IRISH UNIVERSITIES ASSOCIATION

RESEARCHER CAREERS AND MOBILITY CONFERENCE 2013:

ARE RESEARCHERS READY FOR A KNOWLEDGE-INTENSIVE EUROPE?

CONFERENCE REPORT SEPTEMBER 2013

FOREWORD

The Irish universities deeply appreciated the opportunity to host this EU Presidency conference that focused on developing researcher careers.

The recognition across Europe that investment in research and innovation is critical for economic recovery should be good news for researchers. More funding for research creates a demand for more PhD students and postdoctoral researchers. However the fact is the current system is producing too many researchers for the jobs available to meet their expectations of remaining in academic research. There is growing disillusionment globally in the research community. Many believe that the current system absorbs young researchers and tosses them aside when the work is completed with no regard to supporting their career development.

This conference focuses on one of the policy objectives of the EU; to develop better research career opportunities. It asks the question as to whether the system of academic apprenticeship is still fit for purpose? This is a critical issue for universities across Europe as it is they who are being asked to provide education and professional development for researchers. They struggle between the desire to support researchers and legislation that can impose unreasonable long-term employment demands.

EU Presidency conferences are unique opportunities for the host country to focus on specific European policies and bring local expertise and opinion to the discussion. This conference provided the forum for a frank and open discussion among the key stakeholders, especially researchers, to see how European policy can help to improve the situation. This report captures the substance of that discussion over a two-day period in Dublin. We believe that the implementation of this report's conclusions and recommendations will help Europe to progress in improving researcher career development.

Dr Conor O'Carroll, Conference Director
Dr Jennifer Brennan, Conference Programme Manager

Supported by the European Union

EXECUTIVE SUMMARY

The EU2013 Research Careers and Mobility Conference took place on 14th and 15th May 2013 in Dublin under the auspices of the Irish Presidency of the Council of the European Union. The conference brought together over 240 participants representing a wide range of key stakeholders, including individual researchers, research representative organisations, policy makers, research funding bodies, delegates from universities and the private sector, to develop practical solutions to career and mobility challenges faced by researchers in Europe.

The conference focused on European Union research policy, the European Research Area (ERA) and specifically, the free movement of knowledge and researchers across borders. The overarching aim of the Irish Presidency conference was to take stock of the progress to date, identify the outstanding obstacles and, in dialogue with all relevant stakeholders, develop recommendations to address these issues. Building on the significant policy groundwork laid at EU level, the focus of the conference was the translation of the ERA policy objectives into practical solutions, which can be implemented in the context of Horizon 2020.

The following themes were addressed during the conference:

1. Recruitment of Researchers
2. Preparing Doctoral Candidates for the Future
3. Professional Development and Training for Researchers
4. Mobility across disciplines, sectors and borders

A key feature of the conference was a strong focus on the involvement of individual researchers from the public and private sectors and across all career stages to enable their input into shaping future initiatives in interaction with policy makers, researcher funders, research employers, universities and representative bodies.

The conclusions and recommendations elaborated by the conference show that a partnership approach involving all stakeholders is necessary to drive forward the ERA agenda. While EU-level policies and initiatives can provide an impetus, take-up and implementation requires commitment and responsibility across the board from Member States, universities, industry, research funders, representative bodies and individual researchers. The solutions developed must be adequate to address the challenges at hand and the range of tools for policy implementation available to the Commission should be considered in full. In some cases, voluntary coordination is sufficient, while for other "stickier" issues, more binding approaches may be required.

RECRUITMENT OF RESEARCHERS: TRANSPARENCY AND ATTRACTIVE CAREER PROSPECTS ACROSS SECTORS

Recommendation 1: Evaluation criteria for publicly funded fellowships should be developed by research funding organisations with researchers, and as far as possible, be standardised for all schemes. An external agency at national or European level could be tasked with checking that the criteria are in line with the principles of the Charter and Code.

Recommendation 2: Universities, research funders and industry should fill all research positions according to open, transparent and merit-based recruitment. The EURAXESS Jobs Portal should be established as the European job portal for all research jobs and positions, including internships. The service should be sustained on a long-term basis with co-funding from the EU and the Member States.

Recommendation 3: The success of the EURAXESS network should be harnessed and its remit extended to provide customized advisory services for private sector employers in researcher recruitment and mobility issues. An industry user interface for EURAXESS centres, modelled on the new Irish version , should be rolled out to other countries.

Recommendation 4: The European Commission should consider using Horizon 2020 funding as a tool to support and incentivise open recruitment. Possibilities for incentives and penalties should be explored, such as conditionality in funding subject to the implementation of the principles of the Charter and Code for Researchers.

Recommendation 5: A key part of developing independence is for researchers to secure their own funding. This is well supported by the European Commission through the Marie Curie Actions and the European Research Council. National funders and employers should facilitate this independence by explicitly recognising young researchers as professionals and, for example, allowing them to apply for funding in their own name.

PREPARING DOCTORAL CANDIDATES FOR THE FUTURE: DIVERSE CAREER PATHS, QUALITY MAINTENANCE AND MAINSTREAMING

Recommendation 6: Wider uptake of the Principles for Innovative Doctoral Training should be promoted by the EU, Member States, institutions and funders.

Recommendation 7: Existing good practices in Member States in dealing with issues specific to PhD research carried out in industry, such as disclosure and IPR, should be widely disseminated, possibly in the form of a common set of best practice principles.

Recommendation 8: Appropriate structures for cost-sharing with industry/other sectors should be developed in order to finance a wider roll-out of structured programmes

Recommendation 9: Possibilities to broaden structures for doctoral training via use of the EU Structural Funds should be explored.

Recommendation 10: The EU Commission via Horizon 2020 should help to set and promote standards by mainstreaming the Marie Curie experience and standards for doctoral training across all priority actions for all PhD candidates employed in projects, including European Research Council grants, and earmarking funds for innovative training elements.

PROFESSIONAL DEVELOPMENT AND TRAINING FOR RESEARCHERS: PLANNING FOR MULTIPLE CAREER PATH, SKILLS AWARENESS AND DEVELOPMENT

Recommendation 11: Awareness-raising among early-stage researchers by research funders and institutions with regard to non-traditional career paths is urgently required to counter the gap between expectations of a career in academia and the availability of tenure-track positions. This should target researchers at an early stage in their careers, for example, by providing pre-entry advice to PhD candidates on the diversity of research careers and a realistic assessment of the current employment situation.

Recommendation 12: Exposure to industry and other relevant employment sectors as part of skills development or careers advice from role models outside of industry can help to broaden career perspectives. Under Horizon 2020, a new Marie Curie Fellowship scheme could be considered to fund internships outside of academia for postdoctoral researchers.

Recommendation 13: Access to careers advice should be available to researchers at all stages of development up to and beyond the completion of a PhD. In order to encourage research institutions to incorporate research careers advisory services in their HR policies, funders should consider including career development in funding criteria and making awards dependent on the delivery of a career plan, with updates throughout the grant duration. Similar incentives could be considered under Horizon 2020 to promote access to professional development and careers advice, such as extra funding for professional development or conditionality in funding criteria.

1 See Appendix 1 for EURAXESS Ireland Press Release 14 May 2013 - One-stop shop for research jobs and funding opportunities for business launched

Recommendation 14: The European Framework for Research Careers and the Vitae Researcher Development Framework should be harnessed and further developed to provide a common, structured European Researcher Development Framework which could facilitate transparency and mobility, provide a single European language to describe researchers' skills and support the aims of the Charter and Code.

MOBILITY ACROSS DISCIPLINES, SECTORS AND BORDERS: CHALLENGES, NEW CONCEPTS AND GLOBAL CONNECTION

Recommendation 15: Research funders, employers and the EU Commission should look at how best to respond to new concepts of mobility and their recognition, building on the work undertaken by the European Science Foundation. This also requires building the knowledge base through studies such as MORE and by introducing a career tracking system for researchers.

Recommendation 16: Inter-sectoral positions should be incentivised to encourage a two-way flow of human and knowledge capital between academia and industry at all career stages, e.g. by co-financing combined positions and facilitating a common approach in recognizing alternative but equivalent research outputs across sectors.

Recommendation 17: The growing imbalance in researcher mobility in Europe to the detriment of economically weaker countries needs to be countered urgently. Synergies between Horizon 2020 and the Structural Funds should be explored to address this, for example, through initiatives such as ERA Chairs.

Recommendation 18: The EU Commission should provide support to further develop and expand the EURAXESS Links Network, linking the scientific diaspora outside of Europe in a community of global scientific citizens.

Minister of State for Research and Innovation, Mr Sean Sherlock T.D with members of the Irish Research Council and winners of the conference travel bursary competition

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Director of Research IUA, Dr Conor O'Carroll, Minister of State for Research and Innovation, Mr Sean Sherlock T.D, European Commissioner for Research and Innovation, Ms Maire Geoghegan Quinn, Ms Jennifer Cleary and Dr Magda Wislocka, EURAXESS Ireland celebrating the launch of the publication "Attracting Reserachers to Ireland: the Impact of the Scientific Visa.

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European Commissioner for Research and Innovation, Ms Maire Geoghegan Quinn and Minister of State for Research and Innovation Mr Sean Sherlock TD with winners of the conference travel bursary competition from Ireland, Slovakia and Croatia.

1. CONTEXT AND BACKGROUND

As part of the EU agenda towards growth and more and better jobs, investment in research and the realization of the European Research Area is now more significant than ever. A crucial element in achieving the ERA is the creation of internationally competitive conditions to attract and retain the critical mass of talented researchers needed for a world-class unified area for research, knowledge and innovation. This overarching objective formed the focus of the EU2013 Research Careers and Mobility Conference which took place on 14th and 15th May 2013 in Dublin under the Irish Presidency of the Council of the European Union.

Significant progress has been made on many issues concerning researcher careers in recent years, including the *Scientific Visa Directive*[2], the *EU Charter for Researchers and Code of Conduct for their Recruitment*[3], the *EURAXESS network*[4], the *European Framework for Research Careers*[5] and, most recently, the *Principles for Innovative Doctoral Training*[6]. However, a number of challenges remain to be addressed:

- The gap in innovation performance between Member States is widening, threatening a desertification of talent in large areas of Europe.
- The EU continues to lag behind the USA and Japan in terms of the share of researchers in the total labour force, and most notably, in the share of total researchers employed in the business sector. Yet, many researchers in parts of Europe are facing precarious career prospects and even unemployment, suggesting an ill fit between the supply of researchers, their training and employer demand.
- Despite improvements in gender balance across all fields of science, the gender gap remains disproportionately high with the "leaky pipeline" still evident along the career progression scale.

The free circulation of researchers within a Single European Market for research knowledge and innovation continues to be inhibited by barriers such as social security and pension issues, a lack of open, transparent merit-based recruitment, uncertain career paths and employment conditions, deficiencies in career planning and professional development across all career stages and challenges to mobility across borders, disciplines and sectors.

These issues were reflected in the conference's thematic priorities as follows:

1.1 RECRUITMENT OF RESEARCHERS: OPEN AND MERIT-BASED RECRUITMENT PROCEDURES AND ATTRACTING NEW TALENT TO COMPANIES

The fair and transparent allocation of positions on the basis of academic excellence is a necessary condition in incentivizing research careers and facilitating researcher mobility. However, the ERA Pact Communication 2012[7] identifies the continuing lack of transparent, open and merit-based recruitment as one of the major barriers to a genuine European labour market. Failure to widely

2 Council Directive 2005/71/EC of 12 October 2005 on a specific procedure for admitting third-country nationals for the purposes of scientific research.

3 European Commission (2005) The European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers. European Commission: Brussels.

4 http://ec.europa.eu/euraxess/

5 European Commission (2011) Towards a European Framework for Research Careers. Brussels: European Commission.

6 European Commission (2011) Principles for Innovative Doctoral Training. Brussels: European Commission.

7 European Commission (2012) Communication from the Commission. A Reinforced European Research Area Partnership for Excellence and Growth. COM(392)final.

advertise job vacancies, unclear selection criteria and a high level of heterogeneity in the use of job titles and institutional approaches to researcher careers inhibit equal access to competition-based research posts and, thus, prevent an optimal allocation of the most talented researchers. There exists a dichotomy between the ERA goal of research excellence and the conditions under which researchers are expected to work towards this goal. Excellence in research can only be built on excellent working conditions for researchers with employment stability, an adequate gender balance and work-family balance. Open recruitment, i.e. increasing competition for positions, and reliable job prospects are not mutually exclusive goals, but rather complementary paths to incentivizing researcher careers. The *Human Resources Strategy for Researchers* provides a tool for the implementation of these elements, among the other principles of the European Charter for Researchers and Code of Conduct for their Recruitment, and Member States should consider creating enabling frameworks to facilitate its uptake and ensure that all research employers and funders should fill research positions according to open, transparent and merit-based recruitment procedures. At EU level, the EURAXESS Jobs portal should be established as the central market place for all research posts and institutional adherence to the principles of the Charter and Code could be considered as a condition for the award of Horizon 2020 funding.

Insufficient levels of collaboration between academia and the private sector in Europe also represent an obstacle to attractive career prospects. Cross-sectoral mobility is limited and primarily takes places as a one-way stream from academia to industry. The weak links between sectors present a two-fold concern, namely a competitive disadvantage for Europe on a global level and also the absorptive capacity of the private sector for researchers. A bilateral flow between sectors is needed and creative options to foster stronger links, such as co-funded positions or PhD industry placements should be explored. Better recognition and greater flexibility are needed regarding the different research outputs across sectors to support cross-sectoral mobility. The success of the EURAXESS network should be harnessed and its remit extended to provide customised support for private sector employers in researcher recruitment and mobility issues, including an industry user interface for EURAXESS websites.

1.2 PREPARING DOCTORAL CANDIDATES FOR THE FUTURE

Recent years have seen a strong policy focus on doctoral training, resulting in a move away from the traditional master-apprentice approach to the emergence of structured PhD programmes. The career trajectories of PhD graduates have become highly diversified across all sectors, in part due to the stagnating or decreasing number of academic positions and growing numbers of PhD graduates. As the vast number of PhDs will move on to careers outside of academia, doctoral education must also meet the needs of the wider employment market. An appropriate balance must therefore be found between safeguarding the PhD as a research degree and the acquisition of transferable skills. Systematic exposure to industry and other relevant employment sectors is required to generate awareness among PhD candidates of alternative career paths and to align supply (the training and skills of researchers) with demand (industry need). That being said, it is critical to ensure that the PhD itself is not undermined and that the internationally agreed Salzburg Principles[8] are respected.

Good practice examples have been implemented in various Member States, including academia-industry internships, industrial PhDs, joint curricular development and inter-sectoral mobility schemes. The current challenge lies in how to mainstream innovative models of doctoral training, in terms of funding and infrastructural needs and the scalability of programme elements, such as internships. Cost-sharing with industry and other sectors should be considered as a financing model. In terms of capacity building, the EU Structural Funds could be used to broaden doctoral training and provide infrastructural support. The high standards of training applied in the Marie Curie Actions can provide examples for future national and EU schemes and these standards should be mainstreamed across all priority actions under Horizon 2020 with earmarked funding for training elements.

