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DRAFT REPORT

on the European Research Area: New Perspectives
(2007/2187(INI))

Committee on Industry, Research and Energy

Rapporteur: Umberto Guidoni

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MOTION FOR A EUROPEAN PARLIAMENT RESOLUTION

on the European Research Area: New Perspectives (2007/2187(INI))

The European Parliament,

– having regard to the Commission Green Paper of 4 April 2007 entitled The European Research Area: New Perspectives (COM(2007)0161),

– having regard to the Commission staff working document (SEC(2007)0412) accompanying the abovementioned Commission Green Paper,

– having regard to Decision No 1982/2006/EC of the European Parliament and of the Council of 18 December 2006 concerning the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007-2013)[1] (FP7),

– having regard to Council Decision 2006/973/EC of 19 December 2006[2] concerning the specific programme 'People' implementing FP7,

– having regard to Rule 45 of its Rules of Procedure,

– having regard to the report of the Committee on Industry, Research and Energy and the opinions of the Committee on Economic and Monetary Affairs, the Committee on Employment and Social Affairs, the Committee on the Internal Market and Consumer Protection, the Committee on Regional Development, the Committee on Culture and Education and the Committee on Legal Affairs (A6-0000/2007),

A. whereas the European Council of 23 to 24 March 2000, held in Lisbon, endorsed the objective of creating a European Research Area (ERA),

B. whereas the EU Research Framework Programme is designed to support the creation of ERA,

C. whereas ERA encompasses three main aspects: an internal market for research, where researchers, technology and knowledge can freely circulate, effective coordination at EU level of national and regional research activities, programmes and policies and initiatives implemented and funded at EU level,

D. whereas greater efforts are needed in all dimensions of EU research: people, infrastructure, organisations, funding, knowledge sharing and global cooperation, in order to overcome the fragmentation of research in the EU and realise the EU's potential therein,

Creating a single labour market for researchers

[1] OJ L 412, 30.12.2006, p.1.
[2] OJ L 54, 22.2.2007, p. 91.

1. Would welcome the common definition of research careers and the establishment of an information system on the employment of researchers and research practices throughout Europe and believes this will help the EU reach the highest levels in research;

2. Endorses the plan to increase the geographical mobility of researchers as well as their inter-sectoral mobility (i.e. between universities and research organisations and between academia and the business world) as a means of achieving knowledge sharing and technology transfer;

3. Considers it necessary to stimulate exchanges of experience among the Member States in order to develop a coherent approach to promoting women in Community-funded research, with the aim of significantly increasing the proportion of women pursuing research careers;

4. Calls on the Commission to investigate how the teaching of sciences in the Union can be improved at all levels of education; considers the lack of human resources in R&D to be a problem in many Member States, due to decreasing interest among the younger generation in following scientific curricula and engaging in scientific careers;

Developing world-class research infrastructures

5. Welcomes the progress made in developing research infrastructures with the adoption of the European Strategy Forum for Research Infrastructures (ESFRI) roadmap; nevertheless believes that provision should be made to include new facilities and infrastructures currently being developed by Member States alongside the infrastructures identified by ESFRI;

6. Calls on the Commission to establish a degree of collaboration with national agencies and research performing organisations (RPOs) in Europe, before agreeing on a common policy and implementation plan;

7. Calls on the Commission to propose a legal framework to facilitate the creation of new forms of pan-European research organisations, and to consider the involvement of existing European institutions (e.g. the European Organisation for Nuclear Research and the European Space Agency), albeit that the intergovernmental treaties usually needed to implement such organisations should be avoided;

8. Considers that, in order to ensure long-term operations and continuous improvement, the approval processes for large research infrastructures should include R&D, computing and operating funds;

Strengthening research institutions

9. Believes that the "Regions of knowledge" programme, promoting the research and innovation potential of the regions, should be seen as a key contribution of FP7;

10. Calls on the Commission to establish a common system of scientific and technical review to better exploit the results of European programmes; believes it would be beneficial to put in place a reliable system of validating knowledge and methods of analysis, control

and certification and to network centres of excellence in the EU;

11. Calls on the Commission to establish a public procurement expert group that could represent a direct means of supporting R&D at EU level by virtue of the more consistent use of public instruments and resources;

