition and implementation of a reform agenda. The case of the role of the European Central Bank in reforming public finances, especially in the less virtuous Member States, is exemplary in this respect. The current trend towards higher university autonomy also reflects an understanding that universities cannot properly compete if they cannot reform in order to develop – and be accountable for – their own strategies⁸. The same principles apply to other research institutions. As we have shown above, similar trends towards greater autonomy are evident in recent and important policy initiatives such as the ERC, whereby the prioritisation and management of an increasing share of ERA resources is delegated to autonomous bodies in which the stakeholders play a crucial role in their governance. The question is: What should be the appropriate level of autonomy or independence for research funding agencies, and to whom should they be accountable?

Across the European Union there is a wide range of different degrees of autonomy/accountability of R&D funding agencies, from the Northern European countries and the UK with a long tradition of independent agencies, to the scarcely-autonomous “ministerial agencies” of the Southern European countries (Portugal being an exception to this pattern). However, even agencies with a high degree of autonomy and independence are generally accountable to a “national or regional ministry” which is ultimately responsible for their budget; to wit, autonomous funding agencies tend to reproduce the vertical intra-governmental structure of the EU. An exception to this “vertical rule” is the German Research Foundation – its Joint Committee, responsible for research funding, is composed of members of the Senate, representatives of the federal government and of the

⁸ See, for example, “Report of the ERA Expert Group on: ‘Strengthening research institutions with a focus on university based research’”, January 2008.

states (Länder). Most of these public agencies fund all fields of science and the humanities (and evaluate projects through peer-review), while typically, separate “innovation agencies” provide public funding for business R&D (and evaluate projects using “in-house experts”).

As with Central Bank independence, “agency autonomy” provides a safeguard against discretionary political pressures. However, this design does not make agencies immune to other forms of manipulation (for example, by interested and organised customers), while, in contrast with Central Banks, funding agencies continue to depend on national or regional governments for their budgets; in other words, a high degree of independence may also result in a different form of time-inconsistency: uncommitted governments may *ex-post* not properly fund agencies which are unwilling to follow their governmental policies. The severity of these problems depends on the relative strength of the agencies *vis-à-vis* their customers (S&T organisations) and governments. Once more, while a local agency may be more knowledgeable about, and sensitive to, local needs, without a strong tradition of independence and/or a proper institutional design, it may also be a prime candidate for suffering from hold-up problems, and thus be a weak candidate for setting high competitive standards. However, size *per-se* is not the solution to these problems, since an agency (or ministerial department) in a large state, or even in the EU, can also be captive to its own customers (for example, they may influence media and the political budgeting process).

Principles of “governance and trust”

R&D funding institutions – as happens with financial institutions – can only operate efficiently if they build up a proper reputation, if they are “trusted” with regard to how they handle public resources, and, more specifically, with regard to how they handle the competitive selection process which determines the allocation of the resources. Some of the organisational principles that help to build up ‘trust’ are:

- i.) independence between the political authority (that may set social priorities and budgets) and the “funding managers” that implement the competitive and evaluation processes;
- ii.) independence between the “funding managers” and those who may receive the funding;
- iii.) a professional, stable and properly accountable organisation, otherwise reputation cannot be built;
- iv.) clear, and well known, rules for competition, evaluation criteria, selection procedures, and follow-up evaluation;
- v.) simple and timely implementation of contracts.

These basic principles of institutional design – in particular, of R&D funding agencies – can be used as benchmarks to assess the current ERA research policy governance. While it is beyond the scope of this document to provide a detailed evaluation of the different institutions, it is worthwhile to reflect on some of the current trends, since they reflect most of the issues that need to be addressed. We review these trends and issues in the next section.

4. Some current trends and issues in the governance of the ERA

The basic division of competences within the EU has remained fairly stable for more than twenty years: i) the European Commission is responsible for the implementation of the EU Research Policy, mostly through the Framework Programmes; ii) national and regional governments implement R&D policies within their constituencies, according to the “subsidiarity principle”; iii) a limited number of intergovernmental R&D institutions, most of them pre-dating the Framework Programmes,⁹ and iv) a few intergovernmental programmes and initiatives.¹⁰ However, even if the basic institutional framework has been stable, the expansion of the EU, the importance and broadening of the Community Research agenda, and the increasing complexity of research funding in the ERA have all resulted in many changes that call for a ‘rethinking’ of the ERA governance structure.

The creation of the ERC (and the EIT) and the increasing involvement of stakeholders in the governance of the ERA

The expansion of the Community Research Policy to basic science and the subsequent creation of the European Research Council (ERC) has been one of the most important developments in EU R&D governance in recent years. It has shown how the European scientific community can be mobilised at EU level, without national or linguistic interference, and with a fair amount of consensus on *how* research funding should be conducted. Furthermore, given the mobilisation of scientists, the European Commission has had the vision to give full support to the initiative, making it possible.

Based upon the NSF model, the ERC complies with most of the criteria of “trust” mentioned above, and, although it is still too early for a proper assessment, there is little doubt that it is having an important positive impact on the European research community. It remains to be seen whether the fact that it is not fully autonomous and must follow the same financial rules of the European Commission will not limit its capacities; for example, its ability to provide a “simple and timely implementation of contracts”.

