EREF-2009
Ankara Preparatory Workshop, 12 February 2009

Role of Hosting Institutions
in Researcher Exchange Programmes

Workshop Recommendations, Compendium and Bibliography

Compiled by Boštjan Šinkovec, edited by dr. Boris Cizelj

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## A - Workshop Recommendations

<table>
<thead>
<tr>
<th>Text of Recommendation</th>
<th>EU</th>
<th>Country/Region</th>
<th>Stakeholders</th>
</tr>
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<tbody>
<tr>
<td>1. While EU, national/regional bodies have to create suitable conditions, institutes and universities should treat exchange and other non-national researchers as integral part of their normal, proactive recruiting policy for mobile researchers. It should be a target to have at all times some 10% of total research staff belonging to non-resident citizens (EU currently only 5.7%). In order to achieve this proportion, special conditions should be introduced. In this context JRCs enlargement and integration action plan should be taken into account as a best practice.</td>
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<td>2. At the level of individual researcher it should be a target to spend at least 10% of the career in a different country or sector. Such career pattern should be considered by employing organizations as an added value in considering employment.</td>
<td>X</td>
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<tr>
<td>3. Each European RTD organization should develop its own researcher mobility strategy – outlining the scope of needs to bring in external researchers, as well as allowing its own researchers to spend some time in other relevant academic or business RTD facilities.</td>
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<td>4. In order to stop European brain drain RTD organizations, with support of relevant authorities and stakeholders should create conditions which will reduce or eliminate main causes for researchers emigration. (working conditions, equipment, salary, entrepreneurship combined with inventions, career perspectives)</td>
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<td>5. Mobile researchers have a multiple role: besides doing the assigned job, they are the ambassadors of their institution and country in the new environment. They should be fully aware of their important role in transferring knowledge and experience between their own and the hosting institution, and to explore in detail the potential for collaboration between the two. During their stay abroad they have to develop solid networks which will continue to serve the two institutions for a long time after their return to the home country.</td>
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<td>6. Countries and regions having recently suffered heavy brain drain and destruction deserve special attention and support (measures of positive discrimination) to be able to participate more actively in ERA and in European research mobility</td>
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<td>7. “The Fifth Freedom” is a logical dimension of the European integration process, it greatly facilitates the creation of knowledge society, and it brings benefits at macro as well as the micro level. It also represents a basic right of professionals generating and transferring knowledge within the European Knowledge Market. Legislators, other decision makers and research funders at all levels should actively develop conditions needed for the full implementation of the Fifth Freedom.</td>
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<td>8. In order to foster free movement of knowledge via researchers’ mobility, mutual learning platforms among national level R&amp;D HRM groups should be established, acting as Joint discussion platform of legislators, other stakeholders and research funders (including host institutions: universities, enterprises, research organizations, public institutions etc).</td>
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<td>9. Brain circulation - a strategically important instrument for strengthening ERA and knowledge-based competitiveness should figure more prominently among real priorities at all levels, from knowledge sector organizations, to regional and national authorities, as well as in EU institutions</td>
<td>X</td>
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<td>10. The entire European legal system, as well as strong tradition inhibits RTD staff to migrate between academia, business and government. Such a system of job inflexibility works against creativity, innovation and entrepreneurship; and prevents full exploitation of talents, knowledge and initiative. Overcoming these historical limitations is in everybody’s interest, and should be systematically and actively encouraged. Specific challenges of women researchers, young and elderly researchers should be more properly addressed in order to prevent age and gender discrimination.</td>
<td>X</td>
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11 Researcher mobility can be divided into the following 3 categories: (a) short term exchanges based on European/International programmes; (b) employment of non-national researchers; and (c) intersectoral mobility (between academia, business and administration). Besides some general conditions, each category of mobility requires some measures to be well coordinated at and among the EU, national and regional levels. In this respect OMC-Net Calls for Proposals targeting the challenges which arise from the different categories of researchers’ mobility should be encouraged.

12 The mobility programmes Leonardo da Vinci, Erasmus and Grundwick should be exploited fully to achieve best possible results in brain circulation in Europe.

13 DG Research and DG Education should organize joint meetings with the participation of national delegations, on the issues of better coordination of programs targeting the mobility of researchers.

14 The European Charter for Researchers and the Code of Conduct for their Recruitment (C&C) has so far been accepted by about 800 institutions in 23 EU countries. National and regional research authorities and research associations should enhance the understanding and the promotion of the principles of C&C and encourage more RTD institutions to accept these important documents.

15 EURAXESS Network – previously The European Researcher’s Mobility Portal (RMP) established in 2003 with 31 national mobility portals - and the EURAXESS Service Centers with about 200 service centres in 32 countries – are very valuable instruments to remove the barriers to the mobility of researchers and to attract research talent to Europe. This initiative should be promoted at all levels by EC and national bodies.

16 The implementation of the policies and transposition of relevant EU legislation for removing the challenges regarding work permit procedures, pension rights, visa procedures, transportability of grants and social security should be given higher priority and enforced accordingly.

17 While building the ERA the global perspective of RTD should not be diminished: Europe should strive more ambitiously to maintain/achieve world leadership in key scientific and technological domains. In this framework the EURAXESS Links initiatives in US, Japan, and China should be promoted and actively used by national and regional authorities, stakeholders and EU.

18 The new Marie-Curie International Research Staff Exchange Scheme (IRSES) of FP7 serves the similar purpose by about 800 institutions in 23 EU countries. National and regional research authorities and research associations should be encouraged to actively support it, and their business and academic partners, as well as funding institutions should also support their contribution towards greater researcher mobility in Europe.

19 The EC Communication of May 2008 on “Better Careers and More Mobility: A European Partnership for Researchers” is a good policy platform requiring full involvement of relevant authorities and stakeholders in developing good national action plans in line with the “Ljubljana ERA Process”.

20 European networks, technology platforms, competence centres, project consortia, and similar associations of RTD entities create favorable conditions for various types of researcher mobility. They should be encouraged to actively support it, and their business and academic partners, as well as funding institutions should also support their contribution towards greater researcher mobility in Europe.

21 The recently established European Institute for Innovation and Technology should play an important role in encouraging researcher mobility, particularly in supporting European clusters in advanced S&T areas, where Europe has achieved or has the potential to achieve world leadership.

22 Hosting institutions have three main challenges in attracting research talent: research infrastructure, remuneration and benefits. In order to overcome infrastructural obstacles, DG Regio, Enlargement and Research should organize joint meetings with the participation of national delegates. Cooperation of DGs and member states should support and transpose solutions proposed by the Commission.

23 Research organizations from both public and private sector should encourage their staff to communicate as intensively as possible with peers and their colleagues around Europe and beyond to benchmark their own achievements and enjoy the benefits of virtual mobility.

24 EC should support potential hosting institutions in Europe via specific calls for proposals for the exchange of best practices, and collection of experiences.
<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
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<tr>
<td>25</td>
<td>EC should make publications on the best practices of hosting institutions in order to enhance institutions’ capacity to attract talented researchers.</td>
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<tr>
<td>26</td>
<td>EC should <strong>elaborate the methodology for measuring the effects and impact of research policies, research strategies and corresponding instruments</strong> targeting to attract talented researchers to European hosting institutions.</td>
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<tr>
<td>27</td>
<td>ERA should be used not only for achieving balanced brain circulation, but should also <strong>target brain gain by making Europe an attractive destination for world researchers.</strong></td>
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B - Compendium

1. Researchers’ Mobility - flows, tends

The EU academic research enterprise (ARE) is the main producer of scientific knowledge in Europe, and the most important training ground for researchers. There are no clear and formal data about the size of the European ARE. The European University Association (EUA) assumes that the number of PhD-granting universities in the EU is about 1,000, a large number compared to the United States. The EU universities employ 36.6% of all European researchers (2004), which is also a relatively high number compared to the United States (14.7% in 2000) and Japan (25.5% in 2003) (EC 2007, 49).

Towards an Open and Competitive European Area for Research Careers, page 5

The number of researchers in full time equivalent (FTE) per thousand labor force participants amounted to 5.4 in the EU in 2003, compared to 10.1 in Japan and 9.0 in the United States.

Towards an Open and Competitive European Area for Research Careers, page 6

Of the 1.18 million researchers (FTE) in the EU in 2003, 49% were employed by the business sector. This compared to 67.9% in Japan and 80.5% in the United States (European Communities 2005).

Towards an Open and Competitive European Area for Research Careers, page 6

The aging of the research labor force is becoming a concern. In 2003, 34.7% of highly qualified science and technology employees were in the 45-64-year-old age group, compared to 30.8% in the 25-34-year-old age group.

Towards an Open and Competitive European Area for Research Careers, page 6

Fortunately, the EU produces a substantial number of science and technology graduates: In 2003, 24.2% of all degrees awarded in the EU were in the science and engineering fields of study, compared to 18.5% in the United States and 23.1% in Japan.

Towards an Open and Competitive European Area for Research Careers, page 7

Women are still under-represented among both science and engineering researchers and graduates. Their share in the total number of researchers in 2002 was below 50 percent in nearly all member states (EC 2005d).

Towards an Open and Competitive European Area for Research Careers, page 7

In terms of both total number and world share of scientific publications, the EU is the world leader. In 2004, the EU’s world share was 38%, compared to 33% for the United States and 9% for Japan. China ranked fourth with 6%. However, the picture changes when publications are compared to population. Then the United States leads with 809 publications per million population, followed by the EU with 639 and Japan with 569 (European Communities 2005).

Towards an Open and Competitive European Area for Research Careers, page 7

An institutional citation impact analysis per discipline shows that only 26 percent of EU universities are world leaders in at least one discipline, compared to 81 percent of US universities. In addition, the number of disciplines in which an EU university is the world leader is on average substantially lower than that for US universities. A number of EU universities are considered among the top universities in the world, but their top is generally less broad than that of US universities (EC 2007b).

Towards an Open and Competitive European Area for Research Careers, page 7

The EU’s performance in the exploitation of scientific knowledge remains problematic. The EU’s share of triadic patents (30%) is below that of the United States (36%)

Towards an Open and Competitive European Area for Research Careers, page 7
The number of researchers per 1,000 employees in the EU was 5.4, marginally less than Canada or South Korea, but far below the United States (9.0) or Japan (9.7) (EC 2005d, 3). Only a handful of European universities were found in the top fifty of the world. Indeed, the situation is alarming, and profound reforms are needed.  

_Towards an Open and Competitive European Area for Research Careers, page 14_

Compared to the United States, the EU has improved its performance in, among other indicators, number of science and engineering graduates (13% of population aged 20-29; US 10.6%) and employment in medium/high and high-tech goods industries (7% of total workforce, compared to 4% in the US). On the other hand, the EU is lagging behind the United States and Japan in other areas, including business expenditure for R&D (1.2% GDP in EU, 1.9% in US, and 2.4% in Japan), ICT expenditure (6.4% in EU, 6.7% in the US, and 7.6% in Japan), and tertiary education attainment level (23% of the population in EU, 39% in the US, and 40% in Japan) (Innovation Scoreboard 2007).  

_Towards an Open and Competitive European Area for Research Careers, page 26_

The mobility of students within the Erasmus program would have to more than double to reach the target of affecting 10 percent of the student population (EC 2006c).  

_Towards an Open and Competitive European Area for Research Careers, page 27_

The intra-European transnational mobility of researchers and doctoral candidates is poor. Only around 5 percent of doctoral candidates and at most 10 percent of researchers at the postdoctoral level are involved in mobility processes. In addition, intersectoral mobility (between the private and public sectors) is still underdeveloped, largely because of cultural differences, but also because of practical issues like pension build up (EC 2007b).  

_Towards an Open and Competitive European Area for Research Careers, page 7_

There is a considerable drain of EU graduates and researchers, particularly to the United States. The number of EU researchers working in the United States amounts to some 5 to 8 percent of the total EU researcher population of 80,000 to 100,000 researchers. Most of these researchers are reluctant to return to Europe, primarily because of a lack of attractive research conditions and career prospects.  

_Towards an Open and Competitive European Area for Research Careers, page 7_

Share of researchers who are currently mobile is highest for the age group 25-30, while this fraction is lower for younger and older researchers.  

Evidence of the main factors inhibiting mobility, page 8

Across the two samples male researchers have a higher probability of having been mobile in the past compared to female researchers, but are more reluctant to be mobile in the future (this result is not controlled for the effect of possible age or research domain differences between the two gender groups). 46 per cent of researchers in our combined samples are either currently mobile or have been mobile in the past. About 35 per cent would like to be mobile in future, while 18 per cent are not currently interested in being mobile. Thus, as much as 82 per cent of the respondents either have the experience of being a mobile researcher or would like to be mobile in the future whilst only 12% of the youngest researchers express no interest in mobility.  

Evidence of the main factors inhibiting mobility, page 8

Findings have clearly shown that it is at the early stage (by years experience) and up to 7 years experience that funding difficulties are most reported and are felt to be most acute by those who would like to be mobile in the future.  

Evidence of the main factors inhibiting mobility, page 9

Patterns of mobility flows are skewed. Among those who are currently mobile in our sample, most mobility happens within the EU5 countries, i.e. most of the respondents who are highly mobile moved from/to EU5 countries (UK, France, Germany, Italy, and Spain). Overall we can see that a great deal of mobility of the EU researchers in our survey takes place within Europe. Findings confirm that there are often more specific and acute difficulties for third-country researchers in terms of visa / residence issues.  

Evidence of the main factors inhibiting mobility, page 9
In relation to geographic mobility, of particular concern are recent data from EUROSTAT that demonstrate that only 6% of research labour force are citizens of a country other than their country of residence.

Realising a single labour market for researchers, page 16.

A special aspect of the reinforcement of the knowledge diffusion capacity of the EU is the increasing mobility of students. In the higher education policy domain, the 2004 decision of the European Parliament and of the Council on a single framework for the transparency of qualifications and competences (Europass) can be mentioned here, as well as the development of the credit transfer systems for academic and vocational education and training. And although the Erasmus mobility program has not yet reached its target of affecting 10 percent of the European student population, between 1987-88 and 2004-05 more than 1.3 million students studied abroad under the aegis of this program and 87 percent of all European universities participated (EC 2006c). Generally speaking, the harmonization activities in the Bologna process are creating a comprehensive system of easily readable and comparable degrees, with the potential to further integrate the various national higher education systems. As an effect, the knowledge-sharing and diffusion capacity of the EU is increasing.

Towards an Open and Competitive European Area for Research Careers, page 30

As recognised by the European Commission, brain circulation is one of the instruments which could reduce the negative impact of the serious lack of researchers in the EU. However, for the time being, Europe is still suffering from a net brain drain, mostly to the US: only in 2005/2006 the total of 25,000 European researchers were working in the US. Though European researchers represent only a small proportion of all researchers in the US, it is estimated that many of them occupy top R&D positions. The incidence of Europeans who earn their doctorate in the US and choose to stay abroad is high. Among more than 15,000 EU-born US doctorate recipients who graduated between 1991 and 2000, some 11,000 reported plans to remain in the US, which represent more than 70%. The tendency of staying in the US appears to be on the rise. A survey released in November 2003 by the European Commission found that only 13% of European science professionals working abroad currently intend to return home!!

