



**“Debat:  
Els programes de doctorats industrials a  
Europa: models i experiències”**

**Seminari Internacional sobre els Doctorats  
Industrials. Apropant empreses i universitats.**

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# INTRODUCTION TO EUA

- EUA acts as an independent stakeholder for Europe's Universities.
- Based in Brussels as a non-governmental membership organisation.
- EUA membership represents 34 European Rectors' Conferences and over 850 individual research based higher education institutions across 46 countries.
- Dual-fold role:
  - I. providing a forum for debate and mutual-learning through conferences and workshops, projects and specific services for the membership, and
  - II. bringing empirical evidence from universities' experiences and activities across their missions to inform the policy-making process in developing new instruments that help their strategic development and enhance their performance in addressing social, economic and civil society needs and goals.

# Context University-Business Research Collaborations (Collaborative Research)

- Major role in supplying trained researchers
- Diverse missions in basic and collaborative research
- Embeddedness in cities and regions as components of social and economic development
- External funding sources accounting for ever higher proportions of university research budgets
- Emergence of complex research issues (reflecting global challenges) requiring new interdisciplinary approaches and skills
- Growing demand for highly trained graduates and researchers for non-academic labour markets
- Partnerships are at the core of research collaborations

# The 10 Salzburg Principles for Doctoral Education (2005) and THE Salzburg II Recommendations (2010)

## Main points (I)

- The doctorate is and must be **research based**
  - It has a specific nature that makes it different from the types of education in the first and second cycle – research must be the leading principle
  - Important to stress that training through research creates a certain mindset for many sectors and careers – but it is cultivated by performing original research
- Space for **individual development**
  - Doctoral education obtains a large part of its value from the unique and individual paths that doctoral candidates take. They meet unforeseen problems and obstacles and learn to tackle them
  - Doctoral holders have individual career profiles as a product of their research experience and/or exposure to different environments

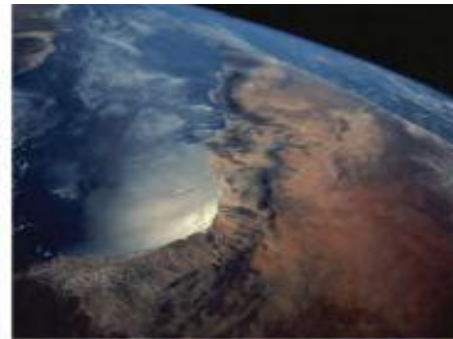
# Selected Outcomes of the DOC-CAREERS and DOC-CAREERS II projects on collaborative doctoral education





# DOC-CAREERS I and DOC-CAREERS II: Industrial Sectors of In-depth Case Studies

- Aerospace
- Automotive
- Nuclear energy
- Health
- New Materials
- ICT
- Marine
- Electrochemistry
- Paper
- Steel
- Services
- Consulting
- Human resources
- Cultural industries
- etc.



