Doctoral Training in Europe - Challenges and Opportunities

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Head of STEM

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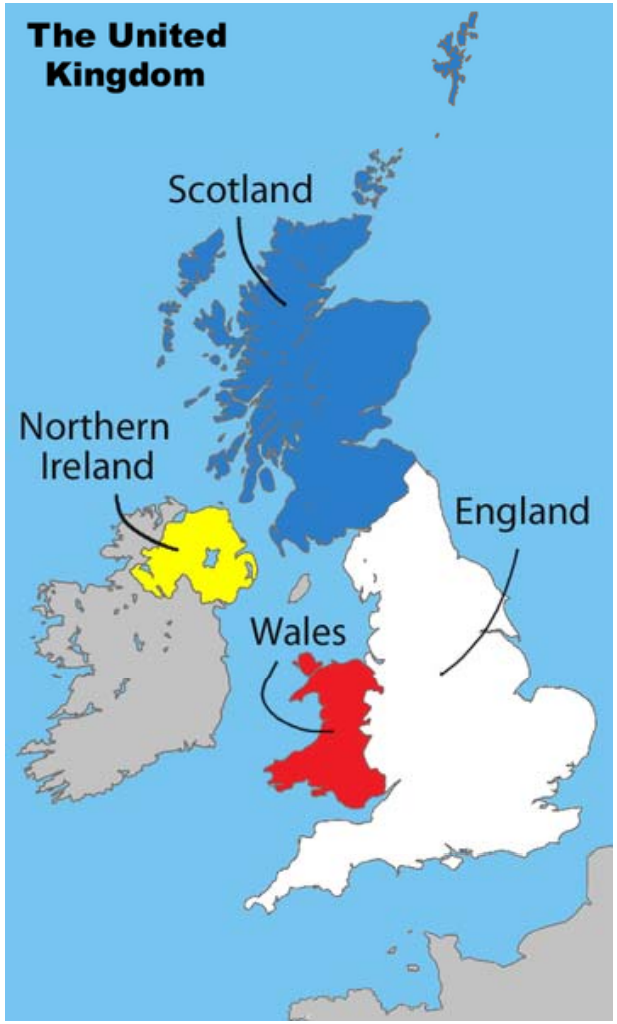
The Higher Education Academy

- The national body for learning & teaching in UK higher education
- We work in partnership with institutions and sector bodies
- Focused on the **student learning experience**, and work to enhance the **quality** of that experience.
- This is both undergraduate and postgraduate and **includes PhD Students**.



HEA work for postgraduate students

Surveys

- National surveys and reports (PRES and PTES)
- HE Surveys for **Enhancement** Conferences (May, 2011, and May 2012): NSS, PRES, PTES, PG focus groups

Training

- Postgraduates who teach – discipline specific work with professional bodies e.g. Institute of Physics

Publications

- The Doctorate: Stories of Knowledge, Power and Becoming (2010)
- The Research Student Experience: Lessons from PRES. (2009)
- Widening participation to postgraduate study: Decisions, deterrents and creating success (2008)
- Redefining the Doctorate (2007)

Fund Studentships through our PhD Programme

PG Research Experience Survey

PRES 2011

1 March until 17 May 2011

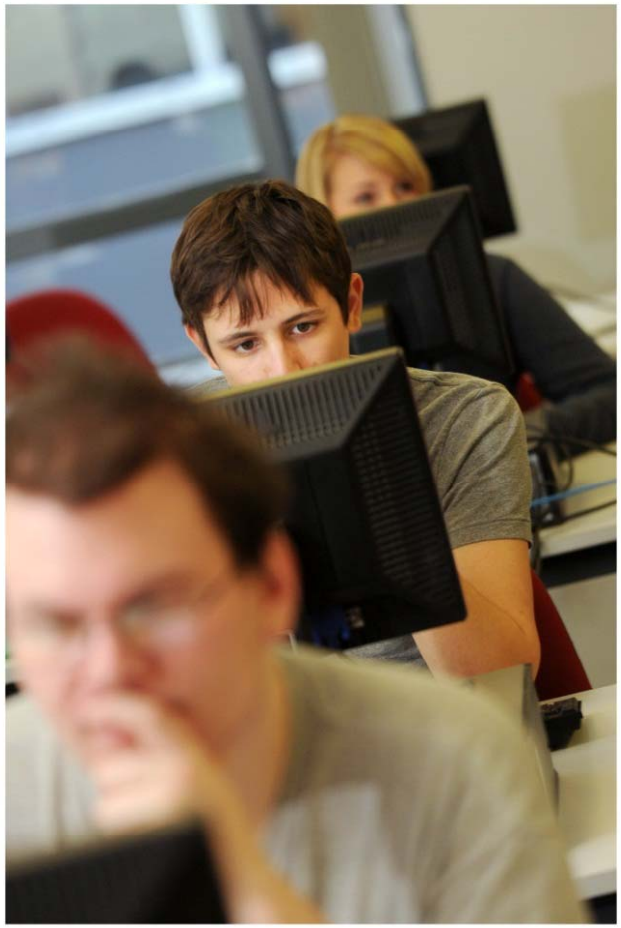
102 participating HEIs

Covering 4 UK Nations

97,571 students surveyed

31,202 students responded

32% response rate



Acknowledgement to the HEA surveys team for all data and analysis presented, in particular Paul Bennett and Alex Buckley

