

# Research Excellence in Europe

Key trends in PhD mobility & supporting  
Early Careers Researchers



*Great jobs for bright people*



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# Introduction: European Investment in Research



Europe has come through a serious financial crisis that left no sector of society or the economy untouched. In recent years research budgets have either stagnated or been slashed. Only Germany increased its funding, albeit by a small amount.

In terms of investment in research, Germany stands out from all other European countries. This puts it fourth place in the world behind the USA, China and Japan. With an annual investment of approximately €80 billion, it is spending 2.3% of GDP on research and development (R&D). This is one percentage point above the European average but still short of the EU target of 3% that should be achieved by 2020.

Detailed statistics show that France spent 2.2% and the UK only 1.6% in 2013 and for 2014 and 2015 indications are that there have been no significant increases. That being said these levels of investment are amongst the highest in Europe. Germany has also committed to a 3% year on year increase up to 2020.

This is reflected in the quality of publications where, for example, Northern & Western Europe accounted for nearly 30% of the publications in the Nature publication index.

However this high research quality has been lacking in Southern and Eastern Europe. For instance, over the past four years Spain has slashed its research budget by approximately 30%. Although there is now a turnaround as the Spanish government has announced a 14.6% increase in the research budget for 2016.

There is further good news regarding the funding of science and research from the European Union. The European Commission will have allocated over €120 billion between 2014 and 2020.

The main programme is Horizon 2020 that began in 2014 and will run until 2020 with a total budget of €74.9 billion.

There are also programmes that will fund research and innovation activities in the fields of space research ([Copernicus](#) and [Galileo](#)); nuclear energy ([Euratom Research and Training Programme](#), [International Thermonuclear Experimental Reactor](#)) as well as coal and steel production.

Additionally [the European Structural and Investment Funds](#), implemented at regional level can be used to support the development of research and innovation capacities. The latter being particularly relevant for the Southern and Eastern Europe.

The Horizon 2020 programme is structured as three pillars: Excellence Science, Societal Challenges and Industrial Leadership. It includes a wide variety of funding opportunities across the research spectrum from basic to applied, and covering all disciplines from philosophy to process engineering.

The European Research Council (ERC) is the flagship scientific funding programme. It selects the best emerging and established researchers to work in European institutions. PhD students can expect to work in world leading teams on cutting edge projects across all humanities and scientific disciplines.

Furthermore the [Marie Skłodowska Curie](#) programme also offers funding across all areas and includes the full range of research from basic to applied. The focus of the Marie Skłodowska Curie programme is career development of the individual within a structured research and training environment.

# Section 1: The Mobility of PhD Talent in Europe

**“** *The structured approach to doctoral education represents a quiet, transformative revolution, which in these years is going through the research establishments all over Europe. In many ways it is the practical manifestation of the Salzburg declaration on institutional responsibility for the doctoral candidates and for their education. It is also an expression of the awareness of universities of their responsibility to provide Europe with enough researchers with the right qualifications. That is, doctoral education has become a concern not only for academic careers, but also for the development of a knowledge intensive European society. Of course, assuming institutional responsibility does not happen without challenging certain well established traditional practices and positions within national academic cultures. However, these changes are taking place in deep respect for the key values of the doctoral degree: a PhD is a PhD, and its key element is independent, original research under supervision in strong research environments.* **”**

Prof. Johnny Laursen  
Chair of Universities Denmark's Doctoral Committee  
Dean of Arts, Aarhus University, Denmark



## Funding for PhD's

There are many opportunities for prospective doctoral candidates within the European funded programmes. However it is important to be aware of how the different types of funding support can lead to different career prospects. Therefore any student planning to embark on a PhD should do so fully aware of the academic and research employment environment. Many surveys both national and international consistently show that more than 80% of those on a doctoral programme have the intention to become academics or career researchers.

The reality is very different as a study by the UK Royal Society showed that less than 5% of PhD graduates become academics or researchers. To put this in to perspective, the US has over 70,000 postdoctoral researchers but only an annual total of 3,000 track tenure positions available. Despite this, the good news is that unemployment among PhD graduates is very low. Although this means that most will find employment outside their desired area in the public or private sector that might not entail any research activity.

When seeking funding it is important for potential PhD candidates to understand that there are two main types of funding available, individual funding schemes and project grants. There are many individual schemes that offer scholarships for 3-4 years. These are awarded to the individual based on their academic record and usually give them a level of independence and career development support. These can be offered by national funding agencies or universities.

In recent years, the emergence of doctoral schools has seen very attractive PhD opportunities that also focus on the individual's career development.

Moreover these training structures usually provide opportunities for the doctoral candidates to carry out part of their research abroad and in relevant employment sectors (public and private) that will give them better job prospects.

Taking a position as part of team formed with a project grant can sometimes be less beneficial. This is because the focus of the team leaders is delivering the research project and not on the individual career development of the PhD candidates. In this case the individual needs to be aware that they will have to take more control of their own career development.

Those planning to enrol on a PhD that has close links to the economy or society, can look at specific programmes that directly involve employers. Examples include the [Danish Industrial PhD](#) and the [European Industrial Doctorate](#) where the candidate spends at least half their time in a company carrying out their research.

In terms of planning for a PhD it is crucial to bear in mind that the doctorate usually lasts for four years while most funding schemes offer only three years. Therefore it is important to plan well in advance for funding over the whole period of the doctorate. The final gap in funding can often be filled by internal university support. Prospective PhD students should approach the doctorate as the first stage in their career development.