# **FP6 DOC-CAREERS project**

## **Collaborative Doctoral Education: University-Industry Partnerships for Enhancing Knowledge Exchange**

### **Participants involved in Workshops and in-depth Case Studies**

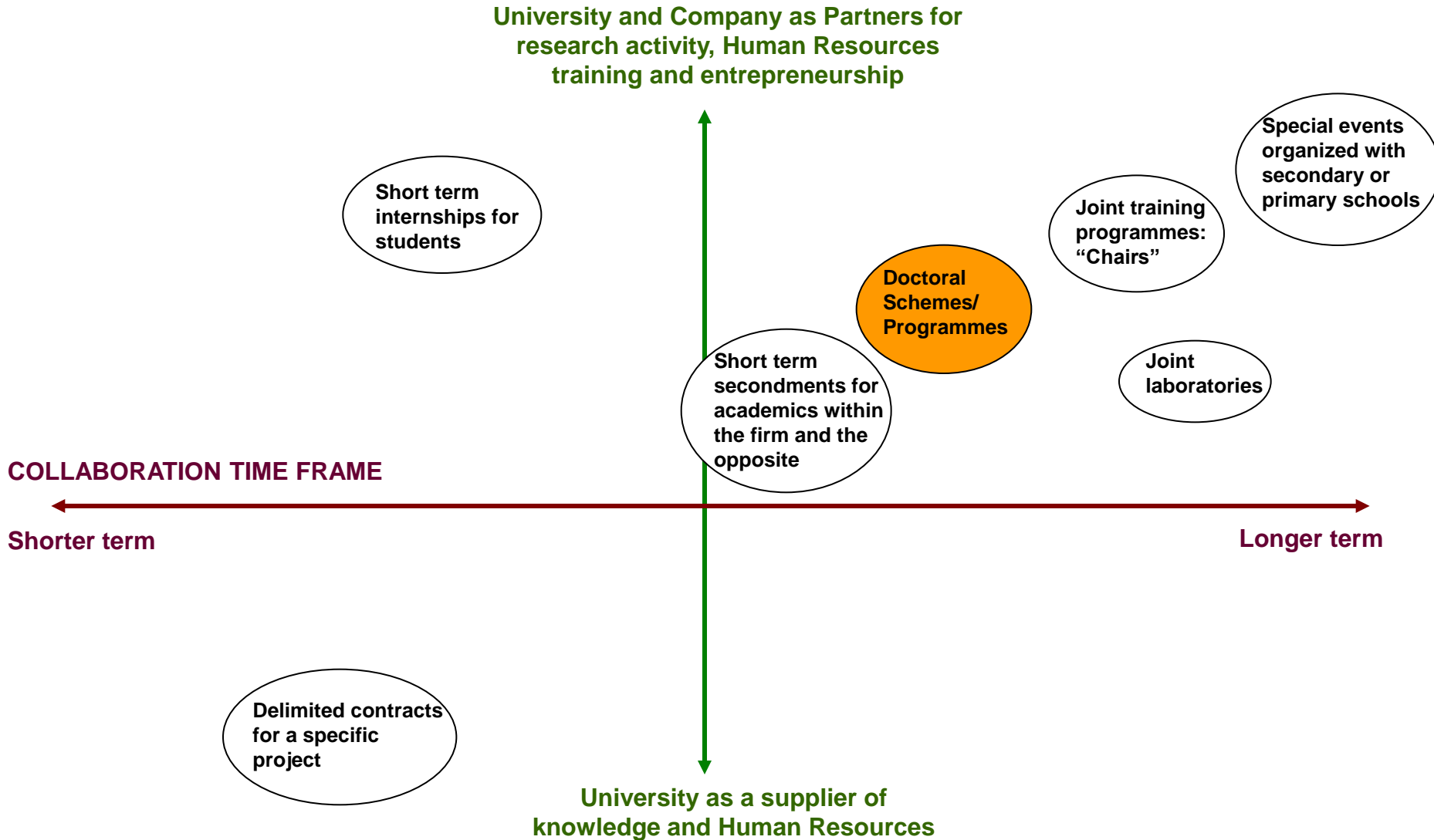
- 32 higher education institutions
- 34 companies
- 23 organisations in the field of higher education
- 12 countries

### **Contributed to the definition of Collaborative Doctoral Projects:**

*These are doctoral theses carried out with interaction between a university, a company and a doctoral candidate. A distinctive characteristic is that industry experts take part in the supervisory committee, officially or informally. Industry can play several roles, but being in the supervisory committee is what effectively reflects the specific nature of the collaborative doctoral project.*