According to a Center for Transatlantic Relations study, Europe receives a net inflow of one million immigrants per year, however 85% of foreign migrants settling in the EU from developing countries are poorly-qualified (versus 5% in the US). Highly-qualified workers choose the US, where they constitute 55% of foreign labour, compared to only 5% in Europe. Highly qualified workers represent only 1.7% of all workers in the EU, compared to 9.9% in Australia, 7.3% in Canada, and 3.5% in the US.

Upgrading Knowledge Generation and Sharing among European Regions – the Role of Brain Circulation, page 1

The Commission estimated that reaching the Barcelona target: GERD to reach 3% of GDP, would require 700,000 additional research positions in Europe by 2010.

According to a recent Eurostat report on mobility of science and technology workers it was established that in EU-27 on average only 5.7% of human resources in research and technology (HRST) are foreign nationals, half of it from other member states. Statistics of June 2007 shows large disparities in this respect among EU member states and their regions. These shares range from 46% in Luxembourg to 0.3% in Slovenia. The share of non-national scientists is 7.2% in the UK, 6.4% in Germany and 4.1% in France. In the new member states, with the exception of Estonia (15.2%) and Cyprus (14.2%), the share of foreign scientists is very low, usually under 1%.

Upgrading Knowledge Generation and Sharing among European Regions – the Role of Brain Circulation, page 2

In 2004, of the nearly 400,000 foreign researchers in the US an estimated 100,000 were born in the EU15. This is a significant proportion of the total EU researchers’ population of 1.3 million and these are also likely to be top performers in their fields. For example, in 2007, 75% of the assistant professors in the ten highest ranked US university economics departments had received their Bachelors degrees outside the US.

Better careers and more mobility: A European partnership for researchers, page 4
Concerns are growing in several Member States over the **ageing of the research labour force** and **shortages of researchers** are already becoming a problem in some regions and industries. The situation will get worse if young people are not attracted into the profession and if the present under-representation of women in science and engineering is not addressed. Furthermore, over and above those researchers required to replace the current workforce, it is estimated that between 600,000 and 700,000 additional researchers would be needed in Europe in order to reach the objective of investing an average of 3% of GDP in research set by the Barcelona European Council.

**Better careers and more mobility: A European partnership for researchers, page 4**

The preference of researchers in “excellent regions” to collaborate with each other, rather than with colleagues in lagging regions. Particularly the EU research policy appears to stimulate concentration of talent in the richer and academically better equipped regions. Lagging regions find it difficult to participate in successful European research networks and appear to have to pass a threshold of quality and size before they can do so.

**Towards an Open and Competitive European Area for Research Careers, page 32-33**

The ERA policy objective of the free movement of people appears to not only lead to an increased mobility of researchers but also to the **concentration of talent in a selected number of excellent regions**. The most talented researchers compete for the positions at the most prestigious universities, thus rendering it difficult for the lagging regions to retain talent within their borders.

**Towards an Open and Competitive European Area for Research Careers, page 33**

Focus should not be in recruiting back nationals that have left to go abroad, but on encouraging mobility so that people can go wherever in Europe they wish. That would contribute to a European Knowledge Single Market.

**Evidence of the main factors inhibiting mobility, page 53**

ERA Mobility Strategy distinguishes **two forms of mobility**: International mobility of researchers between ERA countries and enhancing numbers of third country nationals to participate in research in ERA and; inter-sectoral mobility between academy (universities, research institutes...) and industry (R&D departments, specialists involved in the realization the innovations,...). Inter-sectoral mobility is viewed also as mobility between public and private sectors, taking into account also the form of ownership and funding sources of research.

**Upgrading Knowledge Generation and Sharing among European Regions – the Role of Brain Circulation, page 2**

The sectoral structure of the poorer European regions is usually characterized by a dominance of low-tech and medium-tech activities that hardly fit the thematic priorities of the ERA. The FPs almost exclusively concern high-tech sectors, thus creating a situation in which the research subsidies are becoming concentrated in the richer regions.

**Towards an Open and Competitive European Area for Research Careers, page 33**

Real effect of regional diversification. The geography of the European ARE is changing from one based on the priority of national borders into one based on the **clustering of talent**. Wealthier regions are increasingly able to profit from the general European innovation policy, while poorer regions are left with the resources of the cohesion policy.

**Towards an Open and Competitive European Area for Research Careers, page 33**

EU research and innovation policies there appears to be a strong emphasis on **establishing academic-industry linkages**. Geuna, Salter, and Steinmueller (2003, 399) argue that this European approach to social networking for research and innovation differs from the US approach. “In the case of the US, it was the combination of high industrial demand for research and the relative high quality of the US science system’s output that helped to generate the new networks bridging science and innovation. It was demand that created the new networks, rather than the networks that created the demand. In the case of Europe, policy has often created networks that are in search of demand.”

**Towards an Open and Competitive European Area for Research Careers, page 30**

In the Czech Republic, Hungary and Portugal (particularly in engineering fields) there are relatively few PhD candidates who have come from other countries, but many former doctoral candidates who
moved to other countries in Europe. This indicates a loss of human capital after the PhD. As very few foreign post-docs work in the Czech Republic and Hungary, the loss might indicate that insufficient post-doc positions are available. **Evidence of the main factors inhibiting mobility, page 16**

Former post-docs remaining in or moving back to their region of origin are more likely to find permanent employment there than if they seek employment in a new country where they are migrants. Post-docs coming from outside Europe and seeking employment in the EU countries seem to have a particularly high rate of temporary employment. **Evidence of the main factors inhibiting mobility, page 17**

A crucial issue is the availability of information about calls for research positions, particularly in the public sector. The table below shows the number of positions posted on the European Researcher’s Mobility Portal. Whilst the database has grown since 2004 its use as a posting site is still quite limited. There is certainly substantial scope for active promotion of the Portal, as well as simplification of access to the diverse range of information it contains. **Realising a single labour market for researchers, page 19**

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<td>2006</td>
<td>1,749</td>
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<td>2007</td>
<td>2,176</td>
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**Factors to go outside of home country**

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<th>Factors to go outside of home country</th>
<th>EU-25</th>
<th>US</th>
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<tbody>
<tr>
<td>Broader scope of activities</td>
<td>61.5</td>
<td>19.1</td>
</tr>
<tr>
<td>Better access to leading technologies</td>
<td>51.3</td>
<td>4.3</td>
</tr>
<tr>
<td>Better career advancement opportunities</td>
<td>38.5</td>
<td>8.5</td>
</tr>
<tr>
<td>Better access to R&amp;D funding</td>
<td>30.8</td>
<td>2.1</td>
</tr>
<tr>
<td>Broader job opportunities</td>
<td>28.2</td>
<td>4.3</td>
</tr>
<tr>
<td>Better earning opportunities</td>
<td>25.6</td>
<td>0.0</td>
</tr>
<tr>
<td>More favourable tax system</td>
<td>15.4</td>
<td>4.3</td>
</tr>
<tr>
<td>Better living conditions</td>
<td>10.3</td>
<td>10.6</td>
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<td>Contract/agreement extended</td>
<td>5.1</td>
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<tr>
<td>Family responsibilities</td>
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**MERIT e-survey for DG Research**

In addition to the university sector, research in the EU is performed by business and industry and by public and private research organizations. **Business and industry carry out nearly two-thirds of all EU R&D**. The various public and private research organizations provide R&D, technology, and innovation services to business, governments, and other clients. They have often been created by government and in many cases started their activities with a publicly ordained mission paid for with public funds. However, many of these organizations have evolved into contract institutes and consultancy firms. A limited number are involved in academic research and sometimes even research training. **Towards an Open and Competitive European Area for Research Careers, page 5**
Offer flexible 'researcher subjects': Researchers move from their institution when they are unable to progress further/ work on projects in which they are interested. You are also more likely to find a lectureship etc if you are flexible and willing to move where the jobs are. I don't think there is a 'golden number' of times that someone should move; it varies considerably from person to person even in the same field.

**Evidence of the main factors inhibiting mobility, page 44**

International co-operation is based on mobility and therefore is a necessity inherent in the internationalised scientific process and that during the later career stage; short term periods of mobility are "very convenient and more compatible with PI responsibilities". In contrast some researchers particularly advocated mobility in the early stage of a career and suggested that this is what European funding should focus on: It is very fruitful to move from abroad when you are young. Most of the European research budget should go to PhD and postdoc fellowships (Researcher from France – profile no. 4)

In the early stage, seeing different research approaches may help to broaden your view of the field and give insight into the career. Mobility in middle stage should help acquire a number of varied skills and help in acquiring contacts. At a later stage, one should concentrate on getting a stable position and I don't see how being mobile can help since people who stay put in one place are often in a better position to snap up any open positions which may arise.

**Evidence of the main factors inhibiting mobility, page 44**

In Norway, for instance, as in a number of other European countries, the typical academic career path is to be educated, obtain a job and work in the same university until retirement. Norwegian universities allow academic staff to undertake sabbaticals of up to one year every sixth or seventh year and to facilitate short periods of mobility. Funding to go abroad during this period is available from the Norwegian Research Council. This in part compensates for a spouse or partner being unable to work during this period abroad. It is however a competitive process and resources are limited.

**Evidence of the main factors inhibiting mobility, page 51**

Belgium, like a number of other EU countries, is attempting to encourage Belgian researchers working overseas to return to the country. Belgian funders provide grants for five years for researchers in the physical sciences to build up their own research group although these are limited and competitive. Evidence from our interviews suggests that a new regulatory framework means that to obtain a full professorship in the country one must have been mobile for at least two years.

**Evidence of the main factors inhibiting mobility, page 52**

In the UK we find evidence of a number of 'career development posts' by certain funding bodies. The major biomedical research foundation the Wellcome Trust, for example, tries to encourage research institutions to take responsibility for the permanent employment of its funded researchers by providing tapered funding over a period of 5 years with the expectation that the university will take full responsibility for that person's career at the end of the period. The flexibility offered by a highly competitive funding system which constantly creates new researcher positions is also at the same time a 'pull factor' for inward mobility into the UK.

**Evidence of the main factors inhibiting mobility, page 52**

Centre National de la Recherche Scientifique (CNRS) has 6 research departments, 2 national institutes, 19 regional offices, ensuring decentralized direct management of laboratories and 1,190 research and service units (83 % are joint laboratories with universities and industry).

Total number of employees: 31,000
Number of CNRS tenured employees: 26,100
Number of researchers: 11,700 researchers
Number of engineers and support staff: 14,400
Number of visiting foreign scientists (PhD candidates, post docs & visiting researchers): 5000
CNRS have
80 exchange agreements (with 60 countries)
316 International Programs for Scientific Cooperation (PICS)
54 International Associated Laboratories (LEA/LIA)
56 International Research Groups (GDRE/GDRI)
10 International Joint Units (UMI)
8 CNRS offices abroad (Beijing, Brussels, Hanoi, Johannesburg, Moscow, Santiago de Chile, Tokyo and Washington)
4,000 contracts signed with industry
39 framework agreements and 34 joint research units with industrial partners
They generated 132 million Euros of revenues (EU contracts not included), have 2,657 research applications in effect. They received 53.3 million Euros in royalties. In 2007 CNRS received 2.834 billion Euros of which 513 million come from revenues generated by CNRS contracts.

**Evidence of the main factors inhibiting mobility, page 54**

On the short term level I don’t believe there are any real impediments. **Estonia** as a country but also within our university … things are relatively well organised in terms of short term (meaning 6 months) training visits, library stays or research tours. For instance, last year and this year Estonia gave part of its structural fund support directly to universities so that they could organise competitions for individual faculty members to take up to 6 months leave and get basically all of the travel and living support that they would need to go off and spend time in some other institution as a sort of training. In this sense, it was a very active promotion of short term mobility. Long-term mobility is less promoted since Estonia being a small country is keen to keep as many people here as it can. At the same time, there is a state program, which offers **100% four-year doctoral stipends** for **Estonians** wishing to do their degrees abroad if they are in so-called **priority fields**. This is clearly long-term mobility. (Research Manager, Estonia).

**Evidence of the main factors inhibiting mobility, page 54**

International staff resources at the **University of Bristol**, UK
Number of research staff employed

<table>
<thead>
<tr>
<th>Year (as at 31 Jan)</th>
<th>Total All</th>
<th>Total Non UK</th>
<th>% All Non UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>1085</td>
<td>393</td>
<td>36.22%</td>
</tr>
<tr>
<td>2007</td>
<td>1165</td>
<td>406</td>
<td>34.76%</td>
</tr>
<tr>
<td>2006</td>
<td>1144</td>
<td>370</td>
<td>32.34%</td>
</tr>
<tr>
<td>2005</td>
<td>1070</td>
<td>312</td>
<td>29.15%</td>
</tr>
<tr>
<td>2004</td>
<td>1038</td>
<td>293</td>
<td>28.23%</td>
</tr>
</tbody>
</table>

Due to increasing numbers of international research staff at Bristol University, year on year (see figures above) the institute has employed an international staff advisor and created a website. ([http://www.bristol.ac.uk/internationalcentre/staffsupport/](http://www.bristol.ac.uk/internationalcentre/staffsupport/)) dedicated to giving advice on issues ranging from accommodation, childcare and medical care to English language tuition and driving in the UK. This is a relatively simple innovation for most UK universities who have been providing such advice and support to international students for many years.

**Evidence of the main factors inhibiting mobility, page 56**

More controversial, **way to enhance the mobility of researchers with families is to have a dual career couple hiring policy**, i.e. to offer the accompanying partner of the selected researcher a job in the same organisation. Many universities in the U.S. have successfully applied such a strategy. Contrary to what is often feared, this does not endanger the quality of the staff, as the strategy is explicitly meant to remain competitive in recruitment, to be able to attract highly qualified staff who would not consider moving to another place if their partner were not offered a job. In general, the job offered to the accompanying partner is not a tenure-track position. In the case of research grants it would be more difficult for the EC to apply such a scheme. However, one possibility would be to offer some facilities to couples of researchers who both apply (individually) for a grant, such as extra help with housing or child care, as they cost less money because they need only one house etc. There are examples within the U.S. of medical schools modifying traditional tenure systems to accommodate the personal and professional needs of their faculty (e.g. “by lengthening or removing fixed probationary periods; providing perquisites for part-time faculty; and developing multiple career tracks with equivalent salaries and benefits regardless of tenure status”).