The creation of the ERC and the European Institute of Technology (EIT) bear witness to a tendency to delegate a significant part of the Community funding process to the same stakeholders that are targeted by the funding programme. Here, an important point needs to be underlined: stakeholders involvement is somewhat

⁹ Examples are: the European Organization of Nuclear Research (CERN), the European Space Agency (ESA), the European Southern Observatory (ESO), the European Molecular Biology Organisation - Laboratory (EMBO-EMBL), the European University Institute (EUI) and the European Science Foundation (ESF).

¹⁰ The Europe-wide Network of Industrial R&D (EUREKA) and other EC initiatives of intergovernmental cooperation, such as the European Co-operation in the field of Scientific and Technical Research (COST).

different from blurring the boundary between those who decide the allocation of funds and those who benefit from it. In the ERC and the EIT, the involvement of exponents of the community of target beneficiaries occurs only at the representational level: members of their respective boards (namely, the ERC scientific council and the EIT Governing Board) are supposed to include high level personalities able to represent the views and competences of their respective target communities (the academic communities for the ERC, and also the broader innovation community for the EIT), while board membership has no relation with the selection process of individual beneficiaries. Thus, these institutions are designed as to preserve the principle of “independence between ‘funding managers’ and those who may receive the funding”.

The case of the Joint Technological Initiatives (JTIs) in which Framework Programme resources are managed by a separate public-private partnership which establishes a work programme and allocates funds to stakeholders that are themselves represented in the governance of the JTI (within the so-called industry and research groupings) is different, though. Here, differently from the EIT and the ERC, the board members are representatives of individual organisations and membership provides preferential access to the further allocation of resources (with mechanisms that are different for each JTI). In all these initiatives, the presence of stakeholders in the governance of research funds goes far beyond traditional advisory roles since they are directly and substantially involved in programming and funding decisions (in fact, in the case of the ERC, stakeholders are those who establish funding priorities, while, in JTIs, this responsibility is shared with the EC, and partly with MS representatives).¹¹ What makes the difference is the extent to which such an overlap occurs only in terms of representing the interests of the broader community of the beneficiaries (as in the case of the ERC), or if it extends to the interests of individual organisations (as in the case of JTIs). In the latter case, the funding agency and the beneficiary significantly overlap, and the programming-funding process is substantially, if not completely, delegated to the self-same stakeholders who are expected to execute the programme.

This “independence” problem is aggravated by the fact that their size, as well as the aim of involving the “main relevant players of a technological initiative”, reduces competition.

¹¹ Indeed the trend to involve stakeholders in the governance of public research is a general one aimed at making research efforts more accountable as regards their capacity to address social and economic needs (Governance of Public Research, OECD, 2003). See, also, “Universities, the State and the Market: changing patterns of university governance in Sweden and beyond”, Lars Engwall, (2007) 19 *Higher Education Management and Policy*.

The changing shape of European knowledge networks

The involvement of stakeholders in JTIs is the reflection – at the “innovation end” of the S&T spectrum – of a more general tendency to change the shape and overall aims of R&D partnerships from traditional project consortia: they are substantially larger in size, include a strong degree of heterogeneity among partners (interdisciplinarity, involvement of firms, particularly SMEs, *etc.*), have longer time horizons - for example, the Knowledge and Innovation Communities (KICs) of the EIT are supposed to operate for 7-15 years - are strongly asked to integrate their activities beyond mere collaboration, and have greater autonomy in defining how the funds should be used and allocated.¹² This poses a series of challenges on how these new types of networks can be managed effectively beyond the traditional flat and loosely coupled models that characterised traditional project-based networks (such as Networks of Excellence).¹³

This tendency raises a basic question: is this a reflection of the increasing complexity of managing R&D or is it simply a reflection of the current management of EC research policies? If the answer is the latter, one must question such policies, if it is the former, one should ask what the appropriate governance models to manage partnerships characterised by such size and complexity should be (for example, in order to rise, manage and allocate resources)? Furthermore, in as much as such a tendency reflects new R&D needs, one should recognise that the governance of the ERA cannot be treated just in terms of the co-ordination needed among the traditional levels and players (EC, national, regional funding agencies), but in terms of developing governance structures that can adapt to these needs and reinforce an open, integrated and competitive ERA. The solution should not be to create even more complex superstructures for co-ordination, but to develop relatively simple and transparent organisational forms that respond to R&D needs.

¹² The tendency of structuring ERA networks around a smaller number of projects characterised by a larger scale, more heterogeneity, stronger integration, more durability, has also been noted as regards the evolution of the FP6 in respect to previous FPs (see ERAnets: evaluation of NETworks of collaboration among participants in IST research and their Evolution to collaborations in the European Research Area, RAND Eruope, 2005). Similar trends have been underlined by the Evaluation of the effectiveness of the New instruments of FP6, Report of a High-level panel chaired by Prof. Marimon, June 2004.

¹³ Even if “durable integration” was in intended aim of Networks of Excellence, it seems that, in practice, this has been intended by the funded networks more in terms of mere collaboration and as regards durability, “top management of organizations were reluctant to give such a long term in depth commitment” Independent Rapporteur Report “On the three dedicated workshops on the main FP6 instruments”, March 2006, Ilse Vickers, University College London. The same difficulties in establishing a durable integration in NoEs were highlighted by the Evaluation of the effectiveness of the New instruments of FP6, Report of a High-level panel chaired by Prof. Marimon, June 2004.

