



EUROPEAN COMMISSION  
DG Research  
Directorate C

## **Summary**

**Policy strategy seminar  
"Knowledge for Growth"**

**Janez Potočnik, Member of the European Commission for Research  
&  
Economic expert group (Knowledge Economists)**

**Wednesday 7 November 2007 – Brussels**

**Berlaymont Building – Room Schuman**

## Agenda

9:00	Introduction	Commissioner Janez Potočnik
	<u>Session I:</u>	<u>Globalisation of R&amp;D</u> - Chair: <b>Richard Hudson</b> , Science Business
9:15	Introduction	<b>Dominique Foray</b> - Chair of the Expert Group
	Discussants	<b>Franz Jessen</b> , HoU China, <b>DG RELEX</b> <b>Natalija Kazlauskienė</b> , Director C, <b>DG REGIO</b>
	Open discussion	
11:15 Coffee Break		
11:45	<u>Session II</u>	<u>Universities and Business Organisations in the ERA</u> - Chair: <b>Andrew Fielding</b> , Bruegel
	Introduction	<b>Stan Metcalfe</b> - Expert Group
	Discussants	<b>Odile Quintin</b> , Director General, <b>DG EAC</b> <b>Geoffry Boulton</b> , Chair of policy committee <b>LERU</b>
	Open Discussion	
13:00 Lunch / Buffet		
14:00	<u>Session II(contd)</u>	<u>Universities and Business Organisations in the ERA</u>
	Introduction	<b>Paul David</b> – Expert Group
	Discussants	<b>Klaus Gretschnann</b> , Director General, <b>Council of the EU</b>
	Open Discussion	
14:45 Coffee Break		
15:00	<u>Session III</u>	<u>The EU's R&amp;D Deficit</u> - Chair: <b>Fabian Zuleeg</b> , EPC
	Introduction	<b>Anastasios Giannitsis</b> - Expert Group
	Discussants	<b>Gert-Jan Koopman</b> , Director, <b>DG ENTR</b> <b>Khalil Rouhana</b> , HoU strategy, <b>DG INFSO</b>
	Open discussion	
17:00	Conclusions	Commissioner Janez Potočnik

<p><b>Commissioner Janez POTOČNIK:</b> <i>Confronting the Innovation Deficit</i></p>
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- We're here to talk about the future of the European Union as a global knowledge power.
- Our research policy puts education, science and innovation at the service of all other policies, to achieve the Lisbon goals. Conversely, our policies on industry, economy, internal market, regional development, employment, information society, energy, environment, external relations, etc. all affect and contribute to the circumstances for innovation.
- Research policy is already well established around the creation of the European Research Area, and raising the rate of R&D spending in the EU to 3% of GDP. We are engaged in actions to do the following:
  - To stimulate universities and public research institutions to compete for excellence, to specialise and to create networks and virtual communities;
  - To develop world class European-level research infrastructures;
  - To encourage coordination and mutual opening of national and regional programmes;
  - To develop a culture of innovation and cooperation between research organisations and the private sector; and
  - To enable the best researchers in Europe to work anywhere in Europe, while attracting to our shores the best in the world.
- The Framework Programmes for Research and Development are being used to develop the ERA. Between 2007 and 2013 we will spend €53 billion at European level in a variety of targeted activities. But this is a small fraction – some 5% - of the EU public research effort. So we look to the EU member states to bring together their programmes, and the private sector to increase its innovation spending.
- Despite all our good intentions, all our activities and some real progress, our improvement is much too slow. We seem to be falling ever behind in the race to globalisation. Take, for instance, private sector R&D spending. According to the 2007 edition of our annual scoreboard of company R&D investment, EU-based companies have increased their R&D investment by 7.4% over the previous year. However, worldwide corporate R&D investment has grown in the same period by 10%.
- We have real areas of excellence in Europe and some world-beating companies, in areas like telecommunications and pharmaceuticals. But in general, we continue to trail our major competitors and are being overtaken by the emerging economies.

In 2005, when the European Union member states recommitted to becoming the world's most competitive, knowledge-based economy, I decided to bring together a **group of eminent European economists**, to address these very questions. They are an independent expert

advisory group from a number of EU member states. They were chosen for their mix of academic disciplines, competences and practical experience.

I gave them the task to provide advice in three general areas:

- The contribution that knowledge can make to sustainable growth;
- The best mix of policies to create, disseminate and use knowledge; and
- The role of the various actors in creating a knowledge society.

