BUSINESSEUROPE

SPEAKING NOTES

EP SEMINAR ON UNIVERSITIES AND BUSINESSES – KEY PARTNERS FOR A COMPETITIVE EUROPE

ORGANISED BY MR LØKKEGAARD, MEP

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1ST PANEL DISCUSSION: "HOW DO WE ENSURE THAT THE EUROPEAN SUPPLY OF LABOUR MEETS DEMAND IN THE FUTURE?"

1. An integrated EU innovation strategy is needed to ensure a successful future for Europe

- Innovation, the process whereby new ideas are generated and turned into economic value, is at the heart of companies. It is a crucial requirement for economic growth in the long term and for job creation in Europe. It is also a key element for addressing the major challenges facing society today, particularly those linked to climate change, ageing population and energy security.
- The EU's ability to prosper will increasingly depend on its ability to innovate and ensure a sufficiently strong skills base.
- In a brochure published last October and presented to Commissioner Potočnik, *Innovation: Building a successful future for Europe*, BUSINESSEUROPE emphasised the need for an integrated policy approach to innovation, including education and training. The European Institute of Innovation and Technology (EIT) embodies this knowledge triangle based approach.

2. The skills issue in Europe: description and analysis of challenges to be overcome

- Education and training are fundamental prerequisites for innovation and the ability to create useful new knowledge. Europe faces two main challenges: a) skills shortage and b) brain drain.

a) Skills shortage

To tackle the innovation challenge underpin sustainable economic growth, Europe needs to upgrade its capacity to innovate by ensuring a sufficient supply of skilled workers, in the three main categories:

- basic skills (literacy, maths, computer use);

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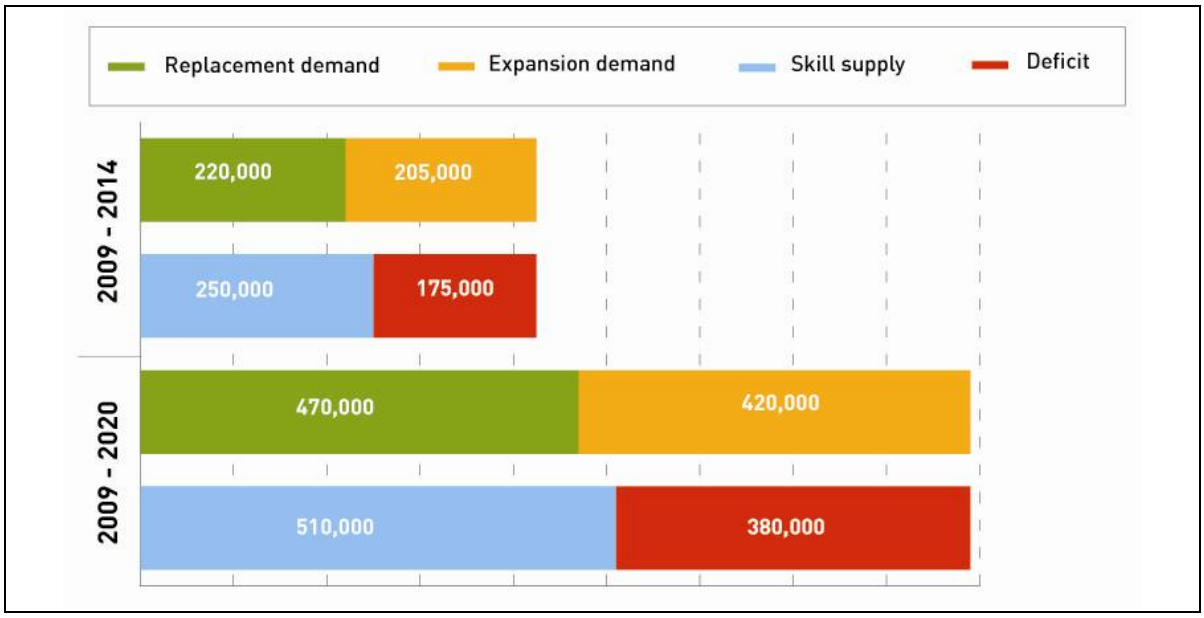
- occupational skills related to the specific needs of the employment market, in particular in areas related to science, technology, engineering and maths, the so-called “STEM skills”;
- global knowledge-economy skills, including the capacity to innovate in response to new issues (e.g. climate change).