8 http://www.eua.be/eua/jsp/en/upload/Salzburg_Conclusions.1108990538850.pdf

1.3 RESEARCHER EMPLOYABILITY AND PROFESSIONAL DEVELOPMENT AND TRAINING FOR RESEARCHERS

The *European Charter for Researchers and Code of Conduct for their Recruitment* highlights the relevance of career planning and professional development for research professionals, yet structured approaches are often underdeveloped in many Member States with high levels of variation between institutions. The need to focus on professional development for researchers, their employability and ability to pursue multiple career paths is acute in today's climate of strained public funding. Early-stage researchers are faced with increasingly scarce opportunities for academic tenure-track positions, but are often ill-equipped for career transition to outside of academia. Advice on the diversity of research careers and employment prospects should ideally target researchers at an early stage in their careers, e.g. by providing pre-entry advice to PhD candidates. Greater exposure to non-traditional career paths during PhD training can help students to network beyond academia and develop a greater awareness of alternative career options. Institutional career advisory structures are required to help translate this exposure to other sectors into career planning and professional development needs. Additionally, access to careers advice should be made available to researchers at all career stages up to and beyond the completion of a PhD. To incentivise such structures, funders, both national and EU, could consider including career development in funding criteria and making awards dependent on the inclusion of professional development targets.

To support career planning and skills evaluation, steps are currently being taken towards the establishment of a *European Professional Development Framework for Researchers*. The recently developed *European Framework for Research Careers* with descriptors for research career profiles makes an initial contribution in this regard by facilitating comparability of career structures across countries and sectors. The *Researcher Development Framework* developed by the UK network VITAE provides a model with a framework to support researchers in evaluating and planning their career development by providing a universal language to communicate qualities and capabilities. These frameworks should be harnessed and further developed to form a basis for a common European Researcher Professional Development Framework.

Top: CEO of IUA, Mr Ned Costello, Minister of State for Research and Innovation, Mr Sean Sherlock T.D, European Commissioner for Research and Innovation, Ms Maire Geoghegan Quinn, President of Dublin City University, Prof. Brian MacCraith

Bottom: Minister of State for Research and Innovation, Mr Sean Sherlock T.D, European Commissioner for Research and Innovation, Ms Maire Geoghegan Quinn with Ms Jennifer Cleary, Manager of EURAXESS Ireland, Mr Anthony McCauley Fujitsu Ireland and Dr David Prendergast Intel Labs Europe launching the euraxess.ie Business User Interface

1.4 MOBILITY ACROSS DISCIPLINES, SECTORS AND BORDERS

Seamless mobility across borders is integral to the creation of a Single European market for research and a prerequisite for competing for the best talent on a global scale. However, many obstacles remain to the free circulation of researchers within a European research labour market. As research careers become more diverse and mobility correspondingly multifaceted, there is a need for greater flexibility and recognition of alternative concepts of researcher mobility by research funders and research employers across all sectors. Mobility should not be viewed as a "box-ticking" exercise or an end in itself, but rather a means to maximise individual research potential and career development.

Of concern is the current imbalance in mobility between Member States as researchers facing job insecurity and unemployment are forced into migration to the detriment of both the researchers and the economically weaker research systems affected by the resulting brain drain. This "talent desertification" represents a threat to inclusive growth and the achievement of the ERA and must be countered urgently. A combination of capacity building via cohesion funding and the creation of attractive opportunities, such as the ERA Chairs, would represent a positive step towards closing the research and innovation divide.

Today's grand challenges necessitate research cooperation across disciplines, sectors and countries. Recognition of new concepts of mobility and their acknowledgement by research employers and funders are needed to support and encourage researcher circulation in increasingly diverse research careers. As outlined in the European Science Foundation's recent policy briefing *New Concepts of Researcher Mobility*[9], these can include: flexible forms of international mobility including shorter durations and split stays, virtual mobility via virtual networking centres and collaboration via social media and ICT tools, interdisciplinary mobility, inter-sectoral mobility and combined/part-time inter-sectoral positions. Inter-sectoral mobility and positions should be incentivised to encourage a two-way flow of knowledge capital between academia and other sectors (private and public) at all career stages.

New concepts of mobility also open up possibilities to network with the scientific diaspora outside of Europe and establish robust networks for collaboration, mobility and mentoring. A focus should be placed on fostering an awareness of a global scientific community with mobile researchers as scientific ambassadors. Active connections can be leveraged to encourage researchers to return or contribute to capacity building projects in lesser developed research areas. Support should be provided to further develop and expand the EURAXESS Links network[10], linking researchers in Europe and the scientific diaspora in a community of global scientific citizens.

A key feature of this Irish Presidency conference was a strong focus on the involvement of all stakeholders from individual researchers and researcher representative bodies to policy makers, researcher funders and research employers from the public and private sectors. The conclusions and recommendations elaborated by the conference show that a partnership approach with buy-in from all stakeholders is necessary to drive forward the ERA agenda. While EU-level policies and initiatives can provide an impetus, take-up and implementation requires commitment and responsibility across the board from Member States, universities, industry, research funders, representative bodies and individual researchers. The solutions developed must be adequate to address the challenges at hand and the range of tools for policy implementation available to the Commission should be considered in full.

1.5 EU2013 RESEARCHER CAREERS AND MOBILITY CONFERENCE: CONCEPT AND GOALS

In the current economic climate, investment in research and education and the achievement of the European Research Area (ERA), the Single European Market for research, knowledge and innovation, is more significant than ever. Research and innovation are a key building block in the road to economic recovery and growth for Europe as a whole. Despite the downturn, employment in innovation and knowledge-intensive sectors has proven resilient: while five million jobs were lost in the EU between 2008 and 2010, the number of knowledge-intensive jobs increased by more than 800,000.[11]

9 European Science Foundation (2013) New Concepts of Research Mobility – a Comprehensive Approach including Combined/Part-time Positions. Science Policy Briefing 49. Available at: http://www.esf.org/fileadmin/Public_documents/Publications/spb49_ResearcherMobility.pdf accessed 02.07.2013

10 http://ec.europa.eu/euraxess//index.cfm/links/index

11 http://europa.eu/rapid/press-release_SPEECH-13-407_en.htm accessed 21.06.2013.

The Innovation Union commits to increasing R&D investment to 3% of GDP by 2020 and realising the ERA by 2014. To achieve this, one million new research jobs will need to be created and an even higher number of researchers are required, as a large number of the current researcher workforce will retire over the next decade.[12] A crucial element in achieving the ERA is therefore the creation of internationally competitive conditions to attract and retain the critical mass of talented researchers needed for a world-class unified area for research, knowledge and innovation. The research profession in Europe needs to become more attractive to provide the ERA with qualified human capital. Consequently, at this critical juncture, the remaining obstacles to a genuinely open and attractive European labour market for researchers must be addressed with urgency.

This context forms the background and rationale for the EU2013 Researcher Careers and Mobility Conference which took place on 14th and 15th May 2013 in Dublin under the auspices of the Irish Presidency of the Council of the European Union. The conference brought together over 240 participants representing a wide range of key stakeholders, including individual researchers, research representative organisations, policy makers, research funding bodies, delegates from universities and the private sector, to develop practical solutions to career and mobility challenges faced by researchers in Europe.

The barriers to the free circulation of researchers across geographical and sectoral borders are well-known: social security and pension issues, access to and the portability of national grants across borders, a lack of open, transparent, merit-based recruitment, uncertain career paths, and insufficient opportunities for professional development all inhibit seamless mobility within and to Europe. Recent years have seen a number of major EU policy initiatives aimed at addressing these obstacles and substantial progress has been made through measures such as the Scientific Visa Directive, the EU Charter for Researchers and Code of Conduct for their Recruitment, the EURAXESS network, Principles for Innovative Doctoral Training and, most recently, the creation of a European Framework for Research Careers. However, a number of challenges remain and urgently need to be addressed to drive forward the completion of the ERA by 2014.

12 European Commission (2010) Europe 2020 Flagship Initiative Innovation Union COM(2010)546 final. 6 October 2010.

The overarching aim of the Irish Presidency conference was therefore to take stock of the progress to date, identify the outstanding obstacles and, in dialogue with all relevant stakeholders, develop recommendations to address these issues. Building on the significant policy groundwork laid at EU level, the focus of the conference was the translation of the ERA policy objectives into practical solutions which can be implemented in the framework of Horizon 2020. The following issues formed the agenda for interactive stakeholder discussions and workshops:

1. **Recruitment of Researchers**
   - Open merit-based recruitment
   - Bringing new talent to companies
   - Creating attractive working conditions: implementation of the Human Resources Strategy for Researchers (HRS4R) .
2. **Preparing Doctoral Candidates for the Future**
   - High quality doctoral training
   - Upskilling researchers for diverse career paths
   - Mainstreaming standards and sustainability
3. **Professional Development and Training for Researchers**
   - Career planning and professional development for researchers
   - Job opportunities and skills needed
   - Helping employers understand researchers' capabilities
4. **Mobility across disciplines, sectors and borders**
   - New concepts of mobility and their recognition
   - Benefits and challenges of mobility
   - Connecting with the scientific diaspora

A key feature of the conference was a strong focus on the involvement of individual researchers from the public and private sectors and across all career stages to enable their input into shaping future initiatives in interaction with policy makers, researcher funders, research employers, universities and representative bodies.

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2. SETTING THE SCENE: WHERE HAVE WE COME FROM, WHERE ARE WE NOW, WHERE ARE WE GOING TO?

2.1 WHERE HAVE WE COME FROM?

The last decade has seen a transformation in European research policy and the research landscape which, prior to the launch of the ERA concept in 2000[13] and the ERA Mobility Strategy in 2001[14], had primarily focused on the financial instruments of the successive framework programmes. In the area of research careers and mobility, there has been a move from informal coordination and exchange among Member States to a systematic structured approach, culminating in the *European Charter for Researchers and Code of Conduct for their Recruitment* (Charter and Code) with 40 principles for researchers, employers and funders in March 2005. In the same year, the European Council adopted the Scientific Visa Directive[1] to reduce obstacles to the entry to and residence in the EU for third-country nationals. EURAXESS mobility centres were established as a pan-European initiative to provide customised support for mobile researchers and help attract talented researchers from outside of Europe. To spread awareness and optimise implementation of the Charter and Code, the Commission launched the *European Partnership for Researchers* in 2008, focusing on the priority areas of:

- Open recruitment and portability of grants
- Social security and supplementary pensions for mobile researchers
- Attractive employment and working conditions
- Improving skills, training and experience of researchers

These priorities are addressed via the *Human Resources Strategy for Researchers* (HRS4R), a tool which supports research institutions and funders in implementing the principles of the Charter and Code in their policies and practices. The logo "HR Excellence in Research" identifies the systematic uptake of the Charter and Code and thus increases the transparency of employment conditions and the attractiveness of a research institution. Significant changes have also been made in doctoral training via the structured programmes of the Marie Curie Actions (e.g. *Initial Training Networks, European Industrial Doctorates* and *Innovative Doctoral Programmes*) and the *Principles for Innovative Doctoral Training*, a common approach to enhance the quality of doctoral training. Recently, the introduction of the *European Framework for Research Careers* has set out a draft classification and descriptors for career stages, aiming to establish comparable research structures and facilitate cross-border and cross-sectoral mobility and cooperation.

2.2 WHERE ARE WE NOW? ASSESSING PROGRESS, IDENTIFYING CHALLENGES

Reflecting on the above developments, it is clear that significant progress has been made. Nearly 250 universities, research institutes and funding agencies across Europe are involved in a peer review exercise of their human resource strategies for researchers, in line with the Charter and Code. Over 130 institutions to date have been acknowledged with the "HR Excellence in Research" logo. EURAXESS has developed into a network of over 200 service centres in 40 European countries and, via EURAXESS Links, has extended its reach to the USA, Japan, China, India, South East Asia and Brazil. The number of job advertisements published on EURAXESS Jobs has increased almost five-fold from 7,500 in 2010 to 36,500 in 2012.[15] This is a positive development; however, it should be stressed that this is a relatively small number given the total number of research jobs

13 European Commission (2000) Towards a European Research Area COM (2000)6 final.

14 European Commission (2001) A Mobility Strategy for the European Research Area. COM(2001)331 final.

15 http://europa.eu/rapid/press-release_SPEECH-13-407_en.htm

Cecilia Cabello from FECYT, Spain, chairing the session on Recruitment and Mobility.

available across Europe. The *Scientific Visa Directive* has also been instrumental in reducing mobility barriers for third country nationals, although implementation has not always been uniform across the Member States and overall take-up lower than anticipated[16]. The Commission's proposal for a revised Visa Directive from March 2013 aims to remedy these shortcomings and is currently under discussion.

While it is important to acknowledge the progress made, there remain a number of challenges to be addressed. The underlying aim of these policy tools, all voluntary in nature with the exception of the *Scientific Visa Directive*[17], was to stimulate convergence across the Member States towards shared standards and framework conditions in terms of recruitment, working conditions, career progression and training and thus towards the realisation of a European single labour market for researchers. But have these tools been genuinely successful in achieving convergence or do they just highlight and acknowledge individual good practices among the top performing countries? Currently, the latter appears to be the case, as efforts appear to be concentrated at a national or institutional level rather than broader convergence across the EU. The *Innovation Scoreboard 2013* shows that, although innovation performance in the EU as a whole has improved despite the continuing economic crisis, the innovation divide between Member States is widening. Whereas the most innovative countries have bettered their performance, others have stagnated and the overall trend towards convergence in Member States' innovation performance seen up until 2011 has been reversed in 2012 to one of divergence.[18] This re-emerging gap must be counteracted urgently to prevent a concentration of talent in select R&D oases leaving a talent desertification in large areas of Europe.

The Innovation Union agenda has set the investment target of 3% GDP for R&D with the one million new research jobs needed to absorb the resulting increased capacity. Currently, the EU lags behind the USA and Japan in terms of the share of researchers in the total labour force. In 2009, this stood at 6.63 per 1000, compared to 9.4 in the US and 10.32 in Japan. This gap results primarily from the share of total researchers employed in the business sector: 44% of total researchers in the EU as compared to 80% in the USA, 74% in Japan and 68% in China.[19] Yet despite the need for more high-skilled knowledge workers within the EU, many researchers face precarious working conditions with consecutive short-term contracts, insecure funding and unfavourable career prospects. This suggests an ill fit between the demand for highly-skilled personnel, in particular in the private sector, and the supply of researchers and their training. The challenge is therefore not just one of increasing the overall stock of researchers, but in training the right number of researchers with the right skills to meet specific sectoral demands.

In terms of gender balance in science and research, the *She Figures 2012 on Gender in Research and Innovation* show that female researchers were generally gaining ground in all fields of science, albeit at a different pace across countries and disciplines. Although improvements have been made, progress is sluggish and the gender gap remains disproportionately high in light of an increase in female students, with the gender imbalance in the research population becoming more pronounced with

16 European Commission (2011) State of the Innovation Union 2011. COM(2011)849 final

17 The Scientific Directive Visa was mandatory for countries in the Schengen zone. Ireland opted in while the UK and Denmark did not participate in the Scientific Visa Package.

18 Innovation Union Scoreboard 2013.http://ec.europa.eu/enterprise/policies/innovation/files/ius-2013_en.pdf accessed 22.06.2013

19 Deloitte Consulting 2012. DG Research and Innovation. Researchers' Report 2012.Available at: http://ec.europa.eu/euraxess/pdf/research_policies/121003_The_Researchers_Report_2012_FINAL_REPORT.pdf

age and career progression.[20] The EU's *Structural Change Report 2011*[21] also indicates an unconscious gender bias present in scientific evaluation boards and peer review, suggesting a worrying barrier to equal opportunities for female researchers and, consequently, for research excellence. In order to increase competitiveness, transparency and excellence, achieving gender equality through structural change aimed at gender mainstreaming is an urgent priority.

One of the core objectives of the European Research Area is to make Europe a more attractive location for researchers through better career opportunities. This includes facilitating the admission of researchers from non-European countries coming to Europe, transparent and open recruitment procedures and more professional development opportunities for researchers at all stages of their career. Much progress has been made in terms of addressing immigration hurdles with the fast track Scientific Visa and the EURAXESS services, as evidenced by a recent report compiled by EURAXESS Ireland assessing the impact of the Scientific Visa, which indicated that 75% of researchers surveyed stated that the fast track visa played a role in their decision to come to Ireland for the next step of their research career[22]. Professional development for researchers has come into sharper focus with the *Principles for Innovative Doctoral Training* and the European Framework for Research Careers. However, much more needs to be done to adequately embed the principles of the *European Charter for Researchers and Code of Conduct* for their Recruitment as standard practice across the European research system.