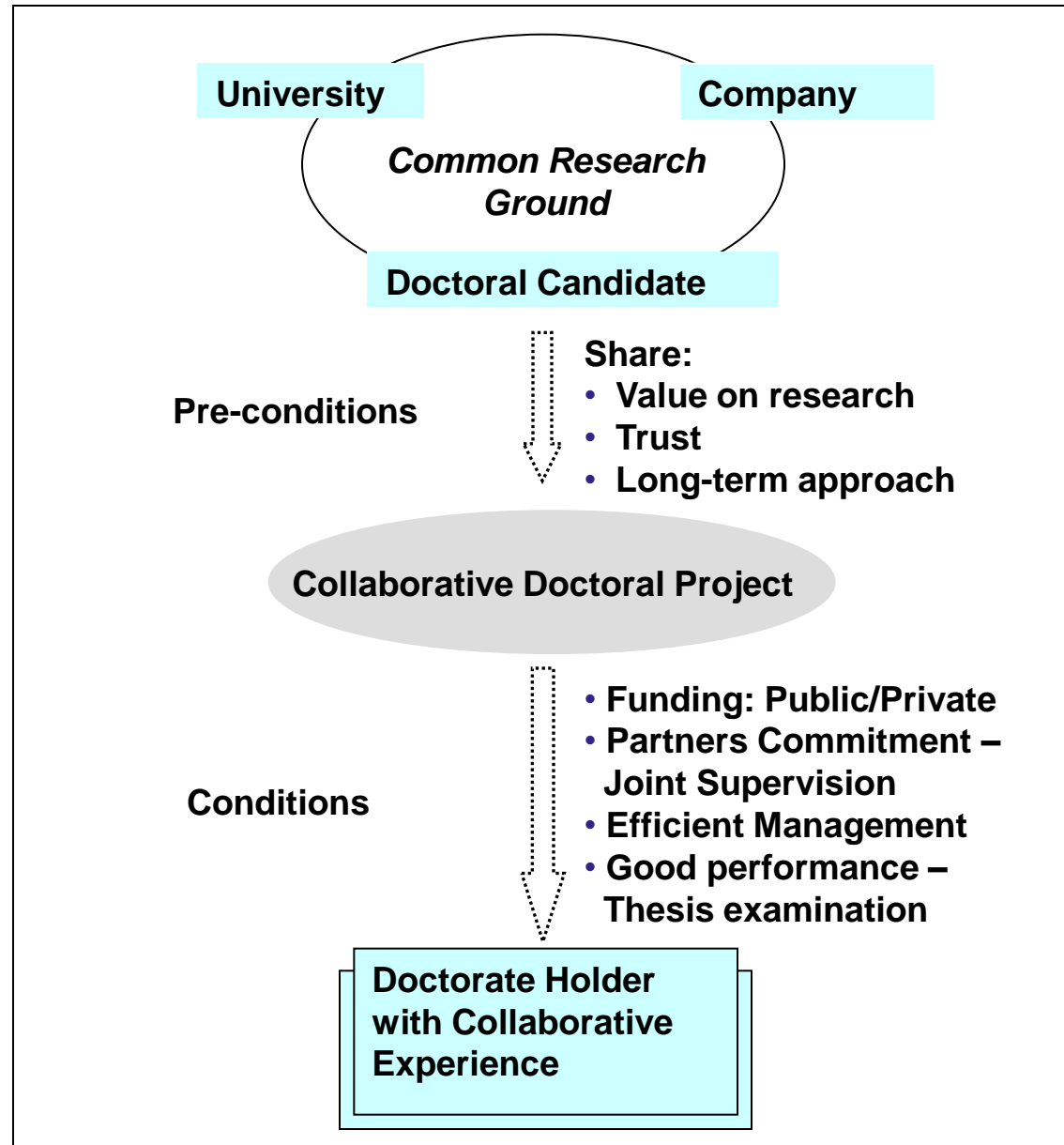


# University-Business Collaborations





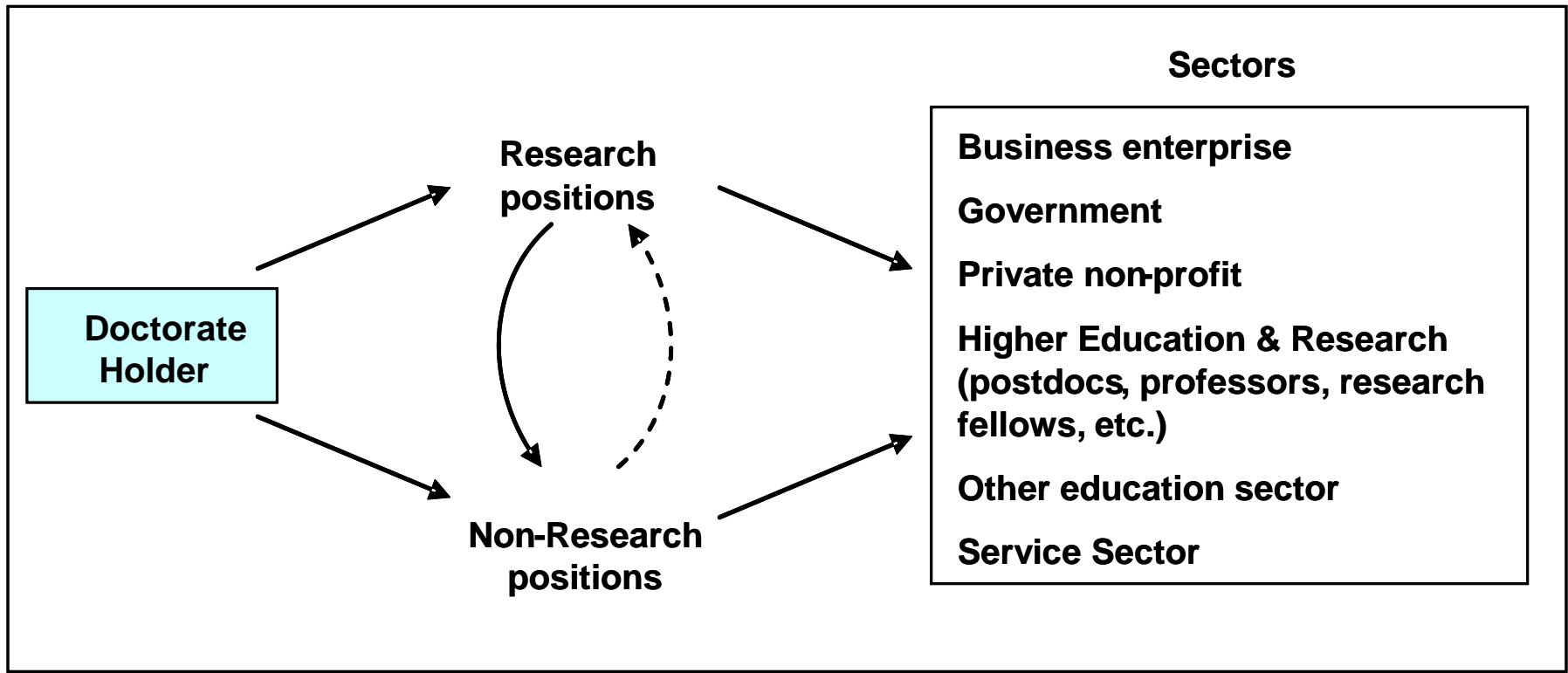
# Conditions for Collaborative Doctoral Projects



# Main Components of Collaborative Doctoral Programmes

Component	Model A	Model B	
Engagement Level	in university	Institutional + Professor/Researcher	Professor/Researcher
	in industry	Top management + Middle management/Research Team	Middle management/Research Team
Role/s of industry	Supervision/ Funding/ Placements/Data Provider/ Network Facilitator	Supervision/ Funding/ Data Provider	
Selection of the doctoral research topic	Single individual idea/Team of researchers-doctoral candidate/Organisation – university and or company	Single individual idea/Team of researchers-doctoral candidate/Organisation – university and or company	
Doctoral Candidate Additional Admission Requirements	Academic process + company interviews/HR process	Academic process	
Formal Agreement (including IP Rights)	One (three parties) or Two (university-candidate + university-company)	Two (university-candidate + university-company) or no contract	
Formal status for the doctoral candidate	Yes (employee, scholarship, etc.)	Possible	
Supervisory team	University researchers/Industry researchers/career development expert	University researchers/Industry researchers/career development expert	

# Synoptic view of career options for doctorate holders



# FP7 DOC-CAREERS II project

## Promoting collaborative doctoral education for enhanced career opportunities

### Participants involved in Workshops and in-depth Case Studies

- 32 higher education institutions
- 20 doctoral candidates
- 34 companies
- 23 organisations in the field of higher education
- 13 countries

