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*Role of National Academies in the 21st century**

Abstract

Europe, as the world at large, is facing challenges such as climate change, security of energy and food supply, or demographic changes. We entered difficult times, with an unfolding financial crisis that is weighing on the prospects of economic downturn. If Europe wants to meet these challenges and sustain its prosperity in the face of growing global competition, it will have to invest in knowledge as its main factor of competitiveness. With the European Research Area, the EU has set out to realise a border-less, continental-wide research system. The key objective is to remove the barriers that hamper the free circulation of knowledge, to foster the free flow of information and ideas, the competition and cooperation among the best scientists, regardless of borders between countries, disciplines, organizations and sectors (private or public). The European Commission has mainstreamed this objective, the spirit of the „fifth freedom” in its main funding programmes, particularly the 7th Framework Programme for Research, but also the structural and cohesion funds, the Lifelong Learning Programme and the Innovation Programme linked to Competitiveness. But more needs to be done to mobilize more resources, overcome the barriers that separate the business and the academic worlds, and foster excellence. To do so, today Europe wants to bring these instruments a step forward in order to realize the vision of the fifth freedom. The Commission has put forward a series of actions and initiatives; among these, the EIT, the ERC and an agenda to reform higher education institutions. In this context, Academies of science can play an important role in shaping new policies and initiatives in the knowledge triangle that integrates research, education and innovation.

* The paper is printed as submitted.

I am delighted to be in Podgorica at this International Conference on „The Role of National Academies in the 21st century” and I thank the organization for the opportunity to share some views on such an important topic.

I am happy to be back in Montenegro, which I last visited in spring with Olli Rehn, the European Commissioner for Enlargement.

Montenegro is a young and dynamic country and – as such – an appropriate host for this Conference.

Just over two years ago, Montenegro achieved its independence. Since then, it has accomplished impressive progress. New institutions have been set up, and many laws adopted in line with European standards.

Montenegro has also adopted a new Constitution and has signed a „Stabilisation and Association Agreement” with the EU last year. It is now building up a track-record of EU reforms that will prepare the country for an eventual EU membership application. These are big steps in a very short time.

The Commission works closely with Montenegro on its European journey. We have a strong team on the ground here in Podgorica, and we have set aside around 100 M € in grant assistance until 2010. And in fact Science is a key area for EU-Montenegro co-operation.

Ladies and Gentlemen

Science is about creating new knowledge. And knowledge is the economic currency of the future.

Europe, as the world at large, has entered difficult times, with an unfolding financial crisis that is weighing on the prospects of economic downturn.

We are also facing challenges such as climate change, security of energy and food supply, or demographic changes. In order to cope, we need to reform and adapt. And efficiently use our resources.

We need to transform challenges into opportunities, into new solutions and paradigms of living, of progress and prosperity for all.

Most of these challenges, I would say virtually all of them, require new scientific and technological breakthroughs.

If Europe wants to meet the challenges of the 21st Century and sustain its prosperity in the face of growing global competition, it will have to sustain investment in knowledge as its main factor of competitiveness.

The Lisbon Strategy has recognized the fundamental knowledge challenge. It has called Europe to be the first mover in contributing and shaping this new society. And it has put forward this simple but powerful vision: Europe should be the most competitive knowledge based society.

Our capacity to face the challenges of this changing world, even to cope with crisis, both as a system and as individuals, shall and will be rooted in our knowledge.

A knowledge-based society is a society which excels at producing knowledge through research, at diffusing knowledge through education and at exploiting knowledge through innovation for economic or social use.

The European Research Area

Ladies and Gentlemen

In order to achieve these objectives we have established the European Research Area, through which the EU has set out a border-less, continental-wide research system.

Our key objective is to remove the barriers that hamper the free circulation of knowledge, to foster the free flow of information and ideas, the competition and cooperation among the best scientists, regardless of borders between countries, disciplines, organizations and sectors (private or public).

The European Commission has mainstreamed this objective, the spirit of the „fifth freedom” in its main funding programmes, particularly the 7th Framework Programme for Research, but also the structural and cohesion funds, the Lifelong Learning Programme and the Innovation Programme linked to Competitiveness.

Through the Structural Funds, an increasing amount of resources are dedicated to capacity building skills and infrastructure, especially to enable less R&D intensive regions to compete and collaborate at a European level.

On Education, the Life Long Learning programme fosters interaction, co-operation and mobility between education and training systems within the Community, so that they become a world quality reference.

