CONSULTATION ON THE ROLE OF UNIVERSITIES IN THE EUROPE OF KNOWLEDGE

MAIN COMMENTS RECEIVED ON SPECIFIC KEY ISSUES

This document provides a summary of the main comments and suggestions on higher education made by respondents to the Communication on The Role of Universities in the Europe of Knowledge.

The Communication raised mainly the three strategic issues of funding, excellence and competitiveness by means of 8 series of "questions for the debate". This summary is organised along exactly the same lines, in the following 8 sections:

1. Funding: 1.1. Sufficient resources
                      1.2. Efficient use of resources
                      1.3. Effective application of scientific research results

2. Excellence: 2.1. Creating the right conditions for excellence
                      2.2. Developing European centres/networks of excellence
                      2.3. Excellence in human resources

3. Competitiveness: 3.1. A broader international perspective
                      3.2. Local and regional development

The length and extend of analysis varies between these 8 sections, in particular in respect of their relative importance for the educational and research activities of universities. Aspects with a particularly strong relevance to research activities and policies are comparatively less developed in the present summary and should be complemented with those provided in its twin document, the Summary of comments made on research and innovation issues prepared by DG Research[1].

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[1] http://europa.eu.int/comm/research/conferences/2004/univ/pdf/consultation_summary.pdf

1.1. Increasing and diversifying universities' income
Questions for the debate (cf. Communication):

– *How can adequate public funding of universities be secured, given the budgetary constraints and the need to ensure democratic access?*
– *How can private donations be made more attractive, particularly from a tax and legal point of view?*
– *How can universities be given the necessary flexibility to allow them to take greater advantage of the booming market in services?*

• Public funding

Higher education as a public good
There is a consensus among several contributors that higher education is a public service and thus a public responsibility. There are, however, divergent views about what this actually means with regard to funding. Due to the acknowledged important role higher education institutions (HEI) play in the Europe of knowledge as well as with regard to economic regeneration at local, regional and national level, some think that governments should reaffirm their responsibility through significant additional financial investments. Others just say that higher education should be funded primarily through public funding, or more loosely that the State should only guarantee a minimum level of funding for higher education and research. Some respondents see sufficient public funding guaranteeing an adequate operational framework as an essential precondition for the autonomy of HEI; what is "sufficient" remains however open to debate.

Funding and autonomy: multi-annual contracts and institutional profile

To reinforce the autonomy of universities, several contributors propose that Member States not already having multi-annual institutional contracts should introduce them. These contacts should last at least 4 years (preferably 5 or 6) and should set a clear mission and operational goals, in order to balance the risk of over responding to external demands that tend to be expressed as short term needs. These contracts should provide for subsidies based on performance-related criteria, such as the efficient use of the funds provided, the monitoring, reporting and evaluation mechanisms put in place to ensure the implementation of the plan, etc. With this type

of contractual framework HEI would have the kind of longer-term planning making it possible to use limited financial resources in an effective way.

Effectiveness should also mean that universities should think about concentrating on a smaller number of fields of expertise or of creating partnerships between various institutes. Universities should see it as important to avoid redundant study offers, to create their own strategic profile and to attain the needed critical mass.

Competition-based funding
Competition-based funding seems to be acceptable to many contributors who see it as a means to enhance quality and excellence in education and research and made the following concrete proposals:
   - public funding should follow the student, by means of educational vouchers;
   - public funding should consist of more incentive money, i.e. project-related funding allocated on a competitive basis; several respondents call e.g. for specific funding for universities introducing the reforms called for in the Bologna and Lisbon modernisation agendas (especially curricular restructuring and renovation, introduction or revamp of a quality assurance system, steps towards more professional management, etc.).

To a number of contributors, an independent financial authority should be responsible for the allocation of available financial resources on the basis of approved projects in education and research. Others envisage an independent body aimed at enhancing quality and efficiency at universities through a broader definition of its missions, which would encompass:
   - the definition of the main orientation of higher education;
   - the approval of projects with regard to university development;
   - the mapping out of criteria applicable for evaluations.

The role of the EU
Also the decision-making bodies of the EU should be prepared to undertake the redistribution of the European budget that is necessary for European universities to be in a position to develop in the directions laid down in the Commission's Communication. The increased resources available should be distributed mainly on the basis of competitive funding, especially in the field of research and innovation. Furthermore the EU should strengthen its funding capacity in order to support structural change, strategic reforms, quality improvement and excellence through its research, education and training programmes as well as through the structural funds.

The exclusion of public funding (or for some of incremental public funding) for education from the 3% deficit rule of the Stability and Growth Pact should be examined.

• Private funding

More private funding
Given the budget constraints of national and regional authorities, there is also a significant acknowledgement that universities need to attract more private funding. Many contributors point out that the private sector also has to assume its

responsibility with regard to the challenges of a knowledge-based society and economy.

Different types of private financing are envisaged and sometimes seen as essential for the future, reaching from once-off donations to long-time financing of specific education or research activities, e.g. student activities, researchers or research projects, professorships, libraries or laboratory infrastructure, mobility or cooperation schemes, etc.

Europe should not reproduce the US model of donations
Many respondents express doubts about the applicability of the American system of donation or are opposed to its mere introduction in their national system. They emphasise that because of cultural differences inheritances in Europe are seldom given to institutions but stay within families. The dominance of small and medium enterprises in Europe is also seen as an explanation of why private investments into universities would anyway not develop to the same extent as in the USA.

It was also critically noted that:
- some states of Europe would benefit more from private donations than others because of their cultural and economic infrastructure;
- private donations could pose a threat to the autonomous status of universities (a similar concern seems to exist, but to a lesser extent, with respect to State or regional money);
- important scientific disciplines have more limited possibilities to attract private funding than others.

Along the same line, some respondents wish to achieve a balance between receivers of private donations and propose that a national department should assume responsibility for administering endowment funds for which universities could apply. Others propose to address the imbalance between Member States by means of a higher education (and research) "cohesion fund" from which European universities which are lagging behind and have no resources to catch up could apply (the TEMPUS programme being mentioned as an EU initiative that could serve as a source of inspiration for this).

But dealing better with alumni may be promising
A shared opinion is also that although many European universities have made strenuous and professional efforts over recent years to attract funds from alumni, success has been modest. Even the most famous or wealthiest European universities have limited resources from this source. While most share the view that the potential income from alumni is far below what it is in the USA, some contributors nonetheless believe that universities should set up alumni networks; interestingly, they see this not only as a way to collect more money but also as a information channel providing direct feedback on the quality of their education and research. Seed money from regional or national authorities (or from Europe) could help to encourage such initiatives.

Need for stronger links to industry and society
In view of the widely shared view that donations and alumni contributions, while useful, would not have the potential to fill universities' funding gap, many

respondents emphasise that universities should establish closer relationships with the private sector across the board, i.e. to industry as well as to society as a whole.

Therefore, prestige and visibility of universities in general should be enhanced and their contributions to economic and social growth should find their way into the media. It was also proposed to organise European University Days where universities would open their doors to the public in order to show the benefits they bring to society as a whole, thus fostering acceptance in society for innovation and new technologies and improving their prospects for better financial support. The idea that universities should carry out marketing and/or fundraising campaigns seems to be acceptable to many contributors. Many add however that this would only pay off at universities that are able (and willing) to learn in a thorough and professional way the nature and the mechanisms of donation and the counterparts to a "culture of giving" (e.g. the social recognition of philanthropic support provided to universities or of the benefits it entails for the receiving HEI).

Tax incentives
Financial benefit to contributors supporting HEI could be provided in the form of tax incentives. Donations to any 'recognised' HEI or for participating in "spin-off" ventures should be encouraged through a tax exemption scheme. Some respondents propose that donors should be offered a tax deduction for direct investment in research activities, not only for general donations; others think that enterprises should be allowed a tax-free investment of 10% of their taxable profit. Another idea put forward is that companies not involved in research would have to pay higher taxes than those accepting their share of responsibility for developing the knowledge society by contributing to research. Another possible incentive could be to allow donors to have access to the ongoing research work or even to the utilisation of research results.

At European level, the suggestions made range from the harmonisation of these tax systems in the EU to the adoption of some common criteria or even directives and the creation of a European network of the national foundations involved in university funding.

• Universities as service providers

There is a widespread opinion that universities should look at themselves more as service providers to industry and society at the local, regional and national or European level. To many, these services could also be for a price, whether they consist in research, expert opinion, training, etc.

Exploiting the research potential
When mentioning sellable services, most respondent seem to be thinking first of research. They underline that however important donations and tax incentives may become it will in future be essential that European universities themselves learn how benefit more from their research potential. Many comments received are in favour of exploiting the intellectual property of universities to a much greater extent, both in terms of patenting and by setting up commercial companies aimed at turning research into a source of income – including through joint-ventures with successful private

enterprises. It is usually seen as essential to facilitate all stages of the innovation process in order to stimulate start-up procedures at an early stage and to facilitate the access to reliable venture capital.

