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Modernising Europe's Higher Education: Making Initiatives Work

Dinner speech at the presentation of the Global Engineering Excellence study titled "In Search of Global Engineering Excellence, Educating the Next Generation of Engineers for the Global Workplace"

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Check against delivery

[Acknowledge authorities in attendance]

Distinguished guests,

Ladies and Gentlemen,

Being an engineer by training myself, it is a particular pleasure for me to speak at a gathering including representatives of distinguished engineering schools from around the globe.

When I was studying engineering in the Eighties, our training was solid in terms of theory and engineering practice. It lacked, however, the social skills that are so important in the work place.

I am pleased to note that now things are changing. Today, there is a growing interest in combining subject-specific knowledge with personal and generic skills, such as willingness to take responsibility and to engage in lifelong learning, management competence, decision-making ability, intercultural skills and the ability to work in a global environment.

The study to be presented tomorrow is an excellent contribution to this change. It emphasises the need to educate what you call the "the global engineer".

I share the view that the future belongs to the global engineer. Many graduates will work in other countries and among people with a different culture. Those who will remain at home will also be confronted with foreign practices, colleagues and customers.

Engineering schools across Europe are updating and upgrading their courses, also because of the move to the three-cycle system—ie, bachelor, master, and doctorate.

I know that the bachelor level is not popular among the top-ranking engineering schools, but I am convinced that there is a market for bachelor engineers.

I also believe that you should offer an 'opt out' window at bachelor degree level to allow your students to switch discipline or university if they so wish.

Having said that, I agree that for more complex and research-driven engineering tasks there is no alternative to master and doctoral degrees.

Tonight I would like to draw your attention to the Modernisation Agenda for Universities, which is being promoted by the European Commission.

I believe that universities in general—and engineering schools in particular—have an important role to play in generating growth and jobs because they are the places

where new knowledge is created and transmitted to new generations of learners as well as to the business world.

Our modernisation agenda contains nine clear messages. I will focus on three of them that are directly related to engineering and I will link them to some recent policy initiatives: the European Qualifications Framework, Quality Assurance and—yes—the European Institute of Technology.

But first, where do we stand? How do European universities compare with others?

Here I must say that, although our universities are located in one of the richest parts of the world and although their average performance is good, they suffer from substantial deficiencies in several areas:

- overall participation in tertiary education and training is low;
- the European workforce needs to be better qualified;
- participation in lifelong learning activities is not sufficient; and
- Europe is lagging behind in areas such as quality, research and innovation.

Please don't get me wrong: European universities have enormous potential. However, a great deal of this potential and know-how goes untapped because of various rigidities and hindrances.

European higher education is underperforming in comparison with its strongest competitors, the USA, but also Asia (e.g., China and India are developing very rapidly, especially when it comes to engineers).

If we look at participation, we see that some 57% of the EU student-age population is enrolled in tertiary education. While this is more than in Japan (at 50%), it is far below the US's at over 80%.

As regards funding, while the US invests around 2.6% of GDP into higher education, the EU manages just 1.15%. That difference, by the way, consists almost entirely of private funding. Over the last few decades, participation in higher education in Europe has grown dramatically—and that's a good thing of course—but funding has not.

Then there are the world rankings. These can be crude ways of looking at things, but they mean something and there are fewer and fewer European universities in the top 50.

The widest used ranking is from Shanghai Jiao Tong University, whose representative are among the audience.

Their top-50 list includes 9 European universities. (The UK has 5, Switzerland, Sweden the Netherlands and France have 1 each). Japan and Canada both have 2. The other 37 are all in the US. California alone has 6 in the top 20.

As I said, our average level is good, but that's no longer enough. We need more of our best universities to reach the top.

The US is not our only benchmark. The reason why Jiao Tong is doing rankings is because the Chinese government set out to create 20 world-class universities by 2025, and asked Jiao Tong to work out what a "world-class" university would be like.

The government of China has set itself the task of matching US research spending within 20 years. India, though it spends much less, is also a strong competitor.