Extensive work has been done at EU policy level which sets out clear goals and frameworks for ERA's human capital. These policies are widely acknowledged by Member States and yet there is often a marked difference between policy and practice, raising the question of

Top: Participant in the conference 3 minute "elevator pitch" open session.

Bottom: Dr Lisa Looney, Dean of Graduate Studies, Dublin City University chairing the session on Doctoral Training and Professional Development

20 European Commission (2013) She Figures 2012. Gender in Research and Innovation. Statistics and Indicators. Luxembourg: Publications Office of the European Union, 2013.

21 European Commission (2011) Structural Change in Research Institutions: Enhancing Excellence, Gender Equality and Efficiency in Research and Innovation. Luxembourg: Publications Office of the European Union.

22 The survey revealed that 23% of the researchers using the fast track scheme would not have come to Ireland if the scheme had not been in place. 53% of respondents indicated that the fast track immigration facility was a major part of their decision to come to Ireland. Only 25% of respondents would have come to Ireland regardless of the immigration procedures. Irish Universities Association (2013) Attracting Researchers to Ireland: the Impact of the Scientific Visa. IUA: Dublin. http://www.iua.ie/wpcontent/uploads/2013/07/Attracting-Researchers-to-Ireland-the-Impact-of-the- Scientific-Visa-2013.pdf

Delegates and panel members listening to the discussion.

whether this commitment goes beyond lip service. The task at hand is the permeation and implementation of this policy across all levels and stakeholders at EU, national and institutional level to provide real solutions to the problems faced by researchers on a day to day basis. While some obstacles remain in terms of social security and pensions, legal and administrative barriers have been well addressed by the Scientific Visa. Many of the problems faced by researchers in practice are ones of mindset. What is needed now is a fundamental culture change throughout the research system to ensure the attractiveness of research careers in the current climate of economic crisis. The issues and problems voiced by researchers include:

- Precarious employment conditions and a lack of job security. Due to strained university budgets and an increasing dependence on project-based funding, many researchers are faced with consecutive short, fixed-term contracts and an uncertain employment future. Most funding grants are based on short-term financing, lasting between two to three years, which is an insufficient timeframe to produce a significant research output or to enable adequate career planning.

- Deficiencies in career planning. Structured PhD programmes have gone some way towards introducing the concept of career planning for researchers, but this often ends upon the award of a doctorate. Support is needed across all career stages to enable a long-term career plan. A shortage of permanent academic positions means that the majority of PhD holders will go on to careers outside of academia, but are often inadequately equipped in terms of the skill set required in other employment sectors and/or are unaware of the range of career opportunities. Of the one million new research jobs needed to sustain the ERA, the majority will be required in the private sector. PhD candidates and prospective employers need to be prepared accordingly to ensure a good fit between the supply of highly-qualified researchers and industry demand.

- Opaque recruitment and evaluation procedures. Vacancies are not always widely advertised and the requirements for positions at public research institutions are frequently unclear and inaccessible 'from the outside' due to a lack of comparable research structures across countries. Evaluation procedures and the criteria behind these are similarly lacking transparency and can disproportionally disadvantage early-stage researchers, female researchers and researchers moving between sectors. Genuinely open and fair recruitment is a pivotal factor in the creation of excellent working conditions for researchers and achieving research excellence. Failure to adequately implement this represents a barrier to creating excellence and thus to the realisation of the ERA.
- Mobility challenges. Researcher mobility is key in achieving research excellence and at the heart of the Fifth Freedom – the free movement of knowledge. But is mobility always beneficial for the researcher? The current economic climate means that mobility is increasingly forced due to short-term contracts and economic recession. Practical barriers such as family situation, a lack of dual career options, costs of housing etc. continue to exist and impede mobility, in particular for more established researchers. A decision to move across borders, geographical or sectoral, can frequently represent an irreversible career decision due to difficulties in re-entering established systems or in the recognition of different outputs between academia and industry.

As the deadline for the completion of the ERA approaches, the key question is what action can be taken at EU level to close the gaps between policies and practice and provide excellent researchers with the requisite excellent working conditions, high-quality training and enable seamless mobility throughout the ERA? How can universities and research-performing organisations be encouraged to change existing practices and mind-sets and fully adopt the principles of the Charter and Code 'on the ground'? In light of increasing global competition for talent, is the voluntary approach pursued to date sufficient for the future or is a more compelling approach required? These questions framed both the discussions of the conference and the ensuing recommendations which are presented in detail in the following sections.

RESEARCHER CAREERS AND MOBILITY CONFERENCE DUBLIN

European Commissioner for Research and Innovation, Ms Maire Geoghegan-Quinn, Minister of State for Research and Innovation, Mr Sean Sherlock T.D with Alanna O'Malley and Fiona McDermott, winners of the conference travel bursary competition.

3. GEARING RESEARCHERS TOWARDS A KNOWLEDGE-INTENSIVE EUROPE

Building on the significant policy groundwork laid at EU level in recent years, the following key issues formed the agenda for the interactive workshop sessions and discussion fora of the conference:

- Recruitment of researchers: open, transparent and merit-based recruitment procedures
- Preparing doctoral candidates for the future
- Researcher employability: professional development and career planning
- Researcher mobility across countries, sectors and disciplines

A specific aim of the conference was to actively engage researchers in policy discussions with policy makers, funders and implementers, allowing them to shape initiatives targeting research careers and formulate practical solutions to translate and embed ERA policies into research practice. This section "Gearing Researchers towards a Knowledge-Based Economy" recounts the topics discussed in the workshops and plenary sessions and formulates observations and recommendations for each of the above issues. These recommendations are consolidated in the overall conclusions and recommendations.

3.1 RECRUITMENT OF RESEARCHERS: OPEN AND MERIT-BASED RECRUITMENT PROCEDURES AND ATTRACTING NEW TALENT TO COMPANIES

> *Employers and/or funders should ensure that the entry and admission standards for researchers, particularly at the beginning at their careers, are clearly specified and should also facilitate access for disadvantaged groups or for researchers returning to a research career, (...) establish recruitment procedures which are open, efficient, transparent, supportive and internationally comparable, as well as tailored to the type of positions advertised, (...) [and] ensure that the performance of researchers is not undermined by instability of employment contracts.*[2]
> The European Code of Conduct for the Recruitment of Researchers.

The European Charter for Researchers and Code of Conduct for their Recruitment place a central focus on researcher recruitment as a pathway to achieving an attractive, open and sustainable European labour market for researchers. While there is wide endorsement of the principles of the Charter and Code across Member States, the implementation of these principles in practice varies significantly between countries. As an example: over 130 organisations have now implemented the Human Resources Strategy for Researchers and have been awarded the HR Excellence in Research logo. This is certainly a positive step forward, however, of these organisations, over half (72 organisations as of June 2013) are in the United Kingdom[23]. A coherent European labour market can only be achieved if change is enacted across all Member States and not just in individual countries. In order to drive the agenda forward, action at European level is needed in the following areas:

- Open, transparent and merit-based recruitment
- Attractive working conditions and reliable career prospects
- Employability of researchers in the private sector: attracting new talent to companies

23 http://ec.europa.eu/euraxess/index.cfm/rights/strategy4ResearcherOrgs accessed 22.06.2013.

OPEN AND MERIT-BASED RECRUITMENT

The fair and transparent allocation of positions on the basis of academic excellence and merit is a necessary condition in incentivizing research careers and facilitating researcher mobility. The problem is not per se a shortage of researchers, as there is in fact a surplus in some countries, but rather a shortage of attractive research positions in the public sector. Supply and demand needs to be balanced at a European level and open and transparent recruitment can help to ensure an optimal allocation of positions to the best-suited candidates. However, many researchers perceive the recruitment procedures of public institutions in Europe to be neither open nor transparent, citing this as a main obstacle to international mobility[18], while the ERA Pact Communication 2012[24] identifies the continuing lack of transparent, open and merit-based recruitment as one of the major barriers to a genuine European research labour market.

Equal access to competition-based research posts, in particular for non-nationals, is hindered by practices such as the failure to advertise job vacancies nationally and/or internationally, and to publish the vacancy in English. Selection criteria are not always clearly communicated and selection panels, where these are in place, often lack sufficient diversity, gender balance and international perspective to be able to adequately assess international or inter-sectoral research experience. There is a wide variety in the use of job titles and institutional approaches to researcher careers across countries, rendering comparability difficult. The draft classification provided by the *European Framework for Research Careers* presents a welcome first step in this addressing comparable research career structures.

This lack of transparency is combined with a growing culture of unpaid work in research (e.g. internships to ease the route into a position) and protectionist/ nepotistic practices within institutions in allocating positions to their own students rather than opening up positions to a wider 'pool' of external candidates. Institutional human resources policies such as the redeployment of staff on fixed-term contracts to avoid redundancy and/or to retain excellence and naming staff on grant applications also keep positions out of the 'pool', however, there is an argument to be made for these derogations to open recruitment where these are clearly specified and objectively justified. Preferential treatment of internal candidates may be legitimate if the process is made adequately transparent and equal opportunities are respected. There must also be recognition that churn/ turnover forms an essential part of the recruitment cycle and is important to maintain creativity and prevent position-blocking.

Indeed, in operationalising open recruitment, the key may be to ensure transparency in recruitment criteria and procedures rather than a strict adherence to formal 'openness'. A legislative approach for equality may help to ensure open, merit-based recruitment by establishing procedural equality, i.e., equality in how processes are structured, but may not always be effective in terms of substantive equality, i.e. outcomes. This would therefore require careful monitoring to control unintended consequences which could potentially be detrimental.

ATTRACTIVE WORKING CONDITIONS AND RELIABLE CAREER PROSPECTS

Excellent working conditions and reliable career prospects form a further core element in creation of an attractive European labour market for researchers. However, this is often far from the reality encountered by researchers working in the public sector in Europe. In many Member States a two-tier system exists among the researcher workforce between those on short-term contracts or project funding, often entailing forced mobility, and those with permanent contracts, where upon obtaining permanency, performance is not always subject to review[18].

This leads to a dichotomy between the ERA goal of research excellence and the conditions under which researchers are expected to work towards this goal. The "dilemma of the excellence generation" is that of a generation of highly qualified researchers facing fierce competition for a small number of academic posts, increasing use of short, fixed-term contracts, a corresponding lack of long-term career prospects and development, and unequal opportunities for male and female researchers. Uncertainty regarding job stability inhibits both personal and professional development and career planning, contributing to the 'leaky pipeline' and increasing gender imbalance on the career progression ladder. It is also a barrier for early-stage researchers in gaining academic autonomy, where contracts are dependent on project-based funding which must be applied for by a senior academic. PhD candidates should

24 European Commission (2012) Communication from the Commission. A Reinforced European Research Area Partnership for Excellence and Growth. COM(392)final.

be viewed as researchers in training and treated as such and not seen as cheap labour for projects.

Excellence in research can only be built on excellent working conditions with employment stability, an adequate gender balance and work-family balance. Steps towards achieving reliable career prospects could include increasing tenure track options for early-stage researchers and ensuring permanent contracts where permanent, i.e. not project-related, tasks are carried out. Effective measures to boost gender equality and the proportion of other underrepresented groups are required at all career stages to counteract the 'leaky pipeline', in combination with a higher level of acceptance by employers for career breaks or non-linear CVs.

Creating reliable career prospects does not need to entail 'positions for life', but rather a balance between the necessary turnover to introduce 'fresh blood,' and the retention of high-quality researchers, e.g. through a *flexicurity*[25] approach. Open recruitment and reliable job prospects are not mutually exclusive goals, but rather complementary paths to incentivizing researcher careers. This calls for adequate and reliable funding and consideration should be given to creative solutions to close funding gaps, such as co-funding positions with industry or research-intensive SMEs. A systematic approach is needed for professional development and career advice services for researchers at all career stages.

None of these aspects are in themselves new, but echo the principles of the *Charter and Code for Researchers*. Strong incentives are now needed to embed these in the human resources strategies of research organisations throughout Europe. The *Human Resources Strategy for Researchers* provides a tool for the implementation of the Charter and Code principles and Member States should consider creating enabling frameworks to facilitate its uptake. Additionally at EU level, institutional adherence to the principles of the Charter and Code could be considered as a condition for the award of Horizon 2020 funding.

ATTRACTING NEW TALENT TO COMPANIES

The freedom of movement of knowledge in the ERA entails not just the transfer of knowledge across geographical borders, but also across sectors and among all actors in the research and innovation system. Researchers have an essential role to play in Europe's recovery agenda, with research, technological development and innovation representing essential drivers for growth and the creation of a knowledge-based society. However, Europe continues to lag behind its major international competitors with regard to the share of the researcher workforce employed in industry and the business sector. Industry globally is in the process of upskilling and competition for talent is set to increase in the coming years. Failure to address this gap will result in a competitive disadvantage for Europe and the risk of falling behind in the global scramble for the best talent.

Insufficient links between academia and private sector also represent an obstacle to attractive career prospects. Based on data from 2009, only 1 in 3 public sector researchers collaborate formally with researchers from the business sector and on average only 17% of EU researchers have been employed in both the public and private sector[18]. Cross-sectoral mobility takes place primarily as a unidirectional stream moving from academia to industry, with limited mobility from industry to academia or back and forth between sectors. Of the one million research jobs to be created under ERA, most will be needed in the private sector. The weak links between academia and industry in Europe therefore gives rise to concern regarding the absorptive capacity of the private sector for researchers, as industry is not always aware of the wide range of researchers' talents and their potential value for a business and researchers are not always adequately equipped with sector-specific skills needed for business, such as competence in intellectual property regulation and knowledge transfer.

A number of issues need to be addressed in order to better match skills and needs in a private sector setting, such as the need to invest in the development of employability skills as part of researcher training, including both discipline specific skills and a wide range of generic or transferable competences. Structured PhD programmes have helped to develop this awareness and approaches for mainstreaming should now be considered. There is also a need to tackle preconceptions regarding inter-sectoral mobility which sometimes harbour the view that a move to the private sector entails an irreversible decision to leave academia. What is needed is a flow between both sectors as opposed to a one-way conveyor belt from universities to industry. Building the links needed for this flow involves changing mind-sets to recognise the experiences gained in the respective sector. Research outputs will differ between

25 Flexicurity attempts to reconcile employers' need for a flexible workforce with workers' need for security and confidence that they will not face long periods of unemployment.

industry and academia, e.g. fewer publications due to commercial interests, and both sectors need to be more flexible in recognising alternative outputs and the skill set behind them.

Creative options to foster links between sectors should be explored. PhD programmes with inbuilt industry placements or industrial PhDs help to foster an awareness of both professional cultures. The *Knowledge and Innovation Communities* (KICs) funded via the European Institute of Technology represent a creative model for the creation of long-term strategic partnerships among all key actors within the knowledge triangle – research, higher education and innovation-entrepreneurship-business. Co-funded positions between universities and companies/SMEs can facilitate inter-sectoral mobility via researchers with 'a foot in both camps' and can also contribute to the creation of more stable employment conditions.

EU-level support structures for inter-sectoral recruitment and career development, in particular where this occurs across countries, would be of benefit. A potential approach would be to extend the remit of EURAXESS beyond its current focus on research jobs and careers in the public sector to provide advisory services for private sector employers in researcher recruitment and mobility issues. The EURAXESS Jobs portal already provides the possibility for employers from all sectors to advertise researcher positions, but could be better tailored to the needs of business. A good example has been set by the Irish national EURAXESS portal[26] which has recently launched a custom designed interface for business users, highlighting the services and opportunities for companies. Such business-tailored services should be mainstreamed across all EURAXESS country-specific websites and sustained on a long-term basis via co-funding from the Member States and the EU.