Responding to training needs
Another frequently mentioned desirable development is that higher education institutions should get accustomed to offering all types of training and scientific and professional development programmes meeting regional and national needs in these areas. Through the provision of professional and practitioner-based training for e.g. the engineering, law or health profession, universities would work more regularly with employers and professional bodies and this would ensure greater curriculum relevance. Offering and selling expert opinion and expert reports could also generate additional finances.

There are also proposals for the creation of new degrees bringing together more closely the academic and professional dimensions. The expectation is that such would attract more co-financing from the regional economy. Some suggestions were made for the setting-up of co-ordination agencies that would help universities to make a better use of the growing continuous education market by establishing the necessary links with industry (particularly with regional companies and organisations) and helping with the development of courses and degrees able to satisfy this demand.

But selling services is unlikely to close the funding gap
Although most respondents agree that universities should learn how to mobilise and sell their research, training and intellectual potential, the majority believes that, except for few, universities will not be able to make much net earnings from these activities, which often require high investments (e.g. for patent management) before they possibly pay back a few years later. There the importance of a medium-term financial perspective is particularly obvious.

Another very important observation is that selling services will only generate additional financial resources for universities if the State and the region budgets are not reduced in consequence. There is a widespread fear that this would not be the case and that universities who successfully develop selling strategies will in the end be penalised through a reduction of their public support.

• **Contributions from students**

The introduction or increase of tuition and enrolment fees is a very contentious issue. Nearly all respondents refer to the close links between financial aspects and the principle of democratic access to higher education, but while some contributors are categorically against any form of tuition fees, others stress that free access to higher education may be less democratic than it seems at first sight and that students should contribute to the costs of their higher education.

For or against the principle of tuition fees
Contributors who envisage positively a student contribution are more numerous than could be expected. They mainly do so on the basis that higher education should be seen more and more as an individual investment with a highly rewarding rate of

return. Many also see tuition fees as an instrument to stimulate students' motivation and some argue that students feeling more like clients are in fact much more likely to push for education and research of high quality. There are also suggestions that students' motivation could be further strengthened by linking tuition fees to study results, e.g. if good study results were rewarded by a reduction of tuition fees.

Nearly all supporters of tuition fees emphasise at the same time the need to ensure democratic access to higher education, at least if defined as the right for *qualified* students to enrol in universities regardless of their race, genders, religion, age as well as their financial resources. Many underline that tuition fees should be set at a level not too high, which seems to mean that it should be high enough to encourage responsible behaviour but should not discourage qualified students from seeking access to higher education.

But there are also some responses radically refusing all types of student fees: education is by essence a public good and should therefore be paid for from public money rather than by students or families. The main arguments put forward are that fees would defeat the principle of equal access to university and would eventually lead to an elitist system. Students from lower socio-economic backgrounds tend to be deterred by tuition fees because they fear running into debts or they must take on part-time or even full-time work during their studies – a situation that tends to lower the effectiveness of their learning process and to push up drop out rate and/or the duration of studies.

The principle according to which all qualified persons must have an equal opportunity to education is seen as fundamental not only to democracy and the welfare state but also for the development of a knowledge society: education policy should aim to increase the enrolment rate of all groups of society in higher education rather than discourage them. Defenders of this position agree that higher education is also an investment that brings individual benefits but stress that students will eventually pay for this investment when they hold jobs with higher salaries on which they pay higher income taxes. Another point against tuition fees - maybe less fundamental but quoted several times – is that tuition fees may be an obstacle to the international mobility of students, which should be facilitated and organised rather than impeded.

What kind of tuition fees, if any ?
In order to reduce the financial burden on students, some contributors propose to introduce differential tuition fees according to the likely market value of the studies, i.e. starting with those areas with the highest individual return on investment. Others stress that universities should not be allowed to charge differential tuition fees per discipline, in order to avoid that students choose cheaper courses rather than those best suited to their abilities and aspiration. For these respondents, tuition fees should therefore be limited to an across-the-board fixed rate set at an acceptable level (contribution to education costs, not covering the full cost) and accompanied by a grants/loan scheme guaranteeing access to all at all levels of the higher education system as already mentioned above.

Yet other contributors propose that in Europe higher education should be free (or with low tuition fees) for undergraduate studies (up to the Bachelor level) while universities would be allowed to levy fees for postgraduates studies in a very open

and competitive European higher education area. This raises the issue of whether certain disciplines in high social or economic demand should carry higher or lower tuition fees. Another question would be about the distinction between the Master and PhD levels; in view of Europe's difficulties in attracting and keeping excellent scientists, several proposals are on the contrary in favour of providing more (rather than less) financial support to doctoral students, either in the form of study grants or a salary for young scientists or researchers.

Another argument put forward in some answers is that such a system would also favour the development of a strong market of genuinely "European" Master courses; in this view, if universities are not allowed to charge tuition fees they will lack the incentive to recruit additional students from inside and outside Europe and to set up the kind of new joint Master curricula that Europe would need to be attractive to its own and international students.

If tuitions fees, then only with a high quality grant/loan system
All respondents agree that a lack of finances should never be allowed to prevent qualified students from access to higher education. They all stress the importance of a socially acceptable, well-capitalised and efficient loan, grant and/or bursary system aimed at supporting (in the first line) students coming from families with lower income. There are only few answers thinking of non-traditional students or adult learners or of students living outside their families. Some respondents think of adding that financial support should be available both for national and EU students and for international (non-European) students. Altogether, there is a widespread feeling that grants should be more substantial, more user-friendly and fully portable at least within the EU for study, teaching and research purposes. The need for higher grants and easier procedures is also explicitly mentioned by many respondents with respect to the European Union mobility schemes.

Several defenders of tuition fee schemes propose to avoid "up-front" contributions from students. Instead, a graduate tax system should be introduced: students would pay their tuition fees through their taxes only after they graduate, have a job and earn a certain amount of money. According to its promoters, this approach to student fees would shift the burden from parents to students and would relieve the normal taxpayer from subsidising the higher education sector (this would however only fully be the case if students were charged the full cost of their education, which is an option excluded by the vast majority of respondents).

Doubts that universities will be better off with tuition fees
There seems to be near unanimity that if tuition fees are charged there must be a guarantee that public money is not reduced simultaneously, thus offsetting the potential benefits of the system for university funding. According to several contributors the introduction of student fees in their country has not solved the financial problems of HEI, at least not to the expected extent. Many other respondents share the view that a higher contribution from students and families is unlikely to lead to an actual increase of universities' total income, as public funding would almost certainly be reduced in a commensurate way.

• Addressing signals of inefficiency: dropouts, failures, overlong studies

The consultation process met with basic agreement that high failure and drop out rates and overlong studies were a significant source of inefficient use of available resources from the university's but also from the learner's side. Some respondents point out that dropout rates may actually be exaggerated because statistical methods tend to consider students who change courses or subjects as dropouts. In the same way, overlong studies may be due to the fact that many students work while studying, thus accumulating valuable experience that will ease their entrance on the labour market.

Nonetheless, the vast majority of answers agree that universities should take action to reduce dropouts, failure and the duration of studies. Many contributions underline that teaching in general, and teaching undergraduates in particular, should receive a higher priority and should be valued more positively at universities. The main avenues that should be explored concern: information and counselling, selection, tutoring, more flexible programmes and Bologna reforms.

The basic tool: information and counselling
In order to decrease failure and dropout rates as well as to attract more new students to areas with an expected lack of highly qualified people, many respondents focus on the need for a broader and clearer information policy at universities. Universities should be more proactive in encouraging and informing potentially interested students, including students who have acquired competencies and qualifications outside the formal education system.

In general, the creation of a more student-centred culture is proposed, e.g. through additional counselling services, financial advisors as well as academic support, particularly (with regard to democratic access to higher education) for non-traditional students, students of parents with lower income, handicapped students and foreign students.

Information and counselling is the only area where a significant number of respondents think of building better bridges with secondary education. They stress that personal guidance should not only be provided at university level, but should

really be available already during secondary school education, particularly through vocational counselling as well as information about the variety of studies and institutions. Some contributors wish to go further than just information and would like to re-evaluate and eventually restructure secondary education in order that future students are better prepared for the requirements of universities. This may mean re-introducing obligatory core disciplines or standard contents in secondary school programmes which would provide all future students with the necessary competencies in the key disciplines. In this context, a pan-European secondary education leaving diploma with a common core of competencies for all nations was proposed for the medium-term future.

Selection
A very significant number of contributors from universities as well as from industry are in favour of selection procedures in general and for admission to postgraduate studies in particular. The main reason given is usually that students would need to think more about their studies and prepare themselves more seriously and consciously, which would also help decreasing the dropout and failure rates. This would give universities the possibility to admit those students who have indeed real chances to succeed and get the degree.

