Expert Group – Knowledge for Growth

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Natalija Kazlauskienė, Director, DG Regional Policy

Opening Remarks

The issue examined by Professor Foray has examined – R&D internationalization - is an interesting aspect of the larger question about the EU's research and innovation performance. Policy makers are confronted with this question every day. To what extent is the EU performing less well than its global competitors? What measures would be most effective in improving the EU's performance? Is the EU – as was the traditional view - performing well in terms of producing research knowledge, but performing poorly in terms of technological development and innovation? Is its performance improving? Is it underperforming only in certain technology areas? Differing reports and studies differ in their conclusions. However, in the context of a globalized economy, it is right to look also at the implications of globalization for R&D capacity and how this relates to the question of the EU's overall R&D performance.

Before addressing Professor Foray's paper in detail, I have been asked by the chairman of this session to say a few words about EU cohesion and regional policy and what it means for research and innovation. Here then are a few key points for those not already familiar with EU cohesion policy.

How cohesion policy contributes to EU competitiveness

First, cohesion policy is an essential component in raising EU competitiveness. Cohesion policy has the objective of promoting economic and social development, i.e. delivering growth and jobs, which is why it is a crucial part of the Lisbon strategy. The significance of territorial cohesion is strengthened in the new Reform Treaty. Cohesion policy addresses three challenges which are important in the context of today's discussion. First, it is designed to reduce socio-economic disparities between the EU's regions, including disparities in regions' capacity to innovate and absorb innovation. Second, cohesion policy helps to address the challenge of globalization, by enabling Member States and regions to adapt to structural change. Third, it fosters co-operation between regions, including co-operation on research and innovation.

Next, it is important to understand there are some important features of cohesion policy which make it particularly successful in increasing competitiveness and meeting the challenges of globalization.

The first of these is that cohesion policy is unique among EU policies in that it is not focused on one single sector, but allows issues related to growth, competitiveness and jobs to be tackled in an integrated way. This means that support for knowledge infrastructure, research projects, spin-off companies, business support, skills development and financial engineering can be delivered through a single cohesion policy programme.

Second, cohesion policy is unique in being based on programmes drawn up for a period of several years, rather than on the provision of ad hoc grants. This enables public authorities to implement medium and long-term strategies and provides public and private sector actors in a given territory (national, regional or cross-border) with certainty about the framework for public support.

Third, cohesion policy is not simply about providing money, but about supporting a process. Cohesion programmes are drawn up on the basis of an ex ante evaluation conducted by external evaluators, analysis of the socio-economic situation and of a territory's strengths, weaknesses, opportunities and threats. Programmes are subject to ongoing monitoring against targets, annual reporting and mid-term and ex-post evaluations.

Fourth, cohesion policy is based on the recognition that regions and indeed Member States are too diverse for a single recipe to work everywhere. Instead, cohesion policy requires the drawing up of strategies tailored to the specificities of a region or Member State and to its particular strengths and potential. At the same time, priorities set out in regional programmes are firmly anchored in national strategies (National Strategic Reference Frameworks) and these NSRFs are in turn expected to be coherent with Member States' National Lisbon Reform Plans.

Fifth, cohesion policy is unique in its mode of governance. It is based on partnership: partnership between the European Commission and national or regional public authorities as regards strategy, but also partnership between these public authorities and representatives of the business sector and other non-governmental stakeholders. These external stakeholders are consulted on the design of programmes and involved in the monitoring of cohesion programmes. This reinforces the programmes' relevance and effectiveness.

How EU cohesion policy supports research and innovation

Having set out some of cohesion policy's main characteristics, I shall turn now to its specific role in supporting research and innovation. There are 3 important elements: the discrepancies as regards research and innovation which hold back competitiveness, cohesion policy's role in addressing them and the need for complementary EU policies.

Research investment and activity in the EU is concentrated in a few Member States and regions – even more so since enlargement. R&D intensity varies from 0.4% of GDP in Cyprus and Romania to 3.9% in Sweden. At regional level, the disparities are even more marked. About 50 regions have R&D intensity of more than 2%, whilst 110 regions have less than 1%. If we are serious about knowledge and innovation as drivers of growth and job creation, then the EU cannot afford investment in research and innovation to be limited to a few leading regions. Nor can it deny currently less prosperous parts of the EU opportunities to join the knowledge economy. This would limit the economic development prospects of not just less developed Member States and regions but those of the EU as a whole. It would also mean that a European Research Area remained a hollow phrase, with only a few regions and Member States able to participate.