OBSERVATIONS FROM THE WORKSHOP DISCUSSIONS

- Recruitment is dependent on churn and exit, and the provision of reliable career prospects must be balanced with the need to prevent bottlenecks and position blocking. Preferential treatment of internal candidates may be legitimate if made adequately transparent. Candidates should undergo same selection procedures in the interest of equal opportunities but could be provided with support to enable them to compete effectively in the selection process. Selection panels should be balanced in terms of gender and include, where appropriate, international experts.
- EU-level action to ensure the implementation of open recruitment is welcome and timely, but any measures taken should not result in overly bureaucratic checks and controls. Legislating for equal opportunities in recruitment is a possible avenue, but should be well-considered and monitored to control for unintended consequences which may provide detrimental to substantive outcomes.
- Industry and academia do not represent incompatible cultures. A partnership approach with a flow between sectors rather than one-way conveyor belt from academia to industry should be pursued, with efforts on both sides to bridge the gap. Better recognition and a more flexible approach regarding different but equivalent outputs are needed across sectors with better alignment between skills sets and requirements. Shared positions, co-funded by universities and companies, could represent a creative option to enable researchers to gain experience in both sectors and help to improve job stability for researchers.
- EU-level tools and support structures are needed to establish transparency and support recruitment across sectors and countries. The career descriptors provided by the European Framework for Research Careers (EFRC) represents a welcome initiative to help achieve transparency and comparable research career structures, although care should be taken to ensure that it is not seen as a consecutive career ladder model[27]. The EURAXESS network is ideally placed with sufficient visibility to offer targeted support to companies seeking to recruit researchers across countries.

26 http://www.euraxess.ie/business/ accessed 25.06.2013

27 The EFRC intends to be sector-neutral and independent of a particular career profile. It states that descriptors are not intended as a finite list of tick boxes or should not always be understood as steps on a progressive career path. See: European Commission (2011) Towards a European Framework for Research Careers. p.6

RECOMMENDATIONS

- Evaluation criteria for publicly funded fellowships should be developed by research funding organisations with researchers, and as far as possible, be standardised for all schemes. An external agency at national or European level could be tasked with checking that the criteria are in line with the principles of the Charter and Code.
- Universities, research funders and industry should fill all research positions according to open, transparent and merit-based recruitment. The EURAXESS Jobs Portal should be established as the European job portal for all research jobs and positions, including internships.
- The success of the EURAXESS network should be harnessed and its remit extended to provide customized advisory services for private sector employers in researcher recruitment and mobility issues. An industry user interface for EURAXESS centres, modelled on the new Irish version, should be rolled out to other countries.
- The European Commission should consider using Horizon 2020 funding as a tool to support and incentivise open recruitment. Possibilities for incentives and penalties should be explored, such as conditionality in funding subject to the implementation of the principles of the Charter and Code for Researchers.
- A key part of developing independence is for researchers to secure their own funding. This is well supported by the European Commission through the Marie Curie Actions and the European Research Council. National funders and employers should facilitate this independence by explicitly recognising young researchers as professionals and, for example, allowing them to apply for funding in their own name.

3. 2 PREPARING DOCTORAL CANDIDATES FOR THE FUTURE

Employers and/or funders of researchers should ensure that the most stimulating research or research training environment is created which offers appropriate equipment, facilities and opportunities (...) Employers and/or funders should ensure that all researchers at any stage of their career, regardless of their contractual situation, are given the opportunity for professional development and for improving their employability through access to measures for the continuing development of skills and competencies. Such measures should be regularly assessed for their accessibility, take-up and effectiveness in improving competencies, skills and employability.[2]
- The European Charter for Researchers

High quality doctoral training is a prerequisite for generating excellence and innovation and increasing the attractiveness of research careers in the European Research Area. In recent years, a strong policy focus has been placed on improving the quality of doctoral training, resulting in a move away from the traditional master-apprentice approach to the emergence of structured PhD programmes at many universities across Europe. There has also been a diversification in the profile of PhD candidates with more PhDs now being carried out in part or wholly in industry with co-supervision arrangements with universities, or by research employees in companies seeking to up-skill their workforce.

Historically seen as the path to an academic career, the career trajectories of PhD graduates have become highly diversified across the business, government, non-profit and education sectors, in part due to increasing numbers of doctoral graduates[28] combined with stagnating or decreasing numbers of academic positions. Various analyses and reports indicate that the vast majority of PhDs will not (be able to) remain in academia in the long-term. The 2010 Royal Society Report "The Scientific Century: securing future prosperity" highlights that only 3.5% of PhD graduates in the United Kingdom will obtain the status of permanent research staff and a mere 0.45% will achieve professorial status.[29] Although there is some variation in statistics, similar overall trends have been shown for other Member States[30]. As a result, the issue of employability of graduates has come into sharp focus on the ERA agenda, together with the question of how doctoral training can be improved to better prepare candidates for a future both within and outside of research.

28 In the EU27, the number of new doctoral graduates increased by ca. 39% from 82 705 in 2001 to around 115 000 in 2010. Deloitte Consulting 2012. DG Research and Innovation. Researchers' Report 2012.

29 The Royal Society (2011) "The Scientific Century: securing future prosperity". Royal Society: London

30 See for example Cyranoski et al. (2011) "The PhD Factory" Nature 472, 276-279.

Many doctoral researchers experience only an academic setting up to the completion of their PhD and are thus not always well equipped with the skills needed in the private sector. Systematic exposure to industry/ other relevant sectors is required to generate a better awareness among PhD candidates of alternative career paths as well as a focus on career development and transferable skills training. A number of challenges are inherent in restructuring doctoral education with a greater orientation towards employability. The core component of a PhD is, and will remain, the advancement of knowledge through original research, but training must also meet the needs of the employment market outside of academia. An appropriate balance must therefore be found between safeguarding the PhD as a research degree and the acquisition of transferable skills. Successfully implementing structured doctoral programmes requires buy-in and commitment from PhD supervisors who may be concerned that time spent in training courses may be to the detriment of the research project and the completion of the PhD within the recommended three years. There is some evidence from Germany to demonstrate that, in fact, structured programmes, actually reduce completion times[31].

Both organizational and mindset-related aspects need to be addressed here. Structured programmes can encourage the provision of protected time for activities not directly related to the project work, but generally relevant for the quality of the project as a whole. This will include dedicated time for courses and seminars, e.g. in project-related methodology, ethics, statistics, generic skills such as management, communication and leadership, participation in conferences, teaching, and job placements. This training is not incompatible with the completion of a high quality research project, but can in fact enhance it, if appropriately implemented. One approach could be to integrate a skills portfolio for candidates as part of PhD assessment procedures and as prerequisite for thesis defence. In terms of changing mind-sets, it is important that supervisors recognize that while the research project represents the core component of the PhD, the outcome of doctoral training is not the dissertation or research project but the PhD candidate as a highly-qualified, independent researcher. Structured training can help to address these aspects by enhancing the project through the development of project-related skills, protecting the student and their career development through the integration of transferable skills components and, as a result, ultimately benefiting the overall project and its efficiency.

Stronger links with the private sector are required to align supply (the training and skills of researchers) with demand (industry need) to improve the employability of researchers across sectors. Good practice examples of measures linking academia and industry have been implemented in various Member States, including academia-industry internships, industrial PhDs with part of the project carried out in industry, companies' involvement in curricular development, inter-sectoral mobility schemes and dually funded projects (see below for examples). In order to ensure meaningful and sustainable cooperation structures, industry involvement should be embedded in structured programmes as part of a coherent long-term strategic relationship rather than episodic involvement, with emphasis on two-way mobility between the sectors.

Consideration also needs to be given to the specific challenges of PhD training carried out in industry, such as disclosure, commercial needs for confidentiality, and IPR. The issue of confidentiality of PhD research undertaken in industry has been addressed very well in some countries and should be disseminated as good practice at EU level. New approaches are needed to define and benchmark the outputs of PhD research undertaken in other sectors, as the publication rate will typically be much lower than in academia and may cause a barrier for researchers seeking to return to academia. Better recognition is needed of equivalent achievements, such as involvement in large-scale projects or in public sector reports, to allow these to be included in a meaningful way on researcher CVs and be benchmarked against more traditional academic outputs. Here, a common approach would be of benefit to support the recognition and benchmarking of cross-sectoral outputs throughout Europe.

In response to policy changes and funding schemes, innovative models of doctoral training linking academia and industry have been implemented at EU, national and institutional levels.

31 O'Carroll et al. "The PhD in Europe: Developing a System of Doctoral Training That Will Increase the Internationalisation of Universities" in "European Higher Education at the Crossroads- Between the Bologna Process and National Reforms", Springer, 461-484

INNOVATIVE DOCTORAL SCHEMES IN MEMBER STATES – EXAMPLES

Spain – Talent Empresa / Industrial Doctorates Scheme

Talent Empresa is an industrial PhD scheme launched in 2009 by the Regional Government of Catalonia (Generalitat de Catalunya) to foster stronger academia-industry links. In a three-year co-funded scheme, the candidates are primarily based at the industry partner, with co-supervision and access to resources at the university and the company. The aim is to encourage market-driven research and feedback loops between academia and industry, and to maximize the resources available to the PhD candidate.

http://www20.gencat.cat/docs/ur/home/minisites/Doctorat%20Industrial/Documents/PresentacioDI.pdf

IRC Enterprise Partnership Scheme

The Irish Research Council offers an Enterprise Partnership scheme which provides researchers with the opportunity to closely work with a relevant industry partner and gain exposure to a commercially oriented research environment while completing postgraduate or post-doctoral research. Industry partners include a wide range multi-national companies (MNCs), small and medium-sized enterprises (SMEs), indigenous companies and eligible public bodies. The project is jointly agreed between the academic and industry partners and the researcher has access to experimental resources, facilities and data at both locations. Co-funding is provided by the industry partner at a rate of one third of the costs.

http://www.research.ie/scheme/enterprise-partnership-scheme

INNOVATIVE DOCTORAL SCHEMES AT EU LEVEL

Marie Curie Actions – European Industrial Doctorates and Innovative Doctoral Programmes

The Marie Curie Actions (MCA) are a range of EU-funded innovative training options which aim to improve the employability and career perspectives of early stage researchers. The Initial Training Networks (ITN) involve a wide range of partners from academic and non-academic sectors, combine scientific excellence with an innovation-oriented approach and are organized as international joint research training programmes focusing on training through research, transferable skills modules and exposure to both public and private sectors. As of 2012, two new formats of PhD training, the European Industrial Doctorates and the Innovative Doctoral Programme, were introduced with the aim of strengthening links between academia and industry, and developing research careers combining scientific excellence with business innovation.

http://ec.europa.eu/research/mariecurieactions/

The above mentioned funding schemes are only some examples of the new innovative models which have recently emerged. But is the scope of these approaches limited to individual good practice models or can they have a wider reach and be mainstreamed for PhD training in general? Funders and institutions are faced with several challenges when considering a wider roll out of successful models. First, the creation of a two-tier system for PhD training where structured programmes represent an elitist approach supporting a select group of candidates should be avoided. The establishment of structured programmes or graduate schools at institutions should be part of a professional management for doctoral training and, as such, be available for all PhD candidates, including non-funded students. However, this requires substantial increases in both funding and infrastructural needs and careful consideration of the meaningful scalability and practicability of programme elements, such as internship placements and inter-sectoral/international mobility, for larger cohorts. Funders need to address the fact that the vast majority of PhD graduates will go on to careers outside of academia and provide appropriate schemes, e.g. with placements in industry/other sectors.

Dr Vanessa Campo-Ruiz, European Science Foundation and Session Chair

A possible route to widen the reach of innovative doctoral training could be to explore cost-sharing with industry and other sectors as a financing model. This would require the establishment of appropriate frameworks, but experiences with schemes involving industry partners, such as the Irish Research Council's Enterprise Partnership Scheme (one third financed by industry partner) or the Norwegian Research Council's Industrial PhD Scheme (50:50 cost sharing with industry partner), have shown that such arrangements can generate high levels of interest for industry once structures are in place. Looking towards EU-level funding, a combination of funding sources could be considered, such as the use of EU Structural Funds to broaden doctoral training where capacity building is required and as a basis to generate the critical mass needed to apply for suitable schemes under Horizon 2020.

A further concern is one of quality provision and maintenance while up scaling quantity, i.e. how to increase the number of candidates in structured PhD programmes without diluting the quality of the PhD training or cohorts. Can novel approaches in doctoral training continue to be innovative when rolled out in a wider setting? Here, best practice principles such as EUA's Salzburg Principles, the Salzburg II recommendations and the common approach put forward in *Principles for Innovative Doctoral Training* can offer guidance and a core framework of reference while allowing for flexibility and diversity across institutional approaches. Quality initiatives such as the ORPHEUS-AMSE-WFME Standards for PhD Education in Biomedicine and Health Sciences in Europe offer an example of how quality standards can be developed for doctoral training in specific disciplines.

ORPHEUS-AMSE-WFME Standards for PhD Education in Biomedicine and Health Sciences

Jointly developed by the Organisation for PhD Education in Biomedicine and Health sciences in the European system (ORPHEUS), the Association of Medical Schools in Europe (AMSE) and the World Federation for Medical Education (WFME), the Standards for PhD education in Biomedicine and Health Science in Europe sets out quality criteria for PhD programmes in these disciplines, including standards for research environment, the training programme and structure, thesis supervision and assessment, and PhD outcomes, both research specific and generic. The standards are intended as a reference for other European institutions to enhance the quality of PhD programmes in biomedicine and health sciences.

http://www.amse-med.eu/documents/orpheus-amse-wfmestandardsforphdeducation_december2011.pdf

EU programmes play a significant role in setting examples, promote standards and stimulate changes within national research systems. The recently introduced Marie Curie European Industrial Doctorates and Innovative Doctoral Programmes, together with the high standards of training applied across all the Marie Curie Actions, can provide examples for future EU and national funding schemes. Under Horizon 2020, the positive experience of these programmes should be mainstreamed by deploying the Marie Curie standards for doctoral training across all priority actions for all PhD candidates employed in projects, including European Research Council grants, and earmarking part of the project budgets for training.

OBSERVATIONS FROM THE WORKSHOP DISCUSSIONS

- New models of PhD training must balance the primacy of research with graduate employability and the requisite skills training. The workload of structured programmes needs to take this into account, while maintaining standards and quality. The focus must be the PhD graduate as the main outcome of PhD training as opposed to the research project/dissertation. If implemented appropriately, structured training can address these aspects by enhancing the project, protecting the student and ultimately benefitting the overall project and its efficiency.
- The engagement of industry and other relevant employment sectors in doctoral training programmes should be part of a long-term strategic relationship. PhD training carried out in industry gives rise to specific challenges, such as IPR and the commercial need for confidentiality, and existing good practices should be disseminated widely. Better acknowledgement and appraisal is needed for research outputs from outside of academia to allow benchmarking against traditional academic publication outputs. A common approach across Member States and sectors could be of benefit here.
- Upscaling and mainstreaming innovative models poses several challenges for funders and institutions, including concerns about two-tier systems and the meaningful operationalisation of internships/industry placements for large cohorts. New thinking will be needed regarding infrastructures and funding, and avenues such as cost-sharing with industry should be explored.
- Preparing doctoral candidates for the future is a question of shared responsibility. Universities and supervisors are responsible for ensuring a quality experience for the students, including the relevance of the skills they obtain during their training. Research funders are responsible for funding the system to allow it to deliver that quality experience. Individual researchers need to consider future career options and be responsible for their career development. The ultimate success of doctoral training is dependent on action and commitment from all stakeholders.