Yet, selection is not acceptable to all, especially not to students and to a lesser extent to some governments. They put forward the principle of free access to higher education for all and emphasise that a more or less severe entry selection is not necessarily the best way to guide students to and through their university studies. Several contributors think that students should at least be allowed to experiment for a semester or a year in the field they prefer and should receive adequate support during this period to give them fair chances to succeed; but that there should be a real selection based on exams controlled by each university after the first year of study. Defenders of this approach see it as less negative than entry exams and as leaving more responsibility with the individual.

Tutoring
Several contributors argue that a reduction of failure rates requires, next to high quality higher education in general, that more attention is given to individual monitoring and active tutoring and help, in particular in view of the increasingly diverse student population. Some believe that more direct contact between teachers and students is an effective way to increase retention rates. This means that tutoring should be emphasised, especially in "mass course", and that more staff needs to be hired and/or trained for this. Some respondents recall that research-based or problem-based teaching and learning has been found as providing added value to students. A move in this direction should also be seen in the context of a general modernisation of teaching methods, particularly through a wider and more efficient use of ICT in education (not only in higher education).

More flexible learning paths
Another way to decrease failure and dropout rates could be a more flexible structuring of the study programmes, in particular with regard to lifelong learning. Flexibility should imply the possibility to choose between different modes of study, i.e. full or part-time study. Universities should also provide more diverse curricula leading to degrees and qualifications suiting different career plans and the variety of needs of the

labour market. The validation of prior learning, including non-formal learning, seems to be gaining acceptance, even though it is not mentioned by a majority of respondents. Several respondents believe that there should be a clearer split in higher education between academic courses (preparing students for an academic career) and professional courses (for students who aspire to a job in industry or administration), while others challenge this and see value in mixed approaches.

Bologna reforms
There is widespread hope that failure rates and the overlong studies will decrease as direct consequences of the main reforms inspired by the Bologna Declaration, e.g. the Bachelor-Master articulation, ECTS credits as well as enhanced cooperation between universities for joint courses or degrees. There is a clear expectation that these measures will help reducing the gap between nominal and real study time.

Some contributors would even prefer a more stringent approach based on a standardisation of the duration of courses at European level, at least within the same discipline, as this would enhance the transparency of curricula and thus facilitate the comparability and mutual recognition of degrees. Others find this an unnecessary or unrealistic objective.

• Supply and demand for higher education qualifications

What mismatch ?
Regarding the mismatch between supply and demand for university qualifications on the labour market, some contributors point out that it would be neither achievable nor desirable to make a too close match an objective of educational and employment policy. They argue that it is impossible to tailor the output of higher education to the precise needs of the labour market at any given point in time. Some degree of "mismatch" is intrinsic to the system and probably unproblematic.

To many the sound answer consists in education leading to broad, general and interdisciplinary academic qualifications rather than to narrow, specific qualifications that have higher chances to be out of demand even before students finish their course. Many comments also stress that critical thinking, problem solving and communication skills are needed to develop individuals into responsible citizens able to contribute to society, rather than into mere economic actors.

Nevertheless, the majority of respondents share the view that universities play a role in ensuring that their courses prepare student for the labour market. They also agree on the importance of developing good links between universities and the employers who recruit their students and graduates.

What is "employability" ?
This question continues to worry many universities. There seems to be agreement on two principles:
> - employability should be taken into account more than in the past when defining curricula and competencies, but employers should not dictate their

views and higher education should not be shifted to other extreme of the range of possibilities and forget about humanistic values and citizenship;
- except for shorter vocational courses, employability should not be defined in view of short term, immediate needs, but rather in view of longer lasting skills that may help graduates to adapt to rapidly changing labour market circumstances ("sustainable employability").

In view of this, most proposals envisage a medium term vision of the development of jobs and occupations. Such a vision requires close cooperation with higher education's stakeholder and in particular a dialogue with social partners.

A good opportunity for student to get in direct contact with labour market consists in traineeships. Therefore, industry and administration should offer more and diversified traineeships. Given that a lot of students work during their study, also more and mainly qualified part-time jobs should be created.

<u>Fostering employability</u>
Many respondents suggest that universities should revamp and renovate their curricula in order to offer new, more diverse and flexible courses that fit the needs of economic and social development in the new age called the knowledge era.

Many also see post-secondary vocational courses and tertiary short cycle degrees with strong links into working life as key instruments to reduce the gap between the supply and demand for qualifications. Some see these as an alternative to "academic" studies, while others propose the introduction of dual-track studies based on a mix between studies (whether more academic or more professional) and practical training periods. These could take the form of work placements (stages) or of training seminars by professionals acting as guest lecturers.

There are several specific suggestions that managers from industry and services could in this way contribute to developing entrepreneurship in students. It has also been proposed that enterprises should support and coach undergraduate and postgraduate students, e.g. through a mentor-system where professionals assist student and young researchers in defining their professional career.

Some see the creation of professional career services within universities as a new institutional responsibility. They should provide students with broad information about different career paths and placement possibilities. They could also contribute to establish closer contacts between universities and industry.

• Transparency of research costs

Various contributors underline that irrespective of the kind of financial system in place at a university, the main condition for an efficient use of resources is that the system must be transparent, in two ways:
- on the one hand, the use of funds must be transparent in order to allow taxpayers to know how their budgetary support to universities is being allocated;

- on the other hand, many contributors stress the importance of cost transparency, particularly with regard to research; this requires that universities apply professional financial management and introduce cost accounting.

Some contributors would welcome a set of common principles and guidelines aimed at establishing the true cost of university research across Europe, in order to make cross-border comparisons and cooperation easier. This would mean introducing standard transparency instruments such as cost ledgers, timesheets, activity-based costing, monitoring system, etc. Some see this as a necessary step for the creation of a European research area. It seems to be however unclear whether this system would cover all research or only research in "hard" science and technology, where comparisons seem more meaningful to some observers. The cost and role of research in humanities and social sciences seems to be an issue for a number of contributors, even though it was explicitly referred to in only few answers.

Voices expressing reservations or doubts about the real benefits one could expect from these changes are not few. Some stress that the introduction of these instruments is in itself a resource-intensive exercise and that in a world of finite budgets the costs of transparency may actually contribute to further reducing the resources available for research activities themselves. This may be the reason why some voices call for a balance between the volume of research and the cost transparency system that will be put in place. An additional fear expressed by some respondents is that increased transparency of costs might lead to more minute regulation of university finance and thus undermine university autonomy.

In order to strike the right balance between transparency and autonomy, one stakeholder proposes to use a kind of "open method of coordination" to identify best practice in costing methods used in the various member States; in view of the outcomes of this exercises, the Commission could then envisage to proposing a recommendation (or even a directive!) aimed at instituting the best-practice model at Community level. Amidst mostly reserved attitudes about rankings and league tables some voices call for more and better controlled rankings in higher education and research in Europe for the sake of more transparency.

• Innovation, a key role of universities

Many respondents from academia and industry see innovation as a third mission of universities, on a par with education and research. They emphasise that close collaboration between universities and the economic world is fundamental for innovation and competitiveness at regional, national and European level. They also agree that universities making a real contribution to technological innovation should get more benefit from it by exploiting more deliberately and systematically their research results. These greater benefits may come in various ways, e.g. royalties, the allocation of "founder shares", warrants, the participation in the creation of commercial companies, etc.

A general recommendation is that universities need to develop a more entrepreneurial spirit, which according to some responses should be encouraged and financed through special programmes. They should adopt a "commercial" approach by identifying "sellable" research results and by collaborating with industry in the market place. Several comments stress that for universities moving in this direction it is essential to cover all stages of the innovation process. The main conclusion on which these respondents all agree is that in order to achieve this universities should have or put in place a professional management structure with know-how in the business world and in knowledge transfer, adequate financial rules and more financial autonomy. To most, this is only possible through long-term planning contracts with governmental authorities. Some also think that measures should be taken to encourage the establishment of "endowment funds" which would gradually erode the exclusive reliance of most universities on governmental support.

The main point however is related to the strategy and governance of universities. Universities and their researchers should develop a longer-term strategy aiming at

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making the best possible use of the commercial potential of research, both for basic research programmes and for research geared more directly towards commercial applications. This requires a multidisciplinary approach, the setting of institutional priorities and a policy of providing support and incentives to staff. Concerning the latter, a variety of approaches were suggested or formally recommended:

- advising academic staff about the best method to exploit their discoveries;
- brokering the most appropriate deal for the technology or know-how with industry;
- creation of specialised intermediary bodies such as "technical bridge foundations", "patent offices" or "industrial liaison offices" designed to facilitate the communication between the business sector and the university with its researchers.

Since specialised offices like these are expensive, partnerships with other universities and research institutions should be sought. Professional support could also be sought within universities, particularly from faculties of business administration, law and economics. Standard forms of agreements and "good practices" based on generally accepted principles for collaboration between universities and industry could be an important additional tool.