I like to call them my "Knowledge Economists". And it is my pleasure to introduce them to you this morning and thank them publicly for their efforts so far.

They are making available to you at this event the first fruits of their labours: three reports that address globalisation of R&D, universities and business in the ERA and the EU's R&D deficit. These ideas might challenge our assumptions, force us to reflect, and ultimately might lead to an adjustment of our views and actions.

We must not be afraid to re-examine our convictions. We must not avoid a free and open debate. And we must not lose this opportunity to adjust our direction if that is what is required to succeed.

The Lisbon Strategy commits us to the task of developing a world-beating, knowledge-based economy. Our future prosperity and our place in the world depend on its realisation.

## Summary of session I : Globalisation of R&D

*Excellent research will be concentrated in particular centres at national and regional level. Smart specialisation is the key to fostering regional innovation. Connectivity and diffusion of knowledge between leading and lagging regions is the issue.*

**Prof Dominique Foray** ("Knowledge Economists"), the rapporteur of the report on "Globalisation and R&D" said that the emerging knowledge economy and the increased internationalization of R&D locations are associated. Knowledge and R&D are valuable resources that have a high impact on national economies. Currently, Europe is not participating sufficiently in the global knowledge economy. This is shown by the fact that US overseas R&D expenditure in Europe is declining while its overseas R&D expenditure particularly in Asia is increasing rapidly.

A key policy issue is the creation of strong agglomeration processes of knowledge resources in a region with a view to attracting foreign R&D and a good supply of knowledge resources: new ideas and technologies, highly skilled human resources. The mechanism of attraction and allocation works as follows:

- Star scientists draw other star scientists
- Star scientists pull in high-tech firms
- Corporate R&D looks for strong universities
- Innovation service providers locate close to large R&D companies.

Not all regions will be able to succeed in becoming world renowned high-tech centres of excellence. Knowledge resources are mobile and they may leave the country/region if the agglomeration process works better elsewhere, leaving authorities with an infrastructure that remains underutilised.

Europe has to respond efficiently to the internationalization of R&D by:

- Concentrating on a few regions as world centres of excellence.
- A strategic approach aiming at an integrated research area allowing for more competition for projects and between institutions.
- Abandoning sub-critical and low-level research capacities and overriding the protection of national policies.
- Supporting the development of visions and strategies of future specialisation by countries/regions.

**Franz Jessen** from the China desk of DG RELEX described the fast growing knowledge resources in Asia and particularly in China and explained that they are supported by a clear policy strategy. The seventeenth CPC held this year decided that China will commit substantial resources to its scientific development. China, a country which thirty years ago had almost no universities, has now attained a high skill level and has substantial scientific human resources.

China now has a clear strategy of increasing quality by means of university specialisation. Also China tries to avoid duplication of resources and to attract foreign companies to help in

the development of research centres. R&D expenditure in China is growing at the rate of 15-20% a year. However this rate of growth must be viewed cautiously as there may be doubts about what is defined as R&D in China.

Chinese researchers prefer to go to English speaking countries and in particular to the US. However, in recent years, there has been a strong increase of Chinese students in the EU.

The Commission's RELEX and RTD programmes provide funds for the teaching of the Chinese language to EU students and researchers. In 2008 € 4 million will be spent on training EU researchers in China.

**Natalija Kazlauskienė (DG REGIO)** explained the role of EU cohesion policy in fostering EU competitiveness and how it supported R&D and innovation. The investments facilitated by cohesion policy programmes reduce national and regional disparities in terms of GDP and employment, but also in terms of research and innovation performance. Cohesion policy also helps address the challenge of globalization by tackling structural change in economies and labour markets in an integrated (non-sectoral) way. It fosters co-operation across regional and national borders on areas such as research and innovation. Cohesion policy also supports competitiveness through the methods it promotes: integrated mid-to-long-term strategies, based on analysis of the specific strengths and potential of a Member State or region and reinforced by effective monitoring and stakeholder partnerships. The argument that research investment should be even more highly concentrated in the EU is flawed. If research and innovation are key drivers of economic growth, less economically developed Member States and regions cannot be denied the opportunity to invest in these areas. This would undermine not just their competitiveness, but that of the EU as a whole. Cohesion policy's major role in building research and innovation capacity complements the objectives of EU research policy.