Let me remind you the Erasmus that allowed European students to experience and be exposed to different national education systems and cultures; or the Erasmus Mundus, that allowed a considerable number of non European students to study in Europe.

Finally, the 7th Framework Programme has been funding cooperative research across Europe, allowing the creation of networks of researchers and research organizations to pool together resources that would be otherwise fragmented, promoting the creation of common infrastructures where the capacity of each Member State was not sufficient, intense mobility programmes to create trust among the various research communities. It has fostered the coordination of regional and national funding instruments to achieve a European scale and impact as well as the possibility to collaborate with researchers that operate in non Member States but in associated countries.

Obviously, the free circulation of knowledge does not stop at the EU's borders. The broader the scale the better for all involved. That is why we attach great importance to widening the ERA at the same time as we are deepening it.

In particular with the enlargement countries, research plays an important role in facilitating the integration of the Western Balkan countries and Turkey into the European Union.

Commissioner for Science and Research Janez Potočnik, who visited Montenegro in July and yesterday was present here through a video message, has done a lot in this respect. As we speak, all these countries (with the exception of Bosnia and Herzegovina with whom we intend to sign a Memorandum of understanding this autumn) are associated to the FP 7 and are true partners in the European Research Area.

We have also doubled the number of scholarships for students from the Western Balkans this year. I hope they will make full use of it!

Easier travel to the EU will facilitate this co-operation. Since the beginning of this year, Montenegrin researchers and academics have already benefited from simpler procedures for visas to the EU.

The European Commission now has provided a „road map” setting out the reforms needed to be able to travel without a visa altogether. These are tough reforms, but they are worth it.

Ladies and Gentlemen,

More needs to be done to mobilise resources, overcome the barriers that separate the busyness and the academic worlds and to foster excellence. We want to move a step forward in order to realize the vision of the fifth freedom. Let me outline some of the challenges that are in our horizon and then propose you some reflections on how these can be tackled.

Today’s challenges

1. Lack of funding

First the R&D funding gap, when compared with US, South Korea or Japan. While the US devotes nearly 2.7% of GDP to R&D, Europe spends just 1.9%. The situation is also very diverse inside the European Union with Sweden investing more than 4% of GDP and several countries, like Portugal, Greece and several of the Member States of 2004, investing less than 1% of GDP in R&D.

In Higher Education, the European Union invests in average 1,1% of GDP, a figure much lower than the one for the US (2,7%) or South Korea (2,7%) or Canada (2,5%). In average the American Universities invest per student 2 to 5 times more than the European Universities.

This the first challenge: to raise the level of investment in research and education. The European Commission has defined as a target to invest 2% of GDP in Higher Education by 2014 and 3% of GDP in Research by 2010.

2. No private sector involvement and lack of commercial exploitation

This lack of funding is not only due to a lack of public resources. The target for R&D spending as part of our Lisbon Strategy for Growth and Jobs made clear that there was a dual responsibility, both public and private. The public sector can make a real contribution but only in partnership with the private sector.

And the fact is that the private sector investment in public research and Higher Education is much lower than in other world regions. For example, while the con-

tribution from the public sector in Higher Education is almost the same in the European Union and US, around 1% of GDP, the contribution coming from the private sector to higher education is seven times higher in the US than in Europe.

We need improvements in the capacity of research organizations to establish structured collaborations with companies as well as to transform research outcomes in economic or social value.

It is our second challenge: to boost the private sector involvement in funding research and to improve the capacity of research institutions to transform research outcomes in commercial value.

3. Lack of excellence

Some have claimed that there is a European paradox: Europe performs with excellent research but there are barriers to transfer it to the market.

But the main figures tell us that the EU has lost ground also in terms of scientific excellence. Whatever the indicator or source we notice a similar trend. European universities perform well both in world rankings and citation indexes. However, they are underrepresented in the top layer of the research and education league table.

This is the third challenge: To boost together scientific excellence and new collaboration between University and industry.

How to tackle the challenges

The Commission has put forward a series of actions and initiatives to tackle these challenges. Let me outline the major ones.

As regards funding in general, we've boosted the average annual funding for the 7th Framework Programme for Research by 40% in real terms, providing a total of 53 billion Euros during 2007 to 2013. The 7th FP funds, on a competitive basis, research on different thematic areas and capacity building, all aiming at increasing Europe's scientific excellence and competitiveness. These resources represent only a small fraction of total research expenditure in Europe, but they have increasingly a structuring effect, helping to shape and inspire national as well as regional funding schemes.