Demographic information

Survey Respondents

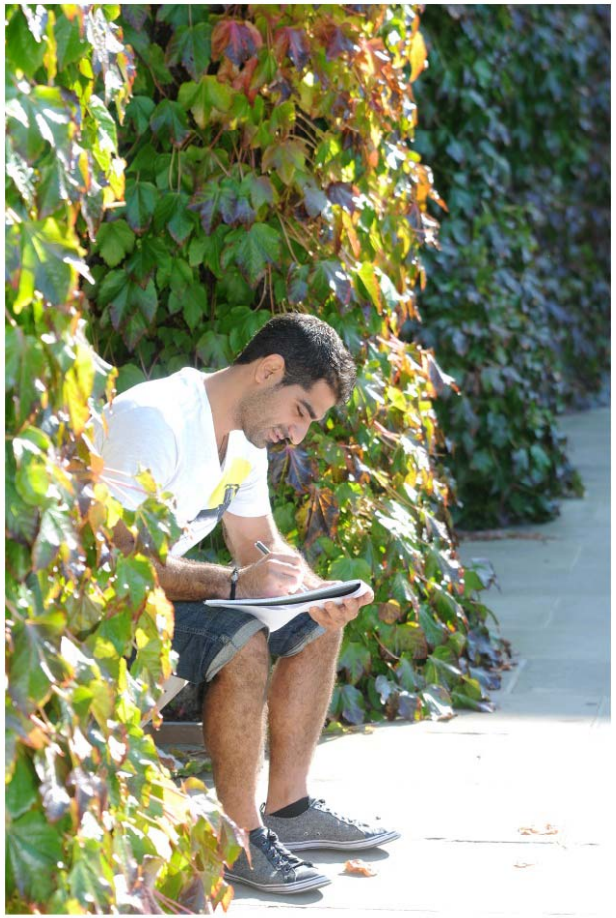
50% male, 50% female

60% home, 12% EU, 28% overseas

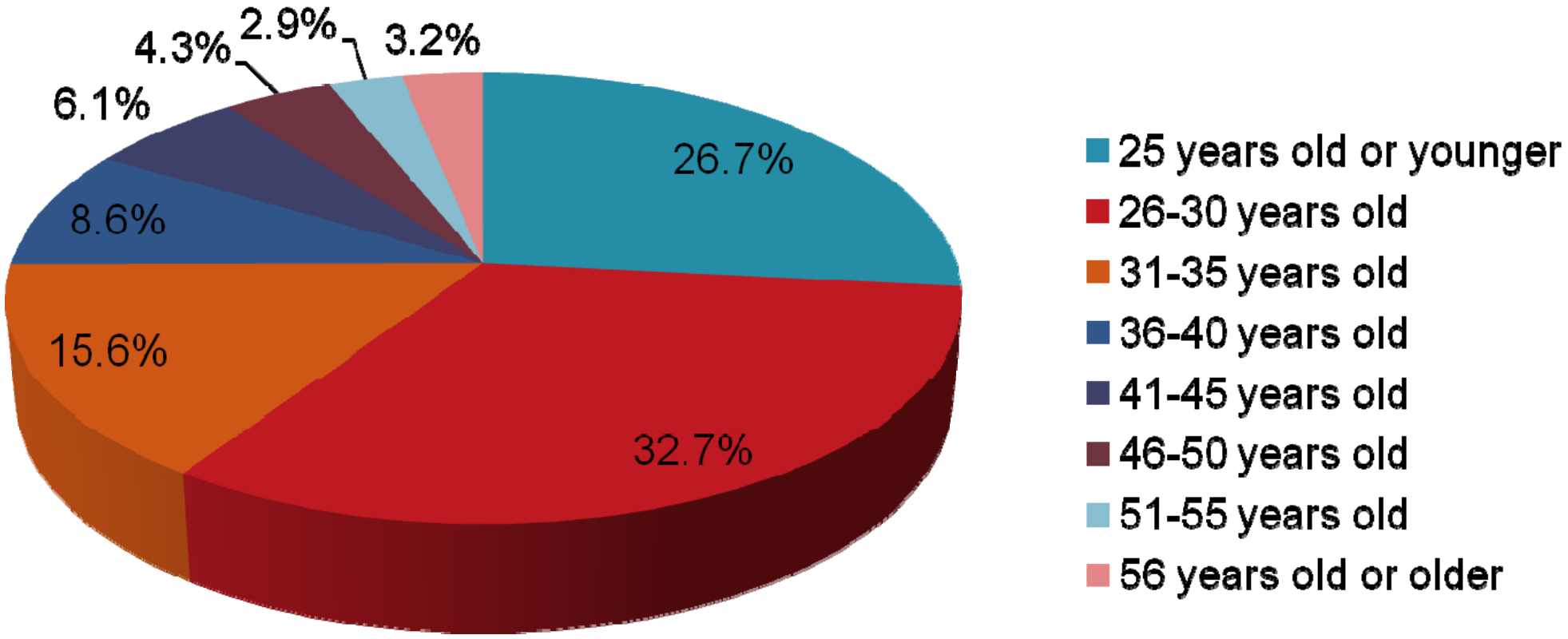
81% full-time, 19% part-time

82% face-to-face, 18% distance

5% students with disabilities



Age Profile