Sharing knowledge

12. Believes that improvement of dissemination goes with the development of open access to scientific information and that, for example, the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities could be used to promote the internet as a way of better disseminating scientific findings widely;

13. Agrees with the concept of open innovation promoted by the Commission, according to which the public and private sectors become full partners and share knowledge;

14. Considers that, in the context of ERA, the role of Joint Research Centres (JRCs) should be confirmed as independent and neutral high-level scientific and technical structures providing common expertise to the EU institutions and supporting decision-making processes on key issues (quality of life, food safety, the environment, consumer protection and so on);

15. Believes that, with a renewed mission supporting and encouraging their activities and focused on optimising the benefits to be derived from their structures, JRCs could also promote truly European opportunities in the field of training and mobility of young researchers;

Optimising research programmes and priorities

16. Deems it appropriate to implement the principle of the reciprocal opening of national programmes to participants from other Member States since this would be a step towards the exchange of information on existing national programmes and would encourage the evaluation of national research activities by international panels;

17. Considers it worthwhile to explore potentialities offered by the "variable geometry" mechanism, as a suitable way of developing adequate flexibility in the realisation of thematic programmes;

18. Believes that the opening up of national research programs and their financing to all researchers in the Member States should start, above all, in the area of fundamental research or so-called frontier research;

19. Observes that local and regional authorities should be engaged in creating a research-friendly framework and should make a significant contribution to the realisation of ERA and that this could be brought about through Community funding programmes such as FP7, but that considerable progress could also be made by means of agreed programmes funded by the Structural Funds;

20. Considers that actions should be taken to update forms and instruments of cooperation and

to adapt them to the ERA objectives; recommends that initiatives such as the European cooperation in the field of scientific and technical research (COST) and the pan-European network for market-oriented, industrial R&D (EUREKA) be developed further;

21. Considers that a broader approach to establishing priorities for strategic decisions on public funding is needed and that the plans for Technological Platforms and for Joint Technology Initiatives, focused on technology and dominated by a short-term thinking, would benefit from the involvement of public organisations, such as universities and RPOs, which are able to develop long-term strategies;

Opening up to the world: international cooperation in S&T

22. Believes that it is important to align EU scientific co-operation policies with EU foreign policy and development aid programmes;

23. Calls on the Commission to strengthen research cooperation to foster dialogue, peace and security. Believes that such cooperation will furthermore enable the EU to address highly relevant issues, such as regional sustainable development;

24. Considers that countries that are more aligned with the EU's geo-political priorities, such as those of the Mediterranean basin, should be encouraged to participate in ERA;

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25. Instructs its President to forward this resolution to the Council and the Commission.

EXPLANATORY STATEMENT

Research, society and economic growth

The role of science and technology in the society has been strongly influenced by the view that sees Research and Development (R&D) mainly as an instrument of economic competition: research is worth only if able to promote innovation. This analysis leads to favour applied research rather than basic investigation, the development of new technologies rather than the discovery of new scientific theories, a short term perspective instead of a long period commitment.

The debate has been focused almost entirely on the economic value of R&D, more and more attention has been paid to instruments to protect Intellectual Property Rights (IPR's). In recent years, deep changes took place regarding the system of IPR's: widening areas of protected knowledge and granting a broader range of rights to patent holders. Patentable topics has been widened including software and databases (those related to genetics and geophysics) and even basic science has been involved (like mathematics and biology).[1]

But two divergent positions exist on the matter. On one side, it is due to guarantee incentives to inventors: if the economic return for the author is not protected, there is a risk of slowing down innovation. On the other side, broadening IPR´s can create undesired obstacles to the spread of knowledge, the very basic ingredient for innovation. An excessive extension of patents could generate a distortion of resources allocated for technical innovation, investments that are routed towards areas with bigger private return rather than on those with greater interest for the whole society[2].

The rapporteur believes that it is important to go back to the main mission of scientific research: the creation of new knowledge[3]. It is necessary to re-evaluate a diffused preconception that sees a linear relationship between R&D and innovation. Indeed,

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[1] The increased economic value of IPR´s has lead to a significant increment of patents: the number of requests at the European Patent Office increased from 70,000, in 1990, to 129,000 in 2000; the same happened in US were patents increased from 62,000, in 1980, to 90,000, in 1990, and 166,000 on 2001. Also the relative controversies for patents and copyrights increased, at least in the United States.