The Indian Institute of Technology was rated the world's 3rd best Technological institute in the T.H.E.S.¹ rankings. Much of the world's software development is now happening around its hubs in Bangalore and Hyderabad.

We at the Commission are taking the issue of ranking seriously. We are currently supporting an extension of the German CHE ranking to the Netherlands and Flanders.

We want our rankings to be multi-dimensional and to provide information about different aspects of university performance, not only about research but also about education and student services.

But there is no single, ideal ranking system. In future we might support other ranking and transparency initiatives as well.

The challenges I mentioned above used to be regarded as mainly national ones. But things are changing in this respect too.

Top higher-education institutions operate in a truly global market, so the only viable solutions for our universities are European in scope and global in ambition.

This is what our modernisation agenda is about. Let me now give the three messages I announced at the beginning.

1. Providing the Right Mix of Skills and Competencies for the Labour Market

The first message has to do with a core of companies like Continental, namely ensuring that graduates have the right mix of skills for the labour market.

This is crucial for business success on a day to day basis and the study illustrates this clearly.

University programmes should be structured to enhance directly the employability of graduates.

For this to happen, universities should offer innovative curricula, teaching methods and training programmes, which include broader employment-related skills along with the more discipline-specific knowledge and competence.

You may have heard that the Commission has published last September a proposal for a Recommendation on the establishment of a European Qualification Framework for lifelong learning (EQF).

The EQF is a grid of eight levels, describing knowledge skills and competences from basic skills up to the doctorate level.

The grid is supposed to create a common understanding in Europe about what we expect from a learner at a certain level.

When this understanding emerges, the EQF will facilitate trans-national recognition and mobility.

I personally hope that the EQF will encourage lifelong learning and help individuals to move from one learning environment to another.

¹ Times Higher Education Supplement

For this to happen, the general statements in the EQF would need to be translated into National Qualifications Frameworks and—but this is going to be more challenging—into Sectoral Qualifications Frameworks.

Here I would expect the engineering sector to take the lead. Over the last decade, a series of projects and thematic networks supported by the Community programmes Leonardo da Vinci and Socrates have carried out a number of inventories of what to expect from engineering graduates.

Let me mention in particular the work carried out in the field of generic competences under the project “Tuning Educational Structures in Europe”.

Your study provides a valuable new contribution to this reflection. I think that, with all this material gathered, the time is ripe for the establishment of a Sectoral Qualifications Framework in the field or, rather fields, of engineering.

Let me give you an example of the potential usefulness of sectoral qualifications frameworks.

If a car factory in a certain region closed down, the workers could do a test to situate their knowledge, skills and attitudes against one or more sectoral qualifications frameworks.

They may look at themselves as car builders, but—with the right training mix—they might end up in other jobs in health care, logistics, or tourism. This example could easily be applied to other sectors and levels as well.

The Commission is willing to provide support for the establishments of sectoral frameworks under the new Lifelong learning Programme.

I would expect from the institutions represented in this room a critical contribution to the reflection on a future engineering framework.

Of course, Qualifications Frameworks should be no more than a point of reference. Individual universities may wish to distinguish themselves from the reference in order to mark their own profile.

While you are at it, I would also like to invite you to comment on the Commission initiative to support the establishment of European Quality Labels in engineering and chemistry.

These are the EUR-ACE and QUESTE labels in engineering and the EUROBACHELOR and EUOMASTER labels in Chemistry.

I would like to hear from you as to whether they cover the broad range of institutions, including those at the top. Do they provide a credible alternative for the American ABET label? Do we need more labels in engineering in the first place?

Please feel free to inform me in writing about your thoughts on these issues.

2. Rewarding Excellence at the Highest Level

A second key message, not to be overlooked, concerns excellence.

Not all of Europe’s universities could or even should play in the major league in research and advanced training.

Many of them would better concentrate on more basic regional and local training needs and do an excellent job there.

But, if we wish to meet the challenges of globalisation, at least some of our universities need to be in a position to attract the very best academics, researchers and students.