In the period 2000-2006, EU cohesion policy provided € 10.5 billion to support RTD&I measures, mainly from the European Regional Development Fund. The beneficiaries are research projects in universities and public research institutes (26%), research and innovation infrastructures (28%), technology transfer networks and partnerships (34%) and the training of researchers (3.5%). However, it was noticeable in the 2000-2006 period that Member States and regions allocated markedly different levels of Structural Funds resources to research and innovation. A few of the older Member States had been the least ambitious in this respect.

By contrast, in 2007-2013, DG Regional Policy had reinforced the emphasis on research and innovation. Provisional data on planned investments in research and innovation showed that the planned levels of investment in research and innovation would triple compared to 2000-2006. The variations between Member States and regions were also less marked. DG REGIO is particularly in favour of complementary capacity building in the RTD&I activities of the regions.

#### **Debate:**

- The discussion revolved around the tension between that exists between creating global centres of excellence and involving lagging Member States and regions in the catching-up process and enabling them to participate in the knowledge economy. One of the ways forward is for Member States and regions which are lagging behind in the knowledge economy to cultivate specialized regional centres of R&D to assist in the development of local innovation.

- Agreement seems to exist that both concentration and agglomerations as well as local R&D capacity building are needed in Europe. This is described as "**smart specialisation**" by the expert group.
- In this regard a policy issue may arise in relation to how the *connectivity and diffusion* of knowledge between the global centres of excellence and regional R&D centres should be designed and fostered. Research and innovation policies should be interlinked much more closely.
- There is a lack of information on the reasons for the localisation of *private R&D* and on how to address private location decisions. It is necessary to study not only what is happening at EU level, but also what is happening at a global level, (especially in the US).
- The challenges posed by globalisation necessitate an examination of how best to promote the demand side for R&D in Europe. In this context the "**lead market**" concept met with approval.

## Summary of session II: Universities and business organisations in the ERA

*Universities and business need skilled intermediaries to talk to each other in order to develop the ecology of stakeholders in the knowledge economy. Universities contribute more to innovation in the service sector than to technology creation in manufacturing.*

This section was split over lunch time and gave the two authors of the report the opportunity to present their views.

**Prof Stan Metcalfe** ("Knowledge Economists") gave an overview of the role of universities in the knowledge based European society and addressed the question: how to create wealth from knowledge? Approximately 4000 universities across the EU and at least 600 other public research laboratories are involved in activities which are divided between applied and basic research. These institutions form a complex division of labour in the production and use of knowledge much of which could contribute to innovation.

Universities differ widely in terms of scale and their comparative focus on research, teaching and vocational education. This heterogeneity of research is called "**knowledge ecology**". The university knowledge ecology is matched by another heterogeneity - that of the business sector. Both sectors do not collaborate sufficiently with each other.

Prof. Metcalfe saw the main contribution of universities to the knowledge society as being the provision of high quality research results and the education of first-rate graduates.

In relation to the commercialization of knowledge the author said that universities are good at inventions and providing human resources for corporations. Universities are not good at innovation which is the domain of business. However, the growing service economy profits most from universities because new ideas and lifestyles developed at the universities are transferred via graduates directly into service enterprises.

**Odile Quintin (DG EAC)** agreed with the idea of the knowledge ecology and said that the implication is a request for transdisciplinarity to educative institutions which the Commission should take on board. She insisted on the triple role of universities which is knowledge creation, education and knowledge dissemination.

The core of the current modernization request is based on universities opening towards society and particularly to businesses. The forum for a new university/business relationship will be the European Institute of Technology (EIT) which will reform the knowledge triangle.

The fragmentation of European universities is an obstacle in the path of excellence. In order to pursue excellence universities need to implement best practices in institutional management and be subject to evaluations. Only autonomy ensures that universities are free to pursue best practice.

However, it has to be recognized that not all universities can be excellent and should not follow the excellence pathway as there are other tasks to be fulfilled in society for universities not only in teaching but also in the regional economy.



**Prof. Geoffrey Boulton** (expert from LERU) supported the paper in so far as it undermined the common assumptions of policy objectives that aim to transform universities into businesses. He agreed that reforms should lead to behaviour changes in academic traditions as universities are too far removed from business innovation and technology creation.

Universities should not be misperceived: they are about people and higher education. There is a contradiction between excellence and innovation. The ranking of universities does not contribute to innovation and innovation is not taken into account in rankings. The knowledge ecology needs diversity in order to pursue different and even contradictory societal objectives.

European research excellence will be fostered by the ERC and it can be supported only by a massive budget increase.