**Realising a single labour market for researchers, page 30**
In many European countries the **number of post-doctoral researchers** has grown considerably over recent years whilst the number of permanent researcher positions has seldom kept pace. We have found evidence of measures being taken to reduce the detrimental effect on researcher careers; for example **re-employment policies in individual universities**, such as the **University of Bristol** in the UK, but more action, perhaps at EU level, is required to improve mobility, career development and stability of researcher careers. Trying to **improve career development, job security and mobility** all at the same time is a major challenge for national and European policy-makers as improvements in one area may often come at the expense of another. 

*Evidence of the main factors inhibiting mobility, page 58*

The development of scientific independence for junior researchers. Early Stage Researchers are funded mainly in two ways, through an **individual scholarship or fellowship** or **hired as part of a project team**. Funding ranges from 3-4 years for doctoral candidates to a typical 2 year duration for post-doc researchers. In the case of fellowships, the researcher has a degree of autonomy in selecting the research project. Rarely, is the fellowship portable, so that the researcher may move to another institution. Frequently, ‘prospective researchers’ are not recruited as such, but as **bare manpower to be inserted in research projects** already conceived to the details by the senior members of the research team. A ‘one-to-one’ magister to discipulus relationship is often established, in which not always the achievement of scientific autonomy is regarded as a ‘plus’ (and even less as a ‘must’) for progress. 

*Realising a single labour market for researchers, page 22-23*
2. Problems & obstacles

As expected, those countries with a higher cost of living coincide with those with a higher remuneration level for researchers. Therefore, when applying the corrective coefficients defined (PPS as calculated by Eurostat in December 2006) to researcher remunerations, the differences between countries are reduced when compared to the same values without PPS. This is the so called “attractiveness” of each country for the researchers.

Only Austria, The Netherlands, Israel, Switzerland and Luxembourg have an average remuneration similar to that of the United States, considering the cost of living in each country.

The EU25 average (40.126 EUR) is far below the US average (62.793 EUR). Only Austria (60.530 EUR), The Netherlands (56.721 EUR) and Luxembourg (56.268 EUR) have a similar remuneration level to the United States. If we consider the Associate Countries, only Israel (59.580 EUR) and Switzerland (59.902 EUR) have

an average remuneration similar to that of the United States.

Remuneration of Researchers in the Public and Private sectors, page 20

The “governance void” in the ERA, which implies a lack of sufficient incentives for the implementation of strong and joint intergovernmental research funding (Marimon and Graca Carvalho 2008, 14)

Towards an Open and Competitive European Area for Research Careers, page 28

Summary of barriers at different decision stages of research career:
PG Training for research find: Recruitment base inadequate, Research training too daunting, Commitment not justified by the rewards, Supervision & support from senior academics too limited, Resources not up to date or professionally supported, Quality research time too time-consuming, Financially disadvantageous, Research training is difficult to combine with normal family life. Which in turn is the cause of: Best doctoral candidates not continuing. Numbers not sufficient for projected needs.

Those that Remain in Research find: Lack of satisfactory job opportunities, Poor salary returns, Career advancement difficult on a research track, Obstacles to mobility, Employment problems for two researcher families, Long term ageist problems. Which in turn is the causes: Flight to other occupations, sectors or countries.

For those that have a career in research are faced with the following barriers: Uncompetitive & inflexible academic salaries, Hierarchical & fixed employment structures, Dominance of short-term & external funding mentality, Mobility obstacles, Poor working conditions and practices, Bureaucratic culture. This causes the Fall in quality and number of public sector researchers and failure to recruit and retain high quality researchers in academia.

Evidence of the main factors inhibiting mobility, page 14

Respondent from Poland claimed that mobility was actually detrimental to a research career in their country; advocating non-mobility as the only way to progress one’s career, which would seem to provide evidence for a completely opposite career track (model d) which does not take into account (or even discourages) mobility:
[There was a] TOTAL lack of recognition of mobility experience in recruitment and career development after my return to Poland... each mobile period deteriorates my career opportunities in Poland (Researcher from Poland –profile no.15)

Evidence of the main factors inhibiting mobility, page 43

Many of researchers emphasise the negative side of enforced mobility as a signal of a broader lack of commitment towards new scientists and their personal and family life on the part of the employing institute or the national system. Conditions in the ‘home’ research system or institution can
intentionally or unintentionally become ‘push’ factors in mobility due to the relative lack of opportunities in their own home institute or national system.

**Evidence of the main factors inhibiting mobility, page 43**

Restrictions in terms of years of experience were also cited as inhibiting factors. Mobility programmes focused on student exchanges, full doctorate programs, postdoctoral stages or Marie Curie Actions mean some researchers have found that they are ineligible to apply as they are too experienced for an early researcher but do not have the relevant qualifications (PhD) to apply for national schemes available in host countries.

**Evidence of the main factors inhibiting mobility, page 45**

Many positions are very short (1-2 years) and you need then to spend a lot of time constantly to apply for new grants/funding, which takes a big part of the time you should devote to your research.

**Evidence of the main factors inhibiting mobility, page 46**

Not being a permanent resident hurts my retirement pension plans and economical long-term forecast. At this moment I cannot even get life-insurance, which makes me uneasy as I have a small child and no provisions in the case that I will no longer be able to provide for her.

**Evidence of the main factors inhibiting mobility, page 47**

Pension rights emerged as being a major concern for some individuals. Researchers argued that one loses [pensions rights] every time one crosses the border of one’s country. In other words, one is punished for mobility at an older age.

**Evidence of the main factors inhibiting mobility, page 47**

Once a researcher leaves a country to undertake mobility, the pension they have built up there suffers as a result. The inability to transfer healthcare insurance and pension schemes across borders in the EU is (and has been) a major impediment to mobility for a significant number of researchers.

The severity of the problem this presents varies across Europe. A number of respondents drew attention to the fact that mobility periods are often funded by grants, fellowships or stipends, which do not necessarily confer employee status on researchers, which may not come with pension provisions or social security rights and which mean may that mobile researchers are not granted ‘permanent resident status’ in the country they are visiting.

Often the case is that young researchers are not considered as workers, but are considered as a students. [There are] serious problems with health/social insurance for those given a stipend, which is a “modern way” to treat young researchers.

**Evidence of the main factors inhibiting mobility, page 47**

The problems caused by varying tax schemes across countries and the distinct lack of recognition of a period out of one’s own country, in terms of contributing to national insurance and pension schemes was also mentioned as a problem in many of the free text responses. Transferring pension (including private pensions) and social security benefits, and the complex nature of organising these affairs if one has moved around, have emerged as clear problems. For these reasons many respondents concede a certain amount of risk in being a mobile researcher, which some are not prepared to take.

**Evidence of the main factors inhibiting mobility, page 47**

Whilst mobility is seen as important for personal and career development, its perceived lack of recognition in terms of that career development is clearly a discouraging factor for some researchers, according to our survey findings. Many respondents stated that a period of mobility would make it difficult to return to academia in one’s home country. The importance of networks has emerged as key in a research career, and while there was a lot of support for the notion that mobility is an important way of expanding and increasing said networks, it makes it difficult to maintain them.

**Evidence of the main factors inhibiting mobility, page 48**

When a researcher is mobile and changes institution with some frequency, e.g. contract for 2 years, it is difficult for him/her to be fully considered as a member of the institution where him/he is working with
regard to application for funding of projects; specially if his/her present position is funded by an institution from another country.

**Evidence of the main factors inhibiting mobility, page 49**

The lack of information regarding availability of positions and opportunities for mobility was cited by many as being an inhibiting factor. Whilst in some countries there may be a real lack of posts for researchers, in others it was felt that there might be some available but people did not know where to look. Access to information was perceived as a difficulty by some researchers who were working outside their home country. Additionally, Postgraduates/ doctoral researchers are still very dependent on their supervisor to gain access to relevant information on career opportunities. If that support isn't available, and the institution does not provide adequate services, it is not always easy to find it through one’s own means.

**Evidence of the main factors inhibiting mobility, page 49**

An additional barrier faced by third country (non EU) nationals face, despite holding a PhD, is finding jobs in the EU; as one of the first conditions when applying is that one should be a EU national.

**Evidence of the main factors inhibiting mobility, page 49**

In France our interviewee indicated that mobility within the country may be seen as advantageous for career prospects. In some institutes, to maximise the benefit to the system of mobility, after a post-doc, a researcher is not expected to return to the laboratory where s/he did the PhD but must work in a different laboratory. We were also advised that there are limited jobs for researchers in academia in France, which means that conveying the benefits of an international experience to businesses and improving the integration of researchers in the private sector (i.e. to improve employability options outside of academia) are key aims.

**Evidence of the main factors inhibiting mobility, page 51**

In Estonia, our interviewee advised us that there is no active promotion of long term mobility because as a small country Estonia wants to retain as many researchers as possible but that for people who do choose to be mobile, at least from our interviewee’s perspective, a neutral view is taken, that is that mobility neither helps nor harms career progression. In Estonia as elsewhere promotion is focused on publications and research output and mobility will only be a factor where it has been seen to have enhanced the level or quality of output achieved.

**Evidence of the main factors inhibiting mobility, page 51**

Despite more than a decade of debate between policy makers, research funding agencies and research-performing institutions about career track models and despite European legislation limiting the successive use of fixed-term contracts, many UK research careers still involve a great deal of employment uncertainty.

**Evidence of the main factors inhibiting mobility, page 52**

Mobility is often severely hampered by ‘bureaucracy’, although the situation seems to be improving over time. A relative lack of national programmes to support mobility has apparently meant that some individuals in that country have had to use their annual leave as a means to have a mobility period.

**EC, DG Research, Evidence of the main factors inhibiting mobility, page 52**

A major concern, especially in smaller countries, was that an institute does not suffer as a consequence of either inward or outward mobility, in terms of research quality or capacity (human resources). As well as having to deal with the consequences of short-term outward mobility the fear remains that facilitating such mobility will mean that researchers are drawn permanently to major labs abroad, leaving countries trying to establish themselves in the world of research at a disadvantage. The much-touted ‘brain circulation’ benefits of outward mobility are of course dependent upon the willingness of researchers to return to or otherwise interact with their own national system. The amount of researchers an institute can ‘afford to lose’ through outward mobility or ‘accommodate’ through inward mobility, is very much dependent on the research being carried out and the resources available at that particular institute.

**Evidence of the main factors inhibiting mobility, page 53**
Long delays in decision making on Marie Curie applications in comparison to more flexible and efficient American funding systems which encourages some scientists to apply for opportunities in America as opposed to another European country.  

Evidence of the main factors inhibiting mobility, page 54

A model in which doctoral researchers are paid employees may be a disincentive for mobility. Employed doctoral candidates who receive a salary at their home institution may or may not need to substitute this by alternative income when going abroad. In other words salaried status for doctoral researchers could be an inhibiting or indeed an enabling factor for mobility depending on the terms, conditions and expectations associated with the salary.

Evidence of the main factors inhibiting mobility, page 55

Researcher mobility may be undervalued by both public and private sector employers. Researchers may accumulate international experience but be unable to find a job when they return. The ‘closed’ nature of national networks was highlighted by many of our respondents; i.e. once you leave a certain country, re-integration may be very difficult.

Evidence of the main factors inhibiting mobility, page 57

A further inhibiting factor is the lack of harmonisation and portability of research grants in Europe. Problems of data sharing and intellectual ownership also emerged as inhibiting factors, particularly in the life and physical sciences, which may mean people are reluctant to become mobile, even where a clear research benefit can be identified. Lack of harmonisation across Europe in terms of working requirements and practices were highlighted in the interviews, with the problems being compounded for third country nationals. A professor from Hungary pointed out that 70% of all problems come from the variety of procedures in different countries. I think it will change when the EU constitution will be accepted. Although all countries understand that it has to change, each country resists to some aspects of such change. Some countries have their own programmes as they don’t have enough researchers, e.g. Germany, the Netherlands, Great Britain. These programmes are better than the EU programmes and it would not be good for these countries to have uniform regulations in the EU to make their own situation worse.

Evidence of the main factors inhibiting mobility, page 57

Businesses often find it difficult to cooperate and enter into partnerships with research institutions in Europe, particularly across countries.

The European Research Area: New Perspectives, page 7

Many specific EU initiatives have also been taken to foster a more attractive European area for researchers, but progress remains very limited due to the voluntary nature of most of them and, in some cases, the lack of coordination with and between similar national and regional measures. For example, the European Charter for Research and the Code of Conduct for their recruitment are increasingly being supported, but this is a slow process and real progress will only happen once the endorsement of principles is followed by concrete implementation.

The European Research Area: New Perspectives, page 13

There is the thorny issue of employment. In most areas of employment there still is a single relationship between the employer and the employee. This is not always or no longer the case for researchers in the public sector, where in some EU countries there are, with increasing and spreading frequency, four parties: the employee (researcher), the team leader, the employer (a HEI, university or public research organisation), and the sponsor (external funding agency, either public or private). The team leader and employer are often confronted with budget cuts at the final stage of contract discussions and have to accept to get less and do more, leading to stress and increased workload, not only for him/herself but first of all for the researchers of his/her team.

Realising a single labour market for researchers, page 16

Increasingly, and not only in the early career steps, researchers are employed on a short-term contract, for the express purpose of carrying out a specific piece of research. Under such employment conditions there is little scope for researchers to develop other ‘transferable skills’ (for example, project management, team leadership, teaching, innovation and entrepreneurship, and communications), which would broaden their employability outside academia. Moreover, it may be of
no obvious benefit for the employer to invest on skill enrichment and career development of these ‘project-based’, fixed-term researchers, and in many cases it would not be permitted by the funding agency, as they are funding a time-limited research project and not a long-term researcher career development.

Realising a single labour market for researchers, page 16

In the public sector, selection committees exist, and the Commission has already highlighted the necessity to remove remaining barriers that prevent foreign researchers from participating in such selection and evaluation committees. In reality however, recruitment still depends to a large extent on factors such as the influence of the supervisor, agreements based on local cultures, the lack of external panel members or the fact that open competitions become local competitions, reflecting somehow the limited openness of academic or public research structures.

Researchers in the European Research Area: One profession, multiple careers, page 17

As regards the presentation of the professional experience, current practice shows that a researcher’s CV normally requires the listing of the different experiences in chronological order with precise references to education and work experiences, additional skills, proficiency in foreign languages etc. One of the most important factors however, seems to be that professional experience is based on a “linear” career path, similar to the structure of a “ladder” with no chronological gaps. Many researchers perceive this as a “penalising” factor particularly in the case when they move from one discipline to another, which is considered as an important feature in the whole innovation process but often not recognised as such, or in the case of a temporary interruption for personal or family reasons.

Researchers in the European Research Area: One profession, multiple careers, page 17-18

Many Member States outdated national legislation and practices still hinder or prevent competition-based recruitment in the public sector. The prevalence of short-term contracts for young researchers and advancement based on seniority rather than performance means it can take many years before talented researchers are able to become independent scientists in their own right.