Europe’s tougher skills challenge lies in the area of global knowledge-economy skills.

Some European countries also face acute situations regarding occupational skills.

For example, two thirds of employers in the UK are experiencing difficulties recruiting STEM skilled-staff. In Germany, the “Institut der Wirtschaft” in Cologne forecasts that, without any reforms, there will be a shortage of 380.000 STEM skilled workers by 2020.



b) Brain drain

Furthermore, in a growing global competition for talent, Europe must do its utmost to maintain an attractive environment for its researchers and to attract foreign talents.
The expatriation of European researchers towards the USA has kept on increasing since the eighties. Within the high graduates’ migrations, Europe had a deficit of 2 million with the USA, Canada and Australia in 2004.

3. Recommendations for action

a) At national level, actions should aim at raising skill and competence levels

- Accelerate reforms of general education and training systems: ensure basic skills, include more cross-cutting skills in curricula and better recognise competences acquired on the job.

- Increasing the percentage of graduates with competences in STEM disciplines should be of particular concern for policy-makers and all actors concerned. In particular, Member States should focus on:

  - involving women more strongly in STEM;
  - engage youth interest in STEM education and careers, e.g. by improving the image of scientists, engineers, etc;
  - improving the quality of STEM teaching, in particular also by increasing the number of teachers;
  - facilitating the transition to tertiary STEM education;
  - increasing the completion rates in STEM tertiary education.

- Increase the budgetary, hiring and wage-setting autonomy of universities.
  At the 2009 University-Business Forum, BUSINESSEUROPE highlighted that a greater degree of autonomy in universities' governance structures is of particular importance to foster excellence and to attract the brightest minds. Universities need to establish closer links to the business sector, e.g. by the involvement of company representatives on advisory boards.

- Develop lifelong learning through partnership between schools and enterprises.

b) Actions at European level

While each Member State is in charge of its own education and training system, co-ordinated action at EU level can help achieve common aims. In fact, the EU has supporting, co-ordinating and complementary competences in the area of education.

- Promote reform of national education policies. Make more use of the EU Research Framework Programme to promote mobility of students and young researchers.

  - In view of this, a European industrial PhD (or doctorate), inspired by the Danish Industrial PhD scheme, could be launched, supported through grants from the EU Marie Curie actions.

- Further develop EU Programmes (ERASMUS, Marie Curie actions) that promote and facilitate the international and intersectoral mobility of students and researchers.

- Strengthen EU instruments that attract and facilitate the participation in European projects of top talent from outside the EU.

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2ND PANEL DISCUSSION: "DO WE NEED AN INDUSTRIAL PHD-SCHEME AT EU LEVEL, AND HOW CAN IT BE INTRODUCED?"

1. Key Messages

- **Yes, we do need an industrial PhD scheme at EU level** in order to foster the intersectoral and international mobility of students and researchers
- BUSINESSEUROPE recommends the creation of a European industrial PhD, which could be supported through **grants from the EU Marie Curie actions**

2. State of play

The industrial PhD was launched (for the first time in Europe) in Denmark in 1971 and, since then, has been taken up by several Member States, with some adaptation to national contexts.

a) The basics are the same:

- A defined research and development project is conducted in cooperation between a company, a (PhD) student and a university (national or foreign university). Two supervisors guide the PhD fellow; one from the company and one from the university.
- During the three-year training period, the student spends his/her time at the enterprise and the university. The student is employed by the company and paid a salary during the entire PhD education[1].
- The project is co-financed by public funds and by companies (generally, one third/two thirds).
- The industrial PhD is not restricted to science and technology: there is a growing number of research projects in social sciences, mercantile or humanities fields.