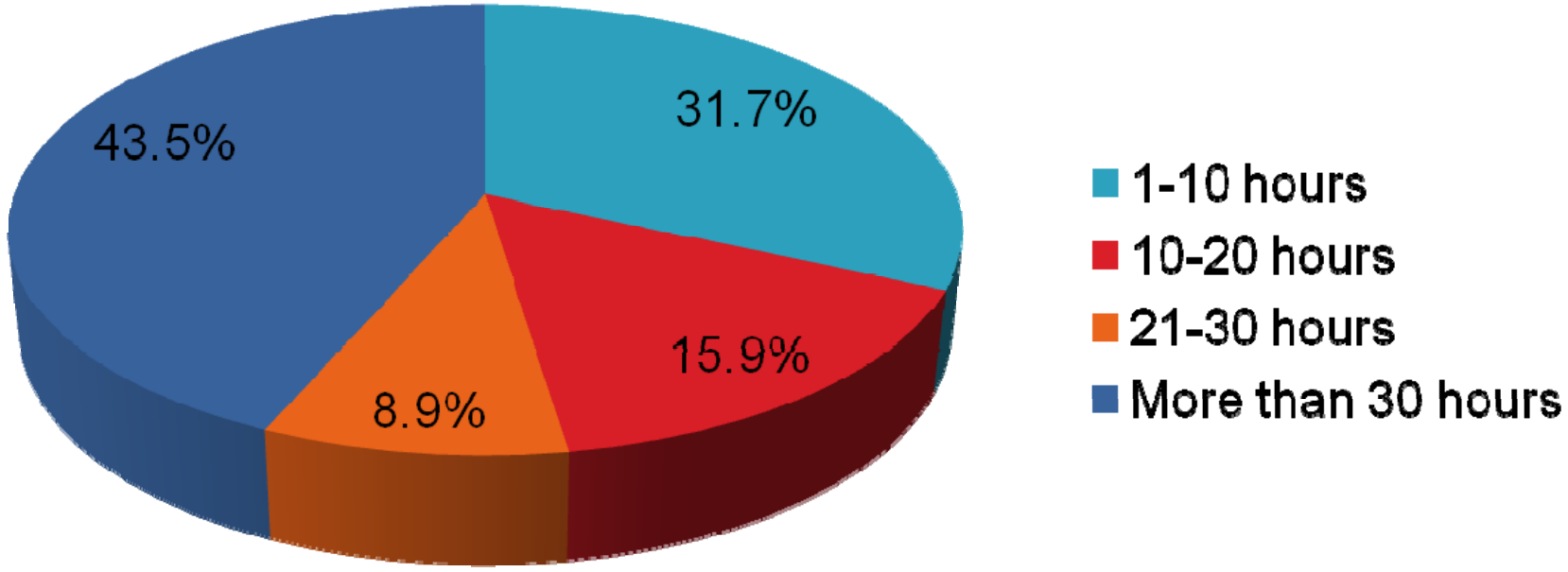


~ 40% of PhD students 30 years and above

Implications for doctoral training?

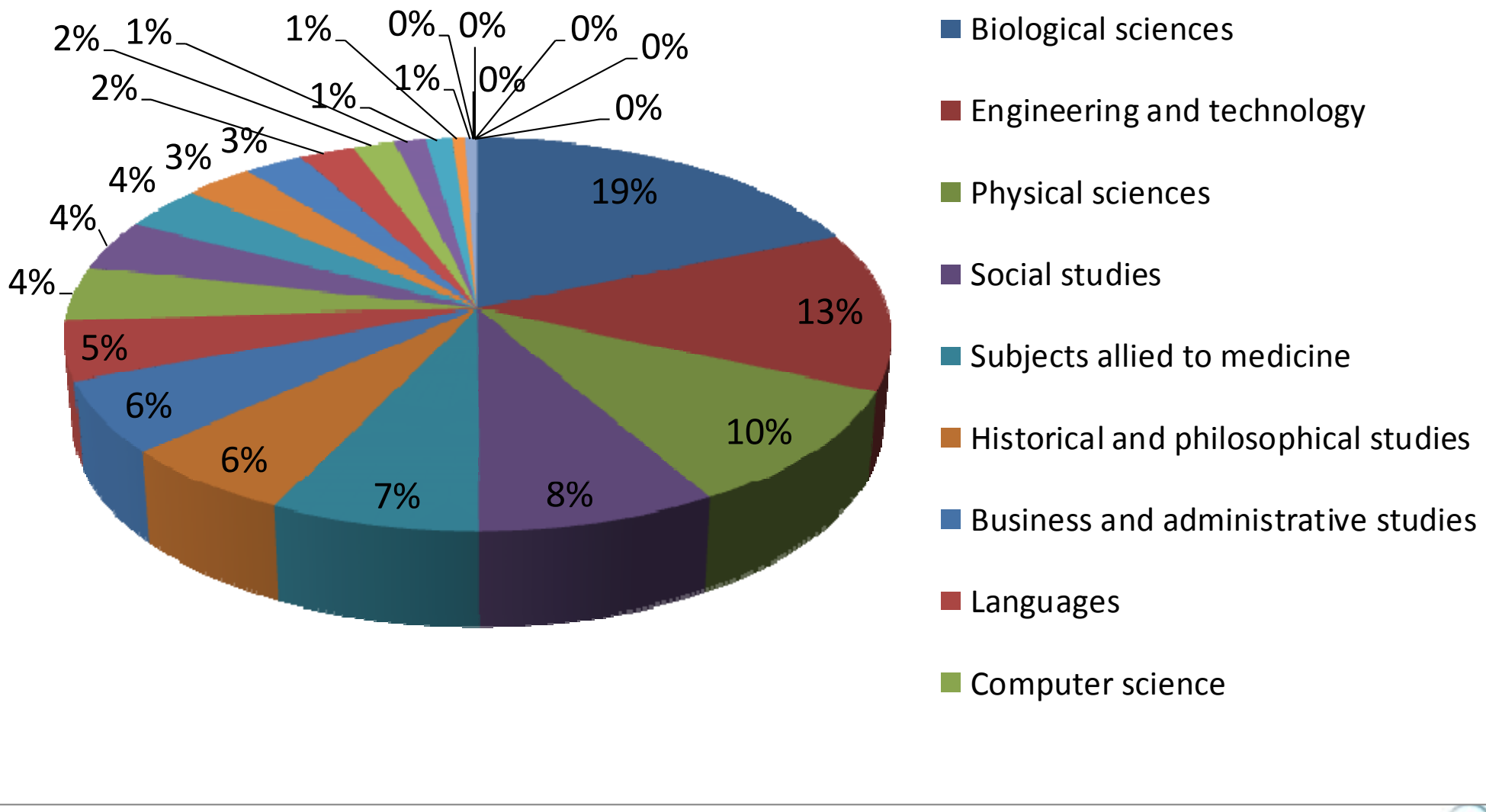
Employment

36% in paid employment of those the number of hours worked are



PhD students in paid employment Implications for doctoral training?