**Prof. Paul A. David** ("Knowledge Economists") dealt with the "bridging for innovation" or the university /industry relationship and the commercialization issue. The variety of universities is a strong feature of the European system as well as a potential weakness. Three particularly pressing questions have emerged from the policy discussions of the past decade:

- Are sufficient numbers of EU Universities at the forefront of international research so that they can provide EU firms with access to the best global research that is available?
- Do EU firms have the internal investments in capability and the external organisation to understand the research output of universities and to engage meaningfully with them in the pursuit of innovation problems?
- Do specialist bridging organisations (innovation clearing houses for specific sectors) need to be founded to serve as intermediate nodes in the innovation process connecting universities and commercial firms?

Prof. David warned against blindly following the American example because the cost of most American transfer institutions is higher than the income generated from research patent rights. However, he pleaded for the establishment of intelligent bridging systems taking into account the different cultures of universities, businesses and intermediating organisations.

**Klaus Gretschmann** (European Council) raised the question of the "**finalité de science**". He supported the view of the expert group and enlarged on it in so far as he claimed that knowledge which is either produced by research at the universities or created by teaching is a public good for which the tax payer supports the institutions.

He pointed to the external activities of universities which go beyond their direct business of teaching and research and which are much more diverse in Europe than in the Anglo-Saxon type of university which is now much in fashion. He preferred the more creative external activities in Europe to the money-driven external activities of universities in the US.

He commended the Chinese proverb "let 1000 schools of thought blossom" as knowledge creation and its diffusion can be conditioned but not determined.

## Debate:

- There is a wide diversity of universities and higher education institutions in the EU. Diversity and differentiation are major strengths and we should not attempt to impose a single model but find the right policy and roles that EU, Member States and regions should play and learn how to interact optimally.
- Policies should not only look at the supply side (universities) but also give more consideration to the needs of the **demand side** (industry).
- University/Industry links need to be established as long-term relations and built on trust if they are to be of value. Technology Transfer Offices need to be realistic in their valuation of IPR and recognize that **informal contacts** with industry can have significant advantages as well.
- Existing rankings need to be considered carefully as they have particular drawbacks. Policy should not be based on false and meaningless indicators and rankings. **Better performance indicators** are needed as well as an in depth understanding of the university knowledge ecology.
- There is a need to take **risks in defining new policy measures** in order to provide universities with the opportunity to cultivate appropriate University/Industry links.
- Universities need to conduct **internal reforms**, changing their ways of working through more autonomy, accountability and freedom to respond to new societal demands. Such reforms might however put at risk their existing roles which have grown in organisational and cultural diversity over centuries.
- Universities contribute to **inventions**. However, they are weak in **terms of innovation** as certain conditions, where universities have no competitive advantages, are required. In this respect, universities need reinforcing links, networking and structured partnerships with other universities, research institutions and industry.

### Summary of session III: The EU's R&D deficit

*The industrial structure and a relatively small ICT sector are the causes of the EU R&D deficit. Increased ICT R&D funding is necessary but not sufficient. Beyond increased grants long-term public-private partnership is essential for Europe. While industry in the US has been moulded by the governments defence purchasing capacity, Europe's opportunity lies in developing lead markets for civil products.*

**Prof. T. Giannitsis** ("Knowledge Economists") presented the findings of the report as follows: Low private investment in R&D in Europe is a symptom, not a cause of comparative differences with the US. The causes of the R&D deficit are the industrial structure and a smaller ICT sector in Europe with a smaller research investment volume. Improving the understanding of the interactions between research and innovation and paying more attention to barriers to research-led economic growth in the EU are essential for improved research policy. Reasons why the EU has a deficit in Research and Development expenditure (R&D) in relation to the US are as follows:

- The EU R&D deficit is rooted in the structure of the economy and in the dynamics of generating new high-tech enterprises rather than in a deficiency of R&D performance per se.
- A large part of the EU R&D deficit is due to the relatively small size of the IT sector in Europe compared to the US.
- Compared to the US, growth of new technology-based firms in the EU is weak.
- The long-standing and continued interventions of the US federal government by means of R&D subsidies and through procurement in the defence and health sectors have laid down the roots of the success of the IT, biotechnology and other dynamic, high-technology sectors.

The EU needs to anticipate newly emerging high-technology sectors and learn from its failure in the ICT sector.

**G-J Koopman (DG ENTR):** The competitiveness report also confirms that Europe is lagging behind. R&D investment by EU companies is still growing at a lower rate than their non-EU counterparts. Worldwide - corporate R&D has increased by 10% in 2007, but the aggregate R&D investment by EU-based companies increased by only 7.4% according to the 2007 edition of the Commission's Annual Industrial R&D Investment Scoreboard.