This is where EU cohesion policy comes in. It can be used to support research and innovation across the EU's entire territory, but it plays a unique role in less developed regions in building public and private sector capacity to undertake research, to capitalize on research results and to innovate. It is acknowledged to be an important source of funding for research and innovation in less developed Member States and regions and thus contributes to progress on the EU's objective of investing 3% of GDP into research. As set out in the Community Strategic Guidelines for Cohesion 2007-2013, cohesion policy also strikes a balance in the investments it supports between supporting poles of excellence (e.g. in the capital regions of the newer Member States) and fostering the capacity of low R&D-intensive areas.

Cohesion policy's focus on economic development also means that it emphasizes the application and commercial exploitation of scientific knowledge, not simply its production. It is precisely in the area of exploitation in which the EU has under-performed in the past, compared to its global competitors, so cohesion policy is helping to redress the balance.

Cohesion policy's support for research, technological development and innovation (RTDI) in 2000-2006 amounted to €10.5 billion in the form of grants. The European Regional Development Fund (ERDF) is the source of over 94% of this support, with the European Social Fund (ESF) focusing on training for researchers.

The investment provided can be distinguished into four categories:-

- research projects based in universities and research institutes (about 26% of total RTDI investment)

- research and innovation infrastructure (public facilities, but also technology transfer centres and incubators) (about 28%)

- innovation and technology transfer and the setting up networks and partnerships between businesses and/or research centres (about 34%)

- training for researchers (about 3.5%).

About 70% of total Structural Funds RTDI investment was made in the less developed "Objective 1" Member States and regions. Objective 1 and 2 regions show no major difference in types of investment supported, but there were significant differences in the levels of investment that individual Member States committed to this area. Interestingly, some of the lowest investors in 2000-2006 were the more prosperous "older" Member States. For the 2007-2013 period, Commission guidance on cohesion policy has focused on delivery of the Lisbon agenda and stressed the importance of investing in knowledge and innovation for growth. It is clear from initial data that cohesion policy programmes indeed have strengthened their contribution to promoting innovation in the broad sense in all Member States and regions. The financial amounts to be dedicated to innovation are considerable, with 25% of the total cohesion policy allocation (i.e. over EUR 83 billion) being allocated to innovation (including research and technological development). This represents more than a three-fold increase in the relative share of these headings compared to the previous period. (The bulk of this effort - € 61 billion - will be made in Convergence regions. It is worth noting that this result significantly exceeds the EU-wide target recommended in the Aho report, bearing out our belief that regional policy's partnership approach and negotiation on the basis of national and regional specificities would achieve more than a "one-size-fits-all" target.

Complementarity between EU policies

The Commission adopted on 16 August a Communication entitled "Competitive European Regions through Research and Innovation – a contribution to more growth and more and better jobs". The Communication sets out how the three main EU policies for fostering research and innovation – cohesion policy, the Research Framework Programme and the Competitiveness and Innovation Framework Programme – fit together to tackle different aspects of the challenge of transforming the EU into the world's leading knowledge economy. The Communication also sets out the value of having complementary policy objectives, different levels of intervention and different beneficiaries. It also indicates the scope for complementarity in terms of reinforcing regional strategies and financing of projects, particularly in the less developed "convergence" Member States and regions. Cohesion policy's building of capacity for excellent research and innovation complements the focus of EU research policy on international scientific partnerships and thus plays a central role in the creation of a genuine European Research Area. Furthermore, the long-term improvements expected from other investments supported by cohesion policy, such as the modernization of educational infrastructure and education systems, will also help to make the most of the EU's human capital, bring new blood into our research institutions and build a solid base for future competitiveness.

Globalization of R&D: Identifying the Nature of the Problem

Returning now to Professor Foray's paper, it is important to begin by stating that, as he himself acknowledges (also in his more complete report of April 2006), the evidence as to whether European businesses are increasingly locating their R&D capacities in the EU or outside it and whether foreign companies are increasingly locating their R&D capacity in the EU or in other global regions is somewhat limited. Professor Foray's policy brief refers to "a perception …. borne out to some degree by recent surveys". This is interesting, but not a sufficient basis for policy conclusions, so the first key issue for me is: how can we obtain a more precise view of the extent of the trend?