Integration of R&D activities should be the result of a proper competitive process in which more ambitious S&T programmes are undertaken, but integration cannot be a separate objective or pre-requisite, since then it is likely to distort research funding. The experience of different financing instruments in the last FPs, oriented to foster “integration” is revealing. For example, as has been noted in the case of Networks of Excellence, although durable integration among research organisations was an expected outcome, this goal has hardly been achieved. Furthermore, the issue of integration also pertains the intersect oral level, whereby business organisations are expected to be actively involved in research networks, and they assume the role of partners, rather than mere counterparts. On the other hand, it has been noted that effective business involvement is one of the weakest achievements in R&D funding, both in terms of participation in research network, and in terms of business contribution to R&D expenditure. Up to now, business involvement has been pursued through the creation of links and connections between research organisations and companies through the funding of knowledge transfer activities or mobility programmes. Yet, it seems that the “perceived value” of these actions is, in most cases, too low. As a result, organisations make little effort to engage in the setting up of effective collaboration. For universities, the collaboration with businesses is seen solely as a means of acquiring additional resources, while businesses hardly benefit at all from the potential knowledge generated by universities.

One should not conclude from these experiences that there are no potential benefits from better communication and/or integration among different S&T actors. The problem usually relies on the assumption that the institutional shape of the actors concerned is appropriate to enable such a type of collaboration or integration. For example, the effectiveness of actions aimed at improving the mobility (especially with businesses) and attractiveness of research positions depends also on how universities manage the careers and statuses of researchers, as well as how they manage human resources. Similarly, the effective integration among different research organisations crucially depends on the mutual long-term gains that can be achieved from such integration, and often these gains can only materialise with the appropriate organisational reforms (for example, with more autonomy of the units participating in an intra-organisational collaboration).

From the governance perspective, there are two lessons to extract from these experiences. First, the value added is not so much in creating new super-structures for “integration” but in creating the incentives for existing organisations to reform as in making them more competitive and able to undertake more ambitious R&D programmes. These programmes are likely to become more complex, large and lasting, than individual research projects. Notwithstanding this, the above principles of “trust” also apply; in particular, the principles of independence.

The independence between “funding managers” and “research performers” does not preclude “research performers”, properly selected through a competitive process – or “tournament” – from allocating funds in turn; for example, through additional competitive bids/tenders to fulfil specific aspects of their projects or programmes (for example, hiring researchers, *etc.*). “Research performers” whose reputation is at stake should have the right incentives to allocate their funds properly. But - and this is the second lesson – “research performers” should not be transformed into “funding agencies”. This transformation not only creates a mis-allocation of talents, but also distorts incentives. R&D funding agencies should be evaluated according to their funding mission (only indirectly related to results), while R&D activities should be evaluated according to their

direct R&D results. This seems to be a pervasive confusion in EU funding, which results in futile and costly attempts to substitute *ex-post* critical research evaluations with “financial audits”.

Weak intergovernmental co-operation

As already mentioned, European trans-national governmental co-operation in R&D has a long tradition, but such trans-national co-operation has not resulted in greater co-ordination and integration of European S&T policies or in a common European space in Science and Innovation. The lack of intergovernmental initiatives also contrasts with the more spontaneous development of many scientific and technological communities which have developed their own webs of European collaboration; from European scientific, higher education, or technological associations, joint meetings, projects and ventures, to more ambitious collaboration, such as EUROHORC¹⁴ or the European Technology Platforms (ETPs). While the Framework Programmes have helped some of these initiatives, thus supporting, for example, some ETPs in implementing their research agendas through the creation of Joint Technology Initiatives (JTIs), support from national and regional agencies for collaborative initiatives beyond their boundaries (and beyond the need to co-finance EC programmes) has been meagre. As a result, the potential for EU collaboration and co-ordination remains largely unexploited.

In this direction, schemes such as ERA-Net were set up with the goal of facilitating knowledge-sharing among funding agencies in order for them to seek for synergies and then define common programmes. While, in the ERA-Net scheme, the Commission only plays the role of facilitator, Article 169 of the EU Treaty allows for the participation of the European Union, as an equal partner, in new research and development programmes undertaken together by several Member States. The main objective here is to go beyond the mere co-ordination of national programmes in order to achieve an integration of the different national and regional programmes in one single joint programme. In this case, the EU will contribute to this integration by funding the joint research programmes. In this context, the preparatory activities relating to inter-programme co-ordination such as the ERA-NET scheme,¹⁵ may serve the purpose of creating the conditions of an Article 169 initiative. Notice that a governance process whereby OMC types of activities may trigger ERA-Nets, which may, through the eventual

¹⁴ The organisation that assembles the heads of (37) European Research Performing (RPOs) and Research Funding Agencies (RFAs).

¹⁵ Furthermore, in order to bridge the possible gap between an ongoing ERA-NET and a planned Article 169 initiative, FP 7 gives Member States the possibility to submit a proposal for an ERA-NET “Plus” action where the Commission provides an incentive to the organisation of joint calls between national or regional research programmes by “topping-up” joint transnational funding with Community funding. ERA-NET “Plus” will thus allow Member States to experiment with the organisation of their first joint calls for proposals and so pave the way for planned “Article 169” initiatives at a later stage.

use of ERA-Net plus, develop into an Article 169 initiative, is envisioned. If this process may be clear in theory, issues related to the willingness and capacity of the various actors to embark on such a complex co-ordination endeavour, as well as structural constraints, render the development of the process almost ineffectual in practice.