They should have a clear vision of what this will lead to and how it can maximise their longer term employment prospects. They should also not underestimate how intensive the experience will be, it will require a very high level of personal and professional commitment.

**“In Horizon 2020, the Marie Skłodowska-Curie actions (MSCA) will support 25,000 PhD candidates. The Innovative Training Networks, is the main EU funding sources for structured PhD where researchers can work with leading European scientists in international, intersectoral and interdisciplinary networks. This training programme ensures that the PhD candidates receive top quality research training in both the academic and non-academic sectors with a focus on innovation skills in all scientific disciplines through worldwide and cross- sector mobility, thus maximising the future employment prospects of the researchers. Through COFUND, the Marie Skłodowska-Curie actions allow new and existing doctoral training programmes to increase the number of researchers they support, spreading the best practices of the MSCA in doctoral training. By applying the principles of the European Researchers Charter and Code in all MSCA projects, by setting a benchmark on how researchers should be employed and by supporting a high quality environment for them, the MSCA play an essential role in European innovation and have a structuring effect beyond the researchers that the programme funds directly.”**

Alessandra LUCHETTI  
Head of Department Marie Skłodowska Curie Actions  
European Commission  
Research Executive Agency

## What attracts PhD students?

Studies by the OECD and the European Commission show that the main factor that attracts PhD students is the availability of funding for their PhD. Almost equally important is the quality of education and training, career progression and working with leading experts. Close behind is the availability of research funding, facilities, research autonomy and working conditions.

Broadly speaking the reasons why researchers move differ depending on the origin of the researchers. Non-EU researchers tend to value more the opportunity to work with leading experts and personal/family reasons. Mobile European researchers prioritise salary as a reason for moving.

Other factors including job security, social insurance and pension are considered less important. However recent EC data shows that PhD candidates now value these factors higher than postdoctoral researchers. This indicates changing times where PhD candidates are far more aware of challenges with job security in the current employment market for researchers.

## The International Mobility of PhD Students

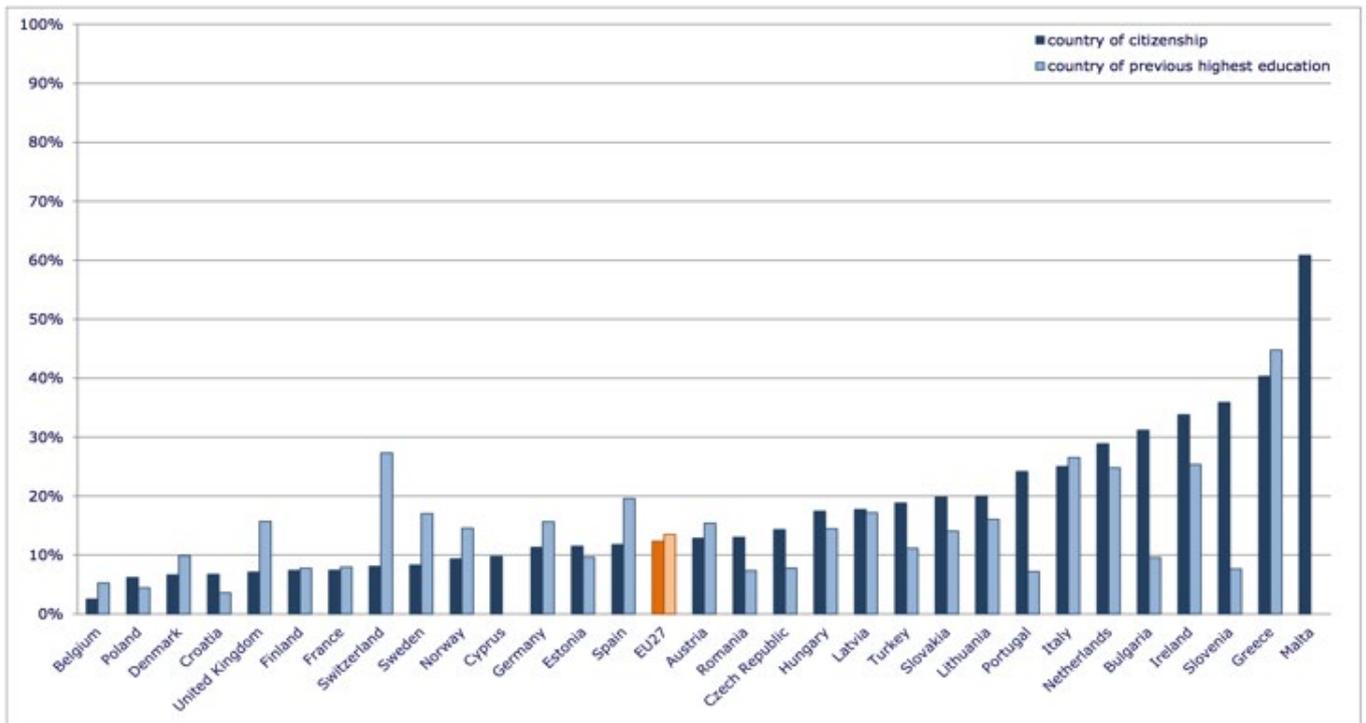
International networking is an integral part of a researcher's career. Many begin this by moving abroad to carry out their PhD. One of the most striking change in patterns is the increase in the mobility of researchers over the past ten years. Currently 15% of researchers in the EU are internationally mobile. A total of 17% of researchers were mobile more than 12 years ago. Another 31% of researchers have worked abroad since then, showing how international mobility has increased over time. This data comes from a major survey by the European Commission, [MORE2](#) (Mobility Patterns and Career Paths of EU Researchers). It was carried out across the 28 EU Member States and another five countries including Norway, Iceland and Turkey.