• Sharing intellectual property rights

In line with the Commission's communication, a majority of contributors emphasise that universities should own the intellectual property rights of their research results. The legitimacy of this principle is usually based on the recognition that most research achievements depend on a team and on an environment favouring the emergence of a research culture; in other words, new achievements are almost always based on previous activities supported by the university and are facilitated by the research environment available there.

But this raises the issue of adequate benefits and incentives for the creative production of individuals or research teams. The transfer of property rights from researchers to the university could further reduce the attractiveness of university careers. Therefore three key principles should apply:

- inventors should retain the right to be identified as the authors or their work;
- they should share in the financial benefits generated from their research when it is commercialised;
- they should have the possibility to get involved in the creation of private companies, which requires in most countries the introduction of more flexible employment rules.

The most important point seems to be that young researchers want clarity about the recognition and remuneration both parties get from successful research, thus ensuring that none feels "exploited".

• Patents

The adverse consequences of the lack of a community-wide, EU patent were emphasised in many answers. In its absence the protection of innovation becomes much more expensive and would force universities to invest a (too) high proportion of

their overall research activity and funding into patent seeking. Some voices suggest that universities will only be able to protect their intellectual and industrial property rights if national or regional authorities pay the cost of patents. One contributor suggested that EU regulation should allow a researcher to publish his invention quickly without having problems to apply for a patent afterwards.

• Public-private partnerships

Different kinds of public-private partnerships and different forms of collaboration with industry and ways for the creation of new companies were suggested. Some contributors prefer longer-term initiatives organised at institutional and departmental level rather than by individual researchers, for example by means of the setting-up of industrial laboratories within universities or the development of science and research parks. But other initiatives more focussed on individuals are also seen as important ways to develop university-based innovation, e.g. the creation of start-up companies with concomitant entrepreneurial training for both students and staff or of spin-off companies involving staff with potentially valuable intellectual property rights.

More government support is needed to assist start-up companies and the development of existing business initiatives seeking and applying innovation. There is broad agreement that these collaborative ventures should benefit from special tax incentives and that universities should have the right to enter "profit-sharing" schemes in their own name. In addition, public authorities should introduce budget lines for "risk funding" in order to support new innovation centres. In particular there are not enough incentive structures for universities to carry out research that could be useful to SME and even less incentives for them to transfer their knowledge in this direction. While the main thrust for such initiatives should be at regional or national level, some contributions call for more support from the European structural funds for university-industry collaboration at those levels, particularly with respect to SME.

• Yet, selling research is unlikely to close the higher education funding gap

Nevertheless, many contributions also point out that the importance of patenting and new business ventures in the context of knowledge transfer should not be over-emphasised. To some, the role of universities in knowledge transfer could be better stimulated if the whole spectrum of possibilities were used, including research consultancy, student placements, work experience, business networking, sponsorships and workforce development, research mobility projects, etc. Overall, not many respondents seem to be convinced that the selling of research (as well as of other services) would help a significant number of universities to get out of poverty.

2. CONSOLIDATING EXCELLENCE AT EUROPEAN UNIVERSITIES

2.1. Creating the right conditions for achieving excellence

Questions for the debate (cf. Communication):

– *How can the consensus be strengthened around the need to promote excellence in the universities in conditions which make it possible to combine autonomy and management efficiency?*

– *Is there a way of encouraging the universities to manage themselves as efficiently as possible while taking due account simultaneously of their own requirements and the legitimate expectations of society in their regard?*

– *What are the steps which would make it possible to encourage an interdisciplinary approach in university work, and who should take them?*

In line with the Commission's Communication, the need to acknowledge and to develop real excellence within European universities is widely seen as a key factor for the future of European universities and for Europe as such.

• Creating the right conditions for achieving excellence

Many respondents agree that excellence hinges on a number of essential preconditions, in particular sufficient financial resources and autonomy, highly qualified human resources and efficient management.

Autonomy for a purpose
When addressing the question of autonomy and efficient management raised in the Commission's Communication, several contributors emphasise that there is no inherent contradiction between excellence, autonomy and efficiency - quite the contrary: strong leadership and efficient management should be seen as preliminary conditions for universities to make meaningful and successful use of their autonomy.

Some contributions emphasise that the term "university autonomy" actually covers two different principles: those of academic freedom and managerial autonomy. Many contributors stress in particular the importance of the academic freedom which should be fully protected in the first place by the university itself; this would entail in particular that universities should have the freedom to design recruitment and promotion procedures for academic (an other) staff. There is more divergence in the views expressed with respect to managerial autonomy, both concerning the internal structure of universities and their relationship with authorities.

More professional management
While contributors agree on the need for strong professional management within universities in view of their organisational complexity, there is no consensus about how and by whom these tasks should be carried out. Some contributors would prefer external professional managers trained in industry, whom they expect to have the necessary skills to run a university in a highly efficient way and to disseminate a most-needed entrepreneurial spirit throughout faculties and units. Others object to this on two grounds: external managers could threaten the independence of the university, and they may well fail because they would not know sufficiently the differences between a commercial business and a university. A compromise that was suggested would consist in having internal university managers assisted by external professional administrators. In the view of its tenants, this compromise would both ensure internal legitimacy and increase the attractiveness of a university career.

At the other end of the spectrum, some contributors propose to include more academic staff in the university governance structure in general. Some also stress the importance of including students in the decision-making procedure within universities: students are interested in high quality education and research and are also those most directly struck by mismanagement and could therefore contribute to enhance the efficiency of financial management.

Professional management does not include just financial competencies: it should also include public relation and marketing conducted by professional staff, in order to make European universities and their research and education better known and more valued around the world. Many seem to agree that universities should act like service-providing institutions: they need to attract excellent foreign students and researchers, and this calls for an active enrolment strategy to get the best from all over the world. In this context, it was also stressed that administrative and managerial staff needs professional training; a common suggestion is that mobility programmes for managers would allow them to develop a much needed European and international perspective.

Multi-annual contracts with authorities
Most contributors agree that successful management of universities as well as of higher education systems requires long-term planning that is only possible with sufficient financial autonomy and within the framework of multi-annual contracts with public authorities. Financial autonomy means the freedom to allocate and reallocate financial resources and to generate additional funding from capital as well as from commercial activities; it is also a necessary condition to allow universities to react more quickly to shifting conditions in the outside world. The principle of multi-annual contracts (at least 4 to 5 years) signed between universities and their national or regional authorities seems to be favoured by a majority of respondents. Clearly defined goals and requirements from authorities, and hence from society as a whole, should be stated in these contracts. The expectation is that by connecting the achievement of the defined goals to the funding system, this kind of competitive, performance-related funding would strengthen efficiency and underpin the result-oriented mentality of universities.

A few voices, while accepting that universities need to be accountable to society, draw however attention to the dangers of judging universities only on the basis of

measurable outcomes and short-term results. Many respondents emphasise that these contracts should only form the regulatory framework within which universities could map out their own long-term strategy through the building-up excellence and the shaping of its own institutional profile. Several respondents from within universities and from stakeholders predict that this process could result in further specialisation of universities; some seem to regret it, others are looking forward to it as a means to eliminate redundant study and research programmes and facilities and to consolidate currently dispersed teams in order to attain the necessary critical mass for excellence.

Given the variety of higher education institutions in terms of their structure, legal framework or scientific activities, there should also be a variety of professional and efficient management systems. Some contributors propose that the European Commission should establish a benchmarking programme and analyse existing systems with the aim to draw-up a series of "best management practices" suited for different kinds of institutions. Their main suggestion is that the Commission should provide pump-priming funding to encourage the improvement of management structure and procedures at HEI.

• Interdisciplinarity

There is a general agreement that research and industry need both specific, cutting-edge knowledge and interdisciplinary knowledge and competencies. One reason interdisciplinary approaches are not broader applied in Europe is that universities are basically still working with a faculty and discipline structure that was designed in medieval times and built-up in the past century irrespective of numerical growth of enrolment and exponential complexity of science. Deep rifts and high walls still exist between faculties, and even between departments within the same faculty. This traditional internal structure, together with the assessment and funding criteria based upon this rigid categorisation, act as a powerful inhibitor of interdisciplinary activities.

How can interdisciplinary activities best be supported? At the structural level, contributors underline mainly the need to overcome the disciplinary classification. To some, this would require the dismantling of faculties, at least in their current shape. Others expect a lot from more cooperation between different institutes and/or faculties, both within their own university and across universities working as networks in Europe. Networks with industry and local/regional partners are also expected to foster interdisciplinary activities. Through project work with companies and public institutions most students would realise that real issues at the workplace can rarely be dealt with through a strict separation of disciplinary knowledge. In the eyes of several contributors, such interdisciplinary networks could also lead to the creation of new, future-oriented courses that would have a specific potential to attract students from various European and overseas countries.