### Main messages – highlights:

- **Academic standards** in performed research
- Building **trustful relationships** and **planning** the collaborative doctoral scheme
- Academic and industrial **co-supervision**
- **Interdisciplinary dialogue**
- **Intersectoral mobility** and **employment perspectives** of doctoral holders
- **Regional** and **Policy** dimensions

## Main messages - highlights (I)

- Building **trustful relationships** and **planning** the collaborative doctoral scheme
  - ✓ Understand each partner's needs and expectations
  - ✓ Establish clear and realistic expectations
  - ✓ Ensure regular contact between all the parties involved – academic supervisor, industrial supervisor, doctoral candidate
  - ✓ Develop comprehensive agreements before the start of the collaborative scheme (rights and obligations of each party, general rules for the collaboration, financial provisions and IPR)

*"It is important that universities and companies planning a cooperation ensure that all important aspects of the cooperation are discussed before the project commences. This is often more complicated and time consuming than expected, and the importance of this process should not be underestimated"*  
(University partner in collaborative thesis)

## Main messages - highlights (II)

### ■ Academic and industrial **co-supervision**

- ✓ Although the **academic supervisor** is **ultimately responsible** for ensuring the **doctoral research project** is of **appropriate academic quality** to earn a doctorate degree, the **industrial supervisor is an integral part of the collaborative scheme**;
- ✓ The company supervisor should have a doctorate degree him/herself or, alternatively, should be aware of what doctoral research entails.