The problem seems to lie in a combination of a lack of willingness and a lack of capacity to co-ordinate. The former because the agencies involved (with a regional or national mandate) have very weak incentives to collaborate, the latter because they are not designed to organise funding on a larger scale (and satisfy - in a co-ordinated way - the last “trust” principle: “simple and timely implementation of contracts”).

If there is a dimension in the development of the ERA in which there is a clear “governance void”, it is in the implementation of intergovernmental R&D funding. *Ad hoc* and punctual initiatives will never mobilise the scientific and technological communities, and the political interest of national or regional authorities, as, for example, the ERC has already done in its domain. This “governance void” is particularly worrying since the resources for inter-governmental funding can be very large.

Excellence vs Cohesion and the emergence of project makers

As we have discussed, in an open, integrated and competitive ERA, the emergence of strong R&D agglomerations or networks should not be a barrier for the emergence of new competitive S&T initiatives. On the contrary, the ERA as a “fair and open field for competition” should enhance “smart specialisation” of all its regions.

There is no doubt that the balance between “excellence” and “cohesion” has been a major concern in the design of EU R&D policies. The FPs have traditionally focused on the promotion of excellence in the context of “co-operative research”, with an increasing emphasis on “integration” (at least up to FP6). Other initiatives, in particular, those relating to the use of structural funds, have focused on fostering cohesion, on enabling the less favoured players to build their capacity and, thus, be able to compete to gain access to FP resources.¹⁶ In this sense, a “division of goals” among programmes whereby cohesion policies create the structural conditions for all to compete on excellence and participate in the “FP co-operative research” (on a more equal footing) or in the

¹⁶ The importance of Structural Funds as “EU R&D funds” should not be under-estimated. For example, in the PF6 period of 2000 – 2006, while the FP6 funding amounted to 14,496 million euros, the corresponding part of Structural Funds amounted to 10,690. “R&D structural funds” were larger than FP6 funds in: Estonia, Ireland, Greece, Spain, Latvia, Lithuania, Poland and Portugal. “R&D structural funds” include: i) Research projects based in universities and research institutes; ii) Innovation and technology transfers, establishment of networks and partnerships between business; iii) RTDI infrastructures; and iv) Research technological development and innovation (RTDI). (Source: DG Research).

“purely excellence initiatives”, such as the ERC “ideas” programmes, is envisioned. Although there are many examples of research groups, SMEs, *etc.*, in less R&D intensive regions of Europe that have benefited from the “co-operative” approach of EU research policies, as well as “success examples” in the use of structural funds, the overall experience is far from being successful.

In assessing success, we are not considering whether these policies have resolved the historical socio-economic imbalances which lie at the root of R&D imbalances, but whether – and how -- these policies contribute to create a “fair open field for competition on excellence” so as to enable “smart specialisation” and integration across the European regions.

As we have already discussed, these long-term objectives require policy and institutional reforms at national and regional levels, and the lack of them in the receiving regions is, in many cases, the main factor why this right balance between “excellence” and “cohesion” is not being achieved. However, from a governance perspective, there are two additional factors that deserve to be mentioned.

First, while “R&D structural funds” are an important source of EU R&D funding, and, in many countries or regions, they are the main source, the “governance structure” through which they are assigned is general fairly weak (in terms of the stated principles of “trust and efficiency”), and, as a result, it is not surprising that they have not fulfilled the desired role of “building capacities” in many cases. Furthermore, their potential role in helping the “smart specialisation” of less R&D intensive regions can hardly be fulfilled if it is expected that these regions “align their priorities” with those of the Framework Programme, which necessarily will assign them a relegated role.¹⁷ Once more, the emphasis should be on “how these regions compete?” more than in ‘what these regions compete?’. Placing emphasis on “the how” immediately reveals that the assignment of “R&D structural funds” should follow evaluation procedures that are “aligned” with more general evaluation procedures which pursue the goal of excellence, otherwise capacities may never be built up.

Second, the geography of ERA resources allocation seems to go in the direction of an increasing concentration on some “knowledge hubs” while, at the same time, crowding out other players. In particular, research organisations and universities located in less favoured areas and SMEs, seem to play an increasing peripheral role in the ERA; while they are involved in research projects, they seem to become increasingly dependent on “knowledge hubs” to access knowledge and partnership opportunities. Some major knowledge hubs, be they large businesses or research organisations, are increasingly playing the role of “gate keepers” that

¹⁷ A recent document of CREST (2007), while being very thoughtful regarding these problems, advocates this principle of “aligning” priorities with FPs.

hold the key of access to other networks, resources and information. All these trends may signal a situation in which FP6 may have encouraged the formation of an even tighter “inside group” than previous FPs.¹⁸ Another way to see this issue is that concentration is happening not necessarily on the basis of competition on excellence but on “project capacity”. The players that are more equipped in mobilising the proper mixture of partners to match a balance of “political/excellence” criteria, to cope with the procedural/technical aspects of submitting a proposal and to manage the administration of large consortia,¹⁹ are those that acquire a higher share of resources, drive the research and management agenda of the project, keep the contacts with the funding bodies, and thus improve their capacity to “submit another proposal”, acting *de facto* as gate keepers for “who is in and who is out”. In summary, the instruments that were originally designed to enhance “integration” across the ERA, may have resulted in a deterioration of the right balance between “excellence” and “cohesion”.