b) The objectives are also the same:

- To educate PhD researchers with knowledge of business aspects of research and development
- To establish personal networks for the exchange of knowledge between enterprises and research institutes
- To enhance the development and innovation of trade and industry.

c) A model that has spread in Europe, with few national specificities

- The model has spread in France, in Scandinavia (Sweden, Finland, Norway), in the UK, in the Netherlands.
- The specificity of the Danish scheme is the special and mandatory business course organised by the Danish Agency for Science, Technology and Innovation, which

[1] In Denmark, the average monthly salary is 33 591 Dkr (4510 €). In France, the minimum gross annual salary is € 23,484 (1957 € per month).

prepares the fellow for writing a business report, which documents the student's understanding of commercial aspects of the project seen in relation to the company.
- In France: Conventions Industrielles de Formation par la Recherche (CIFRE). Launched in 1981. The company can be a public company.

3. Why should this scheme be developed at European level?

a) It is a successful experience…

- The number of successful candidates has increased significantly: for example, in Denmark, it has shifted from 50 in 2002, to 119 in 2008.
  In France, CIFREs have already succeeded in bringing together over 6,000 companies (mainly SMEs) and 4,000 academic research laboratories, involving 12,000 PhDs since 1981.
- It fosters gender equity: in Denmark, 45% of successful candidates are women.
- Danish and French programmes have been evaluated several times. Findings have proved:

  - the high level of satisfaction of each stakeholder
  - an increase in both theoretical and experimental knowledge
  - an increasing cooperation between university and company

- This is fully in line with the Communication *New Skills for New Jobs. Anticipating and matching labour market and skills needs* (2008) and the activities developed under the University-Business Forum in which BUSINESSEUROPE has been actively involved since its launch.

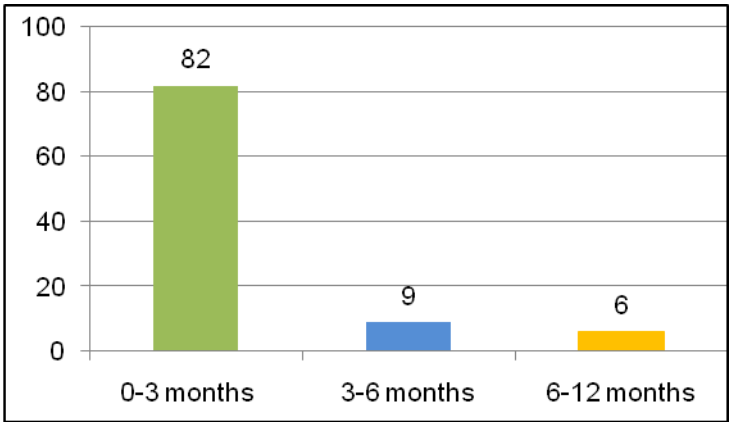
b) …based on a "win-win-win" situation

- For the student

→ The industrial PhD student can acquire an excellent level of training and recognised research experience, learn how to deal with the real-life situations the company faces, and learn how to evolve instinctively within these two distinct worlds.
The particularly high rates of successful thesis defense (80% in France) prove the success of this type of research-based training.

→ The student is paid and gets a degree at the end of the training (if successful), together with a professional experience.

→ Evaluations show that the job-seeking period is short for the industrial PhD doctors. In France, for example, the vast majority of doctors (81%) find employment within 3 months following their CIFRE (see Chart on the following page).