Better careers and more mobility: A European partnership for researchers, page 3

Many researchers are trained in a traditional academic way which does not equip them for the needs of the modern knowledge economy where connections between industry and public research institutions are increasingly important, thus there are strong disincentives for researchers wishing to move jobs between institutions, between academia and industry or between countries.

Better careers and more mobility: A European partnership for researchers, page 3-4

The rules adopted several decades ago may not cover as efficiently newer forms of mobility of workers who frequently work on short-term contracts in different Member States. Since researchers are among the most mobile categories of workers and can often hold a series of short contracts during their careers they are particularly likely to be confronted with difficulties.

Better careers and more mobility: A European partnership for researchers, page 7

Conspicuous differences exist in the employment status/contract of researchers. In some countries, for example, researchers have public servant status. As a result, especially in southern Europe and the new Member States, relatively few foreign researchers are recruited by academic, public non-academic, and private institutions. Also, internal recruitment often occurs, and there is a very limited intersectoral mobility (of academics coming from public non-academia and even less from private sector, and the reverse.

Realising a single labour market for researchers, page 19

According to the MERIT e-survey for DG Research study the international mobility depends on conditions such as: R&D funding, the reputation of the host organization/employer, available research facilities, the presence of their research institutes, salary/job benefits, and the physical environment. The findings of the survey, suggest specific weights for some of the known factors and bring out new messages:

• Women are underrepresented in international mobility and tend to participate less in international careers than men, with regard both to the number of opportunities taken up and to the duration of the stay overseas.
The most important reasons keeping EU-born scientists and engineers abroad relate to quality of work conditions. Broader scope and flexibility in the job description, and better access to leading technologies were most often quoted as reasons behind plans to work abroad.

Among those surveyed who said they had plans to go abroad to work, three in five were going for broader scope in activities and more than half chose the access to leading edge technologies as a very important factor. Salary is an important consideration, but most often it is not identified as the key or deciding factor in the decision to go abroad. Better earnings and wages were cited as very important by 31% of EU-born working abroad as a factor in their decision not to return, and by 26% of those working at home as a factor in their decision to go abroad.

Paperwork barriers in Europe continue to be problematic for foreign researchers and their employers. Among the foreign researchers surveyed in Italy, 29% reported high difficulties with visa, work permits and other administrative procedure.

Networking and informal contacts are key sources of information for persons finding work abroad. ‘Informal marketing’ of Europe may have far more impact on its ability to draw foreign researchers than those mentioned previously.

European higher education remains fragmented into medium or small clusters with different regulations and languages; it is largely insulated from industry; graduates lack entrepreneurship; and there is a strong dependency on the state. European higher education also is over-regulated and therefore inefficient and inflexible.

Major barriers to greater knowledge transfer exist in the EU. They include cultural differences between the academic and the business communities, legal barriers, fragmented markets, and lack of incentives. Some member states have set up initiatives to promote knowledge transfer, but these largely ignore its international dimensions (EC 2007d).

Although there is some success in better exploiting human resources, Europe still lacks an open, competitive, and attractive market for researchers. Some researchers are still leaving the EU. Others cannot enter research careers in Europe.

The European social networking strategy focuses on the generation of new rather than on the recognition of existing research networks. In this sense, the EU social networking strategy also is a top-down rather than a bottom-up process. The exceptions are the technology platforms. These are largely initiated and led by industry and are clearly demand-driven. The recent recognition of these platforms as crucial instruments for strategic knowledge creation and application agenda setting indicates that the EU social networking approach is slowly changing.

Researchers with a fixed term contract of greater than 2 years are more likely to have been mobile in the past or to be not currently interested in mobility compared with those with a shorter fixed term contract.

Respondents who would like to be mobile in the future mention a broad range of inhibiting factors such as funding for mobility, salary, lack of open recruitment, accommodation, misalignment in social security benefits, personal relationships and health insurance. All these factors can partly be
addressed by adequate policies, but they also reflect mobility frictions due to the life situation of the respondents.

Lack of recognition of, and lesser opportunities for, further career progression directly linked to mobility status.

**Evidence of the main factors inhibiting mobility, page 8**

Funding for mobility is not surprisingly of great importance for those who would like to be mobile in the future, and is also seen as a significant potential obstacle by those researchers who are not currently interested in being mobile. This is true of researchers from all geographical areas within our sample. Other important factors are personal relationships, accommodation, social security, salary, pension rights and health care insurance. Immigration rules are of greatest significance for researchers from other countries outside Europe.

**Evidence of the main factors inhibiting mobility, page 8**

At the most fundamental level these naturally involve ‘quality of life’ issues. For fifty per cent of respondents accommodation has presented a problem. Our findings have also illuminated the real concern that mobility has or could affect supplementary pension contributions and rights and so disadvantage researchers later in life. Our findings also show clusters of concern around issues of career progression, nature of contracts, pay differentials, availability of posts, funding sources and maintenance of research funds.

**Evidence of the main factors inhibiting mobility, page 9**

Anecdotal evidence from Spain, for example, suggests administrative complexities make it very difficult for a foreigner to apply for a researcher position in a Spanish institute, and tenures are said to be ‘un-advertisable’.

**Evidence of the main factors inhibiting mobility, page 57**

The wide variety of hiring procedures and customs within Europe make it difficult to develop region-wide detailed guidelines on appointments. Nonetheless, an example of good practice that could be applied at the European level is offered by the ADVANCE programme. An obligatory fair balance of gender and minorities in the applicant list has resulted in a major increase in women in faculty positions. Another interesting initiative is Schlumberger’s ‘Faculty for the Future’, a strategic partnership with the education sector in emerging economies to encourage women in their pursuit of academic careers in science and technology. The successful implementation of equal opportunity policies/procedures within universities, of course is something that has to be done over the long-term and carefully monitored. The success is also linked to the development of corresponding ‘family-friendly’ workplace policies and a culture that actively promotes the research careers of both males and females, see as an example the following story.

**Realising a single labour market for researchers, page 28**

Encouraging the return of researchers was highlighted as an area of particular concern in France, in that the French expatriated population apparently includes a large proportion of the very best French researchers. Measures to address this issue do seem to have been introduced.

**Evidence of the main factors inhibiting mobility, page 53**

A major challenge in recruiting, attracting and retaining the highly skilled in Europe is to convince many of the Higher Education Institutions (HEI) that training of a researcher is only the first step in a profession that may lead to different careers (see e.g. EC Communication ‘One profession, multiple careers’6). Currently, many European HEIs still educate and train researchers as ‘academic apprentices’. This is no longer adequate in a knowledge-based society nor for an economy based on knowledge and innovation.

**Realising a single labour market for researchers, page 16**

Although the financial and political strengths of the FPs are considerable, the proportion of their financial research investments on a Europe-wide scale is limited. In the sixth framework program, this proportion was only 5 percent. The other 95 percent invested in European research comes from the member states. Of course, because these national resources often cover infrastructure, salaries, and running costs of European projects, the impact of the FP funding reaches much further than the 5
percent invested. Nevertheless, the overall European research landscape suffers from fragmentation and unnecessary duplication of efforts and resources (Andersson 2006). The major challenge in the European research and policy domain is to create critical mass and joint investment schemes.

Towards an Open and Competitive European Area for Research Careers, page 9

The increasing necessity for dual income families, the difficulties in maintaining two careers and the problems encountered in moving families and partners abroad have emerged as clear inhibiting factors. The problem of having to ‘choose’ between a research career and family or relationship was frequently mentioned. Finding reasonably priced accommodation and associated moving costs were referred to as being a problem in some countries – a supplement salary would have to be offered.

Evidence of the main factors inhibiting mobility, page 46

Major concerns regarding researcher mobility and career progression relating to the lack of job security and stability for researchers. There is an issue whether mobility may compound these problems further. In many European countries the number of post-doctoral researchers has grown considerably over recent years whilst the number of permanent researcher positions has seldom kept pace. We have found evidence of measures being taken to reduce the detrimental effect on researcher careers; but more action, perhaps at EU level, is required to improve mobility, career development and stability of researcher careers.

Evidence of the main factors inhibiting mobility, page 9

Many respondents indicated that they would like more ‘unification’ across European countries, for example, one respondent suggested that mobility should be considered within a uniform scheme for health insurance, pension rights and future prospects for the whole extend of European Union (Survey respondent)

While another stated I think one of the most important problems for researchers is the fact that each European country & institution offers a different salary package without pension, health care, social benefits. In every country I had to start from the beginning and integrate into the ‘local system’ (Survey respondent)

Evidence of the main factors inhibiting mobility, page 48

Findings confirm that there are often more specific and acute difficulties for third-country researchers in terms of visa / residence issues. This finding might have some policy implications. If Europe wants to have the best mobile researchers through mobility schemes, it has to promote mobility, not only more evenly across European countries, but also to attract good researchers from outside Europe.

Evidence of the main factors inhibiting mobility, page 61

In all EU countries, women who have a baby, have rights, or even obligations, to take pregnancy and maternity leave. However, most funding agencies, including the EU, do not take this into account in their grants. That is, women cannot be denied the right to take the leave according to the national laws, but if they have a fixed term appointment, which is virtually always the case if their appointment is based on a grant or fellowship, this term is not extended with the period of the leave. Therefore, in fact women researchers who have children - who will generally be in the post-doc or junior researcher phase of their career, where competition is severe – do not have an equal opportunity to do as much work and thus publish as much as their male colleagues of the same age during the period of the grant.

Realising a single labour market for researchers, page 28

The long-term career options within an institution/ area are key also for retaining women. For those with child raising responsibilities, short-term and/or insecure academic positions are not viable employment options.

Many women quit just because institutions (and the excellence criteria) persist in awarding only 5-year renewable contracts.

Realising a single labour market for researchers, page 30

It is not easy for European workers in general and, in particular for researchers, to find comprehensive, easy-to-access and targeted information about the consequences on social security and on (supplementary) pension rights of working for variable lengths of time in Member State(s) different from that of their permanent residence. A pensions study showed that lack of
awareness makes it difficult for researchers to take informed decisions about mobility and to evaluate the impact that pensions have on mobility and vice versa.

Realising a single labour market for researchers, page 37

In many cases, researchers reach their mid-30’s before they are able to join a supplementary pension scheme. Indeed, one of the key factors shaping engagement with pension schemes concerns the pervasive effects of researchers moving in fixed-term contracts at inter-institutional, intersectoral or national level. This common form of mobility for researchers does discourage them from making pension contributions. In general, researchers working on temporary contracts although technically eligible to contribute, are often disinclined to join occupational schemes until they have a permanent post.

Realising a single labour market for researchers, page 37

Mere promotion of a European wide database for available positions might not be sufficient to counteract a highly fragmented researchers’ job market and indifference/reluctance of many recruiters (and sometimes of the team leaders and/or of the researchers themselves) to open up to this international job market25. National mandates to place job advertisements into the (inter)national official gazette are no longer sufficient in an integrated European Research Area. International advertising now often occurs through electronically available specialised journals or large mailing lists obtained through previous collaborations. The best way has to be identified to urge employers to also put every position into the job database on the European Researcher’s Mobility Portal which must be widely known and used by all potential applicants.

Realising a single labour market for researchers, page 20

While there has been welcome growth in student enrolments in Europe, this has not been matched by growth in public funding, and universities in Europe have not been able to make up the difference from private sources. The average gap in resources for both research and education activities compared with their US counterparts is some EUR 10 000 per student per year.

Delivering on the modernisation agenda for universities: education, research and innovation, page 4

A tendency to uniformity and egalitarianism in many national systems has ensured that the average quality of universities, while generally homogeneous, is comparatively good – at least academically. But there are also deficiencies stemming from insufficient differentiation. Most universities tend to offer the same monodisciplinary programmes and traditional methods geared towards the same group of academically best-qualified learners – which leads to the exclusion of those who do not conform to the standard model. Other consequences are that Europe has too few centres of world-class excellence, and universities are not encouraged to explain at home and abroad the specific value of what they produce for learners and society.

Mobilising the brainpower of Europe, page 3

European higher education remains fragmented - between and even within countries – into medium or small clusters with different regulations and, naturally, different languages. It needs to become “readable” in the world if it wants to regain its position as the leading destination of mobile students - a privilege lost to the US in the 1990s.

Mobilising the brainpower of Europe, page 4

Language barriers – obligatory usage of local languages, especially for thesis, all the documents, diplomas, etc. – even when lectures are in foreign language.

Balkan Dimension of Researchers Mobility, page 15

Young researchers are often employed on temporary short-term contracts to help carry out specific research projects. This restricts the chances of talented researchers making the transition to becoming independent researchers. This can encourage some to seek advancement elsewhere and delays the emergence of the next-generation of research leaders. In particular young researchers are also frequently supplied with atypical forms of remuneration (e.g. stipends, fellowships) which give limited access to social security and supplementary pension benefits under the applicable national social security scheme.
In contrast senior researchers are often on permanent contracts with progression based on seniority rather than performance. This limits incentives to change career path, e.g. by working in another country or sector either full or part-time or carrying out consultancy work. These disincentives, and others such as loss of pension entitlements, also minimise the potential role of retired and end-of-career researchers. Many would otherwise be willing to contribute by e.g., mentoring younger scientists, providing expertise for policy making or promoting research careers. 

**Better careers and more mobility, page 9**

As an empirical study conducted in the United Kingdom reported, external mobility and flexibility could have negative consequences to a career in research. On the contrary, internal mobility and scientific partnership and collaboration, also at an interdisciplinary level, present positive elements. Once a decision to move from academia has been made, it is really difficult to go back, unless an academic profile in terms of research publications is maintained.

**Integrated Information System on European Researchers II, page 82**

One main argument for university researchers to remain within academia is that intersectoral mobility does not seem to be beneficial to a university career. Also, scientists from non-university research institutes appear a little more likely to switch to the industrial sector than university researchers, maybe because they are more familiar with both "worlds".

**Integrated Information System on European Researchers II, page 83**

Mobilising all Europe’s brain power and applying it in the economy and society will require much more diversity than hitherto with respect to target groups, teaching modes, entry and exit points, the mix of disciplines and competencies in curricula, etc. This requires some concentration of funding, not just on centres and networks that are already excellent (in a particular type/area of research, teaching/training or community service) – but also on those who have the potential to become excellent and to challenge established leaders.

**Mobilising the brainpower of Europe, page 5**

Excellence can only emerge from a favourable professional environment based in particular on open, transparent and competitive procedures. Vacancies, at least for rectors, deans, professors and researchers should be advertised publicly, and where possible internationally. Researchers should be treated as professionals from the early stages of their career. Physical and virtual mobility (whether across boundaries or between university and industry) and innovation leading e.g. to university spin-offs should be encouraged and rewarded. Compensation should reward quality and achievement in the performance of all tasks, including a share of income from research contracts, consultancies, patents, etc. These measures would over time reinforce world-class excellence at European universities, thus reducing the attractiveness gap with other world regions and benefiting all of Europe - through highly qualified graduates moving or returning to more regional universities, whether immediately or later in their careers.