5. Achieving an open, integrated, and competitive European Research Area

The ERA is now an incredibly vast field, which extends beyond EU borders, and yet, unfortunately, national or regional boundaries and regulations often define the extent to which ideas, innovations and researchers compete, and, as we have argued, in order to become *competitive* all these barriers must be removed. The ERA not only needs to be *open* with regard to the outside world (becoming an area of attraction for researchers, innovative firms and R&D investments), but must be “open within”, otherwise it cannot be externally competitive.

A “fair competitive field” means that there are institutions and rules which guarantee fair R&D competition; in particular, they guarantee open access to new players, a necessary condition for each region within the ERA to have its own fair chance of competing and of becoming competitive. In an *integrated* Research Area, this goal can be achieved because the emergence of strong R&D agglomerations can, and must, go together with the development of a decentralised R&D and Higher Education basis of excellence across all

¹⁸ These trends in concentration, strung clustering around large hubs, risks of crowding out effects on SMEs, are, for example, reported in “ERAnets: evaluation of NETworks of collaboration among participants in IST research and their Evolution to collaborations in the European Research Area, RAND Eruope, 2005”. See, also, “Evaluation of progress towards a European Research Area for Information Society Technologies January 2006 CESPRI – Bocconi”.

¹⁹ In general, it has been observed that the preparation of a project proposal implies high risk, unreasonably high costs, and excessive bureaucracy. This, combined with the increased size and budget of the average project and a smaller number of projects awarded, may favour those organisations specialising in “proposal management” rather than those that may have lack such capacity while possessing appropriate scientific and technological competences. Similar effects stem not just from the proposal preparation phase, but also from the actual management of the project which requires specialised competences and capacities in managing large size consortia for an increasing time span. On this, see, also, the Evaluation of the effectiveness of the New instruments of FP6, Report of a High-level panel chaired by Prof. Marimon, June 2004.

European regions. Only with such a local basis and non-local perspective is regional “smart specialisation” possible. Only then do pursuing “excellence” and “cohesion” become complementary objectives.

EU and ERA Member States policy reforms.

There is a broad range of measures that the EU should adopt, and countries should enforce, in order to develop an “Open and Competitive European Research Area”, most of which have already been repeatedly cited:

a (cost-effective) European Patent system²⁰;

the full development of a financial market for venture capital investments;

lowering the cost of creation of new (technological) firms and, in particular, the costs of growing from new to competitively established firms;

low – EU-wide – barriers to the mobility of researchers (including sectorial mobility, and notably with the private sector);

the provision of better career prospects and working environments to researchers;

the development of a legal framework allowing for the creation of EU Foundations for the funding or promotion of S&T initiatives;

new community financial rules based on trust and proper S&T evaluation;

etc.

To implement most of these measures effectively, policy reforms at the EU and national levels are needed. Some of these reforms correspond to deepening the EU single market; in particular for services and the highly-skilled labour market. Other reforms involve changing public institutions, regulations, or practices that, in practice, represent barriers to openness and competition. For example, researcher career mobility is, in principle, acknowledged in all EU countries, but most research and academic institutions across continental Europe remain effectively secluded within their national boundaries with regard to the full development of research or academic careers. In other words, fully developing ‘the extent of the EU market’ also means developing a more open and competitive environment for public institutions, which does not however mean they should lose their public service mission towards their own communities.

²⁰ It is beyond the scope of this document to discuss what an optimal IPR policy should be.

We have emphasised the legal-financial reforms at the EU level, since these are now major obstacles for an effective implementation of EU research policies and for setting new institutions that should help to implement these, and co-operative intergovernmental, policies. For example, the existence of Executive Agencies – such as the ERC – is not enough to overcome the bureaucratic-financial complexity that has traditionally characterised FP funding; in particular, the ERC is subject to the same “financial regulations” of the European Commission.

Improving Governance in the ERA

A better governance of the European Research Area is not separable from a multilevel institutional modernisation of the actors involved (research organisations, national and regional funding bodies, EC), in the same way that the achievability of many of the goals of the ERA also depends on the reform of the institutional configuration of the relevant knowledge players. The Era Rationales Report states:

“The importance of the institutional level also serves to make the point that improving the efficiency and effectiveness of research institutions (universities and public research organisations) should be a key ERA objective”.

As the European Universities Association observed, “challenging times imply challenges to established structures”²¹ as the dynamics of development often requires old institutions to change or new ones to emerge.²²

With regard to institutional modernisation, our previous discussion suggests a **basic principle**:

“Create the external and internal incentives for R&D institutions to contribute effectively to an *open, integrated and competitive European Research Area*.”

This principle has immediate consequences when applied to different institutions. For example, it is questionable as to whether a university can establish a deeper partnership with a company: if business experience is not recognised as a valuable asset in a researcher’s curriculum and career, the university does not have the necessary flexibility and professionalism to meet business needs, and the partnership is only conceived as an external source of funding for the university (*i.e.*, only short-run pecuniary incentives are present). Similarly, to

²¹ A Vision and strategy for Europe’s universities and the European University Association. EUA 2006.