### ■ **Interdisciplinary research**

- ✓ **Interdisciplinary training and research** that cross-cut different knowledge areas – **SET** (Science, Engineering and Technology), **BML** (Biotechnology, Medical and Life Sciences) **and ESSH** (Economics, Social Sciences and Humanities) – are essential **features** in **collaborative doctoral schemes**.



## Main messages - highlights (III)

- **Intersectoral mobility** and **employment** perspectives of doctoral holders
  - ✓ All stakeholders agreed that **doctoral holders from collaborative schemes are more employable in the business sector** than doctoral holders from traditional programmes, mainly because of:
    - ✓ The **ability to be “bilingual”**, bridging the academic and industrial sectors
    - ✓ The development of **transferable skills**

*“For companies this scheme is very tempting as they are working with the candidate for several years, get to know him/her, get first-hand information and will eventually find their next co-worker” (University)*

*“It is easier to come to work in industrial field later. They get company experiences and they get to know industrial solutions” (Company)*

*“ I think non-academic sectors value those who have a head for business and can implement the research applicable to their company” ; “Every day is training, going to the office, talking to colleagues, meeting customers or production personnel”*  
(Doctoral candidates)

## Main messages - highlights (IV)

- **The regional dimension:** All case studies in DOC-CAREERS II had a strong local base. While all consistently met the characteristics of the seven main components of collaborative doctoral research (identified in DOC-CAREERS) in all regions in which the programmes operated, the **collaborative doctoral agreements were possible because of a deep understanding of the regional industry dynamics and local/regional/national legal issues.**
- **The policy dimension:** It was clear that the regions fostering their competitiveness through innovation from university R&D do value collaborative doctoral programmes and the skills that doctoral candidates acquire through the process. These regions establish **policies that support research collaborations and commit resources through local/regional public programmes and encourage the participation of local SMEs.** These regions encourage also applications for funding from European and worldwide competitive calls and push for mobilising private funding.

# DOC-CAREERS Participant Organisations

## HIGHER EDUCATION INSTITUTIONS

- Delft University of Technology, The Netherlands
- EDAMBA (European Doctoral Programmes Association in MBA)
- EMBO (European Molecular Biology Organization)
- Erasmus Research Institute of Management (ERIM), The Netherlands
- ESADE Business School, Spain
- European University Institute, Italy
- Frankfurt Graduate School for the Humanities and Social Sciences (FGS), Germany
- Ghent University, Belgium
- Hanken Swedish School of Economics and Business Administration, Finland
- HESA (Higher Education Statistics Agency), UK
- Imperial College London, UK/IDEA (Imperial College London, Delft University of Technology, ETH Zurich, Aachen University RWTH)
- Katholieke Universiteit Leuven, Belgium
- London School of Economics and Political Science, UK
- Masaryk University, Czech Republic
- Matej Bel University, Slovakia
- Mykolas Romeris University, Lithuania
- National and Capodistrian University of Athens, Greece
- Newcastle University, UK
- Ruhr-Universität Bochum, Germany
- Simula School of Research and Innovation AS, Norway
- Technische Universität Ilmenau, Germany
- UK GRAD Programme (now Vitae), UK
- Universitat Autònoma de Barcelona, Spain
- University of Aarhus School of Business, Denmark
- Università degli Studi di Milano, Italy
- University of Cagliari, Italy
- University of Helsinki, Finland
- University of Jyväskylä, Finland
- University of Paderborn, Germany
- Université Pierre et Marie Curie, France
- Utrecht University, The Netherlands
- University of Wales - Bangor, UK
- VŠB-Technical University of Ostrava, Czech Republic

## OTHER PARTNERS

- ABG (Association Bernard Gregory), France
- CEASER (Conference of European Schools for Advanced Engineering Education and Research)
- Comunidad de Madrid, Spain
- DG Research
- EURODOC
- EFMD (European Foundation for Management Development) ...17...