RECOMMENDATIONS

- Wider uptake of the *Principles for Innovative Doctoral Training* should be promoted by the EU, Member States, institutions and funders.
- Existing good practices in Member States in dealing with issues specific to PhD research carried out in industry, such as disclosure and IPR, should be widely disseminated, possibly in the form of a common set of best practice principles.
- Appropriate structures for cost-sharing with industry/other sectors should be developed in order to finance a wider roll-out of structured programmes.
- Possibilities to broaden structures for doctoral training via use of the EU Structural Funds should be explored.
- The EU Commission via Horizon 2020 should help to set and promote standards by mainstreaming the Marie Curie experience and standards for doctoral training across all priority actions for all PhD candidates employed in projects, including European Research Council grants, and earmarking funds for innovative training elements.

Markus Dettenhofer, CEITEC, Czech Republic taking part in a panel discussion.

3.2 RESEARCHER EMPLOYABILITY AND PROFESSIONAL DEVELOPMENT AND TRAINING FOR RESEARCHERS

> *Employers and/or funders should ensure that career advice and job placement assistance, either in the institutions concerned, or through collaboration with other structures, is offered to researchers at all stages of their careers, regardless of their contractual situation. (...) Employers and/or funders of researchers should draw up, preferably within the framework of their human resources management, a specific career development strategy for researchers at all stages of their career, regardless of their contractual situation, including for researchers on fixed-term contracts.* [2]
> – The European Charter for Researchers

Creating attractive research careers entails enhancing and developing support and resources for researchers at all stages from PhDs to senior academics. The Charter and Code for Researchers highlights the relevance of career planning and professional development for research professionals, yet structured approaches are often underdeveloped in many Member States with high levels of variation between institutions.

The need to focus on professional development for researchers, their employability and their ability to pursue multiple career paths is more acute than ever in today's climate of strained public financing and high levels of unemployment. Early-stage researchers are faced with increasingly scarce opportunities for academic tenure-track positions and risk 'perpetual postdoc'ing'[32] with insecure funding, a succession of short-term fixed-term contracts or even unemployment. At the same time, the share of researchers in the business sector in Europe (44%) is significantly lower than that in the USA (80%), Japan (74%) and China (68%).[18] Channelling more researchers into the private sector appears to be an obvious solution. There are, however, several barriers to a transition from academia and for researcher employability in non-traditional careers in other sectors.

A fundamental problem is a gap between the career expectations of postdocs which are strongly oriented towards academia, and the actual numbers who manage to obtain a permanent academic position. Researchers predominantly see their future as an academic career, despite the scarcity of tenure-track positions,[33] and frequently assume that an ultimate destination other than that of a permanent university position represents failure.[34] Considering that the majority of PhD holders will in practice move on to careers outside of academia, a greater awareness of alternative career options and a realistic idea of the current job market are needed to bridge this gap. Researchers are often ill-equipped for career transition and lack the adequate language to describe the skills and competencies they could bring to a business setting or are unaware of the skill set needed for other sectors. Conversely, employers are often not aware of the capabilities and benefits which researchers could bring to their companies.

Given the ERA target of training, attracting and retaining one million additional researchers in Europe, action is needed to address these issues to improve researcher employability and professional development to ensure that the right skills are being developed for the right job opportunities. Institutions are responsible for creating the environment and awareness to support career planning for researchers and enabling informed choices. Greater exposure to non-traditional career paths during PhD training, be it through structured programmes, mentoring arrangements or short mobility stays such as internships or work placements, can help students to network beyond academia and experience diverse environments.

Institutional advisory structures are needed to help translate this exposure to other sectors into career planning and professional development needs. University careers offices are traditionally oriented towards providing careers advice for undergraduates or newly graduated students. The provision of pre-entry advice for PhD applicants on a wide range of career options, both academic and non-traditional, can help to empower students to structure their career planning from an early stage. Strategies are needed to reinforce the commitment that professional development does not end with the PhD defence, but rather underpins the entire span of a research career from postgraduate

32 Powell (2012) The Postdoc Experience: High Expectations, Grounded in Reality. Science Careers. 24 August 2012.

33 In a EURODOC study involving 12 European countries, 71% of PhD researchers favoured an academic career upon completion of their doctorate. EURODOC (2011) The First Eurodoc Survey on Doctoral Candidates in Twelve European Countries. EURODOC: Brussels.

34 LERU (2012) Harvesting Talent: Strengthening Research Careers in Europe". January 2010. Available at: www.leru.org/files/publications/LERU_paper_Harvesting_talent.pdf accessed 2 June 2013

to senior researchers. Within institutions, services provided by career offices could be expanded to include career advice and skills development for postdoctoral researchers and beyond or to include career advice from researchers working outside of academia. National fora or networks, such as the UK-based Vitae network (http://www.vitae.ac.uk), provide services for the professional and career development of postgraduate researchers and research staff and disseminate good practices across all higher education institutions and research organisations. In order to encourage research institutions to incorporate research careers advisory services in their HR policies, funders should consider including career development in funding criteria and making awards dependent on the delivery of a career plan, with updates throughout the grant duration. Similar incentives could be considered under Horizon 2020 to promote access to professional development and careers advice, such as earmarked funding for professional development or conditionality in funding criteria.

University of Oxford Careers Advisory Service

The University of Oxford Careers Advice Service provides career planning and development support for students, research staff and alumni, with specific services targeted to each group. An interface for potential recruiters is also provided, including a recruiter in residence programme which invites firms to the college to provide individual advisory sessions.

Support for researchers is provided via one-to-one career advice, inductions, career development workshops, mentoring schemes, training and professional development, including supporting researchers in developing networking skills and targeted support for Principle Investigators. The Career Advisory Service aims to teach researchers about the requirements for a research career and develop awareness of other career pathways, enabling career choices rather than an unplanned evolution of careers.

http://www.careers.ox.ac.uk/

Tracking researchers' careers offers a potential approach to increase the transparency of research careers by highlighting employment patterns and the career destinations of graduates in similar disciplines. Although institutional graduate surveys on first career destinations are being widely implemented by many universities, the introduction of systematic tracking is still in its early stages and only few funders and Member States have ongoing career tracking studies in place,[35] e.g. UK Vitae's study "What do researchers do?" on early career progression and profile destinations for doctoral graduates across the United Kingdom[36]. At European level, data and information on research careers remains fragmented and sparse; an EU-level tracking initiative could aid evidence-based decision making for policy-makers, institutions and researchers on career pathways and mobility, both geographical and inter-sectoral. The European Commission's Expert Group on the Research Profession and the European Alliance on Research Career Development have to this end both called for the development of a European Monitoring System for the Research Profession[37] or Career Observatory to develop common standards for data and statistics and an information system to measure and track career trajectories.[38]

Delegates enjoying the conference

35 European Science Foundation (2012) Developing Research Careers In and Beyond Europe. ESF:Strasbourg

36 Vitae (2013) What do researchers do? Early career progression of doctoral graduates. The Careers Research and Advisory Centre (CRAC) Limited.

37 Expert Group on the Research Profession (2012) Excellence, Equality and Entrepreneurialism. Building Sustainable Research Careers in the European Research Area. Final Report drafted for the European Commission.

38 European Science Foundation (2012) ibid.

Steps are being taken towards the establishment of a European Professional Development Framework for Researchers. The recently developed European Framework for Research Careers (EFRC) aims to make a contribution in this regard by facilitating the comparability of research career structures across employment sectors and countries.

European Framework for Research Careers

The European Framework for Research Careers provides a set of descriptors to capture the complexity of research careers and make these comparable across countries and sectors.

The framework sets out four broad sector-neutral profiles for research careers:

R1 – First Stage researchers (up to the completion of PhD)

R2 – Recognised Researcher (PhD holders or equivalent who are not yet fully independent)

R3 – Established researcher (Researchers who have developed a level of independence)

R4 – Leading researcher (researchers leading their research area or field)

Each profile lists a set of required competences (eligibility criteria for a particular category) and desired competences (ranking criteria within a profile), providing a comparable framework for jobs, competencies and skills, training, funding instruments, presenting workforce statistics and data.

http://ec.europa.eu/euraxess/pdf/research_policies/Towards_a_European_Framework_for_Research_Careers_final.pdf

The Research Development Framework (RDF) developed by the UK network VITAE provides a tool for planning, promoting and supporting the personal, professional and career development of postgraduate researchers. The framework describes the knowledge, skills and competencies of researchers, giving them a language to articulate these skills to employers in all sectors.

VITAE Researcher Development Framework

The Vitae Researcher Development Framework aims to enhance the capacity to build the UK workforce, develop world-class researchers and build the UK higher education research base. Developed by and for researchers in consultation with the academic, public and private sectors, the framework provides a tool for planning, promoting and supporting professional development of postgraduate researchers and articulates the knowledge, behaviours and attributes of researchers at different stages of development.

The framework thus supports researchers in evaluating and planning their development by providing a universal language to communicate researchers' qualities and capabilities, allowing them to assess their strengths and focus on areas for development.

http://www.vitae.ac.uk/researchers/428241/Vitae-Researcher-Development-Framework.html

In a pilot feasibility study conducted by the European Science Foundation[39], the usefulness of the RDF in a wider European context was tested in six European countries (Estonia, France, Germany, Italy, Luxembourg and Norway) with outcomes broadly demonstrating the potential applicability for researchers across Europe. The RDF could therefore be harnessed as a basis for the development of a common, structured European Researcher Development Framework which could facilitate transparency and mobility, provide a single European language to describe researchers' skills and support the aims of the Charter and Code regarding professional development, career planning and access to careers advice.

39 European Science Foundation (2012) A pan-European Professional Development Framework for Researchers. ESF: Strasbourg

OBSERVATIONS FROM THE WORKSHOP DISCUSSIONS

- Researchers should be open-minded with regard to non-traditional career paths. The scarce availability of permanent academic positions means that careers outside of academia will be the rule rather than the exception. Researchers should have the necessary flexibility to recognise and maximize opportunities where and when they arise.
- Both researchers and institutions have responsible for career planning and professional development. Individual researchers are responsibility for their own careers and should be proactive in defining clear training goals to shape their career and skills development. Institutions are responsible as enablers in creating the environment and awareness to support career planning and informed career choices.
- As researchers often lack the adequate language to describe the skills and competencies they could bring to a business setting, employers are often not aware of the value of researchers for their companies. Greater exposure to industry and other relevant sectors as part of professional development can thus benefit researcher employability and marketability from both perspectives.

RECOMMENDATIONS

- Awareness-raising among early-stage researchers by research funders and institutions with regard to non-traditional career paths is urgently required to counter the gap between expectations of a career in academia and the availability of tenure-track positions. This should target researchers at an early stage in their careers, for example, by providing pre-entry advice to PhD candidates on the diversity of research careers and a realistic assessment of the current employment situation.
- Exposure to industry and other relevant employment sectors as part of skills development, or careers advice from role models outside of industry, can help to broaden career perspectives. Under Horizon 2020, a new Marie Curie Fellowship scheme could be considered to fund internships outside of academia for postdoctoral researchers.
- Access to careers advice should be available to researchers at all stages of development up to and beyond the completion of a PhD. In order to encourage research institutions to incorporate research careers advisory services in their HR policies, funders should consider including career development in funding criteria and making awards dependent on the delivery of a career plan, with updates throughout the grant duration. Similar incentives could be considered under Horizon 2020 to promote access to professional development and careers advice, such as extra funding for professional development or conditionality in funding criteria.
- The European Framework for Research Careers and the Vitae Researcher Development Framework should be harnessed and further developed to provide a common, structured European Researcher Development Framework which could facilitate transparency and mobility, provide a single European language to describe researchers' skills and support the aims of the Charter and Code.

3.3 MOBILITY BETWEEN COUNTRIES AND SECTORS

> *Employers and/or funders must recognise the value of geographical, inter-sectoral, inter- and trans-disciplinary and virtual mobility as well as mobility between the public and private sector as an important means of enhancing scientific knowledge and professional development at any stage of a researcher's career. Consequently, they should build such options into the specific career development strategy and fully value and acknowledge any mobility experience within their career progression/ appraisal system. This also requires that the necessary administrative instruments be put in place to allow the portability of both grants and social security provisions, in accordance with national legislation.*
> – The European Charter for Researchers2

Seamless mobility across borders is integral to operationalising the Fifth Freedom, attract the most talented researchers and compete globally with the best. The last decade has seen significant developments with regard to researcher mobility between countries, such as the implementation of the Scientific Visa Directive and the establishment of the EURAXESS Services Network. While still a work in progress, significant steps

Delegates anticipating a busy and fruitful conference.

forward have been taken in the areas of social security, supplementary pensions and the portability of grants. However, beyond difficulties encountered in immigration rules and bureaucratic procedures, many obstacles remain to the free circulation of researchers within a European research labour market. As research careers become more diverse and mobility correspondingly multifaceted, there is a need for greater recognition of new concepts of researcher mobility (inter-sectoral, interdisciplinary, virtual, combined part-time positions) and their respective benefits by research organisations, employers across all sectors and research funders.

Mobility has become an integral feature in the majority of research careers[40] and is essential to maintaining quality, creativity and diversity in research groups. While mobility is broadly acknowledged as a positive factor both for research systems and the personal and professional development of individual researchers, a closer look is needed at the conditions under which mobility takes place. Economic downturn and the consequences for publically funded research institutions have left a large group of researchers facing precarious employment prospects. In this context, mobility can become an ultima ratio as a solution to job insecurity rather than a strategic step in career development to improve research and establish international networks. This occurs both to the detriment of the researchers forced into geographic mobility and to the research systems affected by the resulting brain drain. Investment in the convergence objective areas of ERA was intended to achieve balanced circulation and mobility across Europe by slowing and possibly halting the talent drain from some countries and regions. This aim is currently far from being achieved; instead, a "desertification of talent" is threatening to take place in large areas of Europe, as research and innovation potential is drawn towards a small number of "oases". The increasing imbalance in mobility patterns exacerbates existing disparities in research performance and must be countered urgently if inclusive growth and the achievement of the ERA are not to be compromised. A combination of capacity building and the creation of attractive opportunities for researchers to stay are needed, for example, via synergies between Horizon 2020 and cohesion funding. The continuation and

40 More than half of EU researchers (56%) have been 'internationally mobile' (outward mobility for at least three months) at least once in their career and more than one quarter (29%) in the last three years. Deloitte Consulting (2012) DG Research and Innovation. Researchers' Report 2012.

expansion of initiatives such as ERA Chairs[41] would represent a positive step towards closing the research and innovation divide and preventing brain drain.

Even when not forced, international mobility entails additional practical challenges for researchers, especially beyond the PhD stage. Family needs can render extended periods of mobility difficult or expensive in terms of schooling, accommodation or maintaining two households. There is insufficient support for dual career structures, in particular where both are researchers. Following longer periods of mobility, researchers may face difficulties in re-entering an established or potentially closed system, for example, when working in disciplines with a strong orientation towards the national research landscape. To address these barriers, more flexible approaches are needed to make international mobility feasible for researchers at later stages in their careers, such as short-term stays/ visiting fellowships or elastic mobility concepts with shorter stays divided over a certain time period[42].