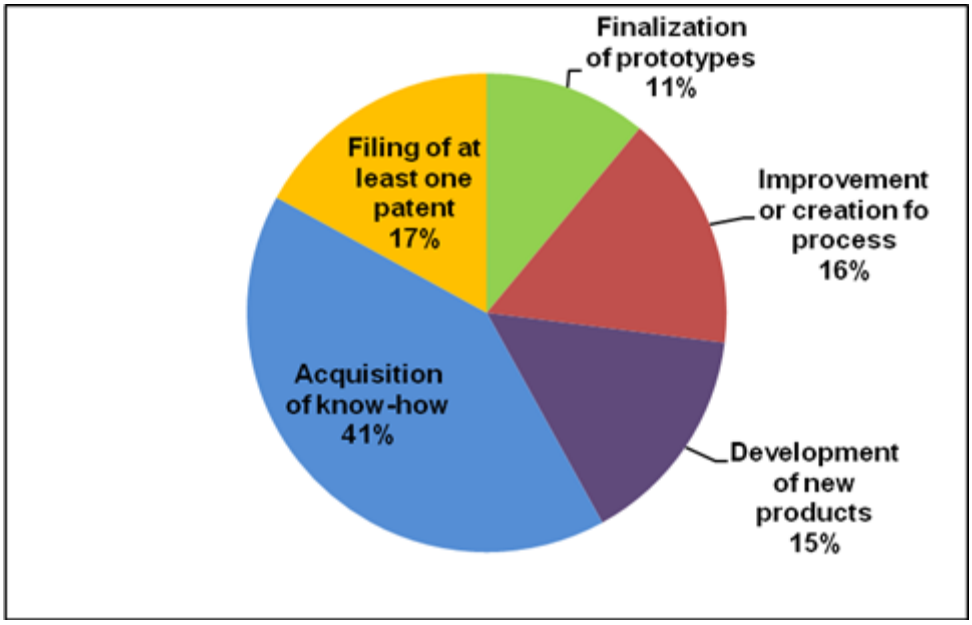
Duration of the job-seeking period (% of doctors) in France
(Statistics based on the experience of 2,000 doctors)

→ In addition, French studies have underlined the ease with which the researchers change company, which shows their high employability and the extent to which their experience is appreciated.

- <u>For companies</u>

→ First of all, let me make clear that the system is suitable for all types of company. Medium-sized, small, and even very small companies are increasingly making use of this close-at-hand and easy-to-use tool in line with their contribution to national R&D.
In France, services, electric and electronic equipments, parachemistry are the three business sectors which employ the greatest part of industrial PhD students (from 20% to 10%).

→ Companies can hand over a challenging R&D problem to a Master*-level graduate, who will provide concrete solutions, backed by the laboratory of the sponsoring academic institution.
Companies can thereby benefit from a skilled academic research team and from access to advanced scientific equipment, which will boost their performance.
The following figure, based on the French case, is a good example of the beneficial results, as they were identified by companies. (see Chart on the following page)



Breakdown of results identified by companies (in %) in France
Results for 11,808 CIFREs since 1981

→ Furthermore, companies can create a pool of talented young staff perfectly acquainted with how companies work and the features of its particular sector.

→ There is also a post-PhD training period impact as studies show that doctors are mostly employed by private companies (72%) after completing a CIFRE among them 37% remain in the same company.

- **For academic laboratories**

→ Laboratories get opportunities to extend their research areas and transfer the results of their research.
→ They get the opportunity to verify, through practical experimentation in industry, the applicability of their theoretical research. They can increase their technological competence.
→ Lastly, they can create long-lasting relationships with a company.

4. BUSINESSEUROPE's recommendation

➢ **Launch a European industrial doctorate, supported through grants from the EU Marie Curie fellowships, inspired by the the Danish Industrial PhD scheme**

In the Seventh Framework Programme (FP7), the **Marie Curie Actions** have been regrouped in the People Programme which is entirely dedicated to human resources in research.
Total budget for Marie Curie actions: € 4,75 billion over a seven year period until FP7.
There are 4 main types of Marie Curie Actions:

1. Initial training Programme: **ITN - Initial Training Networks** ➢ Offer early-stage researchers the opportunity to improve their research skills, join established research teams and enhance their career prospects.	**2. Industry - Academia** Programme: **IAPP - Industry-Academia Partnerships and Pathways** **Budget for the 2009 call: € 65 million** ➢ Promoting public and private partnerships through joint research projects. ➢ Exchange of skills and human resources. ➢ At least 1 commercial enterprise and 1 non-commercial (university, research centers…) ➢ Crossborder cooperation: at least 2 different EU or Associated States Activities: **1. Joint Research Project** - Research of mutual interest to all partners - Milestones & deliverables - Secondments underpin co-operation between partners in different sectors **2. Networking Activities** - Organisation of scientific/managerial network meetings - Invitation of external experts - Attendance at international conferences & workshops - Electronic networking (internet webpages, email, video conferencing)
3. Life-long training Programmes: **IEF - Intra-European Fellowships for career development** **ERG - European Reintegration Grants** **IRG - International Reintegration Grants** **COFUND - Co-funding of regional, national and international programmes**	**4. International dimension** Programmes: **IOF - International Outgoing Fellowships for career development** **IIF - International Incoming Fellowships** **IRSES - International Research Staff Exchange Scheme**

→ It is under the IAPP - Industry-Academia Partnerships and Pathways programme that a European industrial PhD should be developed.

→ There is indeed no action dedicated to PhD students under the Marie Curie actions, at that stage.

	Individual fellowships	**Industry/Research Institutions Partnerships**	**Research funding bodies**
Senior Post-docs > 10 years	ERG IRG IIF		
Post-docs trainings > 4 years	IOF IEF	IAPP	COFUND
Doctorate			
Post-graduates< 4 years		IRTN	IRSES

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Further information:

IAPP budget: Community contributions - Gross amounts (rates for 2009):

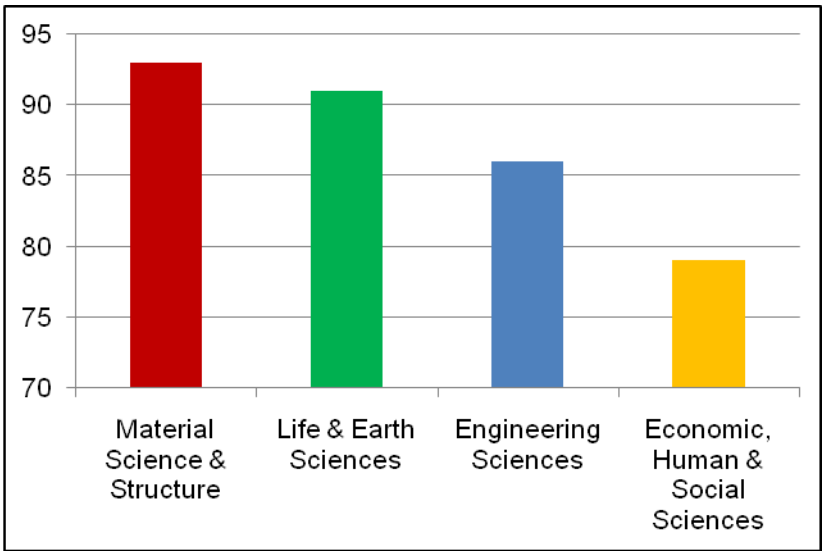
- Fellow expenses:

  - living allowances:

€ 35 300/17 650 per year (ESR: post-graduates)
€ 54 300/27 150 per year (ER: 4-10 years)
€ 81 400/40 700 per year (MER: > 10 years)
Mobility allowance: € 500 or 800 per month
Travel allowance: € 250 to 2500 per year
Career exploratory allowance: € 2000 per recruitment > 1 year

- Host expenses:

Research/training/networking costs € 1200 per researcher-month
Small equipment expenses for SMEs max. 10 % of SME contribution
Overheads 10% of direct costs
Management costs max. 3% of total contribution



Thesis defence rates by scientific field (in %) in France
Results for 11,808 CIFREs since 1981

References:
All data on DK: Danish Agency for Science, Technology and Innovation
All data on France: ANRT – Association nationale de la Recherche et de la Technologie