

Securing the future of Europe's universities: consolidating Europe's research base

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Main elements of discussion

Introduction

The April 2004 Conference “*The Europe of Knowledge 2020: A Vision for University - based Research and Innovation*” organized in Liège by the Commission demonstrated the interest of all stakeholders for a broad debate on the role of universities in the building up of the ERA as well as in the creation of a knowledge -based society.

As a follow-up of this Conference, the Forum on University-based Research, an high level expert group, was set up in September 2004 to help the Commission in defining an European policy framework which should facilitate the necessary structural changes and promote the reforms to enable universities to play their full role in an increasingly competitive and global research environment.

This seminar was the opportunity for the members of the Forum to present the result of their work to a wider audience composed of representatives of universities, industries national and regional authorities , as well as other international organizations and receive input for their final report.

The organisation of this seminar coincided with two important political developments. On the one hand, it corresponds perfectly to the spirit of the Commission Communication on the mid-term review of the Lisbon strategy published in February 2005 ¹ which highlighted the universities as key players for the achievement of the goals set in 2000. On the other hand, the results of the seminar's discussions can feed into the preparation of the 7th Research Framework Programme (FP7).

As already indicated at the Liège Conference, few universities are prepared to face the new challenges arising from the increasingly competitive and global research environment. It is therefore crucial to analyse the situation and to find the appropriate measures to be taken.

The seminar was divided into two sessions: the first one was dedicated to the key issues in University-based Research and the second one to a discussion on securing the future of Europe's research universities .

The reports of the two sessions were written respectively by Dr. Renzo Rubele and Prof. Christos Nikolaou .

¹ “*Working together for growth and jobs: A new start for the Lisbon Strategy*” , COM(2005)4, from 02/02/2005

Session 1: Knowledge creation, including trans -disciplinarity – Transfer and dissemination of knowledge
(by Dr. Renzo Rubele)

What are the key issues in University -based Research

Report of the morning session of the Seminar “Securing the future of Europe’s Universities”

The session could benefit from the introductory presentations by **Prof. Juergen Mittelstrass** on “*Knowledge creation, including transdisciplinarity*”, and by **Dr. Andrew Dearing** on the “*Transfer and dissemination of knowledge*”. These were the two main headings under which the Forum could provide the audience with key concepts and drive the subsequent discussion. The following is a resume of the various items dealt with.

Basic vs. applied research. There is a need to keep on analysing the features of the production of knowledge from the standpoint of its relationships with the claimed objectives.

From one side, science represents a departure towards the unknown. Long-term extrapolation of the results gained in fundamental science cannot be predicted. We don’t know what will be known in the future. But there can also be unexpected big discoveries from these results. Society must be prepared to finance such long trips. Adventures have to be financed.

From the other side, it may not be entirely correct to state that basic research aims at truths and applied research looks to market needs. The whole structure of the innovation process may be different from the traditional basic - applied research dichotomy.

One can also propose a triangular picture. *Pure basic research* can be identified where research recognizes no practical application. *Application-oriented basic research* is slightly different: we expect applications in the long range, but not of the kind that could be marketed according to the typical time scales of industry. Then there is *product-oriented research* – it promises applications/products in the near future (they are part of the project).

Disciplinarity vs. inter/trans -disciplinarity. Great achievements require not only specialisation but also contacts with other areas. New insights come from the edges of the fields. Universities must not be restricted to disciplinary structures. Where universality begins and where it ends is a choice which depends on people concerned in research. Yet academicians will continue to structure knowledge in terms of disciplines, that remain prerequisites to transdisciplinarity. University presupposes a multi -versity, which determines its development.

Transdisciplinarity comes in the solution of problems as a scientific principle approaching disciplines from a different perspective. Pure forms of disciplinarity and transdisciplinarity appear rarely. They are ideal types of scientific work, but mix is the rule. Trans disciplinarity doesn’t lead to a new

discipline. It is a scientific principle of work, a principle of research, and doesn't solidify in a disciplinary form.

There is example in the US. The object of research is structures, and there are not only faculty/departments following disciplines but also those following the development of science, and its problems. In Dublin there are new types of centres defining their own research environment. The organisational system has to move into interdisciplinarity. We have to train academicians to look beyond disciplines and develop the capacity of being innovative entrepreneurs. We have to provide appropriate autonomy, so that that spirit can be developed.

Competition vs. cooperation in research. Competition and cooperation play an increasing role. They are normal also in science. Without competition there won't be advance in science, nor without cooperation. It may sometimes be convenient to come to a restriction of desirable competition by cooperation, due to the principle of the division of labour. Otherwise competition is good. In various matters, scientists, institutions, faculties and universities have to enter this competition. The competitiveness determines in particular the profile of the institution. For Universities this means to have better strategies. But also desire for cooperation should be promoted by means of regional and supra-regional clusters, see also an example from Scotland on research grouping, and in Spain for knowledge transfer.

Sharing knowledge between University and society. There are three missions of Universities: education, research and other services to society, including the promotion of innovation and new business. But sometimes there is tension rather than complementarity among the various missions. There is a deficit in European Universities in their ability to achieve value from the research.