²² Richard Nelson, “What enables rapid progress: what are the needed institutions?” (2008) 37 *Research Policy*, pp. 1-11.

achieve effective integration, it may be more suitable to establish a stable partnership by groups of researchers rather than a formal inter-institutional agreement. The first example calls for “university autonomy”, since, with it, universities can find their most adequate partnership model with the business world. The second example calls for flexible forms within organisations, since with them effective integration can evolve without being paralysed by institutional regulations, while mere institutional agreements often do not mobilise the appropriate groups within the organisations.

At EU level, the issue of institutional modernisation is delicate because reforms in the domain of research and education are mainly, if not exclusively, the competence of the Member States (subsidiarity). But EU research policy can still play a role in applying the above “basic principle” in different ways. A commonly mentioned one is through “peer pressure”, by endorsing best practices, acting as an active observatory of the ERA institutional modernisation, and, if possible, taking actions in support of organisations and networks that take on board institutional reforms and modernisation principles such as those set in the modernization agenda for universities.²³ But the EU can also “take further actions”, by creating external incentives to organisations. In fact, many institutions are starting to compete to attract mobile researchers funded through the “people” (for example, Marie Curie) or the “ideas” (*i.e.*, ERC) programmes of FP7 and in many cases these institutions must adopt reforms reducing barriers to mobility to effectively compete.

In summary, the main political impetus that the European Commission can give to the process of R&D institutional modernisation is to deepen the level of open competition emphasising policy actions that induce the right external incentives. In this regard, it is far from clear that the large co-operative consortia or the JTIs create the right external incentives for the corresponding institutions. It creates an incentive to strengthen their managerial capacity – which may be a positive development – but, as we have argued, it may violate “basic principles of independence across actors” (funders and funded), deter competition and polarise scientific and technological communities (*insiders vs. outsiders*). In other words, they may not strengthen an open, integrated, and competitive ERA.

Institutional reforms are also needed among national and regional “funding institutions”. The stated “principles of governance and trust” can serve as a guide to assess the extent to which these institutions are in need of reform. Nevertheless, independently of at which government level R&D policies are set, or how much the funding institutions are in need of reform, the policies must be set with an ERA perspective and funding

²³ “The Commission is not a direct actor in the modernization of universities, but it can play a catalytic role, providing political impetus and targeted funding in support of reform and modernisation.” Delivering on the modernisation agenda for universities: Education, research and innovation. Brussels COM(2006) 208 final.

institutions must operate with this broader perspective. In particular, even if the allocation of R&D funds is restricted to a state or region, they should be allocated upon the basis of open EU (or global) competition. As we have argued, only within an open and competitive ERA can regions find the appropriate specialisation. With regard to the operation of national and regional funding institutions, EU policy may also have a leverage effect.

Project evaluation as a service

The evaluation of R&D projects is a service that does not need to be linked to the design and funding of a specific R&D programme. In particular, centralised agencies, such as the ERC on fundamental research and the EIT on innovation, could easily share their knowledge and experience, and thus provide a service to national and regional governments in pursuit of excellence²⁴ (in the way that the German Research Foundation provides services to the federal and state governments). But to have a unique evaluation agency in the EU may not be the best way of guaranteeing the open competition of ideas. In EU27, there is room for multiple agencies – possibly specialised by broad themes or types of funding – which, in contrast with national or regional agencies, have an ERA perspective. These agencies could then provide a service in evaluating, and helping to design, programmes led by different political institutions (the EC, the Member States in flexible co-operative agreements, *etc.*) or stakeholders, while preserving the principles of “trust”; in particular those of “time” and “scope”.

In summary, we propose the creation of new autonomous agencies that have the required “trust” and legitimacy from the target institutions.²⁵ On the basis of some recent trends and experiences in other domains (such as monetary policy), we think that a key element to ensure trust is the involvement of high-level representatives of the stakeholder’s communities in the governance of such agencies. On the other hand, one must, by all means, avoid the risk of transforming this “representational” type of involvement into less transparent forms of co-optation/co-operation. In fact, as we have argued, the “blurring of funding and spending” activities may generate conflicts of interest which ‘blur’ the necessary “trust” in the institutions and deter open competition. In addition, one must also be careful that there is no “adverse selection” of shareholders (*i.e.*, the selection of those with more political clout).

While we have argued in favour of “more than one EU funding agency”, given that competitive and professional “funding agencies” are costly, and that there are economies of scope, they should be few and very

²⁴ For example, it is a social waste that the outcome of the evaluations of the “first call” is not used to guide the funding of young researchers at national or regional level.

²⁵ Although it is beyond the scope of this document to provide a detailed legal account of which possible typed of “autonomous agencies”, it should be noticed that, while the recently created “executive agencies” are a step in this direction, they are still limited by regulations anchoring them to the EC structure.

well known within the ERA. In particular, while the European Commission is clearly accountable for its actions (which often results in too much red-tape!), clear forms of accountability for their management of public funds should be set as a limited number of them may not only be more economically efficient, but also make proper accountability possible.