**Mobilising the brainpower of Europe, page 6**

It appears there is only limited coordination in the Commission among various international R&D programmes. Thus, third countries may have separate cooperative actions with, for instance, DG Relex, DG Agro and DG Environment. These bilateral arrangements may lead to useful results, but they may also suffer from the lack of transparency, efficiency and coordination. This calls for a “single address” in the EU for external research funding. This aim could be visualised in a matrix that would cover all relevant agencies, instruments and actions by the EC within the area of research – not only the programmes of DG Research. Information contained in such a matrix should be made publicly available through a well-functioning website and/or through expanding Cordis.

Third-country participants – as well as the majority of the European participants – tend to complain that the amounts of money allocated to their participation are often very small and in any case much smaller than those received by EU scholars. If this is the case, the reasons should always be transparent and justifiable. These and other hurdles have driven eminent scholars and industry representatives from active participation in the FP to other European and non-European funding instruments. The European system of innovation is not well served if the best and most experienced researchers are not interested in funding opportunities provided by the EC. The situation could perhaps be improved and the FP funding made more attractive if the R&D projects would have a guaranteed credible and transparent evaluation process trusted by the research community.
Third countries are treated today too much as a homogenous grouping. Developing, emerging and industrialised countries have very different needs and resources. Funding and policy instruments should be honed to address the specific conditions in each of these country groups. Moreover, forms of international cooperation in science, technology and innovation are intrinsically different depending on issues and fields of inquiry. Approaches are, for example, different for issues that require work in laboratories, those that require access to large infrastructures, or others which need work in the field. Thus, the EC should differentiate between different issues and approaches when setting up its international strategy.
3. Instruments, possibilities & good practice

Since the ERA’s introduction in 2000, the context of European research has evolved. Globalization has accelerated, various new socioeconomic challenges have grown (climate change, aging, the risks of infectious diseases), and the European research landscape has changed (notably with the launching of new measures such as the European Research Council (ERC) and the European Institute of Innovation and Technology).

Towards an Open and Competitive European Area for Research Careers, page 12

The ‘European Charter for Researchers and the Code of Conduct for their Recruitment’ (C&C), so far over 200 organisations, representing around 800 institutions in 23 countries, have signed up to the ‘Charter & Code’. However, what is not clear is the number of organisations that are actually implementing the Charter & Code.

The real challenge now is the real life implementation of the C&C and its promotion through concrete actions.

Realising a single labour market for researchers, page 18

EU initiative to introduce a European “blue card for talented knowledge workers,” comparable to the US “green card” (which establishes legal permanent residency), can be mentioned. It may be expected that this initiative will have a positive influence on the reported brain drain.

Towards an Open and Competitive European Area for Research Careers, page 29

Legal improvements (admission, entry conditions, social security and taxation), better information and assistance services (advertising of vacancies, availability of practical information), an improved knowledge base and qualitative improvements (exchange of best practice, benchmarking). Additionally the Commission has sought to determine the different aspects that characterise the profession of researchers and define the various factors that condition their careers at European level. These factors include research training, recruitment methods, the contractual and budgetary situations and evaluation mechanisms that allow career progress.

EC, DG Research, Evidence of the main factors inhibiting mobility, page 12

Many specific EU initiatives have also been taken to foster a more attractive European area for researchers, for example: Marie Curie grants, European Mobility Portal and European Network of Mobility Centres, ERA-Link pilot initiative to network European researchers in the US.

The European Research Area: New Perspectives, page 13

The research and technology policy domain in Europe is a comprehensive, multi-actor environment in which a multiplicity of intergovernmental associations and organizations exist. Examples are the EUREKA initiative, launched in 1985, that finances pre-competitive projects according to a bottom-up industrial cooperation process; ESA (the European Space Agency); CERN (the European research center for particle physics); EMBO (the European molecular biology laboratory); and the European Science Foundation, which brings together a substantial number of networks in many European countries around a large number of research programs.

Towards an Open and Competitive European Area for Research Careers, page 9

The adoption of the European Charter for Researchers and a Code of Conduct for the Recruitment of Researchers. These two documents provide Member States, employers, funders and researchers with an instrument to undertake, on a voluntary basis, further initiatives for the improvement and consolidation of researchers’ career prospects in the European Union and for the creation of an open labour market for researchers. They attach to individual researchers the same rights and obligations wherever they may work throughout the European Union to counter the fact that research careers in Europe are fragmented at local, regional, national or sectoral level.

The European Charter for Researchers addresses the roles, responsibilities and entitlements of researchers and their employers or funding organisations. It aims at ensuring that the relationship between these parties contributes to successful performance in the generation, transfer and sharing of knowledge and to the career development of researchers. The Code of Conduct aims to improve recruitment and make selection procedures fairer and more transparent and proposes different means
of judging merit, measured not just on the number of publications but on a wider range of evaluation criteria, such as teaching, supervision, teamwork, knowledge transfer, management and public awareness activities.  

**Evidence of the main factors inhibiting mobility, page 13**

The **European Researcher’s Mobility Portal** (RMP) went on-line in 2003 with the aim of improving access to adequate information on jobs, fellowships and grants throughout Europe as well as on the entry conditions, access to employment, social security rights, taxation and the cultural aspects of a host country. As a shared initiative between the Commission and the participating countries, the European Researcher’s Mobility Portal is currently complemented by 31 national mobility portals (more are in the pipeline).  

**Realising a single labour market for researchers, page 17**

Following this, the **European Network of Mobility Centres** (ERA-MORE) was established and officially launched in 2004, co-funded by the Commission. The aim of the ERA-MORE Centres is to provide customised assistance to researchers and their families in all matters relating to their mobility experiences, e.g. information about social security, pension rights, recognition of diplomas, housing, entry conditions, language courses and other practical information. Today, the ERA-MORE Network counts about 200 Mobility Centres and numerous local contact points in 32 different countries, Croatia, FYRoMacedonia and Serbia joined the Network in 2008.  

**Realising a single labour market for researchers, page 17**

Mobility should never be seen as an end in itself. A more effective European Research Area might be one in which **absolute levels of mobility are lower but the quality of and impacts of mobility are greater**. Mobility should always be seen as a means to improve the quality, coherence and relevance of European R&D activities.  

**Evidence of the main factors inhibiting mobility, page 59**

Across the entire EU, **diversified research institutions should be embedded in the social and economic life where they are based, while competing and cooperating across Europe and beyond.** They should be able to interact routinely with the world of business as well as to engage in durable public/private partnerships. Such partnerships should be at the core of specialised – mostly interdisciplinary – ‘clusters’ which would attract a critical mass of human and financial resources from across the world. The European Research Area should thus progressively structure itself along the lines of a powerful web of research and innovation clusters. Their reach should be amplified through ‘virtual research communities’ created by pooling and integrating activities and resources from different locations in Europe and beyond, using powerful computing and communication tools. Increasingly, clusters should form and expand through such virtual integration rather than geographical concentration.  

**The European Research Area: New Perspectives, page 9**

The ERA-Link initiative to network European researchers’ communities outside Europe, was officially launched in the USA in June 2006. ERA-LINK Japan was launched in June 2008 and ERA-LINK China is scheduled for 2009.

After broad stakeholder consultations in 2005 the European Commission issued the European Charter for Researchers and Code of Conduct for their Recruitment. So far, more than 200 organisations representing over 800 institutions, covering 23 countries have signed up to the Charter & Code on a voluntary basis.  

In 2005, the **Scientific Visa Package** was adopted to facilitate administrative procedures for third country researchers entering the European Community. It includes a Council Directive 2005/71/EC (12 October 2005) and two Recommendations: the 2005/761/EC on short-term visas and the 2005/762/EC on long-term admission (more than three months). The Directive has been transposed in 15 Member States.

European Commission has also conducted some awareness raising activities. In 2006 Commission launched a call for proposals for the organisation of the **Researchers Night** where 31 proposals were
funded, resulting in the organisation of Researchers Nights in more than 100 cities in 21 countries, and more than 100,000 people participated.

The Open Method of Coordination (OMC) was introduced by the Lisbon European Council in March 2000 in order to help Member States progress jointly in the reforms they need to undertake in order to reach the Lisbon goals. When the European Council set the 3% target, the Commission suggested that OMC be applied for this objective as well. The Spring European Council of March 2003 thus agreed to apply the OMC for policies related to investment in research (and to human resources and mobility of researchers as well). The OMC process in support of Barcelona Target has been implemented under the auspices of the European Union’s Scientific and Technical Research Committee (CREST). Since 2003 there have been four OMC cycles, and after each cycle the CREST Policy Recommendations were presented. Also the Steering Committee for Human Resources and Mobility decided to use the OMC-NET policy framework.

In the EC Communication of May 2008: Better careers and more mobility: A European Partnership for Researchers, the Commission seeks a partnership with Member States to ensure that the necessary human resources are available to sustain and enhance the contribution of science and technology to a knowledge-based European economy. Europe faces growing global competition for the best talents and demographic challenges. The aim of the partnership is to align and focus the efforts of individual Member States. Joint priority actions should make the EU a more attractive place for researchers, and allow researchers to be more mobile between countries, institutions, and between the academic and private sector. Key areas for action are the systematic opening up of recruitment, meeting the social security and pension needs of mobile researchers, providing fair employment and working conditions, and ensuring that researchers have the right training and skills.

These are good framework policies and guidelines but their implementation requires broader involvement of all stakeholders and policy makers, especially from the regional and national levels.

In the Partnership for Research therefore recommends the following actions:
- Council and Commission to commit themselves to the common objectives and endorse the proposed actions;
- Member States to adopt a national action plan by early 2009 setting out specific objectives and actions to achieve the aims of the Partnership. Given the different starting positions of each Member State each plan is expected to focus on different aspects of the overall objectives of the Partnership;
- the priority actions identified are to be implemented by the end of 2010;
- the Commission should optimise the existing Community instruments, including those available through the FP7 People programme, to reinforce the Partnership;
- as an integral part of the Partnership, Member States and the Commission should: identify good practice and where appropriate develop common guidelines; monitor progress at national and EU levels and report annually based on agreed indicators; make maximum use of the existing Community legal framework for the benefit of researchers.
- in line with its central role in the governance of European Research Area initiatives, the Competitiveness Council monitors and assesses progress in the implementation of the Partnership actions.

Upgrading Knowledge Generation and Sharing among European Regions – the Role of Brain Circulation, page 6

At the European level a genuine labour market for researchers would balance the supply and demand for researchers, boost productivity growth through better job matching, increase knowledge transfer and facilitate the development of centres of excellence throughout the EU, create better international connections for collaborative research and the economic exploitation of research results, and help to create more attractive conditions for industrial investment in research.

Better careers and more mobility: A European partnership for researchers, page 5

Key employment skills should include industrial needs and experience, complementary to traditional academic training. This includes:
- Research skills and techniques
- Communication skills: including reporting and writing techniques, oral presentation skills, and effective support to teaching researchers (teaching, mentoring, or demonstrating activities)
- Interpersonal skills: e.g. accepting responsibilities, working in teams, networking etc.
- Awareness on intellectual Property Rights (IPR): i.e. patents, copyrights, designs and trademarks
- View on private sector constraints: e.g. time constraints and engagements, mainly for delivering
- Career management: e.g. writing a CV, applying for jobs, submitting funding applications, planning a career, etc.
- Broaden scientific expertise with experience in other research domains, in particular for researchers who are likely to work in multidisciplinary teams

*Mobility of Researchers between Academia and Industry, page 11*
3.1 Doctrine, Programmes

The **Network of Innovating Regions** for the exchange of best practices; Europe INNOVA, a communication platform for professionals in various clusters and sectors: the Innovation Relay Centers for stimulating knowledge transfer in a wide range of markets;

*Towards an Open and Competitive European Area for Research Careers, page 16*

The OMC is a “soft” policy instrument that has a decentralized approach. The agreed policies are implemented by the member states and supervised by the European Council. The Commission has primarily a monitoring role, but in practice it appears to have considerable scope for agenda-setting and persuading member states to increase their efforts to reach agreed policy objectives. The OMC indeed allows the Commission to use peer pressure and “naming and shaming” processes to create stronger member state involvement in European policy processes.

*Towards an Open and Competitive European Area for Research Careers, page 23*

The EU has published a recommendation on the **European Charter for Researchers and on the Code of Conduct for the Recruitment of Researchers** (EC 2005c). The intention of the Charter and the Code is to give individual researchers the same rights and obligations wherever they work in the EU. In the 2007 green paper on the ERA (EC 2007c), the Commission outlines a broad strategy for the free movement of knowledge, of which researcher mobility is a crucial element.

*Towards an Open and Competitive European Area for Research Careers, page 21*

FP7’s **People Program** has as its objective to reinforce the career prospects and mobility of European researchers. Support is available for training, mobility, and the development of European research careers.

*Towards an Open and Competitive European Area for Research Careers, page 12*

It proposes to extend the Community’s instruments to further stimulate transnational cooperation and coordination by providing direct Community support for joint research and innovation programs between member states. The **new European innovation agenda** indeed is designed as a new partnership between the EU and the member states. In FP7, the ERA-NET is reinforced by a new module (called ERA-NET Plus) that provides a financial incentive by topping-up joint transnational funding with Community funding.

*Towards an Open and Competitive European Area for Research Careers, page 17*

The **new Marie Curie International Research Staff Exchange Scheme (IRSES)** in FP7 must be reminded.

It aims at promoting staff exchange between several European research organisations and organisations from countries covered by the European Neighbourhood policy as well as countries, with which the Community has an S&T agreement.

*Realising a single labour market for researchers, page 33*

Under FP7 (People programme), the **Industry - Academia programme (IAPP)** should be cited. This action seeks to open and foster dynamic pathways between public research organisations and private commercial enterprises, in particular SMEs, including traditional manufacturing industries, based on longer term co-operation programmes with a high potential for increasing knowledge-sharing and mutual understanding of the different cultural settings and skill requirements of both the industrial and academic sectors.

*Realising a single labour market for researchers, page 34*

The Commission launched in 2004 the **Integrated Lifelong Learning Programme** (2007-2013), with the general objective of contributing to the European knowledge society. The Lifelong Learning Programme consists of **four sub-programs**, one of which is the **Erasmus program**. A crucial aim of this program is to reinforce the contribution of higher education institutions to the process of innovation. For this aim, the autonomy of and investments in universities should be increased. The Commission urges the member states to establish a new partnership with their universities, moving from state control to accountability, and to acknowledge that addressing the severe funding deficit in higher education is a core condition for achieving the Lisbon ambitions (EC 2005d).
EC also paid attention to doctoral education. In its communication *Researchers in the European Research Area: One Profession, Multiple Careers*, the Commission discussed the recruitment, training, and career opportunities of researchers (EC 2003a). In particular, it argued that the competencies and skills of doctoral candidates should focus on a wider labor market perspective than only academic careers.