In addition, funding streams specially designed to address interdisciplinary challenges are seen as effective means by which interdisciplinary work can be encouraged. In this context, steps should be taken to ensure that the researchers themselves set the professional criteria for allocating funds. It should be made on the basis of professional – and not political or bureaucratic – judgments.

But not only organizational structures have to be changed. In general, there is a need for a better understanding of the interdisciplinary dimension of knowledge and learning. The main suggestion in this respect is that students would benefit from broader, interdisciplinary curricula during their first years in higher education before they are expected to choose a specialisation. Accordingly, there seems to be an increasing demand on teachers to work and think about teaching programmes and research topics in interdisciplinary terms. The promotion of sustainable development has been suggested as a particularly suitable area for this, since it is at the same time genuinely inter-disciplinary, trans-European and community-building.

In order to make all this possible, a higher degree of confidence needs to be restored in researchers. Efforts to develop interdisciplinary research projects should be supported wherever appropriate opportunities exist. It would also be necessary to demonstrate that interdisciplinary research is rewarded. In this respect, the establishment of career models that honour interdisciplinary work could be of good help.

Nonetheless, several contributors feel the need to underline that interdisciplinarity, for all its positive aspects, should not be imposed upon researchers. In their view, a bottom-up approach is of utmost importance: if interdisciplinarity is possible, students and researchers themselves would invent it through their intrinsic mutual interest that does not know disciplinary limits. They emphasise that interdisciplinary work in institutions is always the result of independent researchers knowing what others are doing how they can relate; in this view, true research is always driven by the researchers' own desire to move forward the frontiers of human knowledge and discovery.

• Networking is essential to excellence in Europe

Numerous contributors share the view expressed in the Commission's Communication that the support of excellence, particularly through networking, is essential for the competitiveness of the European education and research area.

Diversity vs. fragmentation
Many emphasise that Europe's intellectual heritage, its cultural and linguistic diversity and its historical roots should be stressed and converted into a special, or even unique, appealing point of the educational programmes and research at European universities. These respondents see great value in stimulating joint programmes offered by multi-national networks of excellence.

Others are less optimistic and rather emphasise the other side of the diversity medal, i.e. the fragmentation and heterogeneity of European higher education and research that make it difficult to mobilise resources, energy and people around really excellent projects or centres with the necessary critical mass to be in the forefront of science and to be visible and recognised in the wider world. Some stress that with research focused on a different field in each region or country, different languages and different regulations, it will be difficult for Europe to increase its currently rather low attractiveness to foreign researchers, especially to the very best ones.
Nearly everyone however seems to agree that excellence is the only possible answer to prevent, limit or balance out the brain drain to the USA and some other countries in the world. There seems also to be broad consensus that a basic precondition for excellence is quality assurance through the accreditation of improved study courses and the permanent evaluation of research activities. In this respect, many contributors highlight the importance for universities to set in place an internal quality assurance system and/or to undergo external evaluation. A few call for EU initiatives and money to encourage the development of quality assurance and quality labels.

Excellence in networks depends on the quality of the links, but also of the nods

By and large, the value of networking as a way to turn European diversity into an asset for excellence is widely recognised. Networks and cross-European consortia of universities are seen as offering strong intrinsic value because universities can learn from each other and disseminate in this way new knowledge and best practices. Networks are seen as strengthening efficiency and quality. Some respondents point out that they are particularly important for smaller countries and universities: they cannot be highly qualified in all areas and networking allows them access to major, scientifically ambitious research projects or educational initiatives.

In this overwhelmingly positive response about the importance of networking for the promotion of excellence in European higher education and research, a few voices nonetheless call for caution, on two main and interrelated grounds:
- the strength or excellence of a network depends not only on the efforts that go into building up the links between its members, but also (and maybe primarily) on the individual strength of each nod in the network; some respondents have the feeling that in Europe more energy and resources go into the cooperation process and less into the fostering of excellence as such;
- networks should be a means to an end, not an end in itself; some contributors call for performance criteria for networks before they are used, maybe in vain, as a vector of excellence; another common risk with networks is that they tend to be unstable and to depend too much on individuals, which would call for efforts to establish them as more stable and organisations with a permanent (even though lightweight) structure. Finally, networks are not seen as advisable in all domains and several respondents stress that they may easily become expensive and bureaucratic and consume energy that would otherwise have gone into the improvement of actual teaching, research or management at the respective participating universities.

• Attracting funding to excellence

In the view of many respondents, better funding of excellence goes hand in hand with a greater differentiation between higher education institutions and a clearer recognition that these differences exist. The focus is mainly on the relation between teaching and research. In Europe, in contrast to the USA, the mission of all universities is to teach both undergraduate and postgraduate students and all see themselves as research universities – even though the research-intensiveness may vary enormously between them.

Focusing on the best universities or research teams: to what extent?
In the view of various respondents this situation in Europe leads to a greater administrative burden and creates a handicap for top-class postgraduate programmes and research. They regret that with undifferentiated rules for all members of staff in a given category, even those professors that should really focus on advanced research must spend a significant deal of their time on undergraduate teaching unrelated, or only distantly related, to their research. Without going as far, many respondents agree that research and education should remain closely related but recommend a greater differentiation of staff activity and more (yet not exclusive) concentration of research

money on universities that are excellent in the field or have serious assets to become it in the near future.

This would entail some kind of classification of universities in a way similar to the Carnegie classification in the USA (to which various respondents refer explicitly). The top-level European research universities would form the top of this classification. Most contributors explain the success of US research mainly as a result of the coupling between universities with an exceptional capacity to attract high potential researchers able to interact with industry and society and powerful funding agencies able to select the best projects without too much political interference. This has resulted in high investment levels in basic research infrastructure and in strong project funding. This in turn has made it possible to boost the careers of young researchers and to disseminate a research culture in private industry as well as in governmental spheres.

These respondents underline that research-intensive universities are powerful engines of creative basic research and technological development in Europe. According to them the largest potential for European research of "excellent" quality is and should remain concentrated at these universities and funding excellence would mean channelling a more substantial proportion of available funds to these universities. Yet, there seems to be agreement that the degree of concentration should ideally not become as high as in the USA, in view of the different, more horizontal structure of European higher education.

Europe is different…
Quite naturally, not all contributors share the above analysis, or at least not its conclusions as far as Europe is concerned. One common objection stresses that not just a limited number of institutions recognised as "excellent" should benefit from additional funding and high-level human resources at the expense of all other universities. Most accept that (research) funding should be distributed in a competitive way and should go to those places or teams where actual or potential research performance of excellent quality can be found, but that research needs various contributions that can be "excellent" in many different ways and exist at more than just a handful of universities in Europe. Excellence should be the outcome of this competition process, but the process should be open and should allow the emergence of many different and new teams and centres of excellence.

The most widely-shared opinion among university staff as well as among students in Europe seems to be that all universities have basically the same mission which includes teaching, research and service to the community. Differentiation is therefore not easily accepted and sometimes clearly rejected. Some contributors object to differentiation on a different ground, by stressing that universities should not be defined exclusively as research institutions. All forms of excellence should be rewarded, not only excellence in teaching.

Some respondents specifically support the view put forward in the Commission's Communication, i.e. that the university landscape in Europe is and should remain diverse, including with respect to the degree of research-intensiveness; excellence exists in many different forms, not necessarily at the level of whole universities, but

often at that of a particular faculty, a department or even a small team at smaller, less prestigious universities or other HEI. Europe needs to have poles of excellence fertilised by quality education and research at many, not just a few universities. Maintaining and further strengthening this profile would support European universities in their efforts to create a distinct "European" profile of higher education in the world. This approach also means diversification and differentiation, but not along vertical lines segregating between a short list of (overall) excellent universities and all the others that would. The main factor of differentiation is that autonomous universities should create their own profile and set their own research priorities, focusing on the (maybe few) types and areas of research where they can make a difference and reach the critical mass, alone or with external partners.

Conditions encouraging better funding
Few respondents fail to underline that fostering poles and networks of excellence will require significantly higher resources, in line with the objectives set within the framework of the Lisbon Strategy. But even fewer seem to believe that the gap can be filled thanks to higher investments from the private sector. The challenge is manifold.

Internally, only universities with a governance structure able to formulate priorities and to concentrate resources on these are likely to be in a position to offer attractive conditions and perspectives for researchers. University governance needs to formulate performance-related contracts with their departments, thus encouraging quality and "excellence". This is at the same time a condition for attracting external funds from the private sector. According to respondents to the Communication, strategic university management is therefore a basic requirement for higher external funding of excellence.

Another interesting opinion is that the research capacity needs to focus on the needs of business and industry as well as on the frontiers of academic knowledge: only in this combination will the funding level be able to stay high, in the view of a number of university leaders as well as stakeholders from industry. Another condition is that universities willing to attain excellence in research should continuously keep their fund providers well informed of the results (through publications, intermediate results, impact factors, science citation indices, etc.)