## ENTERPRISES

- Arçelik, Turkey
- Arcelor Mittal, France
- Arjo Wiggins Appleton, France
- Bekaert, Belgium
- BioCydex, France
- Corus, The Netherlands
- Dow Corning, UK
- EIRMA, (European Industrial Research Management Association), France
- Eurofins Scientific, France
- Haldor Topsøe, Denmark
- IBM, Switzerland
- Infineum International, USA-UK
- Lafarge, France
- L'Oréal, France
- Microsoft Research, UK
- Nestlé, Switzerland
- Novo Nordisk, Denmark
- Océ, The Netherlands
- Oridis Biomed, Austria
- Outokumpu, Finland
- Philips, The Netherlands
- Procter & Gamble, UK
- Renault, France
- SCA, Sweden
- Schlumberger, France
- Siemens AG, Germany
- Solvay, Belgium
- Stora Enso, Finland
- Swisscom, Switzerland
- SYNPO, Czech Republic
- Thales, France
- VTT Technical Research Centre of Finland, Finland

- Helmholtz Association, Germany
- LERU (League of European Research Universities)
- Marie Curie Actions
- Ministry of Science, Technology and Innovation, Denmark
- NIFU STEP, Studies in Innovation, Research and Education, Norway
- OCED, France
- VSNU (Association of Universities in the Netherlands), The Netherlands

## Universities

- Dublin Institute of Technology, Ireland (HOST Workshop 1)
- École Polytechnique Fédérale de Lausanne, Switzerland (HOST Workshop 2)
- Kaunas University of Technology, Lithuania (HOST Workshop 3)
- Norwegian University of Science and Technology Trondheim, Norway (HOST Workshop 4)
- Università di Camerino, Italy (HOST Workshop 5)
- Ghent University, Belgium
- Hanken School of Economics, Finland
- University Pierre and Marie Curie, France
- Ingolstadt University of Applied Research, Germany
- University of Paderborn, Germany
- National University of Ireland, Galway, Ireland
- University College Cork, Ireland
- University College Dublin, Ireland
- Polytechnic University of Marche, Italy
- Polytechnic University of Milan, Italy
- University of Camerino, Italy
- University of Chieti-Pescara, Italy
- University of Ferrara, Italy
- University of Perugia, Italy
- Klaipeda University, Lithuania
- Lithuanian University of Agriculture, Lithuania
- Lithuanian University of Health Sciences, Lithuania
- Mikolas Romeris University, Lithuania
- Siauliai University, Lithuania
- Vilnius Gediminas Technical University, Lithuania
- Pompeu Fabra University, Spain
- University Rovira i Virgili, Spain
- Umeå University, Sweden
- Swiss Federal Institute of Technology Zurich (ETH), Switzerland
- Bangor University, United Kingdom
- Newcastle University, United Kingdom
- University College London, United Kingdom
- University of Ulster, United Kingdom

## Companies

- Alcatel Lucent, Belgium
- Applied Maths. Belgium
- Solvay S.A. Research and Technology, Belgium
- GlaxoSmithKline Biologicals, Belgium
- Jansen Pharmaceutica, Belgium
- OCAS, Belgium
- Umicore, Belgium
- Genes Diffusion, France
- Schlumberger, France
- Biotalentum, Hungary
- Intel, Ireland
- Advanced Technologie Biomagnetic s.r.l., Italy
- Aptuit, Italy
- Finmeccanica, Italy
- Goldenplast s.p.a., Italy
- iGuzzini Illuminazione s.p.a., Italy
- SINERGO s.r.l., Italy
- Comfort Heat UAB, Lithuania
- Lithuanian Energy Institute, Lithuania
- UAB "Naujasis Nevezis", Lithuania
- DNV, Norway
- Farsund Aluminium Casting, Norway
- NTE, Norway
- Ortivio, Norway
- Scandinavian Business Seating, Norway
- SINTEF, Norway
- Skretting, Norway
- Statoil, Norway
- Domsjö Fabriker AB, Sweden
- Oryx Simulations AB, Sweden
- Debiotech SA, Switzerland