Across the EU about 10% of PhD students graduate abroad. The highest percentages moving abroad relative to all PhD graduates of the same country come from Malta (61%), Greece, Slovenia and Ireland (35%), see Figure 1. The countries hosting the highest percentages of foreign PhD's are Switzerland, Denmark, Norway, Sweden, the Netherlands and Luxembourg, Figure 2. While about 28% of PhD students in the UK are foreign, they represent the largest number in any European country. In fact the UK is the fourth largest producer of PhD's globally after the US, China and Germany.



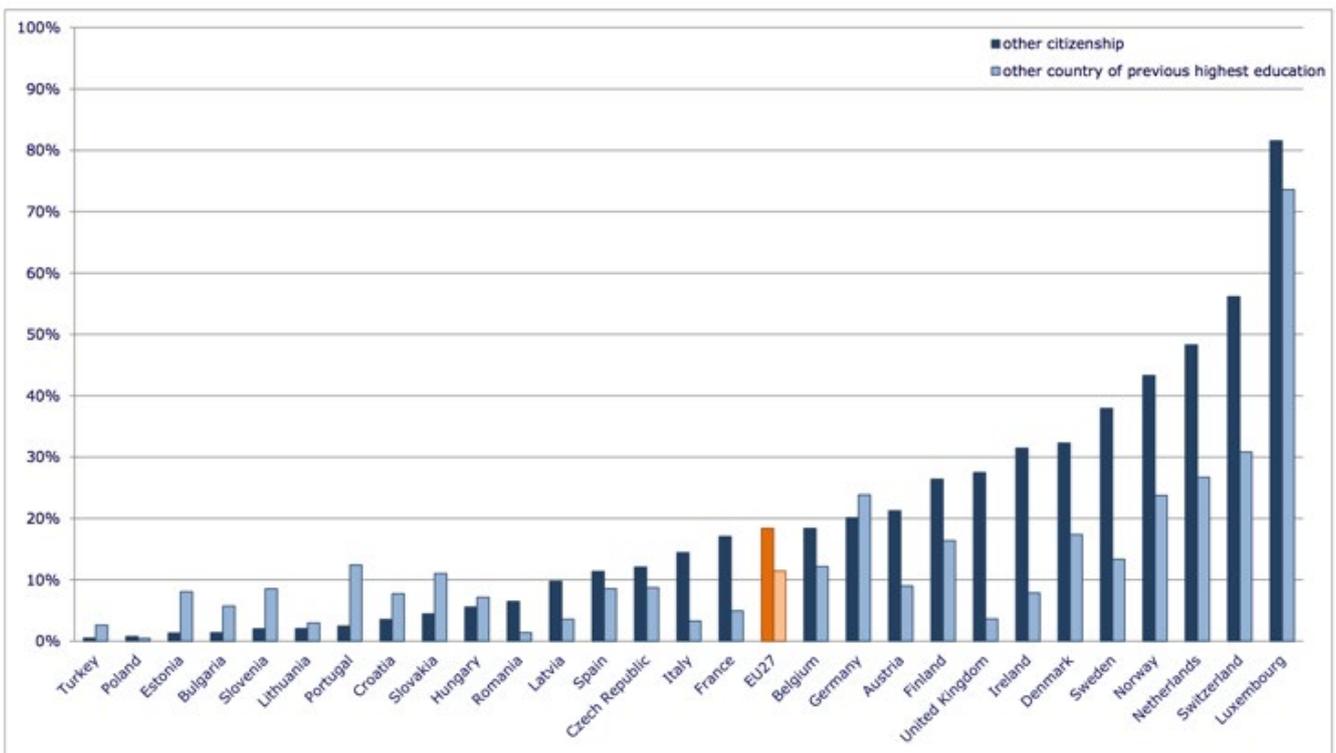
**15% of researchers in the EU are internationally mobile**

**Figure 1. Outward International PhD degree mobility (graduation abroad in EU) - country of departure (MORE2 Higher Education Survey 2012).**