Several respondents stress that in the European context the funding of networks of universities working together is both insufficient and too short-sighted to allow them to become self-sustaining. In this regard, a few contributors underline that while national governments will primarily spend their funds on their own HEI, this should not prevent Member States from encouraging the establishment of trans-national partnerships, especially not when these consortia have the potential to raise the level of domestic institutions to international standards. Multi-annual contracts negotiated between universities and governments would be a good framework for this kind of support. In many cases, international co-operation will be the only avenue open to certain universities if they want to attract at least a share of sponsorship funding.

Not surprisingly, many respondents stress the importance of trans-national funding. Knowledge creation is by its very nature not limited by national borders, so why should its funding be? Many respondents regret that the European research area

remains more of a patchwork (fragmentation) than an ordered, open and productive system. Similarly, the possibility of direct contact between a researcher and the business community, which is so obvious in the USA, remains more of an exception in many European countries. One result of this is, according to some, that European research funding carries a much higher administrative overhead because it must pass through various intermediary bodies.

Many respondents feel a need for universities to restore confidence in society in general, mainly through an open debate on the challenges and possibilities provided by research and their relationship to society's fundamental values. This debate is seen by many as a vital step for the development of the knowledge economy and society in Europe: the future trust and status of universities is at stake.

• **What should networks look like?**

Answers received sketch and recommend a great variety of networks. The most generic vision is that universities should create networks in one or several disciplines with a view to pooling with others pedagogical means (e.g. mutual access to libraries and research documentation), joint education and research programmes, including in particular mobility programmes for students, researchers and lecturers – not only from within the EU, but also with respect to other countries and continents. Such networks could deliver common certificates or degrees guaranteeing their recognition among all member institutions. Such quality labels could also facilitate academic mobility as well as the recruitment of graduates by industry.

Respondents put a high emphasis on the learning potential offered by networks and on the importance of ICT in making them work effectively. Through subject-related contacts between researchers and students, they contribute to building up trust among universities by allowing them to demonstrate their academic capabilities and to acquaint themselves with the teaching and research conditions prevailing at the other network universities. Internationally oriented networks are mainly seen as a means for universities to broaden their perspective, learn about good practice elsewhere, identify partners and get involved in international "knowledge-mining" in virtual networks.

Respondents tend to prefer smaller networks which they see as better vectors for quality and excellence. Large networks are often too difficult to run and to coordinate and are therefore not the most efficient way for high quality collaborative work and research. A high number of respondents would like to be able to identify partners in the countries and at universities they know less well through databases of researchers by area of specialisation; scientist would be invited to leave their CV and research interests in these databases on a voluntary basis.

Some contributors warn that the quest of excellence by specialisation may lead to an over-concentration of people and resources into a narrow range of topics. This may be good for the research output but will have detrimental effects on the range of available knowledge and skills to the economy. Excellence should not necessarily lead to specialisation that implies a long-term redistribution of resources, not the least because scientific needs and technological opportunities are constantly evolving.

Although in different ways, a number of respondents stress that the future of European research would be jeopardised if funding would degenerate into promoting some kind of Darwinian "survival of the fittest" model – particularly with regard to the some of the new member countries. In order to avoid this, the EU should in particular dedicate a share of its Framework Programme funding to nurture research groups at smaller universities and research partnerships across the Union involving such partners. One suggestion put forward is that funding criteria should reward networks comprising research groups who are at different levels of development and intensity, which would encourage knowledge transfer between them and hence support actual excellence as well as excellence in the making.

<u>Networking in basic research</u>

A number of comments received point out that the distinction (sometimes the opposition) between fundamental and applied research is outdated and more and more meaningless: both sides are respectable and useful and they should be taken together. Nonetheless, in the context of excellence through networking, a lot of contributors underline the importance of basic research, which they see as crucial for the creation of a European Higher Education Area and a European Research Area. They stress that basic research has been decreasing or even "decaying" in Europe in recent years and blame a tendency to instrumentalise scientific research. Too much focus on strategic and applied research driven by pre-determined goals can be an obstacle to unexpected innovations like those that were at the centre of recent economic growth and social change.

For these respondents, the uniqueness of universities' role is directly related to basic research in areas that are not currently in the international top league, but show potential for development. The key message is that not just domains that are fostering the economic competitiveness in a direct way should be encouraged. In this context, the importance of humanities and social sciences for society is usually also highlighted.

• Universities and stakeholders count on the EU to boost excellence

The Framework programme is seen as essential for the support and development of excellence at European universities. Several respondents underline the need to keep the programme accessible for universities from all Member States. The only regrets voiced in answers concern the overall budget, the complexity of applications and administrative procedures and the low rate of reimbursement of overheads.

Generally speaking, universities and stakeholders think that Europe should increase its funding both to improve the infrastructure for research and to support projects of excellence. Research intensive universities would like to be able to count on EU funding also to develop greater financial flexibility allowing them to pursue research opportunities as they arise. Funding from European sources should be based on competition, which is expected to pave the way for a cohort of excellent and ambitious young researchers in intellectually challenging places at well supported centres.

The proposal to set up a European Research Council is widely supported. Comments suggest that it should provide direct funding to networks of excellence and to the best research proposals on the basis of strong competition, and that it should be composed of members possessing the highest academic competence and hence the highest respect in the academic community. There are however also a number of voices opposing the creation of a new European agency, mainly they think that universities should get the money directly, not through intermediary institutions.

Respondents suggest that the EU should support both the centres of excellence (e.g. through structural funds) and, in particular, the networks they build between them. The rationale behind these suggestions is that excellent innovative research environments attract enterprises that are dependent on them, and networking is essential for the emergence, recognition and sustainability of such environments.

Several respondents also expect that stronger action at EU level would have the potential to improve national agendas and reduce bureaucratic procedures in connection with the administration of research funding. These and other respondents would welcome the development of benchmarking at the European level, i.e. the adoption of quantitative criteria that will be used to measure the quality, outcomes and attractiveness of research and higher education programmes.

Various voices call for more information about, and more support for quality assurance and accreditation mechanisms in Europe. A few respondents propose European quality labels (that may entail higher European funding) based on strict quality criteria.

• Making studies and careers in science more attractive

The biggest obstacle: the image of science
According to the contributions, the first step to make scientific and technical studies and careers more attractive would be to first of all change their image in society. Information should be provided about the value and positive impact on society of scientific and technical studies, with a view to arousing general interest in these domains. Some think of open doors at universities and laboratories or of interactive communication campaigns on "Science in dialogue". Others recommend that case studies should be developed to make the topic more lively and concrete and to demonstrate their value and relevance to our lives. The challenge is huge: the presentation of science in popular mass media would need to be counterbalanced or changed. Not only teachers, but also parents would need to be sensitised.

For most respondents, it is obvious that the success of universities' efforts to recruit students (male and female) into science and technology areas is largely determined by factors pertaining to secondary and even primary education. Science, engineering and technology should be taught in a more attractive way at primary and secondary school; students should feel not only the usefulness of science, but also the excitement it can bring to scientists' life. The difficulty of the task is clearly acknowledged: on the one hand, to equip pupils with the necessary basic knowledge and qualifications for their future studies, and on the other to remove powerful prejudices against these "difficult" and "male-dominated" subjects.

Information and counselling
Numerous contributors recommend targeted efforts to attract more young people to science, maths and technology through an efficient system of information and counselling for secondary education students. Many think that universities should get actively involved in these efforts, e.g. by offering guest lectures to final year

secondary education students, opening the doors of their laboratories to students and their families or developing mentoring projects for female students.

<u>But the real point is to actually make careers more attractive</u>
In spite of the importance of information campaigns, counselling and liaising with secondary schools, the real improvement that needs to take place is in careers themselves. The attractiveness of a career depends in general on a combination of opportunities for financial and social rewards and the possibility to exercise one's job within an environment conducive to fulfilment of personal objectives.

In this context respondents mention various financial or career factors that may be seen as crucial starting points for an overall improvement of the situation:
- transparent recruiting processes
- flexible salary system (whether as part of a private law or public law contract) and flexible rights of residence;
- more flexible staff rules allowing university researchers to be appointed as "independent directors" or as "consultants" in private enterprises – or to teach at one university while researching at another;
- multi-annual grants or employment during doctoral education;
- European fellowships for doctoral students and post-docs awarded on a competitive basis; the EU should ensure that they are recognised in all Member States.
- an increase of the expenditure per researcher, which in Europe is very low in comparison to the US or Japan; i.e. a higher spending on research should not just mean more researchers if European does not want to loose researchers it already has but treats comparatively not very well;

However important these financial aspects may be, many respondents stress that the attractiveness of research posts depends in the first line on the availability of a stable, supportive and internationally orientated environment and on the quality of research teams and equipment. In this respect, important points are:
- excellent thesis supervision and peer support; doctoral schools and research units providing high quality support to young academic staff should be rewarded socially and financially;
- the number and diversity of doctoral and post-doctoral programmes and posts;
- the quality of the training provided to young academic staff; it should deal with research methods, research management and teaching methods, but also with career development training in commercial enterprises as well as in academia;
- the existence of a tenure track, which opens for excellent young researchers a real possibility to become a regular professor after 5 or 6 years.
- access to national and international networks, which are usually a highly effective way to foster research careers.