## Other organisations

- EURODOC, Belgium
- European Commission, DG Education and Culture, Marie Curie Actions Unit, Belgium
- European Commission, DG Research, Belgium
- European Industrial Research Management Association, Belgium
- European University Association, Belgium
- Dublin City Council, Ireland
- Health Service Executive, Ireland
- Higher Education Authority, Ireland
- Irish Universities Association, Ireland
- Confindustria Young Entrepreneurs, Italy
- Council for Industrial Development, Marche region, Italy
- Italian Ministry of Education University and Research, Italy
- Ministry of Education and Science, Lithuania
- Association of Doctoral Organisations in Norway, Norway
- NIFU STEP – Studies in Innovation, Research and Education, Norway
- Nordic Institute for Studies in Innovation, Education and Research, Norway
- Research Council of Norway, Norway
- The Association of Norwegian Research Institutes, Norway
- The Norwegian Association of Higher Education Institutions, Norway
- Fundación Universidad-Empresa, Spain

# Linkages to policy development



# DOC-CAREERS and DOC-CAREERS II

## Linkages to policy development

### Examples relating to Horizon 2020 and ERA:

- Development of the Memorandum of Understanding between EUA and the European Commission, 17<sup>th</sup> July 2012.
- EUA position on the EC consultation document on the “ERA Framework”, 30th November 2011.

### Examples relating to European researchers’ education and careers

- Consultation processes towards the pilot industrial doctoral programme within Marie Curie Actions in FP7 and the re-design of the new Marie Skłodowska Curie scheme in the Horizon 2020 framework programme.
- Contribution to working groups from the ERA Steering Group on Human Resources and Mobility, organised by DG Research (Charter & Code, Researchers Training, Innovative Doctoral Education) since 2006.

# Smart Specialisation Strategy

## ***EUA-JRC workshop(\*) on "The Role of Universities in Regional Smart Specialisation Strategies"***

### ***Core issues and recommendations (I):***

- Recognition of the role of universities as a key partner in taking forward successful Smart Specialisation Strategies in partnership with other stakeholders in the region
- The need for smart specialisation to build on the specific profile and opportunities of European regions, which should include the unique contribution of universities
- Active promotion and publication of RIS3 to motivate participation of key stakeholders
- Coordinate regional/national/European RTD and innovation programmes, coupled with a necessary reduction of the complexity and range of different administrative procedures

# Doctoral education: The Shape of Things to Come

- Doctoral education has been integrated in institutional strategies in a new way (following the Salzburg Principles and Recommendation)
- This means that the challenges the universities' missions become the challenges of doctoral education
  - ✓ **Research:** Excellence and capacity building, performance pressure, science 2.0, good research conduct and ethics
  - ✓ **Teaching:** The 'unbundling' of teaching, learning and assessment – MOOCs
  - ✓ **Societal mission:** Place of doctoral education in the 'innovation ecosystems'
- EUA-CDE to conduct consultations November 2014-June 2015 to see the Shape of Things to Come
- New policy paper in 2016

# List of Publications

## EUA Publications

### Reflecting the practice of our members in research and research collaborations (1)

- ‘Responsible Partnering Guidelines- A Guide to Better Practices for Collaborative Research and Knowledge Transfer between Science and Industry’ by EIRMA, EUA, EARTO, ProTon, 2005
- ‘Research Strategy Development and Management at European Universities’, EUA Publications. 2006
- ‘The Rise of Knowledge Regions: Emerging Opportunities and Challenges for Universities’, EUA Publications, 2006
- ‘Responsible Partnering Guidelines - Joining Forces in a World of Open Innovation’, by EIRMA, EUA, EARTO, ProTon, 2009
- ‘Collaborative Doctoral Education - University-Industry Partnerships for Enhancing Knowledge Exchange’, DOC-CAREERS Project, EUA Publications, 2009
- ‘The role of Universities in Smart Specialisation Strategies’, by EUA-DG REGIO/JRC, 2014
- ‘Europe’s Universities: Main drivers in achieving the European Research Area’, EUA Publications, February 2014
- European Universities in the European Research Area: Building on Strengths, September 2014

# EUA Publications

## Reflecting the practice of our members in research and research collaborations (2)

Upcoming publications based on FP7 DOC-CAREERS II and FP7 EUIMA-Collaborative Research projects findings:

- EUA Report on collaborative doctoral education -DOC-CAREERS II
- EUA Report on the nature and assessment of collaborative research initiatives - EUIMA-Collaborative Research
- EUA Discussion Paper based on the role of collaborative research in higher education institutions - EUIMA-Collaborative Research
- EUA Discussion Paper on the evolution of university-based knowledge transfer structures - EUIMA-Collaborative Research
- **Web-based tool** for the self-assessment of collaborative research partnerships - EUIMA-Collaborative Research





***Thank you for your  
attention !***

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