Discipline


19%
13%
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1%
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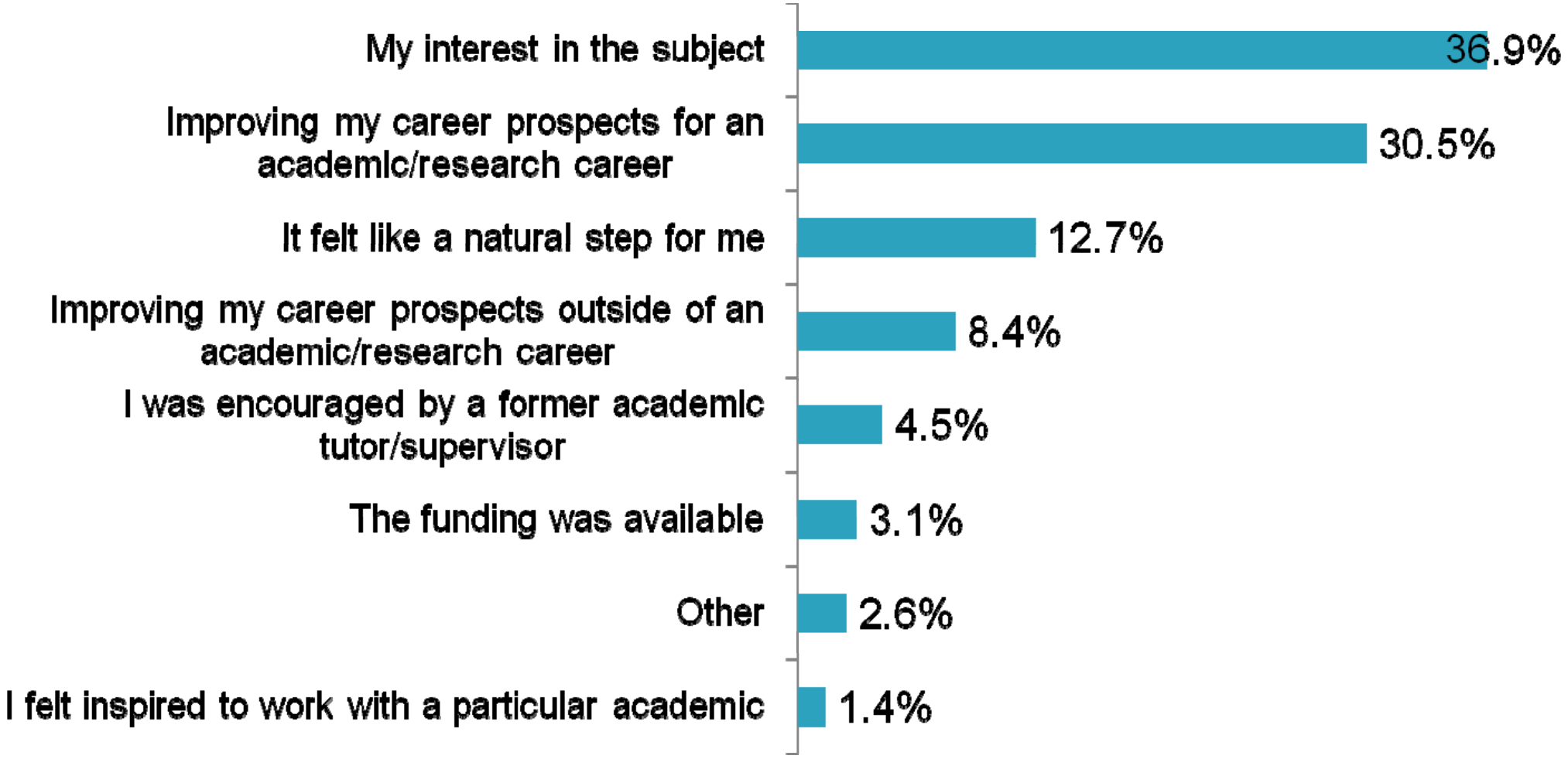
Biological sciences
Engineering and technology
Physical sciences
Social studies
Subjects allied to medicine
Historical and philosophical studies
Business and administrative studies
Languages
Computer science

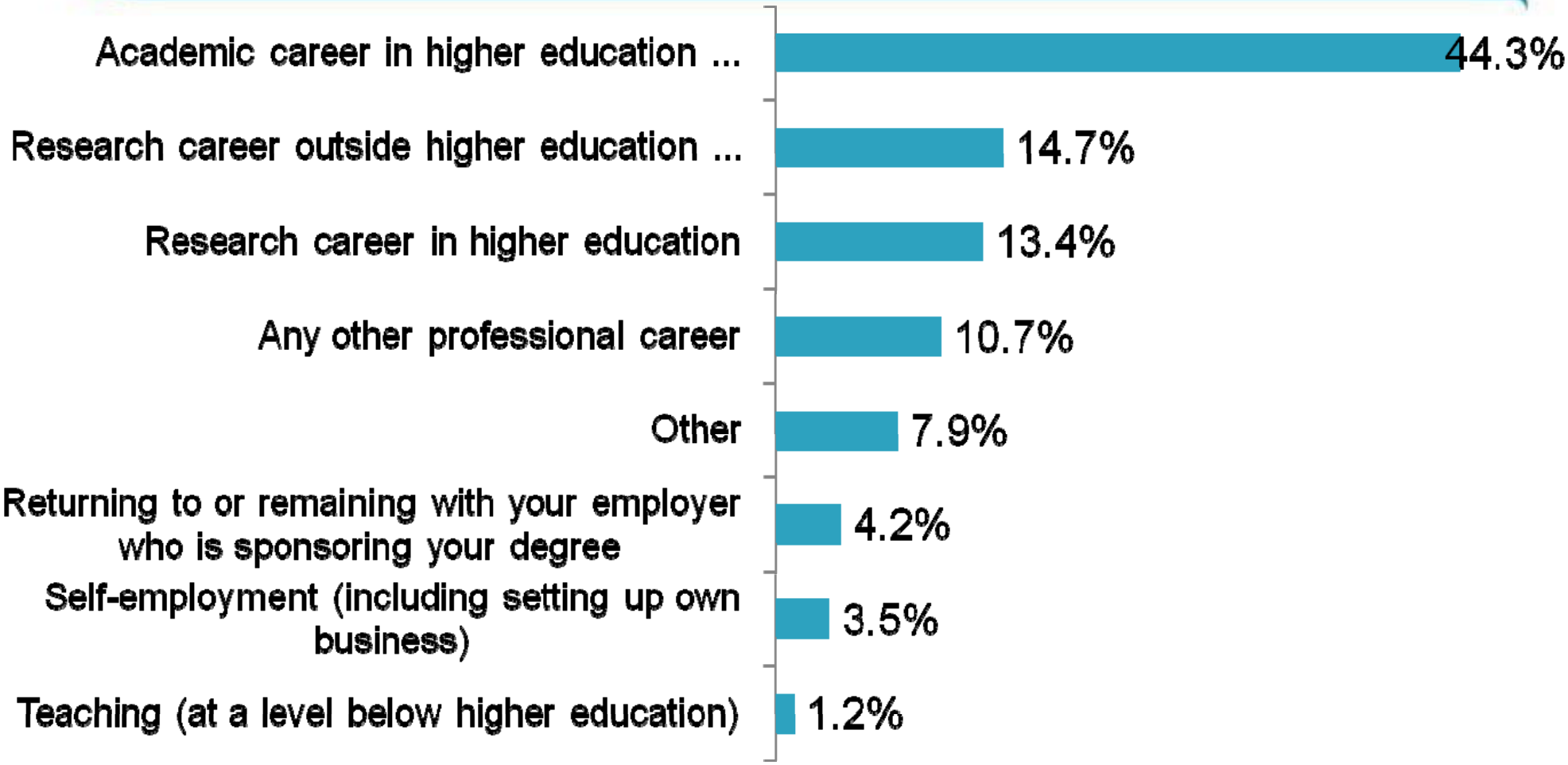
Areas

Area of questions
Thesis examination
Supervision
Skills development
Goals and standards
Infrastructure
Intellectual climate
Professional development and career

Main motivation for PhD study



Anticipated type of career



57.7% anticipating staying in the HE sector

Implications for doctoral training?