[2] In the Ocse meeting of January 2004, was stated that the IPR's system should not reduce access to new knowledge. Governments were asked to adopt appropriate measures to guarantee that scientific data from public financed research were made available to everyone

[3] "...universities and the endowed research institutes must furnish both the new scientific knowledge and the trained research workers. These institutions are uniquely qualified by tradition and by their special characteristics to carry on basic research. They are charged with the responsibility of conserving the knowledge accumulated by the past, imparting that knowledge to students, and contributing new knowledge of all kinds. It is chiefly in these institutions that scientists may work in an atmosphere which is relatively free from the adverse pressure of convention, prejudice, or commercial necessity. At their best they provide the scientific worker with a strong sense of solidarity and security, as well as a substantial degree of personal intellectual freedom. All of these factors are of great importance in the development of new knowledge, since much of new knowledge is certain to arouse opposition because of its tendency to challenge current beliefs or practice. Industry is generally inhibited by preconceived goals, by its own clearly defined standards, and by the constant pressure of commercial necessity. Satisfactory progress in basic science seldom occurs under conditions prevailing in the normal industrial laboratory..." (Vannevar Bush, The Endless Frontier, 1945).

correlations do exist but they involve higher levels of complexity and potentially have to do with areas well outside the realm of science. Therefore, the perception of research as a sort of "panacea" to solve economic and social problems needs to be corrected.

On the other hand, we cannot imagine leaving R&D only in the hands of scientists working in their "ivory tower". Although it does not directly address, visible and immediate economic dividends, R&D is a fundamental factor for the creation of the *knowledge based society* in Europe.

There are convincing evidences that public funded investigations produce considerable social benefits. However, these benefits are often thin, heterogeneous, difficult to characterize and to measure, and mainly indirect. Public research must be considered more like a source of new ideas, methods and, above all, as a mean to train people to solve complex problems.

Unfortunately there are no simple models to describe the nature of the benefits stemming from public funded research and it is even more difficult to establish the amount of resources and the areas on which to invest, also because there are considerable differences among countries and fields. The literature available indicates that the financing of research, like many other public funded fields (such as *security* and *defence*), is not easy to justify only in terms of "*measurable economic benefits*".

The need for research governance

EU governments have set the ambitious Lisbon agenda, which emphasises the key role of the transition to the knowledge-based economy in securing sustainable growth, more and better jobs and greater social cohesion.

Such ambitions and such a vision of the future are vital if policy in Europe has to reflect major societal concerns. However, the part that R&D can play in this process will be constrained if a number of key factors, which currently prevent Europe from achieving its full S&T potential, are not adequately addressed.

The rapporteur believes that the innovative performance of Europe, and thus its growth potential, depends upon the development of a "*balanced system*" of knowledge production and distribution. The role of the Commission and MS's then is to invest in human capital, intensify relationships, and optimise the flows of knowledge. Europe has to search for alternative criteria to measure the effectiveness of policy instruments, especially looking at the catalyst effects of public support, also referred to as "*behavioural additionality*"[1].

A factor contributing to Europe's weakness in Science and Technology is the lack of sufficient investment in R&D[2]. If Europe wants to tackle the tough economic, social and environmental challenges it faces at the beginning of the twenty-first century, it will need to spend more on research.

[1] Muldur, U., Corvers, F., Delanghe, H., Dratwa, J., Heimberger, D., Sloan, B., Vanslembrouck, S., "A new Deal for an Effective European Research Policy - The Design and Impacts of the 7th Framework Programme", 2006

[2] The United States and Japan not only invest more of their GDP in R&D than the EU (2.67% and 3.20% respectively in 2003 compared with 1.90% for the EU), but have also increased their R&D intensity since the mid-1990s, leaving Europe seriously lagging behind.