Despite the explicit goal of the ERA to strengthen industry-academia collaboration and increase the share of researchers in the private sector, mobility between sectors remains weak with only 17% of EU researchers having been employed in both the public and private sector, based on data from 2009[18]. Transition between academia and industry often proves to be unidirectional, as differences in research outputs, e.g. a lack of scientific publications in industry due to IPR issues, can prevent a return to academia, rendering a career choice for industry final. Among employers and funders, a greater recognition of equivalent research achievements across sectors is needed with appropriate indicators for benchmarking and appraisal beyond scientific publications. Similarly, non-linear 'zig-zag' careers between sectors and disciplines should be viewed as an asset rather than a lack of coherence. Many Member States are developing measures aimed at strengthening ties and increasing exposure between industry and academia, for example, in Industrial PhDs, internships and dual projects. Such initiatives are welcome but it is important to ensure that support measures cover all career stages and seek to involve both multinational companies and small to medium sized enterprises. Combined / part-time inter-sectoral positions, such as the Norwegian Professor 2 scheme, offers a promising approach here and consideration should be given to supporting and incentivizing such schemes.

Combined/Part-time Positions – Professor 2

The Norwegian "Professor 2" scheme is based on the concept of a flexible combined/part-time inter-sectoral research position which allows knowledge transfer and mobility between sectors, disciplines and countries. In Norway, all government employees, including researchers and university professors are allowed to hold a 20% part-time position at another organization in the public or private sector. Conversely, employees in industry, hospitals etc. may hold a 20% "Professor 2" position, financed by either party, as an add-on to their main position.

Flexible part-time and combined positions on "time bank" terms allow flexible mobility and direct knowledge transfer within and between disciplines, countries, institutions and industry. This combination helps to attract established researchers and double career researchers who are interested in collaboration, but do not want to move from their main position or family for a longer period of time.

http://www.forskningsradet.no/prognett-euraxess/Artikkel/Mobility_between_industry_and_academia/1246541738848?lang=en

Today's grand challenges and global competition necessitate research cooperation across disciplines, sectors and countries. As highlighted in the European Science Foundation's recent policy briefing "New Concepts of Research Mobility"[43], alternative concepts of mobility and the acknowledgement of these concepts by research organisations and funders are needed to support and encourage researcher circulation in increasingly diverse research careers:

41 Launched in a pilot call under FP7, ERA Chairs are intended to bridge the research and innovation divide in Europe by appointing outstanding researchers leaders – the ERA Chairs – to research institutions with a demonstrated potential and a concrete plan for research excellence to enable the development of the necessary critical mass required to successfully compete internationally. http://ec.europa.eu/research/era/era-chairs_en.html accessed 02.07.2013

42 An example is offered by the German Science Foundation's Mercator Fellowships which can be applied for in the framework of project funding. These fellowships enable intensive, long-term project-based collaboration between researchers from both domestic and foreign institutions. Although Mercator Fellows are on-site for only part of the project, they remain in contact with the project team members once their research stay is over. http://www.dfg.de/en/research_funding/programmes/international_cooperation/mercator_fellows/ accessed 07.07.2013

43 European Science Foundation (2013) New Concepts of Research Mobility – a Comprehensive Approach including Combined/Part-time Positions. Science Policy Briefing 49. Available at: http://www.esf.org/fileadmin/Public_documents/Publications/spb49_ResearcherMobility.pdf accessed 02.07.2013

- Flexible forms of **international mobility** spanning both longer and shorter durations and split stays.
- **Virtual mobility** through virtual network centres, databases, and collaboration using new ICT tools and social media resulting in tangible outcomes, such as co-publications or patents, collaborative research projects and participation in international peer review panels.
- **Interdisciplinary mobility** across research fields in interdisciplinary or transdiscplinary thematic approaches with recognition of these approaches in evaluation and assessment.
- **Inter-sectoral mobility** with recognition of alternative but equivalent research achievements to support two-way flows between sectors and allow researchers to 'keep a foot in both camps'.
- **Combined/part-time research positions** to support double careers and 'cross-pollinate' between industry and academia, or as a means to underpin links between centres of excellence and less-developed regions.

Greater differentiation in the recognition and assessment of alternative forms of mobility by institutions and funders can help to ensure that mobility is not undertaken as an end in itself or as a forced response to insecure employment prospects, but rather to maximize research potential and opportunities for the individual researcher. This also requires building the knowledge base through studies such as MORE2 (Mobility Patterns and Career Paths of EU Researchers)[44] and by introducing a career tracking system for researchers.

Creating and maintaining strong links with the scientific diaspora outside of Europe offers several possibilities to combat brain drain and establish robust networks for mobility and mentoring. Rather than focusing on the loss of talent to Europe through brain drain, European researchers abroad should be seen as scientific ambassadors within a global community of expertise which can establish mutually beneficial collaboration across countries and support mentoring[45] for early-stage and outgoing researchers. Active connections can also be leveraged to encourage researchers to return or contribute to capacity-building projects in lesser-developed research areas. Good practice examples for diaspora networking are provided by the Wild Geese Network of Irish Scientists and Austrian OST Scientist Network.

Connecting with scientific diaspora

The **Wild Geese Network of Irish Scientists** (WGNIS) is an all-Ireland professional network enabling connection, communication and collaboration between Irish scientific, technological and engineering diaspora. The Network provides a forum for discussion, advancement of ideas, consultancy, publicity and engagement of Irish scientists in policy and aims to facilitate the engagement of Irish scientists abroad or their institutions in the knowledge-based development of the Irish economy, thereby maintaining the connectivity of scientists both within Ireland and abroad. The WGNIS harnesses the knowledge, experience and success of the Irish scientific Diaspora from Ireland to provide an up-to-date and comprehensive global human database for the scientific community.

http://wildgeesenetwork.org/

The **OST Scientist Network** (OSTINA) is an interdisciplinary network of over 2000 Austrian scientists and scholars in North America with the aim of building bridges of knowledge and expertise between Austrian researchers based in the United States and Canada and the scientific community in Austria. OSTINA provides a forum for understanding the needs of Austrian scientists and scholars in North America, offering support on issues such as dual citizenship and double taxation and providing networking opportunities and information on job openings and research collaboration opportunities in Austria.

http://www.ostina.org/de/

At a European level, EURAXESS Links has established a global researchers' network to provide support for collaboration and mobility services in Brazil, China, India, Japan, North America and South East Asia[9]. This service could be expanded to provide support on all forms of mobility and foster collaboration by linking the European scientific diaspora into a community of global scientific citizens.

44 http://www.more-2.eu/ accessed 07.07.2013

45 An example of pan-European mentoring via virtual mobility is provided by the European Council for Small Business and Entrepreneurship's Career Mentoring Programme for junior researchers. Available at: http://www.icsb.org/ecsb-mentoring-section accessed 07.07.2013

OBSERVATIONS FROM THE WORKSHOP DISCUSSIONS

- Mobility should not be an end in itself nor should it increase insecurity or create additional barriers for researchers. Mobility should present the opportunity to maximize individual research potential and career development, rather than a forced choice to escape job insecurity or as a 'box-ticking exercise'.
- The personal needs of researchers and their particular career path must be taken into account to ensure that mobility is meaningful and of benefit in the long-term. As research careers become more diversified, wider recognition of different forms of mobility are needed which fit the career path and development of the individual researcher.
- A focus should be placed on fostering an awareness of a global scientific community with mobile researchers as scientific ambassadors and providing the necessary infrastructural support.

RECOMMENDATIONS

- Funders, employers and the Commission should look at how best to respond to new concepts of mobility and their recognition, building on the work undertaken by the European Science Foundation. This also requires building the knowledge base through studies such as MORE[44] and by introducing a career tracking system for researchers.
- Inter-sectoral positions should be incentivized to encourage a two-way flow of human and knowledge capital between academia and industry at all career stages, e.g. by co-financing combined positions and facilitating a common approach in recognizing alternative but equivalent research outputs across sectors.
- The growing imbalance in researcher mobility in Europe to the detriment of economically weaker countries needs to be countered urgently. Synergies between Horizon 2020 and the Structural Funds should be explored to address this, for example, through initiatives such as ERA Chairs.

- The EU Commission should provide support to further develop and expand the EURAXESS Links Network, linking the scientific diaspora outside of Europe in a community of global scientific citizens. Good practice examples on how to maintain these links and leverage the expertise and experiences of the scientific diaspora outside of Europe can be drawn from successful alumni concepts and networks such as the Wild Geese Network of Irish Scientists and Austrian Office of Science and Technology Scientist Network.

RESEARCHER CAREERS AND MOBILITY CONFERENCE DUBLIN

Members of the Conference Organising Team:
Neal Wright, Magda Wislocka, Lia O'Sullivan, Marguerita Lardner (back row),
Jennifer Brennan, Jennifer Cleary and Lewis Purser.

4. CONCLUSIONS AND RECOMMENDATIONS

A key element in achieving the ERA is to make Europe a more attractive location for top class research talent through better career perspectives and opportunities. This objective is at the heart of the European Charter for Researchers and Code of Conduct for their Recruitment and subsequent policy initiatives including the Scientific Visa Directive, EURAXESS Services, the Principles for Innovative Doctoral Training and the European Framework for Research Careers. The Irish Presidency Conference on Research Careers and Mobility provided the opportunity to gauge progress in achieving this objective and to determine the next steps through the interaction of researchers, research funders, researcher employers and policy makers.

The conclusions and recommendations elaborated by the conference show that a partnership approach involving all stakeholders is necessary to drive forward the ERA agenda. While EU-level policies and initiatives can provide an impetus, take-up and implementation requires commitment and responsibility across the board from Member States, universities, industry, research funders, representative bodies and individual researchers. The solutions developed must be adequate to address the challenges at hand and the range of tools for policy implementation available to the Commission should be considered in full. In some cases, voluntary coordination is sufficient, while for other "stickier" issues, more binding approaches may be required.

Delegates enjoying the conference reception.

Top: Dr Gary Stutte and Dr Siobhan Moane, Limerick Institute of Technology

Bottom: Katrien Maes, LERU, Donatella Solda-Kutzmann, Italian Ministry of Education and Innovation with Dr Vanessa Campo-Ruiz, European Science Foundation

RECRUITMENT OF RESEARCHERS: TRANSPARENCY AND ATTRACTIVE CAREER PROSPECTS ACROSS SECTORS

Recommendation 1: Evaluation criteria for publicly funded fellowships should be developed by research funding organisations with researchers, and as far as possible, be standardised for all schemes. An external agency at national or European level could be tasked with checking that the criteria are in line with the principles of the Charter and Code.

Recommendation 2: Universities, research funders and industry should fill all research positions according to open, transparent and merit-based recruitment. The EURAXESS Jobs Portal should be established as the European job portal for all research jobs and positions, including internships. The service should be sustained on a long-term basis with co-funding from the EU and the Member States.

Recommendation 3: The success of the EURAXESS network should be harnessed and its remit extended to provide customized advisory services for private sector employers in researcher recruitment and mobility issues. An industry user interface for EURAXESS centres, modelled on the new Irish version, should be rolled out to other countries.

Recommendation 4: The European Commission should consider using Horizon 2020 funding as a tool to support and incentivise open recruitment. Possibilities for incentives and penalties should be explored, such as conditionality in funding subject to the implementation of the principles of the Charter and Code for Researchers.

Recommendation 5: A key part of developing independence is for researchers to secure their own funding. This is well supported by the European Commission through the Marie Curie Actions and the European Research Council. National funders and employers should facilitate this independence by explicitly recognising young researchers as professionals and, for example, allowing them to apply for funding in their own name.

PREPARING DOCTORAL CANDIDATES FOR THE FUTURE: DIVERSE CAREER PATHS, QUALITY MAINTENANCE AND MAINSTREAMING

Recommendation 6: Wider uptake of the *Principles for Innovative Doctoral Training* should be promoted by the EU, Member States, institutions and funders.

Recommendation 7: Existing good practices in Member States in dealing with issues specific to PhD research carried out in industry, such as disclosure and IPR, should be widely disseminated, possibly in the form of a common set of best practice principles.

Recommendation 8: Appropriate structures for cost-sharing with industry/other sectors should be developed in order to finance a wider roll-out of structured programmes

Recommendation 9: Possibilities to broaden structures for doctoral training via use of the EU Structural Funds should be explored.

Recommendation 10: The EU Commission via Horizon 2020 should help to set and promote standards by mainstreaming the Marie Curie experience and standards for doctoral training across all priority actions for all PhD candidates employed in projects, including European Research Council grants, and earmarking funds for innovative training elements.

Professional development and training for researchers: planning for multiple career path, skills awareness and development

Recommendation 11: Awareness-raising among early-stage researchers by research funders and institutions with regard to non-traditional career paths is urgently required to counter the gap between expectations of a career in academia and the availability of tenure-track positions. This should target researchers at an early stage in their careers, for example, by providing pre-entry advice to PhD candidates on the diversity of research careers and a realistic assessment of the current employment situation.

Recommendation 12: Exposure to industry and other relevant employment sectors as part of skills development or careers advice from role models outside of industry can help to broaden career perspectives. Under Horizon 2020, a new Marie Curie Fellowship scheme could be considered to fund internships outside of academia for postdoctoral researchers.

Recommendation 13: Access to careers advice should be available to researchers at all stages of development up to and beyond the completion of a PhD. In order to encourage research institutions to incorporate research careers advisory services in their HR policies, funders should consider including career development in funding criteria and making awards dependent on the delivery of a career plan, with updates throughout the grant duration. Similar incentives could be considered under Horizon 2020 to promote access to professional development and careers advice, such as extra funding for professional development or conditionality in funding criteria.

Recommendation 14: The European Framework for Research Careers and the Vitae Researcher Development Framework should be harnessed and further developed to provide a common, structured European Researcher Development Framework which could facilitate transparency and mobility, provide a single European language to describe researchers' skills and support the aims of the Charter and Code.

MOBILITY ACROSS DISCIPLINES, SECTORS AND BORDERS: CHALLENGES, NEW CONCEPTS AND GLOBAL CONNECTION

Recommendation 15: Research funders, employers and the EU Commission should look at how best to respond to new concepts of mobility and their recognition, building on the work undertaken by the European Science Foundation. This also requires building the knowledge base through studies such as MORE and by introducing a career tracking system for researchers.

Recommendation 16: Inter-sectoral positions should be incentivised to encourage a two-way flow of human and knowledge capital between academia and industry at all career stages, e.g. by co-financing combined positions and facilitating a common approach in recognizing alternative but equivalent research outputs across sectors.

Recommendation 17: The growing imbalance in researcher mobility in Europe to the detriment of economically weaker countries needs to be countered urgently. Synergies between Horizon 2020 and the Structural Funds should be explored to address this, for example, through initiatives such as ERA Chairs.

Recommendation 18: The EU Commission should provide support to further develop and expand the EURAXESS Links Network, linking the scientific diaspora outside of Europe in a community of global scientific citizens.

RESEARCHER CAREERS AND MOBILITY
CONFERENCE
DUBLIN

APPENDIX 1

MEDIA RELEASE

ONE-STOP SHOP FOR RESEARCH JOBS AND FUNDING OPPORTUNITIES FOR BUSINESS LAUNCHED

Tuesday, 14 May 2013

An important new web resource for business detailing R&D funding opportunities and jobs was launched today by Minister for Research and Innovation, Mr. Sean Sherlock TD.

The new resource is an extension of the **www.euraxess.ie** portal and is specifically dedicated to business.

The portal brings together a number of important resources that companies can access directly:

- Advertise vacancies
- Search an online database of researcher CVs
- Access the fast track research visas system, and
- Search for funding support opportunities

The new R&D funding search facility allows businesses to search in real-time for all national and European funding supports for their business and research activities. This will address a common industry concern that this information is both fragmented and difficult to access.

Minister Sherlock said: *"This great new resource will give a boost to research and development and clearly demonstrates that when it comes to innovation, Ireland is open for business. Businesses have specifically asked for a one-stop shop for these queries and that is exactly what this new portal does."*

The portal has been developed by the Irish Universities Association (IUA) EURAXESS office which is supported by the Department of Jobs, Enterprise and Innovation and the European Commission. It is the first of its kind in the wider European EURAXESS network.