The EC presses for an open, single, and competitive labor market for researchers with attractive career prospects and incentives for mobility. In the near future, doctoral graduates may be assumed to not only find their careers in academia, government, and private sector R&D laboratories but also in general management positions.

Nearly all policy issues in the European higher education policy domain are implemented by means of intergovernmental conventions and resolutions, without any legal authority at the level of the Union.

The EU innovation strategy implies a shift in the orientation of the activities of the European universities. In their educational programs, they are urged to focus more intensely on entrepreneurial skills and to develop joint training activities with business and industry. In their research programs, they are prompted not only to address knowledge creation but also knowledge diffusion processes. As a result, the basic functions of the European universities appear to be changing. The general goal of the ERA is to bring researchers together to facilitate both knowledge creation and distribution. The centres of excellence and networks create critical mass and synergies that improve the productivity of knowledge creation. Networking also intends to facilitate both the geographic diffusion of new knowledge and its industrial application.

The expanded ERA must comprise six features:

1. an adequate flow of competent researchers with high levels of mobility among institutions, disciplines, sectors, and countries;
2. world-class research infrastructures, accessible to all;
3. excellent research institutions engaged in public-private cooperation, involved in clusters and virtual communities, and attracting human and financial resources;
4. effective knowledge-sharing between the public and private sectors and with the public at large;
5. well-coordinated research programs and priorities; and
6. the opening of the ERA to the world, with special emphasis on neighboring countries.

Researcher mobility is clearly a priority throughout the green paper. It suggests that the movement of knowledge is crucial for the future of the EU. The movement of knowledge should become a “fifth freedom” within the EU, complementing the four freedoms of the Treaty on European Union, which protects the free movement of goods, services, capital, and labor (EC 2007c).

The Commission also encourages cross-border research cooperation, public-private partnerships, research dissemination strategies, and joint European research projects. It intends to further develop the European protection of intellectual property and to continue exploring a “European patent”. It wants to create an open and competitive European labor market for researchers and to stimulate research career paths at the transnational level.

“Knowledge transfer involves the process of capturing, collecting and sharing explicit and tacit knowledge, including skills and competence. It includes both commercial and non-commercial activities such as research collaborations, licensing, spin-off creation, researcher mobility, publication, etc.” (EC 2007d, 2).
Advances in Information and Communication technologies have enabled a range of research activities and collaborations that are not dependent on a physical presence. Virtual mobility is likely to take on greater prominence within institutions as a cheaper means for researchers to collaborate compared to geographical relocation. In relation to infrastructure, setting up and equipping of labs is expensive and institutions with limited resources can find it difficult to establish a presence in some experimental activities. Virtual laboratories, where researchers can perform experiments remotely, offer one way of overcoming such limitations and the sharing of e-infrastructure costs between institutions/research groups is to be strongly encouraged.

Realising a single labour market for researchers, page 32

‘Shuttle’ stays are also an effective way of enhancing mobility of researchers in resource weak countries and also for those with family commitments. The advantages can include: not having to engage in the host countries’ tax systems; not having to deal with what can be prohibitive relocation expenses for some countries; less disruption for families; and the potential to continue to be employed in the home country.

Realising a single labour market for researchers, page 33

Some actions that combine physical and virtual mobility and the concepts of centres and networks of excellence could be a solution to train, retain and attract researchers.

Realising a single labour market for researchers, page 33

European-level infrastructure can provide a service for the whole European research community. However, implementing the ESFRI roadmap would cost 14 billion Euros over 10 years. Despite the increase in funding allocated to infrastructures in the 7th research Framework Programme and the possibilities for infrastructure-support in less developed regions under cohesion policy programmes, the EU budget is not big enough to provide core financing for the construction of new pan-European infrastructures, in addition to supporting open access to infrastructures of European interest and stimulating their coordinated development and networking. The mobilisation of national, private and other sources of funding is essential. Attracting investment from industry is particularly important given its current low level of involvement, even for infrastructures of direct interest.

The European Research Area: New Perspectives, page 15

It is also essential to further improve the education and continuous training of researchers. Young researchers trained in Europe should be confident that their qualifications will be rewarding for their careers. European doctoral programmes and further training should meet stringent quality standards, fulfil the needs of both academia and business, and be recognised across Europe. Researchers at all levels should be trained in cross-disciplinary work and S&T administration, including knowledge transfer and dialogue with society.

The European Research Area: New Perspectives, page 13

A more flexible and transparent European labour market for researchers is now viewed as highly desirable for research, innovation and growth in general and for improving employment and working conditions for researchers.

Evidence of the main factors inhibiting mobility, page 12

The need for Europe to rapidly improve its attractiveness to researchers by reducing administrative obstacles to mobility in the areas of social security entitlements, fast-track work permit and visa procedures and recognition of qualifications.

Evidence of the main factors inhibiting mobility, page 12

The notion of ‘enforced mobility’ was mentioned by some researchers who felt that they were expected to be mobile as part of a researcher career. One of our profiled respondents felt that he was obliged to be mobile as part of a career track in his home country (Spain):

I am forced to become a mobile researcher. The ideal curriculum for a person intended to enter in a Spanish University includes a two-year period [of] research developed in a University abroad. (Doctorate candidate from Spain- profile no.11)

Evidence of the main factors inhibiting mobility, page 43

It is clear that, within the ERA, supervision and training of doctoral candidates should be improved and restructured, moving from the highly individualised apprentice model to a more team-
oriented and collective form of supervision. However, it is also important that any changes/restructuring keep in focus the core component of doctoral training, i.e. the advancement of new knowledge through original research. In order to attract talented people to research, they must be first attracted to embark on a doctoral programme. As already stated, the traditional approach within universities is that the first step, the doctoral programme, is really an academic apprenticeship. This was certainly true in the past when only small numbers of dedicated individuals chose this option, with a high probability of gaining academic employment. This cannot be any longer the case, as doctorate is becoming the third level of high education within the Bologna Process, and as the increasing investments in R&D require more and more doctoral candidates as part of the research process.

Realising a single labour market for researchers, page 24

The Commission therefore proposes to develop a partnership between the Commission and the Member States designed to ensure real ownership of objectives and actions. This is essential to jointly drive forward a number of targeted priority actions in key areas selected for their potential impact at the Community, national and institutional levels. Many lessons can be learned from previous and existing initiatives at both the Community and national levels and there are many examples of good practice in the EU. Raising the level of all national systems and institutions towards that of the best would go a long way to creating a world class European research system. The impact of individual initiatives would be greatly increased by ensuring that they are planned and implemented in a coherent, consistent and mutually reinforcing way, based on commonly developed objectives and focussed on key areas.

Better careers and more mobility: A European partnership for researchers, page 5

The attractiveness of the EU as a research environment for international scholars and industry is a crucial condition for its competitiveness. In practical terms, the attractiveness presupposes smooth collaboration between academia and industry, supply of competent human resources through education, adequate public and private funding for R&D, and a predictable and enforceable legal framework for intellectual property rights (IPR). In the private sector, large corporations in knowledge-intensive branches are the beacons of technological innovation. Innovative small- and medium-sized companies (SMEs) usually prosper under the umbrella provided by the industrial drivers of technology.

Benefits of research institutions;
– The development of mutual trust between the research institution and industry, beneficial to the establishment of long-term strategic partnerships (as opposed to one-off contracts);
– The enhancement of research institutions research activities (access to state of the art industrial equipment, improving research institution project management skills, complementing the research institution competence base by new skills and techniques developed in industry, improved understanding of market needs and of industry problems);
– Gaining status and prestige (resulting from successful partnerships and products);
– The enhancement of research institutions teaching activities (involvement of industry-based lecturers, enrichment of teaching contents and materials with practical examples, learning how to apply skills and knowledge to solve real business problems …);
– The identification of potential new clients or partners for further research;
– Attracting, retaining and motivating good scientists interested in entrepreneurial aspects or in new professional career opportunities;
– Contributing to public authorities better recognising the socio-economic relevance of publicly-funded research, potentially leading to increased funding thereof.

Improving knowledge transfer between research institutions and industry across Europe, page 4

There should be more balance between incoming/outgoing students to ensure fair distribution of effort and resources between the two institutions (each should be at the same time “sending” as well as “receiving”); the flows of students should be balanced and not unidirectional. In particular, attracting students to East & Central European countries should ensure more regionally balanced flows of students within Europe (there is currently a huge discrepancy in numbers of students participating in the mobility programme between Western and Eastern European countries).

OBSE R ERASMUS, page 2
The Commission will explore all options to _boost substantially student and staff mobility in Europe_ and in this regard, explore with Member States and other actors how to give an appropriate follow-up to the recommendations of the High Level States and other actors how to give an appropriate follow-up to the High Level Expert Forum on Mobility. This includes the possibility of developing a European student lending facility in cooperation with the European Investment Bank. The Commission proposes to publish in June 2009 a Green Paper as a follow up to the High Level Forum and the policy discussion planned during the French Presidency, which will outline ways in which learning mobility – not just in Erasmus but in all forms of learning – can be expanded to become a norm and not an exception.

As regards researchers, efforts to enhance their mobility (geographical and sectoral) will be intensified in close cooperation with Member States in the context of the implementation of the recent Commission's Communication on the European Partnership for researchers as mentioned above. 

_Modernising Universities for Europe's competitiveness in a global knowledge economy, page 6_

The _international dimension of the FP_ should create win-win situations for all partners. This principle should be applied in all target objectives and action plans of the FP. The Union must attract the best researchers in the world and create innovative research environments and thus gain over the long term more from networking and “brain circulation”. To persuade third-country researchers to participate in the FP, its aims should be important even in global terms. Researchers from third countries often seem to consider the FP too Eurocentric and thus not necessarily of genuine benefit for them.

At the moment, the thematic priorities are often seen as rather narrow and politically defined reflecting the internal needs of the EU. This may result from the demand of European added value in the FP context that is reflected in the call for “defining the added value … in a more consistent manner than has been the case until now”. It appears the European added value should be seen more broadly – as part of the two-way street (win-win) in international scientific and technological cooperation.

To spread correct information on Framework Programmes and build capacity in the partner countries, the Commission should create mechanisms to prepare non-EU partners to participate in international actions. It has to be realised that third-country participants are usually not well aware of Community procedures. The Commission must ensure that the simplification process which begun successfully from the Marimon panels recommendations will be continued. There are, of course, other obstacles as well; among others, the fear of an excessive risk of failure of receiving Community funding, as well as administrative and financial restrictions in the EU countries.

**MARIE CURIE ACTION: INITIAL TRAINING NETWORKS (ITN)**

_There is no call in 2009. The intention is to adopt the 2010 work programme in mid-2009 and publish calls as early as possible thereafter._

_Work Programme 2009, People, page 7_

**MARIE CURIE ACTION: INTRA-EUROPEAN FELLOWSHIPS FOR CAREER DEVELOPMENT (IEF)**

This action is to support the career development of _experienced researchers_ at different stages of their careers, and seeks to enhance their individual competence diversification in terms of skill acquisition at multi- or interdisciplinary level and/or by undertaking intersectoral experiences. The aim is to support researchers in attaining and/or strengthening a leading independent position, e.g. principal investigator, professor or other senior position in education or enterprise. The action may also assist researchers to resume a career in research after a break.

Support is foreseen for individual, trans-national, intra-European fellowships awarded directly at Community level, to the best or most promising researchers from Member States and Associated countries, based on an application made by the researchers in conjunction with the host organisations.

_Work Programme 2009, People, page 8_

**MARIE CURIE ACTION: REINTEGRATION GRANTS (RG)**

The ERG action aims at assisting _experienced researchers_ in the (re)integration into a research career after a trans-national mobility experience within the frame of the Marie Curie actions. The action encourages the researchers to build on their trans-national mobility period in the context of a coherent professional project and to promote the perspectives of the development of their research career.

_Work Programme 2009, People, page 9_
MARIE CURIE ACTION: CO-FUNDING OF REGIONAL, NATIONAL AND INTERNATIONAL PROGRAMMES (COFUND)

There is no call envisaged in the work programme 2009. A call launched under the 2008 work programme will close on 19th February 2009. A further call will be included in the 2010 work programme.

Work Programme 2009, People, page 11

MARIE CURIE ACTION: INDUSTRY-Academia Partnerships and Pathways (IAPP)

This action seeks to open and foster dynamic pathways between public research organisations and private commercial enterprises, in particular SMEs, including traditional manufacturing industries, based on longer term cooperation programmes with a high potential for increasing knowledge-sharing and mutual understanding of the different cultural settings and skill requirements of both the industrial and academic sectors.

The action will be implemented through targeted and flexible support for human resources interactions within cooperation programmes between at least two organisations, one from each sector and from at least two different Member States or Associated countries.

Work Programme 2009, People, page 12

MARIE CURIE ACTION: INTERNATIONAL OUTGOING FELLOWSHIPS FOR CAREER DEVELOPMENT (IOF)

This action aims to reinforce the international dimension of the career of European researchers by giving them the opportunity to be trained and acquire new knowledge in a third country high-level research organisation. Subsequently, these researchers will return with the acquired knowledge and experience to an organisation in a Member State or Associated country.

Work Programme 2009, People, page 15

MARIE CURIE ACTION: INTERNATIONAL INCOMING FELLOWSHIPS (IIF)

Associated countries through knowledge sharing with incoming top-class researchers active in third countries to work on research projects in Europe, with the view to developing mutually-beneficial research co-operation between Europe and third countries. It aims to encourage these researchers to plan their period of international mobility within the framework of a coherent professional project and thus enhances the possibility of future collaborative research links with European researchers and research organisations in their future research career.

If the researcher originates from one of the International Cooperation Partner Countries, the possibility is provided to assist fellows to return to their country of origin, thus contributing to the establishment of sustainable cooperation between these countries and European research organisations.

Work Programme 2009, People, page 15

MARIE CURIE ACTION: INTERNATIONAL RESEARCH STAFF EXCHANGE SCHEME (IRSES)

The Marie Curie International Staff Exchange Scheme is a new type of action first implemented in 2008, that aims to strengthen research partnerships through staff exchanges and networking activities between European research organisations and organisations from countries with which the Community has an S&T agreement or are in the process of negotiating one, and countries covered by the European Neighbourhood policy. Compared to existing Marie Curie actions, which provide mobility possibilities to individual researchers, this new action will provide support to research organisations to establish or reinforce long-term research cooperation through a coordinated joint programme of exchange of researchers for short periods.

Work Programme 2009, People, page 17

MARIE CURIE ACTION: RESEARCHERS’ NIGHT (NIGHT)

This action aims to bring the researchers closer to the public at large, so enhancing their role in the mainstream of society. The increasing success and impact of this annual event since 2005 both in terms of number of people reached and the benefits to the Marie Curie programme justifies its annual frequency. The format of the call for proposals, which was applied for the first time in 2006, allows for
a greater cohesion between the various actions supported, their scale, the target audience and the messages delivered.