Driver: The Knowledge Economy

With an ageing population and strong competitive pressures from globalisation, Our future economic growth and jobs will increasingly have to come from innovation in products, services and business models.

Our competitiveness in the global economy hinges on our ability to produce sufficient numbers of people with the advanced knowledge and critical-thinking abilities to devise solutions to grand challenges such as energy independence, affordable health care, climate change and others.

The Global Economy

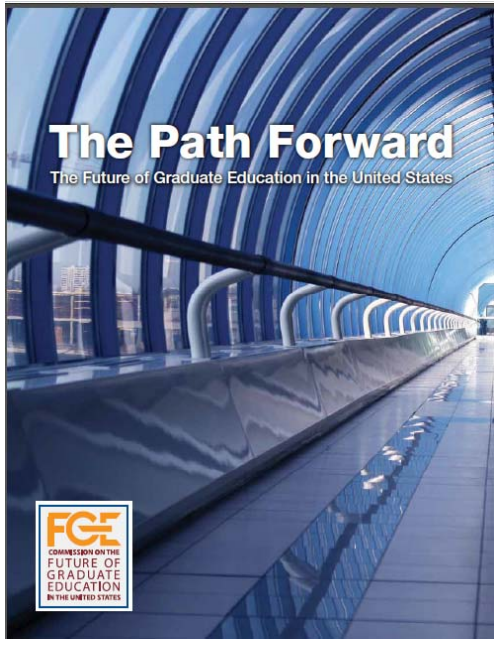
EUROPEAN COMMISSION

Brussels, 6.10.2010
COM(2010) 546 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

Europe 2020 Flagship Initiative
Innovation Union

SEC(2010) 1161



What the US is saying

The dominant position of U.S. graduate education is now threatened as the rest of the world rapidly catches up.

Europe has made major strides in restructuring its graduate education programs and by 2000 produced more doctorates in science and engineering than the US.

Other countries, such as China and India, are investing substantially in improving their graduate education systems and in the undergraduate programs that feed those graduate programs. The growing competition points to the need for changes in U.S. graduate education so that the US does not continue to fall behind in its production of graduate degree recipients.

Is it a Numbers Game?

There are about 600,000 doctoral candidates currently doing research in the EU and 110,000 graduating every year. (EU 2011)

China produced an estimated 117,000 PhD graduates in 2010 (Nature 2011)

From Economy to Training

Source: EUROPEAN COMMISSION DIRECTORATE-GENERAL FOR RESEARCH & INNOVATION
Directorate B - European Research Area Unit B.2 "Skills“ Brussels, 27/06/2011
Report of Mapping Exercise on Doctoral Training in Europe "Towards a common approach"

Cooperation between the academic sector and industry (in the widest meaning of the term), starting at the level of early research training, will strengthen the much needed research intensity of our economy.

It is important to **focus on doctoral training** as this is the qualification that should enable researchers to move into a **wide range of employment** sectors.

EU Doctoral Training

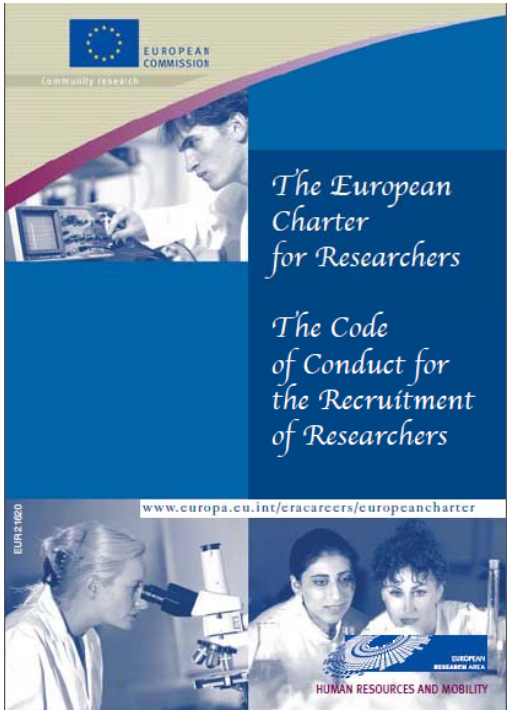
There is now the opportunity to look ahead and shape the future of doctoral training in the context of the Innovation Union policy. In order to support doctoral training more effectively, Europe needs a **common understanding based on sound principles and international best practice**.

Need a common understanding for doctoral training and possible implementation mechanisms. Across the EU, doctoral candidates are funded from a wide variety of national and international sources including various EC funding streams.

Common Approach to Training

The Commission will propose a common approach to help ensure that the next generation of doctorate holders can actively contribute to the Innovation Union. The common approach may include the recommendations that doctoral training should:

- have a certain critical mass
- include transferable skills training
- respect the principles of the Charter & Code,
- lead doctoral candidates to acquire **the ability to challenge disciplinary borders**
- encourage doctoral candidates to spend **some research time abroad**
- encourage doctoral candidates to spend **some research time in industry** or other relevant private / public employment sectors.