The European Commissioner for Research and Innovation, Máire Geoghegan-Quinn, underlined the importance of this new service, *"This new Industry User Interface will make EURAXESS Ireland more attractive to industry. We will be exploring the possibility of rolling this out to other countries so that business users across Europe will have a tailored interface including both job and funding opportunities".*

Ends.

Additional Notes:

Based in the Irish Universities Association (IUA), EURAXESS Ireland was established in 2004 with support from the Department of Jobs Enterprise and Innovation and the European Commission. The office provides free practical support for organisations and researchers moving to higher education institutions, research organisations and companies in Ireland and throughout Europe and is linked to a European network of over 200 EURAXESS mobility centres in 40 countries across Europe.

EURAXESS Ireland advertises jobs and funding opportunities for Higher Education Institutions and industry and provides access to a CV database where researchers upload their profiles and employers search for suitable candidates.

EURAXESS Ireland implements a fast track immigration scheme for researchers from outside of Europe. Over the last six years 1,750 researchers have come to Ireland under this Hosting Agreement scheme. There are over 42 organisations using the scheme including universities, institutes of technology, research institutions and private sector companies.

EURAXESS Ireland also promotes the Brazilian 'Science Without Borders' scheme, a key national service that will help attract 600 Brazilian PhD students to Ireland over the next three years.

APPENDIX 2

MEDIA RELEASE

FAST-TRACK "SCIENTIFIC VISA" ATTRACTS TALENTED RESEARCHERS TO IRELAND TO BOOST INNOVATION

15th May 2013

Launch of study: "Attracting Researchers to Ireland: The Impact of the Scientific Visa"

Ireland's reputation as an innovation hub has been given a boost by the introduction of a fast-track scientific visa, a new survey of internationally mobile researchers reveals. The European Commissioner for Research, Innovation and Science, Ms. Máire Geoghegan Quinn launched the findings of the survey at the Irish Presidency conference on Researcher Careers and Mobility held at Dublin Castle on Tuesday May 14th.

Over the last six years, 1,720 researchers from 78 different countries have come to Ireland using the fast track Scientific Visa which is part of the Commission drive to create a European Research Area. The scheme offers a free and fast service for both educational institutions and companies. By registering for a hosting agreement participants can benefit from accelerated procedures for research staff coming from overseas. As a result, visas are issued rapidly and work permits are not required. A further attraction is the fact that researchers' families can accompany them immediately and avail of public schooling.

The scheme is operated by the EURAXESS Ireland office based in the Irish Universities Association (IUA) and supported by government through the Department of Jobs Enterprise and Innovation, and with the close involvement of immigration authorities.

The recent IUA EURAXESS Ireland Office survey involved over 300 researchers who have participated in the scheme. The top satisfaction rating was given to the significant reduction of the length of the immigration process. EURAXESS Ireland statistics show that on average the process takes a maximum of 2 weeks, with the majority of visas being processed in two to four weeks. Prior to the introduction of the scheme the average processing time was six to eight weeks.

The survey revealed that 23% of researchers would definitely not have come to Ireland if the scheme were not in place. Another 53% said they might have decided not to choose Ireland for the next step in their research career without this facility. Only 24% would have come regardless of the immigration process. This shows clearly that immigration issues are a key deciding factor in locational decisions.

Speaking at the launch Commissioner Máire Geoghegan-Quinn said, *"The publication demonstrates the remarkable success of Ireland's participation in the Scientific Visa after opting voluntarily to implement the Third Country Directive in 2007. As many as one quarter of researchers using the scheme said they would definitely not have come to Ireland if this fast track immigration were not in place. So it really is a crucial initiative."*

There are over 40 organisations using the fast track scheme including universities, institutes of technology, research organizations and companies with over half of the researchers involved coming from China, the USA and India. Universities are significantly the largest users of the scheme at over 80%, with many researchers now involved in joint university-industry research activities supported by government through Science Foundation Ireland and Enterprise Ireland.

Minister for Research and Innovation Sean Sherlock TD commended the scheme saying: "the openness of Ireland's research and innovation system is greatly boosted by this initiative. I hope that the scheme will continue to expand and I hope to see its take-up, especially by our innovative export sector, increase further in the coming years".

Ends.

APPENDIX 3

MEDIA RELEASE

IRELAND PLAYING ITS PART IN MEETING EU TARGETS FOR HIGH VALUE JOBS – MINISTER SHERLOCK

Irish Presidency Conference on Researcher Careers and Mobility - http://www.iua.ie/research-innovation/rcm/

Dublin Castle, Tuesday, 14 May 2013

Ireland is playing an important part in helping the EU meet it targets for the creation of high-value jobs according to Minister for Research and Innovation, Sean Sherlock TD. The Minister was speaking at a conference, hosted by the Irish Presidency of the EU, on Researcher Careers and Mobility to focus on measures to ensure the free movement of researchers and knowledge across Europe.

The conference is bringing researchers and policy makers from Europe and beyond together to discuss a number of crucial issues including: fast track immigration; open and transparent hiring policies; and upskilling researchers to increase their access to leading positions across all sectors of the economy and society.

This conference will work on practical solutions to realise Europe's ambitions to create a "European Research Area" for the free movement of researchers and knowledge. The goal is to make Europe a more welcoming place for researchers – retaining our own and also drawing from the global talent pool. This is a cornerstone of the European Research Area policy which Ireland has adopted and implemented through the concerted efforts of government, higher education and industry.

Minister Sherlock stressed the importance of finding practical solutions to fulfilling ambitions for the European Research Area when he said: *"We must foster research excellence to maintain our leading international position. We must provide pathways to enable researchers to find employment in industry where their talents can lead innovation and the development of new products and services".*

Across Europe, over 5 million jobs have been lost between 2008 and 2010. In contrast, knowledge-based jobs driven by research and innovation increased by more than 800,000. "Talent is essential to success in the race for global leadership in innovation", the Minister said.

Speaking at the conference, the European Commissioner for Research and Innovation, Máire Geoghegan-Quinn stated that, "the European Research Area will help ensure a sufficient supply of highly qualified workers by offering researchers more attractive and rewarding careers, and by removing any obstacles to mobility across sectors and countries. Think of it as a "European Single Market" for research, knowledge and ideas".

Welcoming the conference delegates, Prof Brian MacCraith, President Dublin City University said: "the Irish universities are convinced that open recruitment, high quality doctoral training and researcher career development are all extremely important in driving excellence and maintaining Ireland's global reputation as an innovation hub".

In a lively programme of interactive sessions, delegates will be invited to discuss topics such as how to support researchers in making the transition to from college lab to industry, and preparing PhD students for a wide range of employment opportunities. There will be a focus on connecting a nation to its research diaspora, drawing on the progress made by Ireland through the Wild Geese Network of Irish Scientists.

Ends.

APPENDIX 4

CONFERENCE REGISTRATION LIST

Surnames	First name	Organisation	Country
Akande	Tolanikawo	Department of Jobs, Enterprise and Innovation	Ireland
Allard	Elin	Ministry of Education and Research, Government Offices of Sweden	Sweden
Antoniou	Pavlos	Cyprus Institute of Neurology and Genetics	Cyprus
Aparicio-Erriu	Isabela	Freelance	Ireland
Arbuckle	Thomas	University of Limerick	Ireland
Augestad	Pål	Telemark University College	Norway
Babaja	Vesna	Vienna University of Economics and Business	Austria
Bailey	Sharon	University College Dublin	Ireland
Balslev-Clausen	Zacharias	Ministry of Science, Innovation and Higher Education	Denmark
Baran	Valérie	CEPS/INSTEAD	Luxembourg
Báštěcká	Michaela	EURAXESS Czech Republic	Czech Republic
Beech	Diana	University of Cambridge	United Kingdom
Bernotas	Andrius	Lithuanian Academy of Sciences	Lithuania
Bezergianni	Stella	Centre For Research And Technology Hellas (CERTH)	Greece
Blanco Rodríguez	Rocío	General Foundation of the University of Valladolid	Spain
Bobylev	Nikolai	University of Birmingham	United Kingdom
Bodnarova	Viktoria	EURAXESS Links USA	United States of America
Bray	Isabella	Royal College of Surgeons in Ireland	Ireland
Brownlee	Andrew	Institutes of Technology Ireland	Ireland
Buckow	Anjana	Deutsche Forschungsgemeinschaft (DFG)	Germany
Byrne	Molly	National University of Ireland, Galway	Ireland
Byrnes	Lucy	National University of Ireland, Galway	Ireland
Cahill	Vinny	Trinity College Dublin	Ireland
Cairns	David	ISCTE-Lisbon University Institute (CIES-IUL)	Portugal
Campbell	Catriona	Royal College of Surgeons in Ireland	Ireland
Čanković	Milan	University of Zagreb	Croatia
Carroll	Ken	Institute of Technology Tallaght	Ireland
Carroll-Twomey	Elizabeth	Cork Institute of Technology	Ireland
Cei	Silvia	Università di Bologna	Italy
Chura	Lindsay	University of Cambridge	United Kingdom
Cimrak	Ivan	University of Zilina	Slovakia
Condell	Sarah	Health Services Executive, Dr Steevens' Hospital	Ireland

Surnames	First name	Organisation	Country
Conlon	Kevin	Science Foundation Ireland	Ireland
Connaughton	Cian	Department of Jobs, Enterprise and Innovation	Ireland
Corral	Teresa	Instituto de Salud Carlos III	Spain
Costello	Ned	Irish Universities Association	Ireland
Coyle	Máire	University College Dublin	Ireland
Craig	Jennifer	University College Dublin	Ireland
Cullinan	Sean	Expert Research Solutions	Ireland
Cullinane	Susie	Waterford Institute of Technology	Ireland
Cunningham	Emer	University College Dublin	Ireland
Curran	Dermot	Department of Jobs, Enterprise and Innovation	Ireland
Daly	Selena	University College Dublin	Ireland
Davis	Laurence	University College Cork	Ireland
Davis	Richard	Université Charles de Gaulle Lille 3	France
Davy	Alan	Waterford Institute of Technology	Ireland
DENYS	Catherine	Université Charles de Gaulle Lille 3	France
Detrez	Claude	Embassy of France in Ireland	Ireland
Di Luca	Alessio	Dublin City University	Ireland
Di Raimo	Antonino	Universiteti POLIS	Albania
Ditcham	Brian	Office of Science and Technology	United Kingdom
Downar-Zapolska	Renata	Gdansk University of Technology	Poland
Doyle	Mary	Department of Education and Skills	Ireland
Dr. Ochsenfeld-Repp	Sonja	KOWI - European Liaison Office of the German Research Organisations	Germany
Dube	Colleen	Fulbright Commission	Ireland
Dubrocard	Anne	STATEC - Institut national de la Statistique et des Etudes Economiques	Luxembourg
Eekhout	Xavier	FECYT - Fundación Española para la Ciencia y la Tecnología	Spain
Elkassas	Ehab	Arab Academy for Science and Technology and Maritime Transport	Egypt
Entringer	Josiane	Ministère de l'Enseignement supérieur et de la Recherche	Luxembourg
Fahy	Deirdre	Royal College of Surgeons in Ireland	Ireland
Feehan	Dan	Barrister & National University of Ireland, Galway	Ireland
Fenech	Cecilia	Dublin City University	Ireland
Fitzpatrick	Eimear	Waterford Institute of Technology	Ireland
Flagothier	Didier	DGO 6 Économie, Emploi et Recherche	Belgium
Galler	Birgit	Federal Ministry of Education and Research	Germany
Gannon	Sean	Trinity College Dublin	Ireland
Genson	Annaik	Embassy of France in Ireland	Ireland

Surnames	First name	Organisation	Country
Gholamvand	Zahra	Dublin City University	Ireland
Gibbons	Aoibheann	University College Dublin	Ireland
Glampedaki	Pelagia	Waterford Institute of Technology	Ireland
Gomez-Touriño	Iria	Guy's Hospital	United Kingdom
Grattan	Simon	Department of Enterprise, Trade & Investment	United Kingdom
Guimaraes	Rui	Freelance	Portugal
Hamilton	Martin	University of Leeds	United Kingdom
Hannan	Elva	University College Dublin	Ireland
Harrington	Kieran	Department of Jobs, Enterprise and Innovation	Ireland
Hedigan	Susan	University College Dublin	Ireland
Heffernan	Valerie	National University of Ireland, Maynooth	Ireland
Heikkinen	Erja	Ministry of Education and Culture	Finland
Heintel	Sonja	FFG - Austrian Research Promotion Agency	Austria
Hendy	Gillian	National University of Ireland, Maynooth	Ireland
Hermans	Stefaan	European Commission Directorate General for Research & Innovation	Belgium
Herrero Diez	Maria	INIA-Ministry of Economy and Competitiveness	Spain
Hiney	Maura	Health Research Board	Ireland
Holliday	Phil	UKRO	Belgium
Holloway	Anne Louise	Dublin City University	Ireland
Houtmann	Evelyne	CEPS/INSTEAD	Luxembourg
Høvring	Per Ivar	The Research Council of Norway	Norway
Huskova	Hana	EURAXESS Czech Republic	Czech Republic
Irvine	Gemma	Irish Research Council	Ireland
Ivancova	Petra	Commenius University	Slovakia
JANOVÁ	Pavlína	Ministry of Education, Youth and Sports	Czech Republic
Jansen	An	KU Leuven	Belgium
Jennings	Mike	Irish Federation of University Teachers - IFUT	Ireland
Jimenez	Ivan	bizkaia:xede	Spain
Johnsson	Martin	Waterford Institute of Technology	Ireland
Kaczmarek	Michal	Uniwersytet Lodzki	Poland
Kelly	Pat	Department of Jobs, Enterprise and Innovation	Ireland
Kessler	Birgit	ETH Zurich	Switzerland
Killeen	Paul	Athlone Institute of Technology	Ireland
Kokorevics	Arnis	Latvian Researchers' Mobility Centre	Latvia
Kommandantvold	Per Magnus	The Research Council of Norway	Norway
Kopkas	Peter	BIC Bratislava	SLOVAKIA
Kostalova	Katarina	Slovak Academic Information Agency	Slovakia
Kwiatkowska	Agnieszka	Silesian University of Technology	Poland
Laursen	Johnny	Aarhus University	Denmark

Surnames	First name	Organisation	Country
le Rouic	Elodie	Embassy of France in Ireland	Ireland
Lein	Marijke	VIB VZW	Belgium
Lie	Ragnar	The Norwegian Association of Higher Education Institutions	Norway
Loit	Tiina	Estonian Research Council	Estonia
Lucchi	Nicola	Jönköping International Business School	Sweden
Lynn Neylon	Caroline	University of Limerick	Ireland
Mac Sweeney	Siobhan	Institute of Technology Tralee	Ireland
Maguire	Sharon	University of Edinburgh Careers Service	United Kingdom
Maguire	Anita R.	University College Cork	Ireland
Majda	Anna	Ministry of Science and Higher Education	Poland
Markova	Vera	Technical University of Liberec	Czech Republic
Markovska	Natasa	Macedonian Academy of Sciences and Arts	FYROM
McAlister	Deirdre	National University of Ireland, Maynooth	Ireland
McCabe	Gavin	University of Edinburgh Careers Service	United Kingdom
McCann	Roisin	Department of Jobs, Enterprise and Innovation	Ireland
McCarthy	Helen	Department of Jobs, Enterprise and Innovation	Ireland
McCormac	Tim	Dundalk Institute of Technology	Ireland
McCormack	Brendan	Department of Jobs, Enterprise and Innovation	Ireland
McDermott	Fiona	University of Limerick	Ireland
McHugh	Eamonn	University College Dublin	Ireland
McNally	Mary	Fujitsu Ireland	Ireland
McNamara	Mary	Dublin Institute of Technology	Ireland
Meehan	Eucharia	Irish Research Council	Ireland
Menoni	Marco	LUM Jean Monnet	Italy
Merwar	Sonja	State Secretariat for Education and Research	Switzerland
Moane	Siobhan	Limerick Institute of Technology	Ireland
Monnoye	Benjamin	Fédération Wallonie-Bruxelles	Belgium
Moorkens	Joss	Dublin City University	Ireland
Morrissey	Maria	Science Foundation Ireland	Ireland
Morrissey	Mary	Health Intelligence, Health Services Executive	Ireland
Moser	Vincent	HES-SO Haute Ecole Spécialisée de Suisse occidentale	Switzerland
Muckian	Clare	Royal College of Surgeons in Ireland	Ireland
Murphy	Orla	University College Cork	Ireland
Naukkarinen	Sini	Lappeenranta University of Technology	Finland
Nic an Airchinnigh	Meadhbh	National University of Ireland, Galway	Ireland
Nielsen	Signe	Ministry of Science, Innovation and Higher Education	Denmark
O Donoghue	Eimear	Waterford Institute of Technology	Ireland
OConnell	Alison	University College Cork	Ireland