The steps taken at the Lisbon European Council in 2000 were a reaction to these concerns about Europe's underinvestment in the knowledge economy, and this was further reinforced at the Barcelona summit in 2002, where the EU set itself the objective of reaching an R&D intensity of 3 per cent by 2010. However, the growth in its R&D spending since 2000 has been insufficient to achieve this target[1].

Yet much of the gap in spending compared with its competitors relates to R&D financed by industry. Market failures prevent the private sector from investing in research at the socially optimum level. Governments have an important role to play: both by providing incentives and conditions which encourage more private investment in R&D, and by stepping in to support R&D in cases where business would not otherwise do so.

But, above all, the role of governments is creating the conditions to allow new knowledge to be created and made available to all society. Indeed, knowledge and innovation have the characteristics of a "*public good",* that is, something that should be accessible to everybody in a society.[2]

"The need for public support of research also derives from the system nature of innovation, and from the importance to invest in human capital and networks to ensure the absorption of knowledge. The process of knowledge production is much more complex than the linear model suggests. There are many feedback effects between the various stages in the innovation process, which is best considered as a system, where institutional relationships and the flows of knowledge between actors are of critical importance."[3]

"Against the background of limited resources for R&D it has become even more important to ensure that scarce funds are spent as effectively as possible. However, the already negative effects of Europe's relatively low investment in research (...) are compounded by a number of structural deficits inherent in the European R&D system. These systemic weaknesses make Europe a less-attractive place for R&D investors and researchers, and produce a wasteful fragmentation of research efforts.

At the heart of the problem is the issue of *research governance* in Europe. In particular, the question arises of how best to allocate policy competences and resources across the different organizational levels of public authority - local/regional, national and EU."[4]

ERA Contribution

In the EU there has been an increasing awareness of the need to better organize the multi-level governance systems for research in order to ensure greater complementarities of policies, to reduce fragmentation of funding and to avoid duplication of efforts.

There is also evidence of the increasing regionalization. The success of areas like Silicon

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[1] Between 2000 and 2003 the average annual growth of EU-25 R&D intensity was just 0.7%, a trend which, if continued, would lead to an intensity of only about 2.2 % in 2010.

[2] Muldur, U., Corvers, F., Delanghe, H., Dratwa, J., Heimberger, D., Sloan, B., Vanslembrouck, S., "A new Deal for an Effective European Research Policy - The Design and Impacts of the 7th Framework Programme", 2006

[3] idem, p. 48

[4] idem p. 51

Valley and Cambridge has convinced governments of the need to create more of these innovative knowledge clusters.

"On the other hand .... there has been a significant growth in the scale and scope of the EU level of intervention. Since the 1st Framework Programme in 1984, European research policy has expanded in terms of its ambition and its budget. ... However,.... research and innovation policies continue to be pursued largely in parallel -at national, EU and regional levels- leading to what some have called a "governance gap" of poor integration and coordination between these different levels"[1].

Unlike the United States or Japan, European research still represents a “puzzle” of national public systems. National activities, governed by 27 varying legislative, regulatory and financial structures, are still largely undertaken independently of one another[2] [3].

The EU already helps to compensate funding trans-national collaborative research under the FP’s. However, the financial support the EU can offer today is limited. Community efforts represent a *28th research policy*, with a budget of only around 6% of public funding, it cannot be sufficiently dynamic to have a truly integrating effect on national policies.

The European Research Area (ERA) initiative was launched in March 2000 to tackle these issues, but despite the progress achieved in these years, greater coordination and cooperation had to be achieved throughout Europe.

"More links had to be established between the different players (public authorities, firms, universities, research institutes) at all policy levels (regional, national, Community, inter-governmental) in the European research system."[4]

On the other hand, the context has evolved considerably since 2000:

- Globalization has accelerated and knowledge is a key component of this new global dynamic. An increasing share of global R&D will be located outside Europe[5]and, given the current trends, Europe's share of research will one day represent less than 10% of global knowledge production.

- Various socio-economic challenges are grown – increased socio-economic disparities, climate change, ageing, and risks of infectious diseases – and there is a consensus that

[1] Muldur, U., Corvers, F., Delanghe, H., Dratwa, J., Heimberger, D., Sloan, B., Vanslembrouck, S., "A new Deal for an Effective European Research Policy - The Design and Impacts of the 7th Framework Programme", 2006

[2] The example of basic research illustrates these issues. Its funding is dispersed across the Union, and consequently, many projects lack the necessary critical mass. The amount spent by Johns Hopkins University on basic research exceeds the individual efforts of 18 EU MS’s, and is greater than the combined efforts of the 10 new MS’s.