<u>The role of the EU</u>
In general, the articulation between the European Higher Education Area and the European Research Area should be improved, in particular because they face common challenges such as the need to enhance scientific training and to encourage more talented young people to enter research careers. It should be ensured that the link between teaching and research is fully recognised within the Bologna Process, particularly through the inclusion of doctoral studies into the process of curricula

renovation and europeanisation. Other reforms of the Bologna agenda are also seen as promising tools serving both the EHEA and the ERA, such as:
- the better convergence of curricula (including through coherent or even common titles);
- the modularisation of studies through semester and credits;
- the development of quality assurance and accreditation;
- the dismantling of national regulations hindering mobility; many respondents request continuity in the arrangements concerning pensions, social security and other benefits.

A number of proposals call also for the establishment of European benchmarks and rankings that would allow students and researchers to compare more effectively the quality of different education and research programmes and systems in Europe.

The Commission and the Member States were also invited to establish a process for regular consultations involving stakeholders and academics themselves. This would lead to the development of joint priorities for cooperation and mobility and joint support packages between the EU and the respective Member States, thus achieving a more balanced participation of the various European countries.

A very clear message from the consultation is that the funding of projects related to mobility and curriculum development should become a priority within the framework of the EU programmes in the field of education and training. More convergence, more Marie-Curie and more ESRASMUS is what is expected – yet with shorter planning time and less cumbersome rules and procedures.

Therefore, according to the consultation, additional resources should focus on supporting networks of European universities working together in both teaching and research. Such support would lead to the development of joint doctoral programmes and schools as means of strengthening the European research capacity and making science careers in Europe more attractive. The EU should also finance more European post docs (in terms of numbers as well as duration) in another European country. One suggestion calls for a European foundation that would combine EU and private monies and would support such post-doctoral studies and research on the basis of detailed proposals submitted by the candidates and selected by an independent board. The prestige of such a foundation might be complemented by the establishment of annual awards, which might be directed at the universities (to differentiate from Nobel), and which would enhance their reputation and competition.

Strengthening the presence of women in research
The basic requirement to strengthen the presence of women in research in general is equality with men, particularly with regard to financial and structural aspects, i.e. equal salaries and equal opportunity employment programmes.

Beyond that, different special measures are proposed to encourage and to allow women to choose a research career, e.g.:
- mentoring during secondary education, undergraduate and postgraduate studies;
- women and family-friendly recruitment practices for research posts;
- retraining opportunities and financial incentives to return to research work after leave periods;

- more flexibility for career breaks, including for motherhood, and for part-time jobs allowing women to maintain a contact with their research base and team.

It was stressed in the contributions that gender mainstreaming can have a positive feedback into the education system – by creating role models and by allowing new career pathways to be consolidated. Nevertheless, as a number of respondents point out, while the creation of really equal opportunities is need and even an urgency, it should avoid trying to "force" young women to study fields and to follow careers they may not really want.

3. BROADENING THE PERSPECTIVES OF EUROPEAN UNIVERSITIES

3.1. A broader international perspective

Questions for the debate (cf. Communication)

– *How can European universities be made more attractive to the best students and researchers from all over the world?*

– *In a context of increasing internationalisation of teaching and research, and of accreditation for professional purposes, how should the structures, study programmes and management methods of European universities be changed to help them retain or recover their competitiveness?*

• Diverse institutions serving their region, country and Europe

A widely shared message is that each university should establish a strategy and should decide what role exactly it wants to play regionally, nationally and globally. There exist a large number and diversity of institutions with different missions and different profiles. Not all universities should aspire to become across-the-board internationally acknowledged education and research institutions, which leads to duplications, an inefficient allocation of resources and a mismatch between what society needs and what universities intend to deliver. An explicit or implicit suggestion of many is that a significant number of universities should rather endeavour to build-up their role in training and innovation in their own region, a highly respectable option that is of key importance for regional development within countries and across the EU.

This vision of a diversity of institutions fulfilling a variety of missions seems to be shared by a majority of respondents, which is somewhat surprising in view of otherwise typical statements according to which all universities (certainly in the more restrictive meaning of the term) in Europe should see teaching, research and innovation as their basic activities. There is not much disagreement in the answers received on the suggestion in the Communication that while research and teaching are indeed linked and part of the mission of most – if not absolutely all – institutions of higher education, the nature and intensiveness of research and innovation varies (and needs to vary) between institutions, within institutions (between faculties and even between individuals in academic staff) and over time.

• A broader international perspective

A lot of contributors underlined that *quality* and all the more *excellence* of higher education and research provide an environment for creativity that is *the* precondition for attracting the best students and researchers from all over the world.

Quality assurance and seals
Many seem to agree that quality at European universities is generally at least as good as elsewhere, but that a deficiency in the system is that it is not enough demonstrated in a visible and transparent way. To the majority of respondents, quality assurance or accreditation procedures are essential in this regard. There seems to be no disagreement that quality needs to be built-up by universities themselves, but most respondents agree that national or European agencies should step in to build-up its visibility and credibility through adequate external quality assurance procedures and seals. Two important tools often mentioned are "codes of good practise" setting out key principles and/or common quality criteria or standards, provided they respect the characteristics and needs of the specific subject area or region concerned.

Several proposals were made in favour of a European universities' "quality label" that would be awarded on the basis of a series of transparent (and somewhat flexible) criteria; there is however no apparent consensus about who should be the awarding body; various formula were proposed, reaching from the European University Association alone or in association with others to a consortium of national agencies or even to a single pan-European agency.

Many respondents expect that the necessary transparency will also result from a real effort to harmonise course structures and degree titles and from the implementation of ECTS and the Diploma Supplement - two tools that seem to be nearly unanimously accepted as basing features of the European higher education area.

More information and marketing efforts
In addition to quality assurance and seals, a number of contributors emphasise that in order to foster their visibility European universities should establish a genuine marketing strategy to make themselves better known and understood.

There were several suggestions that such a strategy should preferably be common, joint or "European" – without it being very clear what exactly is meant by these words. The main rationale seems to be that Europe's specific offering - reflected in its generally high level in education and science and its unique blend of shared values and cultural and linguistic diversity – ought to be explained and promoted in order to attract students and academics from all over the world.

There were also many hints about the need for all universities to improve their virtual appearance on internet through better, more user-friendly and informative websites; the need to organise a much better follow-up to internet contacts, which seems in some countries to create a high level of frustration with potential students, has been surprisingly little mentioned.

Building up the European and international dimension of universities themselves

The consultation led to a very clear invitation to universities to develop across the board a much more European or international approach in their education programmes as well as in research and to proactively seek to encourage organised mobility. To attract the interest of the rest of the world, universities should themselves be able to offer knowledge about the whole world. There were several calls to the Commission to encourage more pilot initiatives in the form of joint ventures for uniquely "European" curricula and to provide broader access to mobility and cooperation schemes than is currently possible through ERASMUS Mundus. Several suggestions were made with respect to the new ERASMUS Mundus programme, e.g. that it should be open to larger consortia, should also encompass the doctoral level or should make more room for cooperation with developing countries.

The European dimension that needs to be built up refers not only to the content of curricula in the various disciplines, but also to university staff itself, particularly to professors. To achieve a more attractive education for the best students from all over the world, outstanding European and international figures should be hired as lecturers much more often than is the case currently. This would of course be made much more possible through the arrangement of short courses or modules.

Several respondents think that the potential of ICT ought to be better exploited to ease physical mobility as well as to develop various forms of "virtual mobility", within the EU and with respect to other countries. It was also suggested that Europe should promote an open knowledge movement led by European universities, somewhat similar to the MIT's Open Course Ware but on a larger scale, where relevant textual, graphical and multi-media teaching material would be provided for free in user-friendly environments; the expectation is that such an initiative would put leading European universities back on the map and thus promote the appeal of the European system as a whole.

Linguistic obstacles remain a very effective barrier to mobility within and into Europe. Universities in continental Europe are aware that foreign students that are not proficient in their various languages tend either to stay at home or to study in English-speaking countries. A widespread view is that since universities have to fulfil international, as well as national missions, they should implement a dual strategy:
- on the one hand, to offer programmes in English, in order to make it easier for foreign students and researchers to be in a position to move also to European countries where languages other than English are spoken;
- at the same time, to offer training in their local language to enable guest students to participate in the local programmes and academic activities.