To foster excellence, we have created an independent European Research Council which is run by scientists for scientists, to stimulate scientific excellence by supporting and encouraging the very best, truly creative scientists, scholars and engineers to go beyond established frontiers of knowledge and the boundaries of disciplines.

As regards the involvement of the private sector, we've overseen the creation of more than 30 European Technology Platforms that bring together various stakeholders, led by business, around specific research agendas.

Some became Joint Technology Initiatives, public-private partnerships to support large-scale multinational research activities in areas of major interest to European industrial competitiveness and issues of high societal relevance... Through the JTIs, public money is leveraging private investment at a ratio that in some cases is higher than 50/50.

Furthermore, the European Institute of Innovation and Technology, a flag ship of this Commission, launched by President Barroso, with its headquarters in Budapest, will be a laboratory for integrating research, education and innovation.

The EIT carries a new vision and is an innovation in itself. The support and contributions by CEEN since the early stages of the project were an important input to the making of EIT.

The EIT is based on an innovative two level structure. The Governing Board – that had its inaugural and kick off meeting in Budapest the 15th of September, under the auspices of the prestigious Hungarian Academy of Sciences – is made of high level personalities of both the academic and the business world and will select pan European partnerships of research organizations, universities and businesses, the so called Knowledge and Innovation Communities that will carry a joint programme of activities to address a European or global challenge.

Bringing together the most innovative business partners, the best researchers, research organisations and universities in Europe, the EIT will fully integrate research, education and innovation – the three sides of the knowledge triangle, acting without any political or bureaucratic interference.

The EIT is an Institute of Innovation and Technology and thus must remain faithful to its goal of taking ideas to the market in the form of innovative products, services and business models.

As a European Institute, it will focus on Europe's policy priorities.

Energy and climate change are examples in today's European society requiring policies and measures rooted in solid science, but calling out for a fresh approach to take us into a truly low-carbon society.

Take also Information and Communication Technologies that could re-engineer organisations in the social services sector – the largest employer in many Member States of the EU. Innovative application of new ICTs to sectors like e-health, e-learning and e-governance could open the door to reserves of productivity, efficiency and quality service delivery with real benefits for the life of our citizens.

Ladies and Gentlemen

There is still a long way to go.

The reasons why reforms are needed are clear. The need to boost the private sector involvement in research is a challenge that needs to be tackled at all levels of the research and education system.

The private sector will invest in training if they can access a reliable source of employable students with the right skills. They will invest in research if they can count on teams of researchers committed in delivering new added value to the well known publications.

If researchers are requested to transform their ideas into value, business experiences, collaborations and mobility with the business world shall become a valuable asset in a researcher's career.

The need to cross the boundary that often separates universities from society requires involving stakeholders in the governance of universities providing input and support in defining strategies and programmes.

In this context, the European Commission has put forward a modernization agenda for universities setting the broad principles of reform, focused on: geographical and inter-sectoral mobility around Universities in Europe, autonomy and accountability, the need for the right incentives for structured partnerships with the business community and the need for getting the right mix of skills and competencies for the labour market.

This is also the rationale of the initiative we are launching „New skills for New Jobs”. It will establish instruments for analysing and anticipating labour market requirements. It will help identify the right skills mixes in order to train and prepare workers for the new jobs that will come on-stream.

We need Universities to be able to play a vital role in the Lisbon objective to equip Europe with the skills and competences necessary to succeed in a globalised, knowledge-based economy.

Human capital is Europe’s greatest resource, – people, their ideas, creativity, activities and skills, – are its most precious asset if we are to shape the challenges ahead.

Ladies and gentlemen,

Since the beginning of this decade, most European countries have engaged in profound reforms in higher education, research and innovation, in the framework of the Lisbon Strategy. Improving education and training now play a key role in delivering the revised Lisbon Strategy for Growth and Jobs.

This mobilising effect continues today. Member States further modernise their Universities and actively engage in a renewed and reinforced European Research Area, within the Ljubljana Process, launched last May and in the next months through the French Presidency’s „Vision 2020”.

Initiatives like this Conference undoubtedly contribute for the development of the knowledge society that we wish to build together. Academies of Science can play a very important role in shaping new policies and initiatives in the knowledge triangle that integrates research, education and innovation.

Academies of Science have distinguished features that make them a relevant interlocutor for policy makers. Besides your vocation to promote the development of new knowledge, you have a long tradition of independence, competence and fostering excellence as the overriding criteria in evaluating science. And you also represent a place where different disciplines could and can meet to identify new grounds of multidisciplinary collaboration.

So let me wish you the best results for your future work and for this meeting and thank you for your attention!