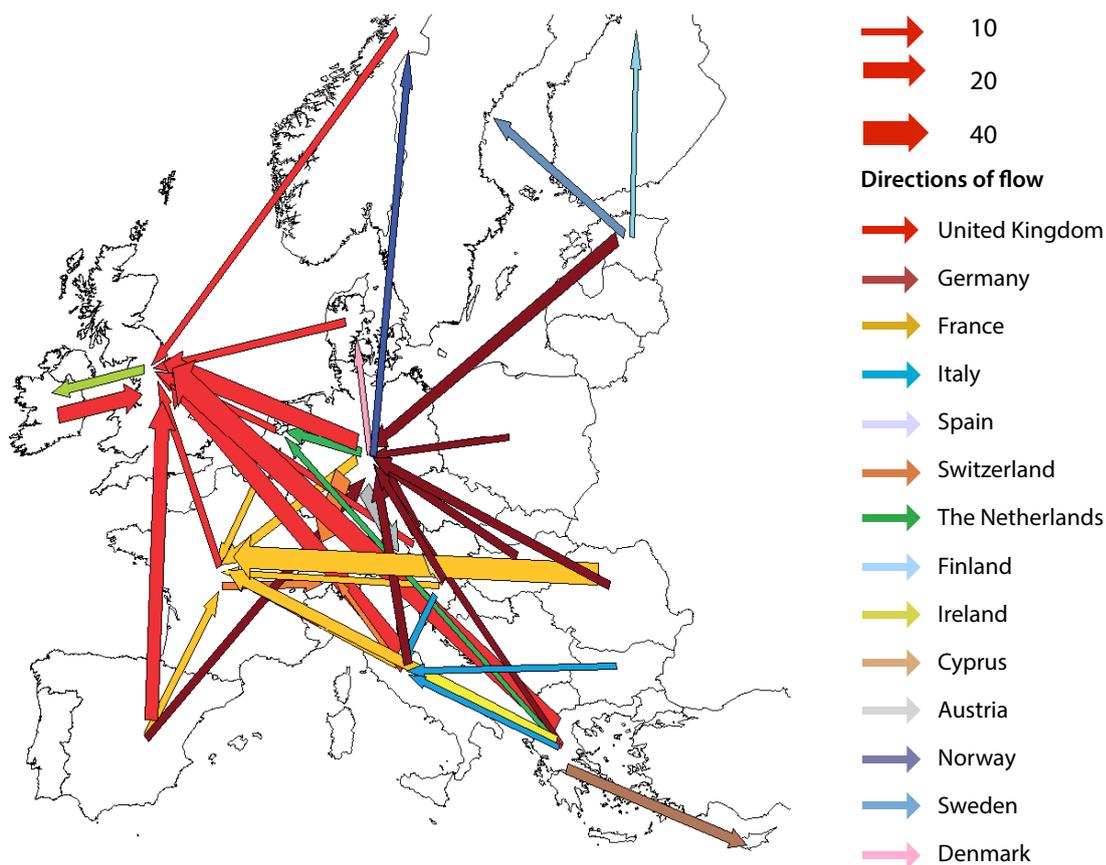
For each country, two statistics are displayed. First are those who hold the citizenship of that country who move abroad for the PhD. Second those who have graduated in that country (regardless of nationality) who move abroad for the PhD. For example, under 10% of Swiss nationals who are doctoral candidates move abroad. However nearly 30% of students who took an undergraduate degree in Switzerland and are doctoral candidates move abroad.

**Figure 2. Inward International PhD degree mobility (graduation abroad) - country of destination (MORE2 Higher Education Survey 2012).**



For each country two statistics are displayed. First is the percentage of foreign doctoral candidates in that country. Second is the percentage of those who graduated outside that country and have moved there for a PhD. For example, about 20% of doctoral candidates in Germany are foreign. Nearly 25% of doctoral candidates in Germany took their undergraduate degree in another country.

**Figure 3. International mobility flows (MORE2 Higher Education Survey 2012)**



## Destinations

The main destinations of prospective European PhD students are the USA (18%), the United Kingdom (11%), Germany (11%) and France (8%).

When looking at mobility within Europe, European students are attracted to the UK, Ireland, Scandinavian countries and the small relatively open economies of Luxembourg, Switzerland, Austria, and Belgium.

For many destinations, the majority of European PhD students are Greek, Italian, Spanish and German. The complex pattern of cross border mobility is illustrated in Figure 3 above.

For example, the main feeder countries of PhD's to the UK are France, Germany, Italy, Spain, Greece, the Benelux countries and Ireland. Germany, receives PhD candidates mainly from Greece, Italy, Spain, Poland, Bulgaria and Estonia. Whereas France attracts PhD's from Germany, Spain, Belgium, Bulgaria, Greece and Austria.

About 60% of outward international mobility from Europe is towards the US, Canada and Australia. In Asia, the most popular destinations are China, Japan and Singapore. Of those that do move abroad for the PhD the German, Spanish, Irish and Italians often return to their home country (representing about 16% of incoming researchers).



## Origins

Approximately 12% of EU researchers indicate that they are PhD degree mobile (i.e. did or will obtain their PhD in a country other than the country of their citizenship). The most mobile are from Malta, Greece, Slovenia, Ireland and Bulgaria (30% each or more). At the other end of the spectrum; Belgium, Poland, Denmark, Croatia, the United Kingdom and France are the least mobile (7% or less of PhD degree mobile researcher for each country).

After completing their primary degree, researchers in Greece, Switzerland, Italy, Ireland and the Netherlands are more likely (20% or more) to move to another country to obtain a PhD. This statistic is a lot lower in a number of Eastern European countries, Belgium, Portugal, Finland and France (8% or less).

The total number of non EU PhD students is approximately 60,000 in the EU28. This is about 5% of the total amount of researchers working in the EU. Furthermore, these non-EU researchers in the EU are concentrated in a small group of countries. When taken together, we find more than 50% are in the UK and Germany.

There is also concentration in terms of origin: 78% come from 20 countries with the largest share coming from China (13%), India (12%) and the US (11%). It is estimated that their share as a percentage of all doctoral students in the EU is around 20%. The UK, France, Norway and Switzerland have the largest shares of non-EU doctoral students.