Second, we need to be clear about which companies are involved. Businesses which are already multi-nationals have a different perspective on location of an R&D division – or any other activity - in another region of the world than businesses which are not. And even large

businesses differ in the extent to which they are embedded in a particular region or Member State. From the perspective of economic development, embedding businesses in a region so that there is not a carousel of relocation is a central issue. Any Member State or region which attracts investors – foreign or domestic – also has to focus on retaining them.
A third key issue is to understand the relative importance of the factors which play a role in decisions on the location of research capacities. Professor Foray identifies these as the availability of talented researchers, of new ideas and the availability of services and infrastructures, with an agglomeration of these factors forming an attractive location for R&D activity. We can all think of examples (e.g. Cambridge in the UK). But what is the relative importance of these different factors and to what extent do other factors – including locational attractiveness, the business environment, tax regimes, closeness to supply chains and markets, legislative restrictions on research (e.g. in the area of stem cells), eligibility for public funding programmes (e.g. for US Department of Defense research programmes) – also play a part in businesses' decisions on the location of R&D capacity?
I was also struck by the table at the end of Professor Foray's policy brief. The US survey on "factors in multi-national R&D location" shows different prospects for the employment of technical staff between "Western Europe" (a marked net decrease is envisaged) and the "former Soviet Bloc" (where a net increase is possible). It would be interesting to know how these geographical areas correspond to the enlarged territory of the EU, which includes several countries from the former "Soviet bloc".
The same table raises some other interesting questions. The US also faces a net decrease in the employment of technical staff (though to a considerably lesser degree than Western Europe). India and especially China have the prospect of a massive net increase in technical staff employed by US or EU firms. However, do India's and China's successes to date and their favourable prospects correlate to the factors which Professor Foray's policy brief identifies as central to decisions on the location of research capacities? For instance, to what extent do the increasing supply and significantly lower employment costs of graduate scientists and engineers in emerging economies play a significant role?
I think we also need to address the issue that businesses' needs in terms of research differ. Some companies have an interest in conducting pioneering research or in access to the results of such research in public research organizations (including universities). Other types of company may need access to research which is of high quality without necessarily being pioneering. SMEs especially may prefer to interact with a research team close to them.

Areas of Agreement

I shall turn now to the areas where Professor Foray's views struck a chord with me. First, I wholeheartedly agree with him on the importance of clearly focused economic development strategies which reflect the specificities of a national or regional territory, rather than standard formulas. The EU's Member States and regions start from different situations, have different needs and different strengths. As the Commission responsible for EU regional and cohesion policy, Ms Danuta Hübner, has stated repeatedly, there is no one strategy for building research and innovation capacity which is appropriate everywhere. One of the strengths of EU regional and cohesion policies is that they combine the recognition of diversity with a requirement for strategic planning. Cohesion policy programmes are based on strategies and investment priorities appropriate to the territory concerned.
DG Regional Policy has therefore stressed throughout negotiations on cohesion policy programmes that it is essential to invest on the basis of a strategy derived from thorough analysis and tailored to the specificities of a region or Member State. Our requirements are rigorous in this respect. Cohesion policy programmes must be drawn up on the basis of ex ante evaluation (conducted by external evaluators), analysis of the socio-economic situation (including performance in terms of public, private R&D and innovation) of the (national or regional) territory concerned and identification of this territory's specific strengths, weaknesses, opportunities and threats. All of these elements are subject to scrutiny by the Commission services. The approach taken for EU cohesion policy programmes may well

therefore serve as a model for improving purely national or regional spending programmes. Many external evaluators see this as one of cohesion policy's areas of significant added-value. As well as ensuring a strategic basis for the main operational programmes, regional policy has also supported development of regional innovation strategies, including on the issue of "Regional economies based on Knowledge and Technological Innovation" and expanded inter-regional knowledge-sharing networks (e.g. the "Regions for Economic Change" initiative). At this point, it is important to draw a distinction between Member States and regions trying to understand the factors in success stories elsewhere and apply the lessons which are appropriate to them – which is a valid exercise - and trying to duplicate other regions' technological areas of expertise (something which Professor Foray rightly criticises).
Second, I agree with the widely-shared view that critical mass is essential. The emphasis which EU regional and cohesion policy places on this point is evident from the explicit guidance on the need to focus on developing critical mass in the Community Strategic Guidelines for Cohesion Policy 2007-2013.
However, how do we define critical mass? I believe – and I hope that Professor Foray agrees – that it should be understood as concentration of activities around poles of excellence throughout the EU which are based on national or regional specificities. I think this is also what businesses require to be more innovative and competitive. Critical mass should not mean concentration of all R&D activity in just a few leading regions in a few Member States.