This shows a clear shift in attitude in comparison to even the recent past: instead of requiring proficiency in the national language as a condition for admission to studies, a growing number of universities (and countries) now plan to attract foreign students by way of English-speaking courses, and once they are there, they get a chance to acquire a working knowledge of the national language; this is likely to bring to Europe significant numbers than would previously not even have considered studying in a country with a language other than English.

A number of universities also think that the links with universities of developing countries should be the subject of a deeper reflection than hitherto. A basic

requirement is that governments should assume greater responsibility and show a clearer commitment to safeguarding the conditions for adequate development of higher education institutions in these countries, in particular by providing sufficient financial support for cooperation. In addition the European university community itself should show its determination for the implementation of strategic reforms at institutions in developing countries. In order to achieve a better balance between the actors from EU countries and those from other regions, new intensive or group programmes should be created.

Mobility within the EU and from the rest of the world
As already mentioned above, respondents agree that cooperation partnerships and networks provide a good basis for high-quality, internationally accepted education and research. A high number of answers mention mobility schemes, joint courses and doctoral programmes as particularly useful tools allowing students and researchers to take advantage of Europe's educational diversity by acquiring a direct experience of at least two different European countries and cultures. Non traditional students should be able to gain easier access to these mobility programmes. A few contributors stress in particular the need to build-up mobility arrangements as an integrated part of bachelor studies, and some are concerned that with shorter and more intensive first degrees being developed in the wake of the Bologna Declaration it may become increasingly difficult, or even impossible, to arrange such mobility for a sufficient period of time. In general contributions insist on the importance of providing for different kinds of mobility patterns and needs, especially through modularised programmes, in order to respond to the very broad diversity of demands emanating from foreign students and researchers who are at different stages of their studies or academic career.

Many contributors mention the importance of more and easier mobility of academic staff for the purpose of teaching and researching. In this respect, two major changes were recommended as fundamental conditions: European residence and work permits for foreign talent and the international publication of vacant academic jobs.

> - Many respondents regret the huge and numerous administrative and bureaucratic hurdles that foreign students and teachers/researchers need to overcome if they want to come to a European university. A shared view seems to be that Europe should have a common strategy to address this issue by harmonising the mobility processes and national regulations concerning the influx of non-EU talent. This means the introduction of "European" residence and work permits (also for spouses), i.e. authorisations that would not restrict the involvement of non-Europeans to a single country or institution. Until this happens, the minimum that respondents expect would be to publish all relevant information about mobility possibilities and regulations on a single, user-friendly internet site, in order to achieve more transparency about national regulations and existing mobility schemes. Some respondents call for a "European mobility centre" that would assume this responsibility. This may be at hand now thanks to the Commission's recent researchers mobility portal which provides information on visa/working permits and has links to national mobility centres across the ERA. Other respondents would like to go further and see a need for a "knowledge management system" providing an overview of the innumerable activities in this area at European and international level.

- Another major change would be in the direction of more transparent recruiting processes than is currently the case at many (some say the vast majority of) European universities; academic posts should always be advertised internationally; the still common requirement that university leaders should be elected from within the national system or even the HEI in question should be dropped everywhere. In addition to international lecturers, also the management staff of universities should be recruited at European level or should, at least, be allowed to benefit from special mobility programmes to acquire the necessary international dimension.

• Financial resources for mobility

In addition to the above structural changes, there is of course one other dimension, which for many plays an essential role: grants, scholarships and salaries for mobile students, researchers and other university staff need to be significantly improved in order to be attractive, or even just competitive.

The importance of the EU programmes is widely acknowledged. Several contributors would like them to become more visible in the world and more attractive for European universities (not just students) through more adequate financial support serving as an incentive to the promoters of mobility programmes and international offices.

The call for higher funding concerns both grants from the home country to allow its own students to study abroad and grants from the host country aimed at enabling foreign students to come and study there. Within the EU this is closely related to the issue of grant portability. There seems to be nearly unanimous support among respondents that all European countries should finally take the necessary steps to allow their own students to take their national financial support with them when studying abroad (at least in the EU according to some, everywhere according to others).

In this context, a few contributors stress that tuition-free higher education in several EU countries constitutes an significant advantage for non-EU students and see it as a means to attract more talent. Others regret that European universities in these countries are not in a position to collect tuition fees from overseas students – at least from those who are able and ready to pay.

• A two-way link between universities and regions

By and large, contributors highly acknowledge the important role of universities with regard to local and regional development. At the same time they stress the ever growing importance of the local and regional environment and authorities for universities. The more interesting observation may however be the emphasis put by many contributors on the idea that regional universities can only fully play their role if they are able to link up the region to Europe and the world, i.e. there is no contradiction between serving the region and being open to the world.

In order to better match these two dimensions some contributors suggest that universities and regional authorities should include each other in their decision making process. Also students have to be included, in particular with a view to achieve a better match between what students want to study and what the local area needs. While many answers stress that joint regional meetings, or even bodies, may in this way developed fruitful cooperation in fields of common interests (both in education and research), there are also recurrent reminders that universities should never forget that in order to fulfil their mission in education and research they must remain independent and open to the world.

There is nonetheless a clear call for a regional strategy on behalf of universities, in particular through networks and cooperation activities building on mutual interest from the university and the region where it is established. This is however only possible if a great variety of actors communicate with the institution and discuss their own and the region's needs. There is a broad expectation that governments could do more to facilitate this cooperation.

In general universities stress their role in their region, as major employers and as supporters of local partners in training, updating, research and transfer activities. This is seen as improving the competitiveness of local industry, contributing to social cohesion and more generally providing a high return on investment. It was mentioned several times that these links would be strengthened and optimised if universities were

to offer more flexible learning routes. A corollary of this is that universities should improve access to higher education for local and non-traditional participants. They should also establish new courses and curricula, specifically designed to meet the needs of the local society and economy, in particular those of students willing to work on the development of their regional communities.

Some contributors suggest the establishment of joint or combined courses or degrees, i.e. study programmes including academic studies coupled with professional education. Experience indicates that students who develop links with the local community outside higher education are more likely to stay in the region. This is an additional argument in favour of flexible study models: working part time while studying can indirectly contribute to improve graduate retention.

Universities should also develop lifelong learning initiatives targeted to the need of regional society and economy. Some contributors talk about universities becoming centres for tertiary lifelong learning. Lifelong learning activities are seen as offering a wide range of possibilities to universities in the regional context. In co-operation with the regional industries, small and medium enterprises as well as with public administration, universities could for example establish different (vocational) training courses for professionals that would like to refresh their qualifications (especially for women after maternity leave) or to gain new qualifications in their fields.

In order to have a closer link to society as a whole, it is also proposed that lectures, (e.g. lectures by guest scientists dealing with a variety of topics) and libraries should be open to the public.

Next to these educational initiatives, close co-operations between universities and regional industry should also be developed in research fields. As underlined in the communication, technology parks are seen as particularly promising tools with regard to regional development. Industry could benefit and recruit from them and could in this way have easy access to university research. Local authorities in turn could benefit from the creation of new jobs. Many respondents invite that Member States to think of fiscal incentives and other ways that would offer additional funding and structural support for research activities and collaborations on a regional basis (including in particular incentives for spin-offs and start-ups). Nonetheless, it was also underlined that universities could find locally partners providing funding for their research projects and opportunities for their research staff.

In this context, some see the already mentioned "steering committees" including all major regional stakeholders as a forum that could define some priority research programmes in view of regional needs. The main view is that these initiatives should be financially and structurally supported by regional authorities, but also by the EU, either through already existing programmes or where necessary through new ones.

• Role of the EU

At EU level, there were several recommendations that research (and presumably also continuing education) and structural programmes should be blended (e.g. "Interreg") and that the Commission and Member States should follow-up the "era.net" concept.

Since certain topics are of interest to some but not all regions, the Commission should think about financial incentives, so that these regions could implement such specific topics.

Furthermore, there may be scope – particularly in the context of enlargement – for an EU initiative dedicated to the twinning of regions on the basis of their profile in the knowledge economy and society – either because they share similar socio-economic profiles or because the experience of more advanced regions could serve as a source of good practice for one or more others. A few specific examples were proposed, e.g.:
- innovation by SMEs run by ethnic minorities;
- applications of eHealth in community-based primary care;
- ICT put at the service of urban regeneration;
- migration studies, including refugee guidance and professional development in counter-trafficking.

To entice universities and regional stakeholders (research institutions, administration, industry) to work more together, it was suggested that EU programmes (like the Sixth Framework Programme) or the Structural Funds should require as a precondition that all regional stakeholder be involved in different subprojects (e.g. use of research results for industry and also by public authorities to improve regulations and norms).

To present new research results that might be helpful for the regional economy and society in general, it was suggested to organise scientific forums with the participation of managers of important regional companies as well as of local administrations. These forums should be open to all interested circles and stakeholders. They may provide actual scientific results, but they would also help to strengthen the social acceptance of universities in general.