He warned that intensified global competition is the driver of the economy and to a lesser extent of research intensity. Europe should provide good framework conditions for the EU companies to grow faster. Europe should reinforce the positive measures already taken to consolidate and improve private investment in R&D.

Another issue is the demand side approach to lead markets and the institutional setting of standards for IPR and public procurement which could make industrial potential flourish. The energy and renewable technologies sectors are good examples of European competitiveness.

A third issue is the societal settings. Education and the EIT is the way forward. In order to cope with the demographic challenge in Europe health industries and health technologies should get particular attention. It is important to reduce the R&D (research intensity) gap but more broadly the productivity gap has to be closed.

H. Rouhana (DG INFSO) stressed the importance of the ICT sector for Europe. Europe has not lost the ICT race. The current gap has to be understood in its dynamic over a longer time span. The current difference with the US is due to a historical gap from the period 1995 - 1998 to which Europe had not responded adequately. Therefore, the situation of the ICT sector is not an argument for less R&D investment but very much the contrary. We need to learn from the public support of key industrial areas in the US and make use of new instruments.

ICT is an essential enabler of economic growth and ICT corporations are the highest industrial R&D spenders. ICT represents around 5% of EU GDP and is responsible for half of productivity gains in the economy. The EU is the world's largest ICT market (32% share) but the EU represents only one fifth of the ICT world supply. From the late 1980's to the mid 1990's the Triad was on an equal footing, however, since then the US has taken off and China has emerged as an important player.

He agreed that market conditions for SMEs and access to finance were an obstacle to Europe. However, public investment in the US is two and a half times higher than in Europe with the difference being mainly accounted for by the Defence budget.

Nevertheless, Europe has major assets to build on as a supplier of ICT in specific technology sectors and in academic research. Policy initiatives should be used to attract private investment and lead markets should be developed in areas of public interest such as eHealth, eGovernment or in ICT solutions for environmental and energy issues.

#### **Debate:**

- The debate did not question the KfG hypothesis that the industry structure is largely responsible for the R&D deficit in so far as the **ICT sector** is much smaller in the EU than in the US. The debate, however, added certain new elements:
  - The EU has not missed the ICT boat. But we have to learn from the ICT example. Similar failures are starting to be reported from other emerging technology sectors such as biotechnology and nanotechnology.
  - A major mistake would be to believe that R&D investment in the ICT sector is of minor importance in relation to other R&D sectoral investments. There is strong evidence of high linkages between increased investment in ICT and better economic outcomes;
  - Private R&D investment should be conditioned through grant instruments as well as through public procurement policies directed towards long term research. This would be a European civil strategy simulating the dynamics of the US defence sector R&D investment policy.

- There was general agreement that in the EU SMEs find it difficult to grow. This is mainly due to the **financial securities market** being relatively young and to recent developments in the US securities arena which could hamper the sector. The debate on capital markets brought two opposing opinions: one was that the EU had less venture capital and more fragmented financial markets and that this was the main reason for the ICT gap. The counter-argument was that capital today is highly globalised as well as volatile, that it moves from one country to another to wherever the best investment and profit opportunities can be found. This type of capital comes mainly from multinational corporations and international capital funds.
- The discussants agreed on the relevance of the **3 % target** as a symbolic policy message and benchmark. However, it should not be the overriding yardstick as it is difficult to reach the 3% target if the industrial structure is not supportive. There is a correlation between R&D input and innovation performance but other competitiveness aspects may be of higher importance for economic development.
- A consensus emerged on the need for coordination and to get the institutional setting right for lead markets to develop. Policy should be used to anticipate future opportunities and to take risks, especially in the field of technology procurement when politically established **lead markets** fulfil agreed socioeconomic goals and broad policy objectives. Public demand can in some sectors drive technology development. In areas such as renewable energy, targeting public demand can make a difference as illustrated in the strategic energy technology initiative.