Best practice

Best practice based principles for innovative doctoral training

- Research Excellence - pushing the boundaries of frontier research
- Attractive Institutional Environment
- Interdisciplinary Research Options
- Exposure to industry and other relevant employment sectors
- International networking
- Transferable skills training
- Quality Assurance

Intellectual climate

	% agree
My department provides a good seminar programme for research students	65%
My department provides opportunities for social contact with other research students	65%
My department provides opportunities for me to become involved in the broader research culture	62%
The research ambience in my department or faculty stimulates my work	58%
I feel integrated into my department's community	54%

Challenge Disciplinary Borders

Historically our institutions are not interdisciplinary

University departments e.g. Physics Dept, Chemistry Dept

Professional Body Institutes e.g. IoP, RSC

Individual and collective Professional Identity

Opportunities Disciplinary Borders

Marie Curie Initial Training Networks

DITANET

UK wide Doctoral Training Centres

Initially, DTCs were regarded as a strategic mechanism for increasing capacity in interdisciplinary research activities such as the life sciences interface and complexity science, areas that were difficult to locate within a traditional University's departmental organisation

involves a UK university (or a small number of universities) in delivering a four-year doctoral training programme to a significant number of PhD students organised into cohorts. Each Centre targets a specific area of research, and also emphasises transferable skills training.

Scotland Research Poolings – SINAPSE

Challenge – International

Encourage doctoral candidates to spend **some research time** abroad

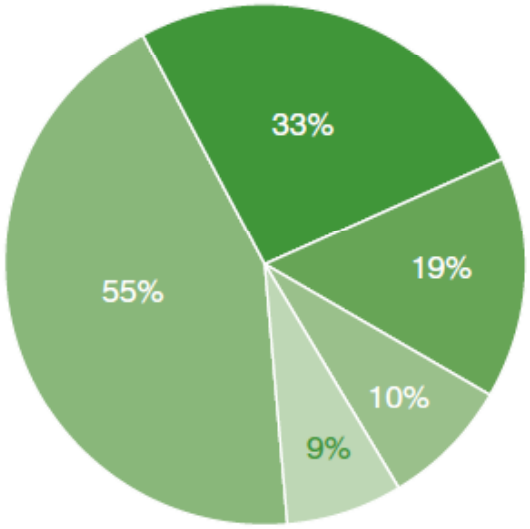
Potential Barriers

- Language,
- Cultural,
- Financial,
- Distance family & friends
- Caring responsibilities

NUS Report 2010

Mitchell Report - The achievement of balanced student mobility flows (i.e. as many students leaving a country as entering it) is one of the basic objectives of the Erasmus programme. Through special supporting measures, provided by the programme since the very beginning, this has largely been realised for all participating countries with the notable exception of the UK

Students studying abroad and the European Higher Education Area



Why haven't you, or why aren't you planning to study abroad?

Not relevant/applicable to my course 55%
Concern about financial implications 33%
Lack/uncertain about language ability 19%
Worried about having to study for another year 10%
Wasn't aware of the opportunity 9%

Financial Challenges

ScienceInsider
Breaking news and analysis from the world of science policy

Survey: European Ph.D. Students Underfunded, Unaware of Rights

by Barbara Casassus on 30 September 2011, 3:00 AM | 0 Comments

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PREVIOUS ARTICLE NEXT ARTICLE

Money is the most pressing concern for European doctoral students, according to the first Europewide survey of working conditions for young researchers, which is set to be released today. The study also found that many Ph.D. students aren't fully aware of their contractual rights and obligations.

The survey, released by the European Council of Doctoral Candidates and Junior Researchers (Eurodoc), shows that funding levels vary widely by country. In the Netherlands and the Scandinavian countries, 90% or more of doctoral students receive some form of scholarship or salary for their work. But in several other countries, 20% to 30% don't receive anything, and in Austria that percentage can rise to 46%. "We did not expect the lack of funding to be so extensive," says Karoline Holländer, a former president of Eurodoc and a co-author of the report. "Many doctoral candidates have to find other sources of income to live on."

Financial: Norway

Norway	Positions as PhDs are announced publicly by the TEIs, and employment is on the basis of competition among applicants. The applicants must apply for participation in doctoral programs separately. The level of funding for PhD positions is comparable to an ordinary public salary, and the candidates enjoy the rights of ordinary employees. Two thirds of PhD candidates have such positions. One third of PhD candidates have other types of funding for their PhD degree. Most of them are employed in permanent positions in TEIs or in the institute sector, and work on their thesis as a part of their ordinary research.

Source: EUROPEAN COMMISSION DIRECTORATE-GENERAL FOR RESEARCH & INNOVATION
Directorate B - European Research Area
Unit B.2 "Skills"
Brussels, 27/06/2011
Report of Mapping Exercise on Doctoral Training in Europe
"Towards a common approach"
27 June 2011

International Opportunity

PhDs are by nature international

– international networking - conference attendance

Initial Training Networks (ITN)

– Researchers supported by an **ITN** are normally required to undertake **transnational mobility** (i.e. move from one country to another) when taking up an appointment

– 18000 students during FP7

– example DITANET

Erasmus Mundus

– 1400 PhD students in seven years

Opportunities: Doctoral Schools & Networks

Professional Management of research strategies

Addresses Isolation

Addresses drop out rates

Addresses intellectual climate

Engages students in transferable skills

Facilitate engagement with industry

Support structures, cohorts,

German Graduate Academies

German Universities have recently established so called Graduate Academies or Research Schools

- encompass university-wide structures for the training of doctoral candidates
- function as one-stop information and support centres for doctoral candidates
- offer and coordinate various programmes for this target group, provide networking possibilities and ensure good standards in training and supervision.
- One example is the University of Jena. It prepares early stage researchers for their professional career in science, business and society. Its study programmes combine disciplinary and interdisciplinary topics as well as specially tailored courses in transferable skills and an intensive individual supervision by a team of internationally recognised faculty members.

Scotland SUPA Graduate School

The SUPA Graduate School was set up in early 2006. It runs an annual intensive postgraduate training programme for Scottish physicists. SUPA Graduate School has in the region of 520 PhD students in physics

The intense programme consists of 60+ courses across seven technical themes. It also includes inter-theme courses and transferable skills development

Eight SUPA partners actively engage plus SUPA makes use of existing departmental, university and research council generic skills training.