Finally, in the transition process of establishing these new agencies, one must also take into account that, to a large extent, this is a process of “human capital formation”. One should take advantage of existing capacities – for instance, within the EC services – and define an implementation plan that will better guarantee that the necessary specialised personnel will take responsibility for these agencies.

If all these concerns are taken into account, these new forms of institutions may form the seeds of a more competitive structure of the ERA. The question arises, however, if – beyond the current trend of setting “Executive Agencies” of the EC - there is a legal basis for such a proposal. Before we conclude this chapter, we reply to this question in the next section.

6. Is there a legal basis to promote the needed reforms?

R&D policy was a formulated priority of the EU in 1986, when the Single European Act was signed. The Single European Act has transferred competencies for a common research and technology policy to the European governance level, and, in particular, it gave the Commission a procedure for implementing multi-annual Framework Programmes (FPs). Since then, R&D policy has become a multi-level policy area as regards agendas, institutions and budgets. The 1992 ratification of the Maastricht Treaty provided a stronger base for the R&D policy of the European Union as it enabled the Commission to take initiatives to ensure co-ordination between Member States’ and the respective Community activities in R&D. Notwithstanding this, the largest part of R&D policy is still pursued at national level and the Member States, in turn, pay close attention to retaining their individual decision-making powers.

In this context, the setting up of autonomous agencies capable of acting at a European level may challenge the subsidiarity principle, which places research at the boundary between Member States Community competence. Such a challenge is more evident if we observe that one of the key players in the ERA, namely, universities, root their potential contribution to Lisbon in the almost inseparable relationship between research and teaching, the latter being the full responsibility of the Member States. Exemplary in this is the modernisation of universities; clearly, this is a key requirement in creating the ERA, but it is undoubtedly true that European action at this level triggers the issue of subsidiarity. The question is: Is there a legal basis to set up agencies which, more or less directly, will have an impact on institutional domains which are traditionally under the competence of Member States, such as universities?

But, as recent experience shows, such a question is not the right one, as Community level actions have been jointly endorsed by Member States in domains where no legal basis was actually available. However, the provision of a legal base has, in some cases, been the outcome, rather than the premise, of important EU level efforts.

The recent case of energy is rather telling in this respect. In Hampton Court, heads of state and government reached an agreement to advance work in the energy sector. As a major step towards meeting the energy challenges facing the EU, in January 2007, the European Commission proposed a comprehensive

package of measures to establish a new Energy Policy for Europe to combat climate change and boost the EU's energy security and competitiveness. The Commission's Communication "An Energy Policy for Europe" set a series of ambitious targets on greenhouse gas emissions and renewable energy, and aim to create a true internal market for energy and to strengthen effective regulation. In March 2007, the European Council approved the Commission proposal by unanimity, and adopted a comprehensive energy Action Plan for the period 2007-2009, setting precise, legally-binding targets as a symbol of Europe's determination. This decision showed that, on major challenges which are perceived as strategic for Europe as a whole, the Community is able to mobilise the needed support and commitment both in accepting clear targets, and is able to ask Member States for genuine co-operation, which takes into account their different starting points and circumstances.

In spite of the fact that energy is not an exclusive competence of the European Union, and is not considered a common policy by the treaties, the importance of this issue and the scale of the climate change challenges set the context to act before a legal basis is established. Thus, with regard to the areas of competence established in the Lisbon Treaty, the restrictions imposed have been offset by the new legal bases for tackling climate change and energy solidarity which will make it possible to implement the relevant conclusions of the European Council. The innovations brought in by the new Treaty on energy and climate change will provide a sound legal basis on which to adopt the measures on alternative energy sources and environmental protection already agreed, in principle, by the European Council, but which now need to be operationally translated into binding legislative acts.

Similarly to energy, higher priority was also given to research and innovation at the Hampton Court Summit as key issues on which Europe needs to act in order to address the challenges of globalisation. R&D policy has therefore been placed on the common agenda of Member States and defined as a priority policy for the delivery of jobs and growth. Among the various challenges addressed, the modernisation of Europe's universities, involving their interlinked roles of education, research and innovation, has also been acknowledged not only as a core condition for the success of the broader Lisbon Strategy, but also as part of the wider move towards an increasingly global and knowledge-based economy. At the informal meeting at Hampton Court, universities were also acknowledged as foundations of European competitiveness and the 2006 Spring European Council agreed on stronger action at European level to drive forward this agenda in universities and research in the context of the renewed partnership for growth and employment. However, in the National Reform Programmes based upon the Integrated Guidelines for Growth and Jobs, few Member States addressed these issues as a national priority. In this regard, the Commission has already proposed the establishment of the European Institute of Technology (EIT) which is intended to provide an innovative model to inspire and ensure change in existing universities, in particular, by encouraging multi-disciplinarity and by developing strong partnerships with business. Needless to say, the ERC can and is actually playing a structuring role in the ERA setting a *de facto* a reference process and standard in evaluating excellence and creating a context for differentiation and competition in universities. Of course, the EIT and the ERC, alone, cannot be the only solutions in the drive to modernise Europe's universities, and other actions, along the line of creating autonomous agencies, can be foreseen. As an example, there is ample room to support capacity building in Universities that want to compete at a European and global level by taking on board the widely-shared modernisation principles that inspire the Bologna process or the modernisation agenda of universities.