[3] Muldur, U., Corvers, F., Delanghe, H., Dratwa, J., Heimberger, D., Sloan, B., Vanslembrouck, S., "A new Deal for an Effective European Research Policy - The Design and Impacts of the 7th Framework Programme", 2006

[4] idem, p. 263

[5] China and India have emerged as global S&T actors. India increased its R&D spending threefold over the last decade, building on average economic growth of 8% since 2003. China is one of the world's largest spenders and it is expected to catch up with the EU by 2009 in terms of R&D intensity (since 2004, is producing 3 times more engineers than the US and has the same number of full time researchers as all EU MS’s together) .

stronger concerted actions are needed at EU and global level, notably in science and technology.

- The European research landscape has evolved with the launching of the 7th FP, containing new measures such as the European Research Council (ERC), but also through various ERA specific measures, as well as the wider diversity of scientific cultures that have come with the expanded EU[1].

The EU has a long tradition of excellence in R&D, but this excellence is often scattered across Europe, with 80% of public research being conducted at national level, mainly under national or regional research programmes. This all too often means that the potential of EU research is not fully exploited.

The Commission Green Paper points out crucial issues cutting across all dimensions of the ERA:

- The creation of an *'internal market'* for research - an area of free movement of knowledge, researchers and technology - with the aim of increasing cooperation, stimulating innovation and achieving a better allocation of resources;

The development of a European research policy deeply rooted in European society. It should support advancement in fields of a major public concern, such as health, energy and climate change.

- A restructuring of the research fabric in Europe is needed to achieve a balance between competition and cooperation and in order to develop world-class excellence.

- European research must fully benefit from Europe's diversity, which has been enriched with the recent EU enlargements.

These issues should be the core of an institutional and public debate aimed to prepare initiatives for 2008, as we approach the review of the first three-year cycle of the renewed Lisbon Strategy and the launch of the second cycle.

While the original ERA objectives remain valid today, a more dynamic approach is needed.[2] "This calls not for a piecemeal raising of effectiveness and impact, but for making effectiveness and impact the key priorities.... action should be taken where most effective. This means a reallocation of responsibilities and assumes going beyond the existing structure

[1] With the access of Romania and Bulgaria, the EU population has raised to around 490 million people, the world's third largest population area after China and India. The EU is the world's leading market in terms of demand for knowledge-intensive products. Studies have shown that demand for such products is a major driver of R&D location and investment decisions. The problem is, however, that a single EU market for S&T intensive products does not exist yet. Several barriers persist: different national legislation, different technical standards, specificities in local markets, etc.

[2] Muldur, U., Corvers, F., Delanghe, H., Dratwa, J., Heimberger, D., Sloan, B., Vanslembrouck, S., "A new Deal for an Effective European Research Policy - The Design and Impacts of the 7th Framework Programme", 2006, p. 263, 264

of the European research system...."[1]

"This "*New Deal*" would involve a more ambitious approach towards the realisation of the European Research Area..... Unlike the original ERA initiative, it does not simply promote the establishment of links between existing European S&T players, each with their own existing roles and responsibilities..... It is, above all, important to keep an open mind about the outcome of this debate and inquiry. It could mean an expansion of national or regional activities in some areas. It could lead to an increase in EU-level actions in others. It may even result in a need to build new, common European S&T institutions"[2], looking at organizations like CERN and ESA, good examples of success stories.

"The *New Deal* would mean preparing these decisions together based on solid, shared evidence, and bravely facing"[3] the changes. The EU ability to do so could herald a new phase for European research.[4]

[1] Muldur, U., Corvers, F., Delanghe, H., Dratwa, J., Heimberger, D., Sloan, B., Vanslembrouck, S., "A new Deal for an Effective European Research Policy - The Design and Impacts of the 7th Framework Programme", 2006, p. 264
[2] idem, p. 266.
[3] idem,
[4] idem,