Collaborative research and transdisciplinarity should be also with the rest of society and not only inside the university system. As an example, it was shown how research agreements between Universities and a company underwent an explosion in the last 10 years. Collaboration is required. There may be different levels of collaboration between a research organisation and companies. Much depends on how we are going to organise ourselves in order for this to happen. There is a need for professional support in this regard.

We need to share good practice. The Technology Transfer Office in Oxford took 20 years to get to the current level. The mind of Academicians is to maintain global rank. Ireland is a good example for what regards the IPR code of practice. In the Netherlands the genomic initiative achieves advantage through public-private partnership.

There are more than 60 Universities in Europe that are developing their TTOs. The good practices do exist; the issue is to apply the recipes. The problem is in the governance of universities. We have to develop the knowledge transfer profession, and this could be funded through revenues of licensing. But often money through licensing (traditional) doesn't generate

income for the University. Money comes by embedding in the whole of society. The Europe patent system is inadequate. The Handbook of Responsible Partnering provides guidelines for industries, universities and transfer offices.

Good practices that can be used by European universities are also science shops (www.scienceshops.org). A science shop can easily be set up by any European university; it can be supported by the International Science Shop Network and future EC projects. A science shop aims at civil society and performs or mediates research for them.

Knowledge transfer is often seen as a one-way process, but what about knowledge creation in industries and its transfer to Universities? Thus it is a growing 2-way process.

Consequences of globalisation on Universities. Globalisation affects education and research. The consequences extend far beyond economy, and are poorly understood. It creates polarisation between companies and old-fashioned state administration. Massification and globalisation are changing the setting of higher education, and we do not know where economic growth will be centred, considering that intellectual capacity is equally spread around a world with ever disappearing barriers.

Differentiation of the European University system. We might think seriously to encourage differences in the university system, without too much ranking. The aim is to reinforce one's strengths and eradicate any weaknesses, and to position each institution according to a specific mission. Shaping diversity is strength. We should build on this situation and not imposing one single model.

Yet there is also a trend towards convergence in Europe (under the umbrella of the Bologna Process). Although compatibility is useful, it is important to be aware of the negative effects of pushing uniformity too far.

Evaluation of research. We need a system for rewarding those Universities doing well. But we are not prepared to accept that differentiation is based on profit-based reward. We need to develop a social criterion. Decision on closing departments which are not economically viable are taken by Vice-Chancellors, but since teaching science is more expensive, science departments would be the first to be cut. Yet we would like to expand research – according to the Lisbon Strategy – not restrict it.

We lack information on how we measure research production of Universities. It's an important point. Bibliometry is not helpful in the case of transdisciplinarity. Concerns have been expressed on existing criteria for excellence, including those of the UK assessment exercise .

Public policies, Funding. Governments are afraid of the costs of HE. There is the temptation to go in other's pocket to solve the problem. At the same time Universities cannot be dependent only on public money, and fundraising is a

responsibility of their leaders. There is a need to review taxation policies on research contracts of Universities with industries and on sponsorships.

University research can also benefit from specific policies by municipal and regional authorities, which can have a strong role in linking quality research to growth and employment, e.g. through regional innovation policies, technology centres, incubators, science parks and risk-capital funds.

Session 2: Universities as research institutions and governance issues – FP7 as one of the instruments
(by Prof. Christos Nikolaou)

EUROPE'S RESEARCH UNIVERSITIES: HOW TO SECURE THEIR FUTURE

The session started with a presentation by **Prof. Christina Ullenius**, Rector of Karlstad University in Sweden, on “Universities as research institutions and governance issues”. In her presentation, she stressed that Universities are important in a knowledge based society. However, their governance models have to be rethought. If the universities are to comply with the Lisbon agenda, then they have to be effectively managed. But institutional autonomy is a precondition for effective management, although it is questionable whether full autonomy is possible. This is because autonomy must always be balanced with accountability implemented through a *posteriori* control, and transparency towards the stakeholders: the government, the community at large and the students. The universities will have to adopt a quality culture that includes evaluations, although care should be taken so that the academic culture, that allows free space for individual initiatives, thinking and research, is preserved and protected.

Autonomy for Universities also presupposes the existence of stable legal and financial frameworks, predictable long term funding with lump sum budgets and multi-annual contracts. There should be less legal constraints on university structures, thereby avoiding the dangers and temptations of political micro-management. In such an environment, Research Universities would feel secure to conduct frontier research.

Competition between universities is unavoidable today and to a large extent desirable. However, competition should be balanced with the formation of strategic alliances that offer complementarities of competences among partners and benefit all involved.

We are most likely moving to a new form of governance where significant authority is relegated to a Board of Trustees where all the University stakeholders are represented. However, significant issues remain to be resolved: the question of appointed vs. elected leaders, the formation of executive boards and the role of students. Consensus building for strategic directions within the university should probably remain within the existing today wide collegial bodies (senate, faculty and department assemblies) that will function as a balance to a Board of Trustees or an Executive Board.