Areas of Doubt

However, although I share Professor Foray's views in two respects, I have reservations about others. Having set out the factors which play a role in companies' decisions on where to locate R&D activity, Professor Foray argues that of the two main factors hampering Europe's efforts to attract international R&D, the first is Europe's fragmentation along national lines, which prevents research resources moving freely to natural centres of gravity. There are two issues here.
First, are national or – in federal states - regional competences holding back the emergence of world-class research centres? The evidence on this point is not conclusive.
Second, is research a totally mobile asset for which legislators could create a perfect market? This too is doubtful, not least because human capital is in practice not totally mobile. The question came up during the CREST conference on 3 May on co-ordination of EU instruments to support research, at which Professor Foray also spoke. I was struck by the fact that it was a representative of the private sector who disagreed with the thesis that research capacity was easily mobile, especially if it was based on specific competences.
Apart from the theoretical issues, there are some practicalities. Professor Foray's paper is unclear about what adaptations of European policy he would propose in order to "allow the emergence of world centres of excellence, created across national boundaries". When I look at the EU's main instruments for supporting research activity – the RTD Framework Programme and Cohesion Policy – both promote inter-regional and trans-national collaboration.
In fact, I wonder whether EU policies are truly the stumbling block here, or whether it is a matter of lack of recognition at national level of their own interest in greater co-operation. If the latter, we have to ask ourselves why national authorities have not yet been convinced to collaborate to a greater extent and what more can be done to persuade them. And persuasion is key. There is no other mechanism – nor should there be one – to oblige national authorities to cease support for public or private sector research activity in their territory unless it meets the approval of some external body.
Professor Foray's recommendations also involve issues of governance. Is it feasible or desirable that the European Research Area (ERA) is imposed from the top-down? I would argue that this is both impractical and undesirable. Member States and regions have competences, expertise and therefore a role to play in the governance of the ERA.
I think we also need to consider the possibility that fragmentation along national lines does not just hamper process of creating world-class centres of excellence, but may also foster

healthy competition. Clearly, the EU does not need 27 particle accelerators to study basic matter. On the other hand, the breadth of many areas of research, particularly applied and industrial research, is such that multiple research centres can thrive. In fact, it is arguable that the EU's research and innovation performance – and thus its economic performance – now suffers due to excessive concentration in a few geographical areas.

Concluding remarks

Professor Foray has made a stimulating contribution to debate. I believe some issues remain open and merit deeper analysis before we draw conclusions, e.g. the extent to which research capacities are mobile and the factors – especially those relating to human capital – which influence mobility. I am not convinced that creating a perfect market for research activities is feasible or that it would be the solution to the range of challenges we face in raising not just research - but especially innovation and economic - performance.

I share Professor Foray's hope for a more integrated European Research Area. But this should not mean exclusive focus on a few centres and brain-drain elsewhere. I am not convinced that we will bring about a knowledge economy or solve the EU's overall problem in terms of research and innovation performance by public authorities picking a few winners by a top-down method and leaving the rest to decline.

However, I am encouraged that Professor Foray's conclusions support the emphasis which DG Regional Policy places on having development and investment strategies tailor-made to the specific situation and strengths of a region or Member State and our support for inter-regional co-operation in terms of strategies and investments. I also congratulate him on avoiding the tired stereotype of cohesion versus excellence, which equates research and innovation projects carried out in less prosperous Member States and regions with second-rate work. There is no correlation between economic prosperity and intellectual brilliance.

In conclusion, to raise the EU's research, innovation and economic performance, we need a balanced policy mix – not extremes of dispersion or concentration. I am also confident that cohesion policy is contributing on many levels to making the EU a more attractive location for R&D activity.

I thank you for the opportunity to contribute to this debate and I look forward to discussion and to hearing the results of further work.