*Work Programme 2009, People, page 18*
3.2 Implementation mechanisms

Moreover, in some EU countries, their spouse (of a researcher) is also entitled to work. The commitment by those countries that opted in to this Directive is that it should have been fully implemented by October 2007. To date fifteen EU countries (Austria, Belgium, Estonia, France, Germany, Ireland, Italy, Latvia, Lithuania, Poland, Portugal, Romania, Slovenia, Slovakia and The Netherlands) have set up legislation implementing the Directive; the other countries are drafting their new laws or amending the existing ones. The implementation of the Directive is urgently needed for building a competitive and attractive ERA. Moreover, the Recommendation on short-term visas has so far not had a significant impact on national procedures. Realising a single labour market for researchers, page 17

Major infrastructures should be built and exploited in the form of joint European ventures. They should be accessible to research teams from across Europe and the world, with researchers working in Europe having access to international infrastructures and equipment in other parts of the world. These research infrastructures should be integrated, networked and accessed through the concomitant development of new generations of electronic communication infrastructures both in Europe and globally. The European Research Area: New Perspectives, page 9.

To encourage participation by external (to the recruiting organisation/country) candidates, the first selection step of recruitment should be made on the basis of a ‘dossier de candidature’, without the need for a physical interview or a written examination organised on site. All candidates must have the right to see the assessment criteria on which their application will be based. This is already common practice in many countries and sectors. It has a proven effect of encouraging applications from candidates of different nationalities and from outside the recruiting institution. Examples are available which show that changing from the interview-based to the dossier-based procedure has resulted in a ten-fold increase in the number of external applicants to doctoral candidate positions. In addition, candidates need to be given clear information on what the long-term prospective of the jobs might be and, in each Member States, the mutual recognition of diplomas principle should be respected. The free movement of workers in an enlarged EU requires a simpler and clearer system for the recognition of professional qualifications. Realising a single labour market for researchers, page 20

The recent ERC Starting Grant call, reserved to researchers within 9 years from the achievement of their doctoral degree, represents a concrete step forward to solve the issue of scientific independence for junior researchers. Realising a single labour market for researchers, page 23

An interesting approach in a number of countries is a Skills Statement that communicates to students, supervisors and, most important, employers the skills and attributes of a doctoral graduate. Such Skills Statements have been developed in various countries including the UK, the USA, Belgium and Australia. The European Universities Association (EUA) has recently announced the ‘Dublin Descriptors’ in the context of the Framework for Qualifications for the European Higher Education Area. Realising a single labour market for researchers, page 27

The promotion of innovative dual career strategies could also help address realising equal opportunities in the research professions within the ERA. A scheme in which a researcher’s partner, after the researcher has been selected for some grant that implies geographical relocation, is helped with finding a job in the same region is a good way to support the mobility of researchers. One way to start with dual career policies would be for the EC to participate in an existing successful dual career program like for example Partnerjob. Its website offers a simple tool to employees’ spouses/partners seeking work at their new location. It provides a database of job openings worldwide posted by member companies and spouses / partners have also access to a job database. Realising a single labour market for researchers, page 29
Although not specifically intended for RTD area, in the Netherlands, there is (since 1978) a highly successful network of retired experts and managers, who are sent out as volunteers to developing countries to share their skills and experience. This is a good and inspirational example of a network of senior experts.

Realising a single labour market for researchers, page 35

The EU Directive on Fixed Term Work (Council Directive 1999/70/EC) aims to prevent fixed-term employees from being less favourably treated than similar permanent employees; to prevent abuse arising from the use of successive fixed terms contracts; to improve access to training for fixed terms employees; and to ensure fixed-terms employees are informed about available permanent jobs.

Researchers in the European Research Area: One profession, multiple careers, page 19

There is much improved information for mobile researchers through a network of local centres and on-line. ERA-MORE and Researchers’ Mobility Portal was re-launched in June 2008 as the EURAXESS Researchers in Motion Network, for information on mobility, jobs and rights.

Better careers and more mobility: A European partnership for researchers, page 3

The European Qualifications Framework (EQF) acts as a translation device to make national qualifications more readable across Europe, promoting workers’ and learners’ mobility between countries and facilitating their lifelong learning. Despite this, institutions still lack understanding of the procedures and standards for recognising academic and professional qualifications from other countries or sectors including non-formal qualifications.

Better careers and more mobility: A European partnership for researchers, page 6

Almost all project funding is tied to an institution within the country of the funding organisation even if relocation would be beneficial for the results of the project. The portability of grants provided by the European Research Council and the "money follows researcher" scheme piloted by national research funding agencies through EUROHORCs (European association of the heads of research funding organisations and research performing organisations) could serve as models for other initiatives.

Better careers and more mobility: A European partnership for researchers, page 6

Host countries or regions, should in the short term introduce subsidies for research fellows who are not covered by any domestic pension system by also facilitating their building up of pension rights with a financial institution (third pillar). This proposal is targeted at researchers who do not hold legal status (such as ‘employee’ or ‘self-employed’), allowing them to be granted full statutory pension coverage and/or supplementary pension rights. Thus, it refers to researchers who work on a stipend or fellowship or any other similar form of grant basis and, as such, are normally not able to build up any (or to only build up reduced) statutory or supplementary pension rights. Young researchers, i.e. doctoral candidates and, in some cases, also young post-docs are considered as ‘students’ and therefore paid by ‘stipends’ instead of employment contracts (either fixed-term or permanent). This practice allows research institutions, employers, and funders to hire a higher number of researchers, because of ‘economies’ or social security costs but may entail a lack or reduced social security and/or supplementary pension rights.

Realising a single labour market for researchers, page 48

For the medium and long-term solutions, a Pension Support Centre (PSC) could be introduced. Dedicated to researchers for a trial period, a Pension Support Centre (PSC) could be established in a number of EU Member States, thereby limiting its operational costs. It would cover statutory and supplementary pensions. For a practical start, such a PSC: would provide mobile researchers with information about how the domestic pension system(s) work; could be consulted by them about the effects of working abroad for a defined period on pension rights.

The PSC could help and advise mobile researchers on how to fill up any pension gap. This initiative would gather expertise on pension issues for a highly mobile research workforce. Information tools already exist: e.g. Eulisses116: it should be concretely explored how they could be taken into consideration in this context.

Establishing a PSC in a Member State does not require any new legislation, however, appropriate measures should be taken to guarantee data protection.
The Pension Support Centre (PSC) could be accompanied by the development of a National Pension Register (NPR) in each EU Member State. While the PSC would provide its services (possibly in connection with ERA-MORE Mobility Centres) on the basis of existing information, it should also create the conditions for the establishment of a NPR in each MS. The pension register would consist not only of a databank, but also of a user friendly, internet-based application through which everybody at any moment can login with a private password and inquiry on his/her pension rights (old age pension, partner pension, disability pension etc). Countries which already have a pension register in place, at least for the first pillar, are closer to this step are Sweden, Denmark and the Netherlands. In the future, second and eventually third pillar pension rights could be added.

Interlinking the National Pension Registers (NPR) Once the NPR are established and working, the next step would be to interlink them to improve availability and exchange of updated information. Again, such an ambitious and complex project may start with a specific category of workers, such as researchers, to be then extended to other citizens.

It is suggested to launch immediately a feasibility study on the possibility of establishing, in the medium-term, a pan-European Pension Fund for researchers. Such a Fund (for instance a ‘IORP-type’ fund, i.e. a second pillar provider based on the current Pension Fund Directive) would make it possible for intra-European mobile researchers to build up their supplementary pension rights within a single pension fund, while still complying with the different social, labour and pension legislation of the participating Member States.

Tax incentives would help building up pensions on an individual basis with an EIORP (second pillar) or a financial institution (third pillar). In situations where no pension or insufficient pension provisions are available, tax incentives can be given to encourage citizens to participate in second or third pillar pension schemes, to build up a pension capable of preserving the standard of living after retirement.

There is one line of action that could attenuate the negative affects of a low publication rate or gap in CV because of having to meet family and social responsibilities.

That would be the promotion as a general rule, in all type of applications for a researcher position, not to ask for a ‘complete list of publications’ but only for the best 5 or 10 (depending on the job level) products of the researcher’s work (e.g. papers, but also patents, books, etc., according to the specificities of the research area).

In this way:
- quality instead of quantity becomes more important in the selection process;
- the assessment becomes based on ‘performance relative to opportunity’, rather than on ‘absolute performance’;
- a more equitable judgement is produced, allowing for individual life circumstances, e.g. the circumstances of women who have taken time out for childbearing and, in general, ‘career breaks’

Whereas a full compatibility of career development schemes across Europe seems out of reach for the whole researcher population at the moment, this may be achieved for doctoral education. An increased compatibility among doctoral programme schemes would favour the development of international programmes and facilitate mobility. This would in turn contribute to build ERA and break barriers which, thus far, boosted fragmentation and competition at the expense of critical mass and collaboration.

Only institutions who signed the Charter & Code for the Recruitment of Researchers are eligible for submitting these project proposals, indicating quantitative, measurable objectives to be achieved by 2010. The proposing institutions will commit themselves to broadly advertise and explain C&C not only internally, but also to other public and private research institutions. The projects will
include the creation of an ERA and C&C information network of ambassadors, with representational duties, and promoters, with operational duties.

**Realising a single labour market for researchers, page 54**

The professionally managed information campaign that this group foresees should include: the creation of ‘ERA branded’ promotional material, specifically devoted to particular chapters or issues addressed in C&C; the organisation of exchange opportunities like conferences, meetings and workshops; the provision of manuals and templates, in the different EU languages, adapted to the local needs.

**Realising a single labour market for researchers, page 5**

Organise placements and internships in industry, especially in SMEs. Such schemes already exist, however the aim should be to include placements/internships in researchers’ curricula as it is the case with most engineer and business schools in Europe. A minimum period of six months should be ensured. Early stage researchers should be trained for being effective in their search of internship. Academia alumni could provide assistance for finding suitable internship positions.

Examples: The University of Manchester & UMIST Careers Service, UK, is working with large companies and SMEs to develop placement but also to support local business by involving SMEs in curriculum development, by partnering with 13 other Careers Service in the region to offer a pool of 50 000 students placement and graduate jobs, and to help SMEs access resources at universities.

**Mobility of Researchers between Academia and Industry, page 13**

Structured partnerships with the business community (including SMEs) bring opportunities for universities to improve the sharing of research results, intellectual property rights, patents and licences (for example through on-campus start-ups or the creation of science parks). They can also increase the relevance of education and training programmes through placements of students and researchers in business, and can improve the career prospects of researchers at all stages of their career by adding entrepreneurial skills to scientific expertise. Links with business can bring additional funding, for example to expand research capacity or to provide retraining courses, and will enhance the impact of university-based research on SMEs and regional innovation.

**Delivering on the modernisation agenda for universities: education, research and innovation, page 6**

Learner mobility between countries is an essential element of lifelong learning and for building people's employability and adaptability. Evaluations of the EU programmes show that mobility breaks down barriers between people and groups, makes the benefit of European citizenship more tangible and helps people become more adaptable and open to mobility when they enter the labour market. Crossborder learner mobility should become the norm, rather than the exception that it is today. A new commitment of all actors, together with more broadly-based funding will be required to achieve this. An updated strategic framework for European cooperation in education and training, page 7

**Mobilising the brainpower of Europe, page 6**

Temporary mobility between sectors is often difficult or not possible: either the available positions are not largely publicised, or it is simply difficult to find the expertise needed. Develop inter-sector mobility opportunities via staff exchanges, part-time positions, sabbaticals, honorary positions, or financial or statutory incentives, offered to both early stage and established researchers.

Example: industrial residents’ concept in “research hotel” for researchers from industry who enrol in academia for refreshing their knowledge, as part of lifelong learning for researchers, in IMEC, Belgium.

**Mobility of Researchers between Academia and Industry, page 12**

In the area of R&D, transfers of personnel are particularly crucial because they allow face-to-face interaction through which less codified forms of knowledge can be shared. Although ICT applications such as email, videoconferencing, instant messaging and groupware have enabled the implementation of virtual teams, face-to-face communication is still considered one of the
‘richest’ forms of communication (Daft and Lengel, 1986). Face-to-face interaction appears to solve problems and complete tasks faster than electronic communication (see, for example, Desanctis and Monge, 1999) because it allows the transmission of multiple clues (i.e. eye contact, head nods and tone of voice) and immediate feedback. As shown by Orlikowski’s (2002) study of a global product development team, face-to-face interactions play a crucial role in transferring complex knowledge as well as building trust, commitment, and establishing and sustaining social relationships. This point is also emphasised by recent studies on the social dimension of R&D spillovers (Breschi and Lissoni, 2003; Singh, 2004; Stolpe, 2002). These contributions have shown that inter-firm researcher mobility is very important in explaining the occurrence of knowledge spillovers through the formation of social ties between researchers who have worked together in the past.

These social relationships allow the sharing of information among researchers even when they are no longer part of the same organisation.

Organization within the host institutions
Host institutions are to prepare the following organizational structure:
- President of the institution who acts as the Representative
- Head of the unit who is responsible for preparing the application, exchange plan, and conducting fund management, exchanges, and reporting.
- A researcher employed full-time or classified as being employed full-time at the host institution who serves as the Coordinator with regard to the exchange plan, implementation and reporting.
- Host Researchers who are responsible for accepting and mentoring individual young researchers. They must be affiliated with the host institution or one of the Cooperating Institutions.
- Administrative Staff of the host institution who administer the dispatching and inviting of individual researchers and manage the funds commissioned from JSPS.

Linkage with Other Institutions
- Universities and research institutions in the eligible countries may become Overseas Partner Institution(s). More than one institution may be an Overseas Partner Institution. It is desirable to assign as Overseas Partner Institutions those institutions that already have established a cooperative relationship with the Japanese host institution via an inter-university agreement or other means.
- In addition to the host institution, other universities or institutions in Japan may participate as Cooperating Institutions in the exchange projects. Invited young researchers may conduct research at a Cooperating Institution. In such cases, the host institution shall still be responsible for funding provision.

Eligibility Requirements for Invited Young Researchers
(1) Nationality
- Principally, invited young researchers are to be a citizen of an ASEAN country (Indonesia, Cambodia, Singapore, Thailand, Philippine, Brunei, Vietnam, Malaysia, Myanmar, or Laos). However, researchers from India, Australia or New Zealand may also be included.
- As the objective of this program is to promote exchange with ASEAN countries, more than 70% of the invited young researchers must be of ASEAN nationalities.
(2) Degree Requirement
- Researchers must have received a doctorate degree within six years from the proposed starting date of their research in Japan, or be currently enrolled in a master’s or doctoral course.
(3) Affiliation Requirement
- Researchers must be, in principle, affiliated with or enrolled in an institution in one of the eligible countries. Other researchers may be included on the condition that they do not number more than 20% of all the invited young researchers in a project.