7. Conclusions

It is recognised that strengthening and implementing EU-wide R&D policies is a core instrument for the full development of the Lisbon Agenda, but why should we have EU-wide R&D policies beyond those of national and regional Governments? One argument is that of transnational co-operation in R&D programmes and infrastructures. This is certainly a stimulus for European competitiveness in the Global Knowledge Society;²⁶ nevertheless, as we have argued, “*the main rationale for EU-wide R&D policies is based on the need to develop an Open, Integrated, and Competitive European Research Area*”. Only within an ERA drawn along these lines can transnational co-operation achieve its full potential and - more importantly - can all European regions find their competitive advantage through a process of “smart specialisation”.²⁷ We have argued that to consolidate such an ERA - and, correspondingly, the “*fifth freedom*” of the free movement of knowledge, ideas and researchers in Europe - “EU and national and regional reforms”, as well as “better governance and co-ordination of S&T policies” are needed.

To set the discussion of these “ERA needs” into perspective, we have first discussed the “rationale for an *open, integrated, and competitive European Research Area*”, some basic principles of R&D governance, as well as some policy trends and some of the weaknesses of the ERA.

With regard to reforms, we have emphasised, at EU level, the importance of having a proper legal framework for setting up competitive European transnational R&D institutions, working with financial rules based upon trust and proper S&T evaluation, and, at the national and regional level, the need for reforms of public universities and other research performing organisations.²⁸

With regard to the ERA governance, we have emphasised that, while there have been very positive developments - in particular, the creation of the ERC - there is an urgent need to rethink and reinforce the current governance structure. Although the current tendency of increased stakeholder’ involvement in the implementation of the EU research policy shows the capacity to mobilise new actors in fairly complex S&T initiatives, it also raises many concerns: i) it is, to a large extent, an *ad hoc* outsourcing of EC competences,

²⁶ In fact, under the initiative of the EC, the EU is playing a leading role in “Global Infrastructures and Initiatives”, (for example, ITER, Global Warming).

²⁷ “Smart specialisation in a truly integrated research area is the key to attracting more R&D to Europe” argues the Knowledge Economists’ Policy Brief n 1, October 2007, by Dominique Foray & Bart Van Ark.

²⁸ See, for example, “Report of the ERA Expert Group on: ‘Strengthening research institutions with a focus on university based research’”, January 2008.

given the pressure placed on the Commission to “simplify its services and reduce costs”; ii) it creates structures with complex mandates that may violate some basic principles of “governance and trust”; iii) it may unnecessarily polarise the ERA research and technological communities, with “insiders and outsiders”, contrary to the stated goal of achieving integration.

Based upon these considerations and in order to pursue the main objective of developing an *open, integrated, and competitive European Research Area*, we make the following recommendations regarding the ERA governance:

National or regional governments (and their funding agencies), should not only operate according the stated “principles of trust” (some already do, others require reform), but should also operate according to the above ERA perspective, for example, by removing effective barriers to open EU competitions and by taking advantage of EU evaluation capacities,²⁹ even if research has to be carried out locally.

EU institutions, such as the ERC (founded with the stated “principles of trust”), should be open to, and capable of, providing service to national and regional governments, and should design policies and programmes which can have a multiplicative, *leveraged*, effect on national and regional policies.³⁰

While flexible co-ordination/co-operation may be the dominant mode in supporting R&D initiatives (in order to internalise economies of scale and scope, and knowledge spillovers properly), the experience in intergovernmental programmes (for example, Eureka, ERA-Net, Article 169, *etc.*) shows the inherent complexity of intergovernmental governance, and suggests a different method of flexible co-operation: *to limit the intergovernmental intervention, and the EC leadership, to their policy role of setting and co-ordinating priorities, programmes and budgets, while delegating the evaluation, selection and management processes to “autonomous EU funding agencies”*, based upon the stated “principles of trust”.

²⁹ In fact, at the local level the “independence principles” (i & ii) are often too problematical to guarantee an effective ERA competition.

³⁰ ERA-NET+, where the EC provides additional funding to joint calls for specific R&D funding set by a number of national agencies, is a step in this direction. Another initiative in this direction that will help the ERA, is the collaboration of the ERC with national & regional agencies, according to which these agencies (on a voluntary/flexible basis) fund researchers (possibly, working in their country or region) who pass the ERC standards of excellence, but cannot be funded with the limited ERC funds.

The current EU (EC) governance structure must be simplified and reinforced, by creating new “autonomous EU funding agencies”, to which EC and intergovernmental programmes can be properly delegated (consistently with 3). Nevertheless, in order for these agencies to fulfil their role of strengthening the ERA, careful consideration must be placed on their specific governance structure (for example, the role of the stakeholders and shareholders), their professionalism, their ability to mobilise the scientific and technological communities in open competitions, their capacity to implement programmes delegated by different governmental levels, *etc.*

It is common to centre the discussion on R&D policy on budgets and thematic priorities, and we have almost completely, and purposely, abstracted from “the what” (what should be researched, financed, *etc.*) in order to focus our attention on “the how” (how should be R&D policy organised and implemented). In fact, our recurrent theme, and the corresponding policy recommendations, is no more than a vindication of the ERA – as a land of the ‘fifth freedom’ – as an achievable ‘how’: An ***Open, Integrated, and Competitive European Research Area.***

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