## Pitfalls of Mobility

While mobility may always seem a good option for PhD students, it is important to consider the potential drawbacks. The MORE2 survey has shown that researchers believe that mobility can impede their career progression, significantly reduce their prospects of a job (in or outside of academia) and slow their progression in salary and other financial conditions.

By leaving their home country, they lose contact with the national network and hence recognition by the national research community. These opinions are strongly dependent on the country of origin of the researcher.

For those coming from more open national research systems that value international mobility like the UK, France and Germany, the benefits of outward mobility will actually help them in returning. However for some more closed countries in Southern and Eastern Europe, going abroad for a PhD can mean that their chances of returning are low.

# 60,000

**Total number of non EU  
PhD students in the EU28**





## Summary

While national R&D budgets continue to fall, the European Union can still offer a wide variety of opportunities for PhD students. Prospective PhD students need to have a clear career plan in mind as only a small number will have the opportunity to become academics. It is far better to secure an individual fellowship as it means better career development opportunities than being funded under a project grant. Moreover individual fellowships like the Marie Skłodowska Curie carry more prestige. The average time for a PhD is just over four years but most funding schemes offer only three years.

For those looking for an international experience, there are well trodden paths to the UK, Germany and France for PhD students. This brings the added value of being in a country with a large number of international students and the universities / research centres usually have good support structures in place.

It should be kept in mind that moving abroad to do a PhD may not always be a positive step. For some it may mean that it will be hard to find a position back home after the doctorate.

## Key Messages for Prospective PhD's

- Have a long term career plan that includes career options outside academia
- Seek out individual fellowship opportunities
- Funding is usually for three years but need to plan for four
- If planning to move abroad, look to high quality universities that have good support structures for doctoral candidates.
- Not all countries put a high value on mobility and for some leaving to do a PhD abroad may mean it will be very difficult to return

## Section 2: Key Principles of Supporting PhD Students

**“** *The high level skills doctoral graduates attain are very highly valued by both academic and non-academic employers. Structured programmes provide an environment where doctoral candidates can develop these sophisticated skills through a range of professional development programmes within a cohort of fellow candidates and don't rely entirely on a single supervisor for everything. They are usually built around a strong research environment which is also essential.* **”**

Prof David Bogle  
Chair of League of European Research Universities (LERU)  
Pro-Vice-Provost of University College London Doctoral School.

**“ In this highly competitive, global economy, it is critical that institutions provide doctoral researchers with opportunities to invest in their professional and career development and develop the wide range of competencies and attributes needed to be excellent researchers and highly-skilled employees. ”**

Dr Janet Metacalfe,  
Chair and Head, Vitae UK

The PhD has evolved from its beginnings in 19th century Germany. However the original master-apprentice relationship has persisted. For most this is a highly beneficial experience, learning from an experienced scientist. However the downside of this approach is that the experience of a PhD can heavily depend on the relationship between the candidate and supervisor.

From a public policy perspective there is also a problem in that this is an academic apprenticeship giving the candidate little opportunity for employment elsewhere. This situation has become exacerbated in recent years with the increased numbers of PhD graduates arising from higher level of national investment in research. Given that less than 5% of PhD graduates become academics or researchers the traditional approach is not sustainable.

Back in 2002, Sir Gareth Roberts 2002 SET for Success report made the radical (for the time) recommendation that PhD researchers have mandatory formal transferable skills training.

This was beginning of a movement that spread across Europe to provide a more structured approach to doctoral education where the student has greater control.

The UK now has a nationwide approach to skills training and career development for PhD researchers delivered by the organisation VITAE. The European Marie Skłodowska programme supports doctoral candidates and insists that skills training be integrated in their funded PhD programmes.

In 2011, the [Innovative Doctoral Training Principles](#) (IDTP) were developed as part of European Higher Education and Research policy for doctoral training. This is also the preferred method for the delivery of the PhD under Horizon 2020. There are seven principles focusing on research performance, the interface with the labour market and the attractiveness of the research profession.



## Research Excellence

Striving for excellent research is fundamental to all doctoral education and from this all other elements flow. Academic standards set via peer review procedures and research environments representing a critical mass are required. The new academic generation should be trained to become creative, critical and autonomous intellectual risk takers, pushing boundaries of frontier research. It is important to stress that the heart of the doctorate itself remains the generation of new knowledge through research and scholarship.

## Quality Assurance

The accountability procedures must be established on the research base of doctoral education and for that reason, they should be developed separately from the quality assurance in the first and second cycle. The goal of quality assurance in doctoral education should be to enhance the quality of the research environment as well as promoting transparent and accountable procedures for topics such as admission, supervision, awarding the doctorate degree and career development. It is important to stress that this is not about the quality assurance of the PhD itself rather the process or life cycle, from recruitment to graduation.

## Interdisciplinary Research Options

Doctoral training must be embedded in an open research environment and culture to ensure that any appropriate opportunities for cross-fertilisation between disciplines can foster the necessary breadth and interdisciplinary approach.

## International Networking

Doctoral training should provide opportunities for international networking, i.e. through collaborative research, dual and joint degrees. Mobility should be encouraged, be it through conferences, short research visits and secondments or longer stays abroad.