Surnames	First name	Organisation	Country
O'Farrell	Anne	Health Intelligence, Health Services Executive	Israel
O'Looney	Adrian	Aqua TT	Ireland
O'Loughlin	Sharone	University of Limerick	Ireland
O'Malley	Alanna	European University Institute	Italy
O'Regan	Alison	University of Limerick	Ireland
Oro	Kai	The Institute of the Estonian Language	Estonia
O'Rourke	Alicia	European Commission Representation in Ireland	Ireland
Paetzold	Bernhard	Centre for Genomic Regulation	Spain
Pallares	Josep	Universitat Rovira i Virgili	Spain
Peer	Isser	Bar-Ilan University	Israel
Peters	Ann	Universiteit Hasselt	Belgium
Philippi	Fiona	University of Edinburgh	United Kingdom
Pugliese	Ida Federica	European University Institute	Italy
Purtil	Trevor	Aqua TT	Ireland
Quinn	Emma	The Economic and Social Research Institute	Ireland
Quinn	Conor	Department of Jobs, Enterprise and Innovation	Ireland
Reilly	Patricia	European Commission	Belgium
Rubio	Francisco	Fundación "Agencia Aragonesa para la Investigación y el Desarrollo" (ARAID)	Spain
Ryan	Ann	National University of Ireland, Galway	Ireland
Samsi	Kritika	King's College London	United Kingdom
Sanopoulos	Dimitris	Centre For Research And Technology Hellas (CERTH)	Greece
Serafinaviciute	Brigita	Research Council of Lithuania	Lithuania
Siddall	Emma	Trinity College Dublin	Ireland
Sipal	Vit	Dublin Institute of Technology	Ireland
Skarmeta	Antonio	Universidad de Murcia	Spain
Spychała	Marta	Medical University of Gdańsk	Poland
St John	AnnMarie	Department of Jobs, Enterprise and Innovation	Ireland
Starborg	Maria	Swedish Research Council	Sweden
Starkova	Katerina	Office of the Government of the Czech Republic	Czech Republic
Stordal	Britta	Trinity College Dublin	Ireland
Strand	Terje	The Research Council of Norway	Norway
Stutte	Gary	Limerick Institute of Technology	Ireland
Suciu	Cosmin Ioan	University Lucian Blaga of Sibiu	Romania
Sutkaityte	Danguole	Mykolas Romeris University	Lithuania
Svahn	Mari	Aalto University	Finland
Synnott	Justin	University College Dublin	Ireland
Trajanovic	Miroslav	University of Nis	Serbia
Tschelaut	Julia	Federal Ministry of Science and Research	Austria
Tubli	Ursula	Estonian Ministry of Education and Research	Estonia

Surnames	First name	Organisation	Country
Van Daele	Jasmien	Ghent University	Belgium
Varwijk Gissurardottir	Helga	The Netherlands Organisation for Scientific Research (NWO)	Netherlands
Verčko	Radojka	Ministry of Higher Education, Science and Technology	Slovenia
Virador	Victoria	National Institutes of Health	United States of America
Viswanathan	Vijayaragavan	Jablotron Alarms a.s.	Czech Republic
Walsh	John	Trinity College Dublin	Ireland
Weidemann	Jana	Norwegian Ministry of Education and Research	Norway
Whitten	Peter	European Commission Directorate General for Research & Innovation	Belgium
Wilmet	Sara	Université Catholique de Louvain	Belgium
Wuytack	Francesca	Trinity College Dublin	Ireland
Wynne	Bernadette	Department of Jobs, Enterprise and Innovation	Ireland
Speakers, Panel Members and Chairs			
Ackers	Louise	University of Liverpool	United Kingdom
Adenberger	Caroline	Embassy of Austria	United States of America
ANGLES VAZQUEZ	ALBERT	Universitat Autonoma de Barcelona	Spain
Bell Burnell	Jocelyn	Oxford University	United Kingdom
Boland	Tom	Higher Education Authority	Ireland
Borchgrevink	Hans M	The Research Council of Norway	Norway
Cabello Valdes	Cecilia	FECYT - Fundación Española para la Ciencia y la Tecnología	Spain
Cameron	Iain	Research Councils UK	United Kingdom
Campo-Ruiz	Vanessa	European Science Foundation	France
Conway	Claire	Oxford University	United Kingdom
Cooney	Thomas	Dublin Institute of Technology	Ireland
Dettenhofer	Markus	CEITEC	United States of America
Duić	Neven	University of Zagreb	Croatia
Esposito	Fulvio	University of Camerino	Italy
Farrell	Nicholas	Virginia Commonwealth University	United States of America
Ferguson	Professor Mark WJ	Science Foundation Ireland	Ireland
Geoghegan-Quinn	Máire	European Commission	Belgium
Georgiadou	Maria Christina	University of Cambridge	United Kingdom
GIOVANETTI	MANUELA	Marie Curie Fellows Association	Italy
HARKIN	SIOBHAN	Waterford Institute of Technology	Ireland
Jorge	Miguel	University of Strathclyde	United Kingdom
Jorgensen	Thomas	European University Assocation Council for Doctoral Education	Belgium
Keller	Andreas	European Trade Union Committee for Education	Germany

Surnames	First name	Organisation	Country
Kuster	Stephan	Science Europe	Belgium
Kwint	Alie	Kwintessence	France
Lanfrey	Damien	Ministry of Education and Innovation	Italy
Looney	Lisa	Dublin City University	Ireland
Luchetti	Alessandra	European Commission Directorate General for Education & Culture	Belgium
Maass	Gudrun	European Commission Directorate General for Education & Culture	Belgium
MacCraith	Brian	Dublin City University	Ireland
Maes	Katrien	LERU - League of European Research Universitites	Belgium
Majsec	Kristina	EURODOC	Croatia
Markova	Eugenia	London Metropolitan University	United Kingdom
McCauley	Anthony	Fujitsu Ireland	Ireland
McGuinness	Nina	University of Hildesheim	Germany
Méndez de Castro	Carmen	bizkaia:xede	Spain
Metcalfe	Janet	VITAE	United Kingdom
Meyer	Dagmar	ERC Executive Agency	Belgium
Miller-Delaney	Suzanne	Royal College of Surgeons in Ireland	Ireland
Mulvany	Michael	Aarhus University	Denmark
O'Carroll	Conor	Irish Universities Association	Ireland
Prendergast	David	Intel Labs Europe	Ireland
Samset	Eigil	GE Vingmed Ulstrasound & University of Oslo	Norway
Scholz	Beate	Scholz Consulting	Germany
Sherlock	Sean	Department of Jobs, Enterprise and Innovation	Ireland
Solda	Donatella	Ministry of Education and Innovation	Italy
Sweeney	Aidan	IBEC - Irish Business and Employer's Confederation	Ireland
Vandevelde	Karen	Ghent University	Belgium
Vernos	Isabelle	Centre for Genomic Regulation	Spain

APPENDIX 5

CONFERENCE PROGRAMME

Tuesday, 14th May

12.00 Registration and Light Lunch

13.15 Opening Ceremony

Welcome Address

Prof. Brian MacCraith, President, Dublin City University

Ministerial Address

Sean Sherlock TD, Minister of State for Research & Innovation

Keynote Address

Máire Geoghegan-Quinn, EU Commissioner for Research, Innovation and Science

14.00-15.30 Plenary Session

"Where have we come from, where are we now, and where are we going to....?"

Plenary Lecture

Prof. Fulvio Esposito, Italian delegate to the ERA Steering Group on Human Resources and Mobility

Panel Discussion

Chair: Stefaan Hermans, European Commission Directorate General for Research & Innovation

Panel Members

1. **Dr Miguel Jorge**, Lecturer University of Strathclyde and International Consortium of Research Staff Associations (ICoRSA)
2. **Ms. Maria-Christina Georgiadou**, PhD Candidate, University of Cambridge
3. **Dr David Prendergast**, Anthropologist and Senior Researcher, Intel Labs Europe
4. **Dr Eugenia Markova**, London Metropolitan University
5. **Dr Manuela Giovanetti**, Universita degli Studi di Napoli Federico II e Polo delle Scienze

15.30 Coffee Break

Tuesday, 14th May

16.00-18.00 Parallel Interactive Workshops

1. Why Hire Researchers?

- Open recruitment as a pathway to excellence
- Bringing new talent to companies
- Recognising the wide range of researchers' talents

Workshop Coordinator:
Dr Dagmar Meyer, former Policy Officer at the European Commission, DG Research & Innovation

Workshop Rapporteur:
Dr John Walsh, Lecturer Trinity College Dublin and Executive Member Irish Research Staff Association

Speakers:

1. **Anthony McCauley**, Fujitsu Ireland
2. **Aidan Sweeney**, Executive, Enterprise & Innovation, IBEC
3. **Prof. Louise Ackers**, Chair in Law and Social Justice, University of Liverpool
4. **Andreas Keller**, European Trade Union Committee for Education, Germany

2. Are Doctoral Candidates Prepared for the Future?

- Providing high quality Doctoral Training
- More international and interdisciplinary mobility
- Broadening career opportunities for Doctoral Graduates

Workshop Coordinator:
Siobhán Harkin, Research Manager, Waterford Institute of Technology

Workshop Rapporteur:
Dr Emer Cunningham, Graduate Education Development Manager, University College Dublin

Speakers:

1. **Prof. Michael Mulvany**, ORPHEUS (Organisation for PhD Education in Biomedicine and Health Sciences in the European System)
2. **Alessandra Luchetti**, Marie Curie Unit, European Commission Directorate General for Education & Culture
3. **Mr Albert Anglés**, R&D Engineer, Universitat Autonoma de Barcelona, Spain
4. **Dr Eucharia Meehan**, Director, Irish Research Council

Tuesday, 14th May

3. How Can You Make a Researcher Employable?

- Professional Development opportunities for Researchers
- Recognising generic and transferable skills
- Helping employers understand researchers' capabilities

Workshop Coordinator:
Alie Kwint, Kwintessence

Workshop Rapporteur:
Dr Gemma Irvine, Assistant Director, Irish Research Council

Speakers:

1. **Damien Lanfrey**, Adviser for Innovation Policy to the Italian Minister of Education and Innovation
2. **Dr Claire Conway**, Careers Adviser for Researchers, University of Oxford
3. **Dr Iain Cameron**, Head of Research Careers & Diversity, Research Councils UK

4. Is Mobility Good for You?

- International mobility focusing on virtual mobility
- Working with the scientific diaspora
- Mobility between employment sectors

Workshop Coordinator:
Dr Beate Scholz, Director, Scholz Consulting Training Coaching

Workshop Rapporteur:
Justin Synnott, Research Programme Support Manager, University College Dublin

Speakers:

1. **Dr Hans M. Borchgrevink**, Special Adviser, Research Council of Norway
2. **Prof. Nicholas Farrell**, Virginia Commonwealth University and President Wild Geese Network of Irish Scientists
3. **Prof. Eigil Samset**, GE Vingmed Ultrasound & University of Oslo
4. **Caroline Adenberger**, Embassy of Austria, USA

Tuesday, 14th May

18.00 Close of Workshops

18.30 Close of Printworks Cloakroom Facility

19.30 Drinks Reception

Portrait Gallery, Upper Yard, Dublin Castle

20.00 Conference Dinner

St. Patrick's Hall, Upper Yard, Dublin Castle

Guest Speaker: Jocelyn Bell Burnell, Visiting Professor, Oxford University

Entertainment: Irish World Academy of Music and Dance at the University of Limerick

Dress: Smart Casual /Business Attire

Wednesday, 15th May

9.00-10.00 "More-Faster-Better"

An open session where conference participants will have the opportunity to raise any issues related to the themes of the conference in the form of a 3 minute "elevator pitch".

Session Chair: Dr Vanessa Campo-Ruiz, Science Officer to the Chief Executive, European Science Foundation

Expert Panel:

1. **Katrien Maes**, LERU
2. **Kristina Majsec**, Vice President, EURODOC
3. **Neven Duic**, University of Zagreb
4. **Dr Karen Vandevelde**, Policy Advisor Research, ECOOM, Ghent University
5. **Prof. Thomas Cooney**, College of Business, Dublin Institute of Technology

10.00-11.00 "Follow-Up" Session 1 Recruitment and Mobility

Presentation of the outcomes of Workshops 1 and 4 by the workshop facilitators, followed by discussion of the outcomes by an Expert Panel and the audience.

Session Chair: Cecilia Cabello, Director of Operations, FECYT (Fundación Española para la Ciencia y la Tecnología)

WS Reporters: Dagmar Meyer, **Beate Scholz**

Expert Panel:

1. **Dr Suzanne Miller-Delaney**, Postdoctoral Fellow, Royal College of Surgeons in Ireland
2. **Donatella Solda-Kutzmann**, Adviser for Innovation Policy to the Italian Minister of Education and Innovation
3. **Carmen Méndez De Castro**, Centre Head, Bizkaia Xede, Institutional Relations & EURAXESS Service Spain
4. **Prof. Isabelle Vernos**, Centre for Genomic Regulation, Spain and Chair of European Research Council Working Group on Gender Balance
5. **Markus Dettenhofer**, Executive Director, CEITEC, Czech Republic

Wednesday, 15th May

11.00-11.30 Coffee Break

11.30-12.30 "Follow-Up" Session 2 Doctoral Training and Professional Development

Presentation of the outcomes of Workshops 2 and 3 by the workshop facilitators, followed by discussion of the outcomes by an Expert Panel and the audience.

Session Chair: Dr Lisa Looney, Dean of Graduate Studies, Dublin City University

WS Reporters: Siobhán Harkin, Alie Kwint

Expert Panel:

1. **Thomas Jorgensen**, Head of Unit, EUA Council for Doctoral Education
2. **Dr Janet Metcalfe**, Chair and Head, VITAE
3. **Prof Mark Ferguson**, Director General, Science Foundation Ireland
4. **Stephan Kuster**, Head of Policy Affairs, Science Europe
5. **Gudrun Maass**, Policy Officer, EIT, European Commission Directorate General for Education and Culture
6. **Tom Boland**, Chief Executive, Higher Education Authority, Ireland

12.30-12.50 Conclusions and Recommendations

Dr Conor O'Carroll, Chair of ERA Steering Group on Human Resources and Mobility

12.30-12.50 Closing Remarks

Stefaan Hermans, European Commission Directorate General for Research & Innovation

13.00 Close of Conference

13.15-14.30 Lunch in St. Patrick's Hall, Upper Yard, Dublin Castle

Conference Rapporteur: Nina McGuinness, Research Support Services, University of Hildesheim

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