Increased competition, more mobility and economies of scale should enable these universities to reach the top.

This brings me to the European Institute of Technology—or EIT.

The EIT initiative seeks to help Europe modernise and become a globally competitive knowledge society.

Excellence and integration of education, research and innovation are at the heart of the EIT concept. I stress that the Commission has never seen it as a "magic solution", but as one initiative among many intended to close the "innovation gap" between Europe and its major competitiveness.

The proposal for the EIT was adopted by the Commission last 18 October. It was the result of an extensive public consultation which made clear that Europe needed neither a new elite university created from scratch nor simply more networks of excellence.

I believe the EIT concept is unique: it is an open and flexible concept that will allow integrated partnerships between academia and the business community.

In a nutshell, the EIT concept consists of two elements. At the heart will be the legal entity of the EIT itself, a slim institution with around 60 staff overseen by a Governing Board selected from industry and the world of science (or academia, if you prefer to call it that). The task of the Governing Board will be to identify long term strategic challenges in fields of key potential economic and societal interest – such as climate change – and then to select, on the basis of excellence, what we have called "Knowledge and Innovation Communities" to address these challenges.

What are these Knowledge and Innovation Communities? Well, they will be joint ventures set up by partners from industry, universities and research organisations to carry out integrated education (at postgraduate level), research and innovation activities. These joint ventures, or partnerships, will be established on the basis of a bottom–up approach; maximum flexibility should be given to the partner institutions in terms of how they organise themselves and how they achieve the objectives agreed with the EIT.

I believe that this approach will allow us to bring together the best in Europe, overcoming the fragmentation that hampers our innovation efforts. Discussion of the proposal will now start in earnest in the Council of Ministers and the European Parliament, and I very much hope that we can achieve adoption of the legal instrument in time to start the first Knowledge and Innovation Communities in the academic year 2009-10.

3. Making the European Higher Education Area and the European Research Are More Visible and Attractive in the World

My final message is about the global power of attraction of European higher education.

A recent worldwide survey by the Academic Cooperation Association (ACA), funded by the Commission, has shown that urgent steps are needed to further enhance the attractiveness of our higher education institutions.

We need to turn around the widespread perception that while European universities may have a fine tradition to look back on, they come a distant second to their US counterparts when it comes to providing a dynamic learning environment and opening up job opportunities.

Several initiatives have already been taken. Particularly important is the Erasmus Mundus programme.

Developed jointly by consortia of universities in at least three Member States, the Erasmus Mundus Masters Courses provide students with fully recognised academic study in two European countries leading to the award of a joint qualification or a degree from both countries.

Interdisciplinary studies encourage students to look beyond the narrow confines of their specialisation.

All of the courses attach the same high importance to developing inter-cultural skills and insights: over 2,000 students from nearly a hundred countries across the globe are now enrolled in the courses.

Over a quarter of the courses selected in the first three years of the programme are in cutting-edge engineering fields, like materials science, nanotechnology, hydro-informatics, aeronautics, robotics, photonics, telecommunications and technologies for energy conversion.

In addition, we have recently launched a “promotion initiative” which will help to explain the rich European higher education offer to a global audience.

The multi-annual initiative starting at the end of this year will assist universities and Member States to build up promotion skills, ensure better coordination of European presence in international fairs and develop a user-friendly web portal linking into our Poteus database on education and training opportunities Europe-wide.

Ladies and Gentlemen:

There is now widespread recognition that our universities need to be modernised—not just on paper but also in practice.

We want our universities to become a worldwide reference for quality and we want them to play their full role in boosting jobs and growth.

The initiatives I described to you can only work if we get Member States and the academic community behind them.

I am encouraged by the political support the Commission received for the university modernisation agenda. I am also encouraged by the reform effort in a number of universities and by projects like the study you are presenting tomorrow.

We must now build on these inspiring first steps, give universities the necessary autonomy and secure the budgetary resources for our institutions to compete and to excel.

Thank you.