## Exposure to Industry and Other Relevant Employment Sectors

The term 'industry' is used in the widest sense, including all fields of future workplaces and public engagement, from industry to business, government, NGO's, charities and cultural institutions (e.g. museums). This can include:

- Placements during research training
- Shared funding
- Involvement of non-academics from relevant industry in informing/delivering teaching and supervision
- Promoting financial contribution of the relevant industry to doctoral programmes
- Fostering alumni networks that can support the candidate (for example mentoring schemes) and the programme
- A wide array of people/technology/knowledge transfer activities.

**“ Our support for training is strategic through our Doctoral Training Partnerships (DTPs) which provide training across a broad range of subjects determined by single Research Organisations or consortia; Centres for Doctoral Training (CDTs) which provide training within focused research areas, often defined strategically by the Research Council. We also link some training to major strategic research investments. Much of our training is collaborative with industry, business, public and third/civil society sectors and may be incorporated within DTPs and CDTs or funded through dedicate collaborative schemes such as CASE. ”**

Dr Iain Cameron  
Head of Research Careers and Diversity  
Research Councils UK

## **Transferable Skills Training**

Transferable skills are skills learned in one context (for example research) that are useful in another (for example future employment whether that is in research, business etc.) They enable subject and research-related skills to be applied and developed effectively. Examples would include, research data management, data & information visualisation and project management. Transferable skills may be acquired through training or through work experience.

It is essential to ensure that enough researchers have the skills demanded by the knowledge-based economy and society. Examples include communication, teamwork, entrepreneurship, project management, intellectual property, research integrity and ethics.

For example, the Research Councils UK vision for research training includes:

- Strengthening the impact of training across and within disciplines and sectors
- Promoting the development of interdisciplinary skills in the research base and inter-sectoral mobility
- Supporting the professional development of researchers at all career stages and articulate clear expectations regarding postgraduate training, professional development and equality and diversity
- Providing new and more robust evidence of the impact of research training on the wider economy using methods such as longitudinal tracking and case studies.



MENTOR  
CAREER  
SUCCESS  
GROWTH  
KNOWLEDGE  
DEVELOPMENT  
EDUCATION  
THINKING  
CAPABILITIES  
SKILLS

### **Attractive Institutional Environment**

Doctoral candidates should find good working conditions to empower them to become independent researchers taking responsibility at an early stage for the scope, direction and progress of their project. These should include career development opportunities, in line with the [European Charter for Researchers](#) and the [Code of Conduct for the Recruitment of Researchers](#).

*“The core and essential component of doctoral education remains the advancement of knowledge through original research—a fundamental societal value in itself, based on freedom of enquiry, the fostering of innovative thinking and the development of advanced critical skills.”*

(Taken from the National Framework for Doctoral Education, [Higher Education Authority, Ireland](#).)

The purpose of these principles is to reinforce this core component and develop highly skilled researchers who can find employment in a wide range of sectors of the economy and society.

These principles are already practiced in many European countries including the UK, Ireland, Germany, France, Denmark and Finland. The experience across Europe is that the IDTP are best implemented through Doctoral Schools or Structured PhD Programmes.

These provide a structure (usually within a specific discipline) to centrally organise the PhD programme for all students.

They are often formed by collaborations between different institutions in order to bring together complementary expertise to focus on an area such as Nanoscience, requiring expertise from physics, chemistry and engineering. Such structures also engage with the relevant industry and provide placement opportunities for PhD students.

Extensive studies in Ireland, that had implemented the structured PhD since 2006, have shown that it has a positive effect on the research carried out by PhD students and their own doctoral experience. Comparisons with students on the traditional PhD track showed that those on structured programmes have greater access to skills training and better interaction with their supervisor.

Moreover those on structured PhD programmes are more likely to publish in international peer reviewed journals and present their results at international conferences. In contrast, their counterparts on the traditional one-one PhD mainly publish in national journals and present at national conferences.

There is also evidence from the German experience of Graduate Schools that their students have shorter completion times for the doctorate.



## Summary

Over the last 20 years the nature of the PhD has altered from a very personal experience based on a one to one relationship with a supervisor to a more general organised institutional approach. This in itself is a positive move for the student and is also a reflection of the large increase in numbers of PhD students following increased investment in R&D. The PhD is evolving from a pure academic apprenticeship to the necessary qualification for leaders in the knowledge based society and economy.

Despite this many universities continue to follow the traditional approach. That being said there are many excellent examples across Europe of structured doctoral programmes that support a variety of career options for PhD graduates. Recent European policy based on many examples of national good practice has identified seven Principles for Innovative Doctoral Training that are now viewed as the gold standard for all EU funding and are integrated into the Horizon 2020 programme.

These principles now value mobility in all of its forms (international, interdisciplinary and intersectoral) and the need for transferable/generic skills training. This new approach to doctoral education and training has been shown to have better outcomes for the quality of the doctoral research. The opportunities for PhD students to have a high quality research education and training experience that will enable them to move into a wide range of careers has never been better.

## Key Messages for Supporting Researchers

- Over the past 20 years there has been a transition from the traditional PhD to a more structured approach to meet the demands for highly skilled graduates and to manage the increasing numbers
- These doctoral schools provide a better education and research experience for the students
- Students in doctoral programmes have a wide range of opportunities for skills development, international and interdisciplinary mobility and the possibility of workplace experience.