A second presentation was then given on “FP7 as one of the instruments” by **Prof. Eric Froment**, Chairman of the European University Association (EUA). The speaker stressed that we should:

1. Integrate universities as institutions in FP7 (not just research groups); but this can only be accomplished if good governance is introduced to the Universities. However, any change in governance has to be achieved through an exhaustive dialogue and the achievement of a wide consensus, since there is no notion of a

- hierarchy within the academic community. In addition, incentives should be created to promote interest in FP7 within the university.
2. Promote collaborative research action involving universities, industry and services at regional level and liaise with regional development centres and research management cells. Another area of collaboration between universities is the exchange of “good practices”, e.g. in costing or pricing research .
 3. Insist on transdisciplinarity at different levels, including the ERC
 4. Reinforce and extend the Marie Curie Programme
 5. Unfortunately not every university can be a top research university, and moreover low salaries are sending professors out of the university to provide consulting services. The strategy for survival for universities today, is a strategy of differentiation and of exploitation of any competitive advantages they may have, especially at the regional level. However, most European universities do not have such a strategy in place today.

The floor then opened for discussion. Several threads of lively discussion were formed, the most important of which are the following:

- The question of **autonomy**: its true nature and its constraints. It was pointed out that even independent companies in the private sector operate under a lot of constraints today, especially in the post Enron scandal era (e.g. through new legislation such as the US Sarbanes-Oxley act, etc.). It was suggested that autonomy primarily means the ability to develop institutional strategy, to be able to make key resource and investment decisions, and the ability to make personnel decisions. These capacities are completely missing from most European Universities today.
- The question of **leadership**: Governance reform will most likely introduce a shift of authority and decision making from collegial bodies to specific people such as the rector, the chancellor and the dean, who will then be required to have strong leadership skills. In addition, leadership means taking risks. Leadership also means proposing strategy and then executing this strategy successfully. The question was raised: What happens when the leader leaves? A lot depends on the team the leader leaves behind.
- The question of **innovation**: In a rapidly changing world, because of the rapid technological and scientific advances can the Universities innovate? Their very survival may depend on this ability.
- The question of **University Governance**: there are strong reasons to change university governance: there is too much inaction today because rectors, chancellors and deans feel the need to balance everybody with everybody. Existing internal rigidity is often the reason for lack of decision making capacity. We therefore need governing bodies that are agile and favour strong leadership. We also need a culture of internal and external accountability. We need to fight against the “corporation of the professoriate” – professors should be serving the

university and not the other way around. Professional corporatism is terrible for the younger generation. Several speakers expressed themselves in favour of appointed rectors – from the board of trustees. But all agreed that universities should be free to adopt the model that they feel is best for them : “The model is not to have a model”.

- What **kind of research** should be conducted in the university? Is the university the right place to do all kinds of research? The University usually strives to balance the three pillars of university activities: teach, do research, and help society. For example, a project to develop a catalytic converter is an industrial R&D project, and as such it was conducted successfully at GM, not in academia. Speakers expressed their worry about the proliferation of short term research contracts that fragment and waste resources.
- The issue of **massification** of Higher Education: the masses are demanding higher education as their right, not as a privilege accorded to few. In such an environment universities are under pressure to do everything, which is of course impossible. There is therefore a need for each University to create a portfolio to focus on, to establish priorities, and create a roadmap for the next ten years.
- The question of **evaluation**: what happens when a university gets a bad evaluation? It has been the case, that Physics and Chemistry departments were closed down not because of bad ratings but because they are expensive. Moreover, this decision was taken at a local level, by the university administration, which was struggling to make ends meet with reduced budgets. That is why we need a clear statement of strategy that creates priorities and allocates resources according to them. Of course, these priorities should be established by also looking at labour market conditions: there is no sense in educating researchers who then find out that there is no place for them to conduct research.
- Is there going to be a European Institute of Technology (EIT)? Some speakers expressed themselves in favour of EIT, arguing that it could help reverse the brain drain. The EIT could also be a pilot for the new way of managing a European University.

Conclusions

There is a need for a long term vision on the future of University-based Research in Europe: universities need to be strong institutions, able to provide solid research and training programmes. Such a vision, as well as a restricted number of concrete proposals for actions, should be the core of the Forum's report.

The intention is certainly not to elaborate one model of university to be applied across Europe; diversity should be preserved and each university should be asked to draw its own mission statement, its own strategy (including for research activities) and therefore its own model.

The European Commission could play an important role in gathering information on best practices and disseminating it to all actors concerned.

Efficient co-operation between university and industry needs to be based on a reciprocal process, a two-way dialogue.

The role of the Commission will be to translate the Forum's vision and proposals into concrete steps. The Forum's report will be presented to Commissioner Potocnik in May 2005 and will be one of the main inputs to a Commission Action Plan on University-based Research to be published in June -July 2005.

Concerning FP7, the Commission's proposal for the new Research Framework Programme asks for a doubling of the budget compared to FP6 and provides a more "university friendly" perspective, notably by proposing the creation of an ERC, the reinforcement of the Marie Curie's schemes and the setting up of Technology Initiatives.