SUPA | Physics Scotland

Norway – RES_CLIM

Research School – Lead from Bergen

April: **Workshop** *on Atmosphere – ocean interaction*, Bergen

May: **Course** on *Advanced Statistics Training for Climate Research*, David Stephenson, Bergen

June: **Summer school** *ACDC2010 – Ice sheet – ocean interaction*, Lyngen, Troms

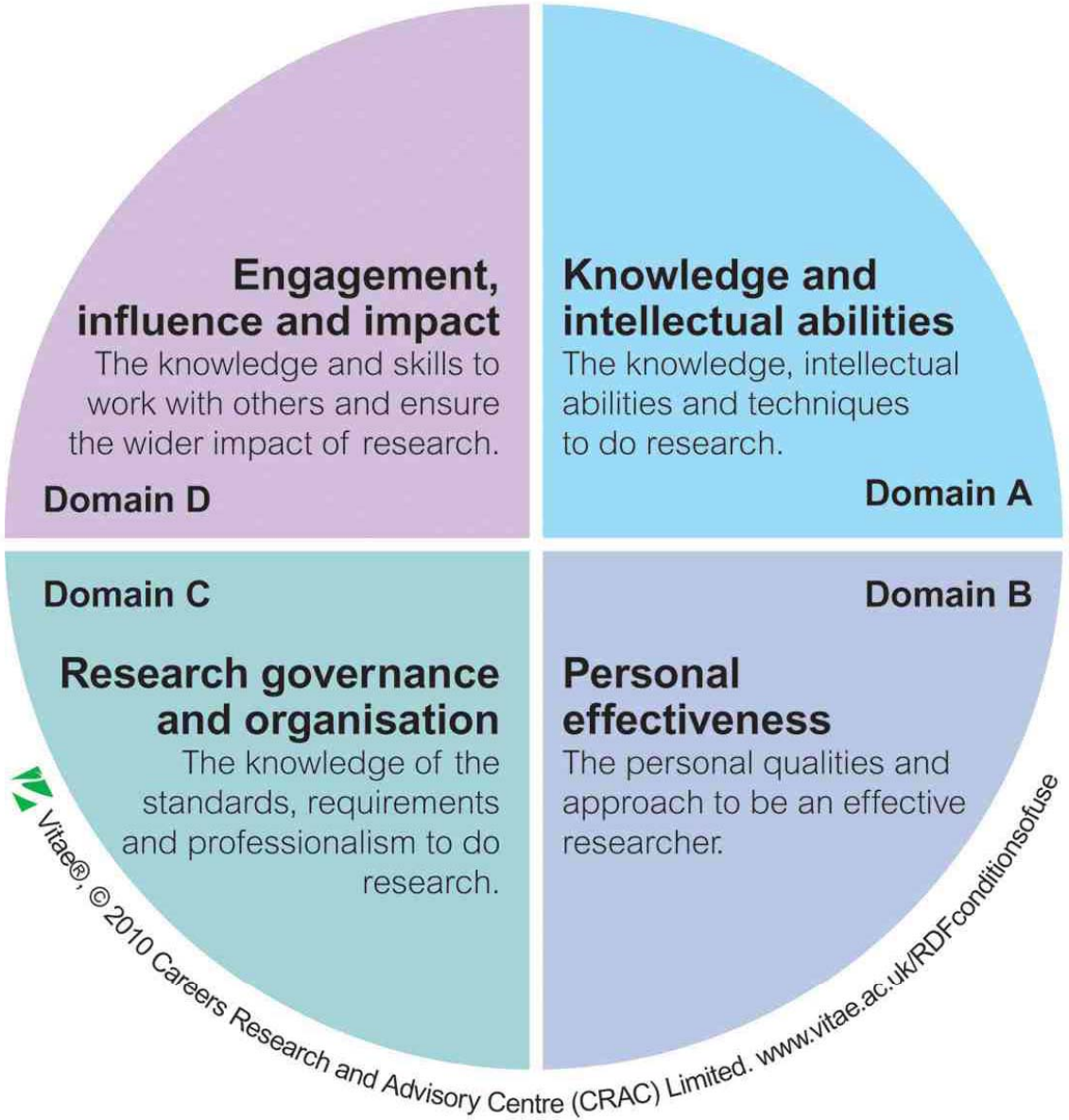
June: **Summer school** *on Monsoon Variability, Teleconnections, and Impacts on Mid to Low Latitude Glaciers*, Obergurgl, Austria

August: **Course** on Transferable skills, Hurtigruten and Runde Environmental Centre