## Section 3: An Explanation of the HR Conditions Set in the Horizon 2020 Programme

**“Eurodoc is convinced that essential to the quality of research and to the daily lives of early stage researchers (which comprise doctoral candidates as well as junior post-doctoral researchers) is the proper recognition of them as professional researchers and a treatment according to that idea: including stable funding opportunities and a wage that recognise their highly intellectual work, proper and dedicated training and mentoring, as well as access to all the necessary facilities.”**

Romain Decet,  
President, EURODOC

Eurodoc is the European Council of Doctoral Candidates and Junior Researchers. It is an international federation of 32 national organisations of PhD candidates, and more generally of young researchers from 32 countries of the European Union and the Council of Europe.



The concept of the European Research Area (ERA) was introduced in 2000. At its core is the objective of Europe as an incubator for the free movement of researchers and knowledge. The current European policy focus is on open, transparent, merit based recruitment for researchers and their career development. This is now encapsulated in the grant agreement or contract that all participants in the European Horizon 2020 programme sign.

The contract clearly states that;

***“The beneficiary must take all measures to implement the principles set out in the Commission Recommendation on the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers, in particular regarding: working conditions; transparent recruitment processes based on merit, and career development”.***

This is a clear legal commitment and means that universities and research centres must abide by the European Researchers Charter and Code of Conduct for their Recruitment ('Charter and Code'). This Charter and Code was published in 2005 and it lays out clearly the rights and responsibilities of researchers.

There are 40 principles that can be classified under four broad headings; Recruitment; Training; Working Conditions and Ethical & Professional aspects.

Over 1,200 organisations including universities, research centres and funding agencies from over 40 countries across Europe have endorsed the Charter and Code.

From a practical point of view this means that all PhD positions supported by the Horizon 2020 programme must be published widely in the relevant media and in particular on the national [EURAXESS](#) website. There must be a clear job description and specific criteria for the assessment of applicants.

Across Europe there is quite a discrepancy between the opinion of universities and researchers on the openness and transparency of their recruitment procedures. When countries provide reports to the Commission on recruitment, the consistent message is that all are open and fair in their recruitment procedures. However research carried out by the Commission through the MORE2 survey demonstrates that this is clearly not the case. When asked their opinion about recruitment policies at their institution, around 30-40% of university researchers indicated that they were 'dissatisfied' with levels of openness, transparency and the extent of merit-based recruitment. The United Kingdom, Ireland and Estonia have the highest share of satisfied researchers (around 80%) whereas Italy, Croatia and Bulgaria have the lowest at around 40%.

In 2009, the Human Resources in Research Award (HRS4R) was introduced as a means for institutions that adopt the Charter & Code to gain recognition with the HR Logo. The Human Resources Strategy for Researchers (HRS4R) supports research institutions and funding organisations in the implementation of the principles of the Charter & Code in their policies and practices.

The implementation of the Charter & Code by research institutions makes them more attractive to researchers looking for a new employer or a potential host for their research project.

Universities that have received the award, place the logo in their advertisements for research positions. A total of 232 organisations have obtained the Commission's "HR Excellence in Research" badge.

Among these are all of the UK universities. This is because a UK wide process incorporates both the QAA Code of Practice for Research Degree Programmes and the Concordat to Support the Career Development of Researchers to enable institutions that have published Concordat implementation plans to gain the 'HR excellence in research' badge.



HR EXCELLENCE IN RESEARCH



## New Directions in European Research Policy

While the European Research Area (ERA) remains at the heart of EU research policy a new focus has recently emerged. At the ERA Innovation Conference on 22-23 June 2015, the Commissioner for Research and Innovation, Carlos Moedas announced that Europe would move towards the concepts of Open Science, Open Innovation and Open to the World. This will have an impact on PhD candidates as it expects them to approach their research from a new perspective.

From the very beginning they should be ensuring that the data gathered can be made easily accessible to the global scientific community. Their publications should be made open access. They will need training in specific skills including data management, text and data mining (TDM). Integral to this new approach is an emphasis on research integrity.

This is more than ethics as it is about integrity in the practice of research itself including the avoidance of plagiarism, falsification of results and proper author recognition in publications. There is an expectation that doctoral candidates should be thinking beyond academia and looking for innovation opportunities through knowledge transfer and commercialisation.

Some may see these and other changes as taking the doctorate far from its origins of carrying out original research in preparation for a career in academia. Up until the nineties the majority of PhD students did secure academic or research posts as the numbers were lower and there were more job opportunities.

The major increases in research investment to support the development of a knowledge based economy and society has brought major increases in the numbers pursuing a PhD. The most recent economic crisis has seriously reduced the number of posts available in universities and research centres. There is now a need for a change in perspective on the doctorate; it is no longer purely a route to a professorship.

There is universal agreement among policy makers and universities that the doctorate should remain at its core a piece of original research that expands the frontiers of knowledge. It should also be supplemented by enabling the PhD candidates through skills training the opportunity to become professionals and bring their talents to a wide range of employment sectors for the benefit of the economy and society.

## Summary

Universities and research centres must recognise the fact that the majority of their doctoral graduates will not become academics. Their approach to their PhD students must be to ensure that they offer them the broadest opportunities for career development through continuous professional development and placements with potential employers.

In order to access EU research funding, universities and research centres must ensure the professional treatment of their PhD students based on the European Charter for Researchers. In contrast to previous EU research funding programmes, this is now a legal requirement.