Application Guidelines for the Exchange Program for East Asian Young Researchers, page 2-3
4. Good Practice cases

In the area of international research cooperation, the EU has demonstrated that it is able to show leadership to address global challenges. The International Thermonuclear Experimental Reactor (ITER) is a showcase. However, these initiatives are far from systematic and often poorly coordinated with those of the member states.

Towards an Open and Competitive European Area for Research Careers, page 28

A number of UK institutions are taking measures in an attempt to reduce the uncertainty of a research career. At The University of Bristol, we were advised of a policy to try to redeploy research staff to work on different projects, once their contract has ended, though the potential for this can vary between disciplines. As the interviewee explains:

For Arts and Social Science we might have researchers who can be moved around from project to project as opposed to researchers in medicine who tend to be more specialised in their subject area and therefore it might be more difficult to move them around from project to project. (HR Manager, The University of Bristol, UK)

Evidence of the main factors inhibiting mobility, page 52

The lack of widely-accepted ‘career track models’ which outline the likely shape of a professional career as a researcher has sometimes been highlighted as a gap which policy action could usefully fill. In some countries, such as the UK, research funding agencies have teamed up with research-performing institutions in order to clarify at least some aspects of a more structured research career in parallel to the more traditional academic (teaching + research) career path.

Evidence of the main factors inhibiting mobility, page 42

Universitat Politècnica de Catalunya (UPC) created the Academic Staff Mobility Office in April 2003 as part of its Strategic Support Policy for the year 2003-2006. The reasons to create such an office were: an institutional concern for supporting and improving the research activity at the UPC; the conviction that mobility plays a key role in research training and in the development of the knowledge society; the fact that a poor number of academic staff are having research experiences abroad; the fear that the tedious and frustrating legal and administrative procedures could dissuade researchers from inviting their colleagues or could dissuade researchers from moving to the university.

In the near future UPC plans to improve its services by: carrying out a user satisfaction survey, publishing a service charter that will provide exact information on the services that the academic staff can ask to be provided with. This service charter will specify the quantitative and qualitative commitments to our users, measured with objective quality indicators.

A mobility action: easing the transition for visiting researchers, pages 2-8

Example of the Exchange Program for East Asian Young Researchers, provided by the Japan Society for the Promotion of Science guidelines. Japanese universities or research institutions are eligible to be a host institution under this program. Applications are prepared by the unit conducting the exchange project (e.g., a department of a host institution) and submitted by the president of the institution. Multiple applications may be submitted from an institution. In such cases, the host institution must prepare a comprehensive system for hosting the young researchers.

Application Guidelines for the Exchange Program for East Asian Young Researchers, page 2

The Anglo-Saxon model

This model includes countries like the UK (see box below), Ireland and The Netherlands and functions according to rules and dynamics quite opposite to the Continental model.

Universities in these countries offer relatively open and transparent recruitment procedures and are quite open to non-national scholars. These systems do view foreign scholars, at all levels from the doctorate to the visiting professor, as key elements in encouraging a dynamic culture within their national higher education institutions.
The result is not only a high level of foreign scholars working in these countries for short or long periods of time, but also an internationally recognized scientific output. A very important factor of their academic magnetism is not so much the salary level but above all the high rate of salary increases over a career; it provides a significant working incentive for academic staff.

The main areas of job and career satisfaction reported by academic researchers in these systems are academic flexibility, freedom from teaching tasks and the quality of administration. This does not mean that scholars in these countries are free from every type of administrative tasks but they do enjoy the greater time available to focus on their research. This is visible in the output in terms of quality and quantity, which has of course a direct impact on the ranking and visibility of universities at world level and their capacity to compete with US universities.

*Towards an Open and Competitive European Area for Research Careers, page 8*

Measures with a view to creating more favourable conditions for researchers.

**Belgium** - Universities are allowed to offer tax-free fellowships with full social security coverage to post-doctoral researchers who are undertaking a period of mobility in academia.

**Denmark** - There is a special tax of 25% for a maximum of 3 years for foreign researchers.

**Hungary** - For Hungarian researchers tax exemption is provided for studies or research pursued in foreign educational or research institutions, and for scholarships disbursed by a foreign entity (company, private individual, etc.).

**Israel** – Fellowships from graduate level to post-doctoral researchers are tax free; however, the beneficiaries are not covered by the social security schemes.

**Poland** – The income of a researcher employed under a work contract is tax exempted if the salary is provided by a foreign government or an international organisation on a non-refundable basis. Different types of research fellowships (e.g. doctoral fellowships, NATO or Marie Curie grants) are tax exempted, based on a decision of the Ministry of National Education and Sport.

**Slovenia** - A new proposed Law on Taxation proposes freeing foreign researchers of income tax when coming for training and doctoral degree preparation purposes as well as for research work within international projects.

*A Mobility Strategy for the European Research Area, page 13*

Following the review by Sir Gareth Robert, the UK government is allocating funds to academia for employability skill training. Key employment skills are mandatory in the UK for professional development for doctoral candidates and post-docs under contract with Research Councils. The training is equivalent to 2 weeks training given by professionals. Additionally, the new post-doc scheme proposed by the Research Councils UK, the “academic fellowship scheme”, also includes employment skills training.

*Mobility of Researchers between Academia and Industry, page 10*

Develop the concept of consultancy by academic staff as one of the simplest ways for academia to interact with industry and exchange research expertise. The legal arrangement terms of short employment contracts are relatively simple in comparison to other short term mobility. For large companies, consultancy offers a chance to get to know academic researchers, while SMEs can benefit from consultancy for a relatively low cost. Consultancy is often seen as a first step towards other collaboration. Much collaborative research in academia originates from consultancy relationships.

Examples: **Schlumberger, France**, offers budgets of €25 000 to €100 000 to company researchers to be freely spent, without any restrictions, for research consultancy work outside the company. These generate cooperation with academia, and are seen generate a positive return on investment to the company.

At **MIT (US)** the employment contract covers only 9 months per year, the rest of the time can be filled by consultancy work. MIT provides strong financial incentive to academics to bring in industrial research income: it removes teaching responsibilities for those who bring more than $2m, and administrative responsibilities for more than $4m.

*Mobility of Researchers between Academia and Industry, page 13*

Other positive examples of INCO cooperation include the **Forum for European-Australian Science and Technology Cooperation** (commonly known as “FEAST”). It is an organisation established by the Australian Government and the EU to highlight and promote research collaboration between their
respective research communities. This initiative has been followed by information events in partner countries and regions. It is a common impression that events in partner countries and regions have been successful; for instance, participation in the FP has grown in those countries where they have been actively promoted. Another example of good practices has been the active collaboration between the EC and South African R&D actors. This cooperation has been facilitated by the National Contact Point (NCP) system in the RSA promoting the implementation of the international aspect of FP6. As a result of the NCP system, the participation of South African researchers and their teams in FP6 has been growing. There are good reasons to endorse the further development of the NCP system in third countries as well as the need to continue FEAST-type events also in other regions.

*International research cooperation, page 14*

Research institutions should have sufficient information about all Estonian researchers in their area of research regardless of where they are located, and they should offer enough information about possible vacancies coming up or being created. Prevailing among the participants was still the principle of equality, i.e. researchers staying abroad and those working in Estonia should both be equally informed about upcoming vacancies, for instance, and researchers working abroad should not receive any preference in the competition for the vacancy simply for the sake of bringing them back to Estonia.

In an attempt to bring (back) foreigners and Estonian researchers to work in Estonia, every research unit should have its on reserve fund so that it can make more flexible decisions about whom and when it wants and can employ. For example, the head of an institute has a certain amount of money to employ about 2–3 new researchers or post-doctoral students a year, these vacancies will be announced publicly, and the head of the institute can choose who to employ.

*Researcher Mobility in Estonia and Factors that Influence Mobility, page 48*
5. Recommendations

Host institutions should aim to establish; **provision of transferable skills training as part of graduate and doctoral programmes in partnership with the business community**; joint-supervision of doctoral candidates – one from each sector; develop intersectoral mobility opportunities – particularly through consultancy and internships and advertise vacancies; ensure proper recognition of intersectoral mobility in the evaluation process; favour co-location and collaboration through jointly funded research grants and fellowships.

*Realising a single labour market for researchers, page 34*

Even **after their official retirement, many researchers are willing and able to contribute to science.** While it would be an unacceptable waste not to make good use of the knowledge and experience of retired researchers, it is important that they do not, by doing a job on a voluntary (unpaid) basis, take or keep jobs that could be occupied by younger researchers. Therefore, it is proposed to develop a programme for retired researchers that only involves tasks that other researchers cannot accommodate within their existing workloads, or that are sorely needed but cannot be afforded within existing institutional resources.

*Realising a single labour market for researchers, page 34*

There is scope for an EU programme offering the services and knowledge of retired researchers and lecturers to less developed regions and countries. This could also play a role against talent drain from less favoured countries/regions, e.g. designating special funds for local doctoral candidates supervised by retired scientist. The UN Transfer of Knowledge Through Expatriate Nationals (TOKTEN) programme and the HERDER programme in Germany could serve as models.

*Realising a single labour market for researchers, page 35*

The European Commission should **take a specific action with FP7 to achieve wide knowledge of the Charter and Code for the Recruitment of Researchers principles.** This line of action should include: a *rebranding exercise encompassing the C&C, ERAMORE and the European Researcher’s Mobility Portal* with unique logo; a professionally managed project supported and financed by the EC; human, structural and financial means provided to broadly advertise and explain C&C in all public and private research institutions.

*Realising a single labour market for researchers, page 54*

As regards the presentation of the professional experience, current practice shows that a researcher’s CV normally requires the listing of the different experiences in chronological order with precise references to education and work experiences, additional skills, proficiency in foreign languages etc. one of the most important factors however, seems to be that professional experience is based on a “linear” career path, similar to the structure of a “ladder” with no chronological gap. Many researchers perceive this as a “penalising” factor particularly in the case when they move from one discipline to another, which is considered as an important feature in the whole innovation process but often not recognised as such, or in the case of a temporary interruption for personal or family reasons.

It has been suggested that researchers should have the possibility to remove a certain number of years from their CV, if they consider it necessary and appropriate, when applying for a post. This would imply a change of attitude to the part of the different actors of the research community who
would need to be more open towards “non-linear” career paths and base their judgement on merit and not necessarily on chronological order.  

*Researchers in the European Research Area: One profession, multiple careers, page 17-18*

Researchers are a relatively small and highly specialised workforce so it will not always be possible to find the best qualified individual for a given research position within any single national system, let alone within a single institution. The widespread adoption of open recruitment in the public sector is therefore likely to improve Europe's research performance as well as providing more opportunities for researchers.  

*Better careers and more mobility: A European partnership for researchers, page 6*

Pension providers should be encouraged to open up pan-EU pension schemes targeted to researchers and companies should be encouraged to use pension providers in other EU Member States. This would allow mobile researchers to contribute to the same supplementary pension fund while working in different EU countries and still comply with the different social, labour and pension legislation in the participating Member States. This will require the possibility of opting out where researchers are obliged to participate in a domestic pension fund by law.  

*Better careers and more mobility: A European partnership for researchers, page 7*

One interviewee from a Polish university suggested: It would be optimal if from a group of 5-10 researchers 1-2 people go abroad. One comes back and then a next person goes. That's how I imagine it (Professor, Poland).

While one of our Estonian interviewees suggested If you wanted to put it into numbers then I could well imagine 10% of a group be it the faculty within an institute or a narrow research project spending time abroad at any given semester… from our perspective large numbers going away would narrow the pool here and one cannot always replace them with non Estonians as teaching here has to be done in Estonian in most cases. (Research Manager, Estonia).  

*Evidence of the main factors inhibiting mobility, page 53*

Member States and Commission to ensure that all publicly funded researchers' positions are openly advertised online, in particular through EURAXESS; also, Member States and Commission should ensure adequate information and assistance services for researchers moving between institutions, sectors and countries including through EURAXESS and the EURES platform.  

*Better careers and more mobility: A European partnership for researchers, page 6*

Circulation of researchers in relation to third countries could be facilitated by specific clauses in bilateral and multilateral agreements on social security between Member States and third countries, allowing for aggregation of periods, the possibility to remain subject to the home country social security regime for a certain period while working abroad and the exportation of benefits when they return to their home country.  

*Better careers and more mobility: A European partnership for researchers, page 6*

Ensuring retention of pension rights in the country in which they are accrued is guaranteed: or by enhancing the possibility of transferring entitlements internationally or by introducing the possibility of joining pension funds in other countries. Cross border protocols about these arrangements could probably be worked out between research-performing institutions together with trade unions and professional associations representing researchers. The role of the EC here may best be one of encouragement and facilitation.  

*Evidence of the main factors inhibiting mobility, page 60*

The “Scientific Visa” is a measure to systematically address these problems and the scheme has positive implications for career tracks as it recognises and formalises the mobility experience for third country researchers. The directive also sets up a specific procedure for admitting third-country researchers to Europe to carry out a research project. The main concept is to create a specific residence permit for foreign researchers independently from their contractual status (see Council Directive 2005/71/EC, Council Recommendation 2005/762/EC, Recommendation 2005/761/EC). However, these schemes have not been implemented across the entire EU and perhaps may not be well understood by non-EU researchers, suggesting further work could be done in this area.  

*EC, DG Research, Evidence of the main factors inhibiting mobility, page 61*
In their analytical paper Demange, Fenge and Uebelmesser (2008) investigate within a general equilibrium setting what role international mobility of skills can play in the reform agenda. Taking into account the individual incentives to invest in higher education, they examine how optimal government instruments, such as financing and quality standards, will differ depending on the mobility of skills. If only skilled workers are mobile, government have an incentive to cut subsidies and risk lowering the quality of education to sub-optimal levels or to raise tuition fees. Promoting the international and within-country mobility of students helps to offset some of these inefficiencies and provides a justification for the Bologna process. As pointed out by Ferreira (2007), the European Investment Bank may play an important role in setting up a European-wide system of income-contingent loans. This could avoid problems of graduates moving to another country in order to avoid repaying their loans, but more importantly it would give a real boost to pan-European mobility of students.

Towards Evidence-based Reform of European Universities, page 18

European Qualifications Framework: Link all national qualifications systems to the EQF by 2010 and support the use of an approach based on learning outcomes for standards and qualifications, assessment and validation procedures, credit transfer, curricula and quality assurance.

An updated strategic framework for European cooperation in education and training, page 7

The integration of graduates into professional life, and hence into society, is a major social responsibility of higher education. Learning needs to encompass transversal skills (such as teamwork and entrepreneurship) in addition to specialist knowledge. European and interdisciplinary aspects need to be strengthened. The potential of ICT should be fully exploited in teaching/learning, including for lifelong learning. The bachelor-master divide allows more diverse programme profiles and learning methods (e.g. research-based learning and ICT delivery).

Mobilising the brainpower of Europe, page 5
C - Select bibliography

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