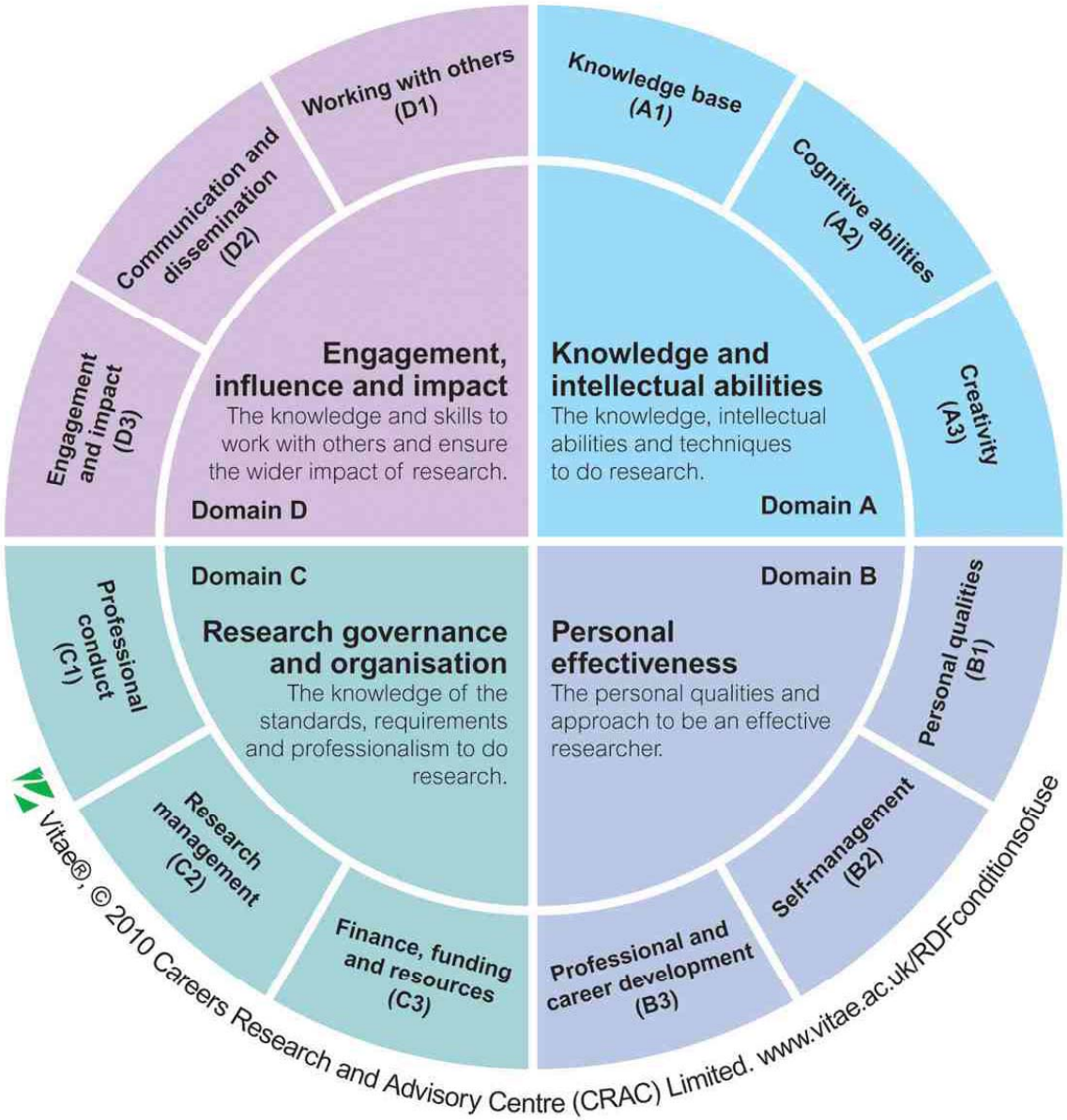
Professional development and career

	% agree
I am encouraged to reflect on my professional development needs	50%
I am encouraged to reflect on my career development needs	47%
I am encouraged to think about the range of career opportunities that are available to me	44%

Vitae – Researcher Development Framework

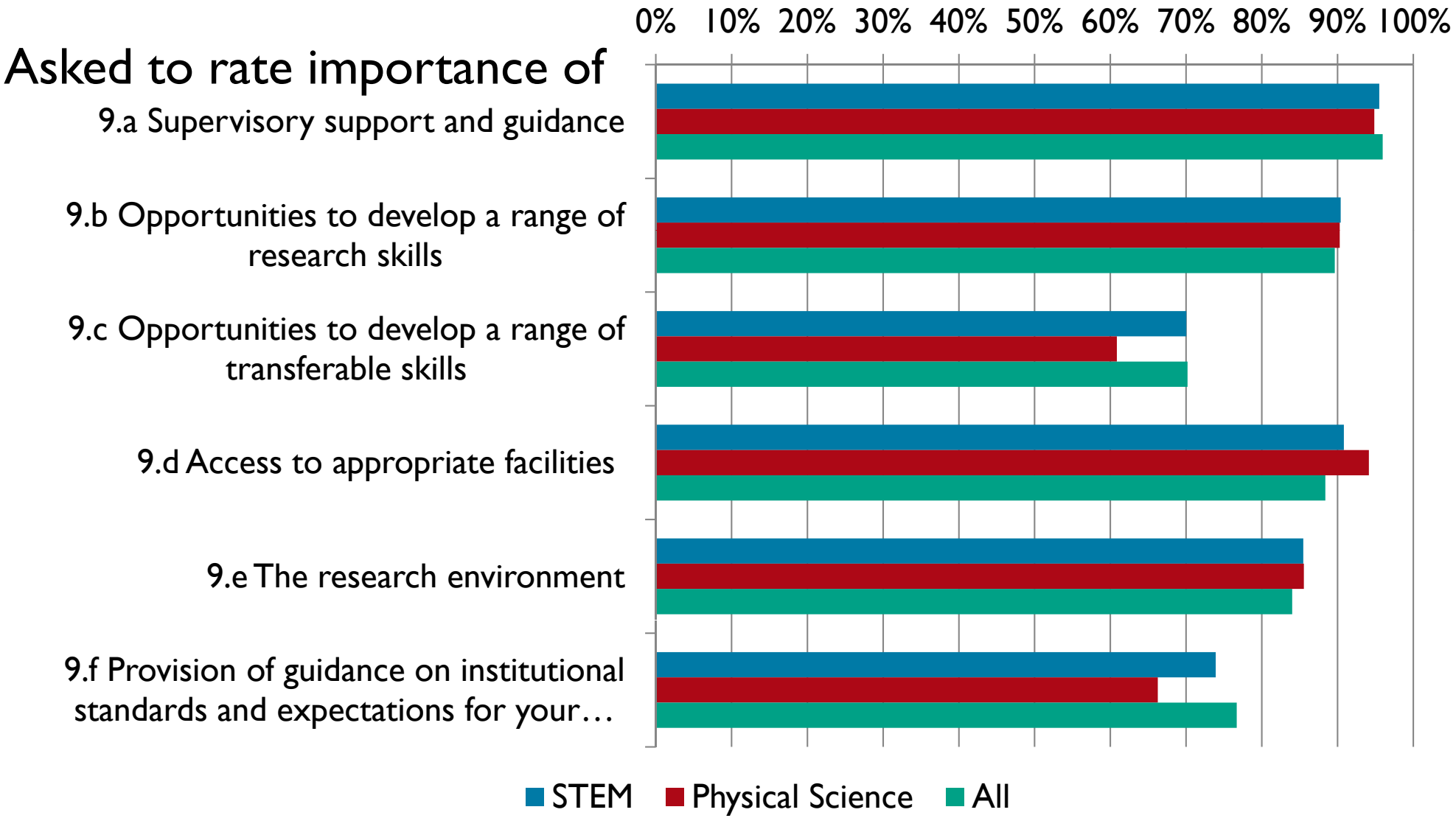


Vitae – Researcher Development Framework



Professional Bodies – maps onto requirements for Chartered Status and report to be launched

Transferable Skills



Conclusion

Challenges across EU

- Diversity of approaches
- Diverse nature of funding and status of PhD student
- Diversity of PhD population
- Access to research excellence and attractive intellectual environment

Opportunities

- Sharing of effective practice
- Doctoral Schools – access to these for students
- Creating stimulating research environments
- Making the training relevant & engaging