There is a straightforward method for institutions to satisfy these conditions and have it formally recognised by the European Commission. They can achieve this by gaining the Human Resources in Research Award (HR4SR). By doing this they can develop far more open, transparent and merit based recruitment processes. In turn this will raise the quality of the recruited doctoral candidates and benefit the institutions.

New European policy is under development on Open Science, Open Innovation and keeping Europe Open to the World. This reflects changes that are taking place at national level especially on open access to publications and data.

It will be important for institutions to expand their breadth of training opportunities to meet these new policy development, for example, on big data management. Universities and research centres that remain oblivious to policy developments or fail to act may find themselves less and less attractive locations for PhD students.

### Key Messages for Universities and Research Centres

- Implementing the European Charter for Researchers and Code of Conduct for their Recruitment is now a legal requirement for universities and research centres participating in the European Horizon 2020 Programme
- The Human Resources in Research Award (HR4SR) recognises that institutions have adopted and implemented the Charter and Code
- Universities and research centres need to continuously renew their training and professional development opportunities to ensure that they can remain attractive to PhD students

## About the Author

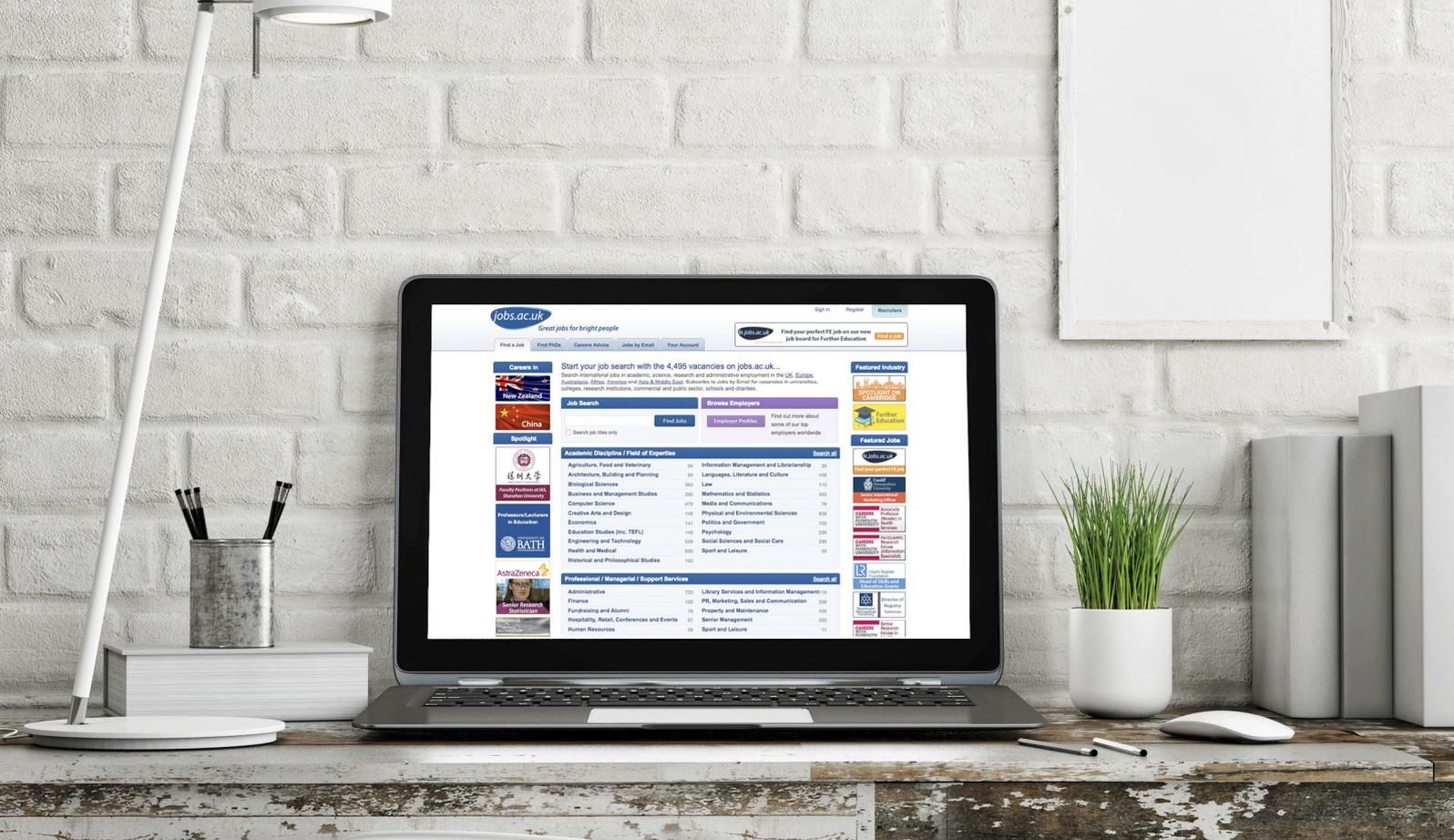
Conor O'Carroll is an Independent Consultant on Research and Higher Education Policy and Funding. Chair of the European Steering Group on Human Resources and Mobility focusing on researcher career development as part of the European Research Area (ERA). He has led the development of the European Framework for Research Careers (EFRC) and the Principles for Innovative Doctoral Training (PIDT).

He is currently a member of the DG Research PSF appointed team carrying out a peer review of the Bulgarian national research and innovation system. His research interests include doctoral training; researcher career development; the development and impact of national / European R&D policy.



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