## Concluding remarks by the Commissioner

We are approaching a key stage in the development of our activities in fulfilment of the Lisbon Strategy. There are several reasons why this is so:

- Firstly, the recently-agreed Reform Treaty of the European Union contains a significant amendment to the article on research. There is now an explicit legal basis for the establishment of the European Research Area, which will bolster our efforts.
- Secondly, next year we will embark on a new 3-year cycle for the Lisbon Strategy, with an opportunity to renew and sharpen our focus where there is most need for action.
- Thirdly, we will also review our financial perspectives, where we might see an adjustment of the spending priorities of the Union.
- Fourthly, following the results of our public consultation this year, I will be bringing forward in December the first new proposals on the future of the ERA.
- And finally, next year we will be forming our first thoughts on the direction of a future Framework Programme for Research.
- From the perspective of research three types of questions are to be addressed:
  - Its role as funding agency with the Framework programme;
  - How to create an attractive European Research Area;
  - Lisbon and the 3% objective for R&D.
- The current Framework programme is pretty much a transitional programme into a new constellation for the future. The ERC is a radically different approach for basic research – it accounts for 15% of funding outside of any political influence. Out of about 9000 applications received for the ERC's first call for proposals, 559 have been selected in a first stage. Of these, France and Germany were the biggest winners in absolute numbers. But, interestingly, when you look at countries like the UK, of the awards won, 42% were emanating from UK citizens, and the rest were non-UK researchers working in UK institutions. We should avoid discussions about why Poland only won 3 awards whilst Israel won 28 – it's based on the excellence of the applications. The question that should be asked is how to address the problem in countries with low success rates – not question what is wrong with the ERC.
- For the business sector we have European Technology Platforms and Joint Technology Initiatives. The Framework Programme is trying to get closer to the needs of our industry. As such we are looking at Public – Private Partnerships and how we can evolve from project-funding to programme-funding. The idea of Art 169 initiatives is about pooling EU and Member States' funding, potentially topped up with industry funding. But it's hard to put in place. The debate is about how to manage such initiatives.

- On ERA – it will be difficult to go beyond national interests. Currently, many Member states tend to be protective of their research system. The key aspect will be the fifth freedom. The core issues to be addressed are mobility, infrastructures (it has been a long time since we had a new EU infrastructure), knowledge transfer and IPR – connectivity to business, and joint programming (for which there is a good basis in the Energy Technology Plan) and international cooperation.
- The 3% is an indicator rather than goal in itself. We often use it as a possible goal or target but we still have some distance to go. Reaching the 2.6%, which is the estimated level in 2010 if all Member States realise all the commitments they have made, is now our wildest dream. We shouldn't reopen the debate regarding the target or the indicator – let's stick to it, be realistic about it but continue to use its mobilising effect. The 3% target is largely linked to the private sector funds and we have little direct influence over this – IPR, state aid, taxation, etc are all interlinked and important factors, but they are indirect measures.
- Today, the knowledge for growth expert group has provided us with an excellent opportunity to revisit some of our beliefs on globalization, knowledge transfer and the R&D deficit. The meeting has provided us with new insights into these topics and challenged some conventional wisdom. This morning the question was asked whether EU R&D policy should continue to promote R&D cooperation inside the EU alone or whether cooperation with the best in the world should be the key.
- It also highlighted a number of examples and reinforced the need for R&D policy to interact closely with other policies to create a "knowledge ecology". We should try to find the optimal interaction between regional, national and EU funding mechanisms, but also try to identify how best to link to other policies such as public procurement and innovation and not be afraid to test out new ideas.
- The issues presented are extremely complex and simply saying that "something must be done" is not helpful. Indeed the debate about the role of ICT as a justification for the R&D deficit demonstrated this and reinforces this point.
- All of the sessions highlighted the need for improved connectivity and diffusion of knowledge by universities and identified a need to gather more evidence and understand where failures exist – be it through a better understanding of industry behaviour or improved performance indicators for universities.
- You also discussed the need for demand-side incentives to help us develop lead markets, which is interlinked with the need more and better coordination and getting the right institutional setting. It was agreed that public demand can in some sectors drive technology development – through the appropriate use of public procurement as well as grants.
- Addressing a comment, which related to the session in particular on the R&D deficit - that we should have had this discussion sooner with the other DGs, I think it's important to recognize that the Commission want independent experts to have the freedom to reach their own conclusions and not be overly influenced by our own views upfront.

- Many of the issues discussed today go the core of the EU's efficiency, of its strengths and weaknesses. The discussion has demonstrated how interlinked R&D is with external, regional, education, industrial and other policies and that experts and Commission officials need to exchange their analysis. The result of this workshop will help us and you in reflecting on the future of the European Research Area and research policies as well as on related policies. I hope it will add value to your work in general.
- I intend to hold another session of this seminar formula as soon as a next report is due to be discussed.