

**REPORT
on the
THIRD and FINAL DOC-CAREERS WORKSHOP
on
TOWARDS ENHANCED DOCTORAL CAREER OPPORTUNITIES**

**SCHLUMBERGER
Schlumberger-Riboud Product Center, Paris-Clamart (France)**

22-23 November 2007

1- Introduction

The Third and Final Workshop of DOC-CAREERS aimed at discussing and validating findings of the project arising from the different activities and discussing the way forward beyond this project. Activities in the framework of this project are i) Dialogue Workshops involving universities, enterprises and other partners to address generic skills training issues (1st Workshop) and the nature and extent of doctoral programmes in collaboration with external partners (2nd Workshop); ii) Analysis of selected case studies of doctoral schemes in cooperation with external partners; iii) Analysis of methodologies for data collection and tracking of doctoral holder careers; iv) Consultation with stakeholders (universities, enterprises, doctoral holders and doctoral candidates). EIRMA and EURODOC contributed actively to the consultation process. At the moment when the Third and Final Workshop was held, only preliminary outcomes based on several case studies and on methodologies for data collection and tracking of doctoral holders were available (see introductory presentation in Annex 1). Consultation with enterprises and doctoral candidates/holders were in progress.

The Third and Final Workshop discussions were organised in four main thematic sessions and a final discussion session. Thematic sessions included presentations and discussions on views from different perspectives, case studies, university-based doctoral tracking methodologies and impact of doctoral programmes on the employability of doctoral holders. Each session had their specific set of key issues for discussion and/or validation (see detailed description of the workshop in Annex 2). Overall, the main questions for discussion were:

- To what extent are doctoral programmes in cooperation with external partners valuable?
- What are their strengths and weaknesses? How can they be improved?
- Are these programmes sustainable?
- What recommendations can be given to universities and employers to establish cooperative doctoral programmes?
- What recommendations can be given for appropriate tracking of doctoral holder careers?

2- Venue and participants

The selection of an industry facility as the venue for the Third DOC-CAREERS Workshop symbolised the reinforcement of links between university and external partners for mutual benefit (as in the Second Workshop held in SIEMENS headquarters in Munich). EUA is very grateful to EIRMA for their support in persuading Schlumberger to host the Third and Final Workshop.

The workshop gathered 42 individuals involved to some degree in doctoral education in cooperation with university external partners. Participants came from 16 European countries representing the business sector (17%), university sector (43%), professional bodies (36%), and government bodies (5%). Their background fields of expertise relevant to DOC-CAREERS were: Science, Engineering and Technology (21%); Biotechnology, Medical and Life Sciences (14%); Economic and Social Sciences (21%), Tracking Careers (14%); Other/General (29%). From all the participants, 63% attended a DOC-CAREERS workshop for the first time, which gave the validation process a good level of legitimacy.

3- Main outcomes of the workshop

- To what extent are doctoral programmes in cooperation with external partners valuable?
- What are their strengths and weaknesses? How can they be improved?
- Are these programmes sustainable?

In general, High Technology companies, both large and SME, are convinced of the importance of establishing long-term collaborations with universities based on mutual trust. Doctoral candidates and holders involved in university/industry projects can become natural bridge builders between academia and industry and this is highly valued by industry. In addition, intersectoral mobility during the pre-doctoral or post-doctoral period is a good asset for a future employment outside academic environments. However, companies should prevent themselves of hiring doctoral holders for positions below their capabilities.

National Programmes that support this kind of interaction (e.g. CASE in UK and CIFRE in France) are highly valued by practitioners in all fields (science, engineering and technology; biomedical, life sciences; economics and social sciences) and many industry representatives considered them necessary to sustain the activity. However, additional initiatives could reinforce university-industry partnership, such as the so-called “Industrial Chairs” and university-industry exchange of doctoral candidates. Doctoral candidates’ viewed positively the growing interaction between university and industry at doctoral level –including social sciences – and were pleased that mismatches between university and industry perceptions of each other were on the way to diminish.

The discussion on the Transferable Skills in doctoral education was very controversial. Transferable skills for doctoral holders are definitely necessary, both in academic and non-academic environments, but it was not clear if they should become a structural element in the doctoral process. For large companies, the value of a hiring a doctoral holder usually lies in his/her deep knowledge on a relevant subject. They insisted that “teaching” transferable skills in the university is not essential since they can provide this training when necessary. This was also the opinion of some representatives of High Tech SME. However, most of SME representatives (and also professors collaborating closely in collaborative research involving SME) placed a high value in doctoral holders with soft skills complementing their research capabilities at the moment of being employed. It was agreed that, in any case, pre-existing transferable skills in a doctoral candidate should be recognised and avoid unnecessary training that would take time away from doctoral research.

Often, the dialogue on transferable skills for doctoral candidates goes together with the need to raise their awareness of the broader spectrum of employment opportunities beyond academic environments and the role that their network of contacts built during the educational

process can play in helping them finding their way through the labour market. Universities and professors should be aware that these trends are going to consolidate in the next years and raise awareness among the doctoral candidates to reduce mismatches of perceptions and expectations after graduation. The role of contact networks should be emphasised as a soft tool to preserve contacts after the educational period and to help doctoral candidates/holders to create their own culture to manage academic and non-academic relations. Doctoral candidates also showed concern about putting excessive emphasis on transferable skills in detriment of the research skills and supported the suggestion to keep their training on a voluntary basis. It should be left up to the doctoral candidate to forge his/her own career path.

Management of university-industry relations at all levels was considered a crucial aspect to establish trust and consolidate effective university-industry relations. The first and most fundamental step is that the partner organisations, both industry and university, recognise the need for collaboration at strategic level. IP issues were only dealt with marginally. Industry representatives said it could be a difficult subject to settle but that it was eventually solved if there was a real common interest.

Main conclusions and recommendations

- What recommendations can be given to universities and employers to establish cooperative doctoral programmes?
- What recommendations can be given for appropriate tracking of doctoral holder careers?

General opinion was that there is not, and should not be, a single model for doctoral programmes in collaboration with industry. Diversity in doctoral education is a “must”, because researchers have to be allowed to develop their creativity. Universities should adapt current doctoral programmes to real employability perspectives. The examples of existing doctoral schemes in cooperation with industry showed that they were an effective instrument to foster collaboration. It was felt that, especially, contact between university and SME had a huge potential to develop for the benefit of local economy and it could promote very well the involvement of doctoral holders into local labour markets.

From the enterprise point of view, it was apparent that business approaches to universities are evolving from looking for a single point of entry to university research to seeking the right expertise (worldwide) in the frame of an open innovation paradigm. This scheme is developed especially by large R&D companies and a remaining major question mark is how SMEs can develop strategies to enhance access to university research. Direct contact between university and enterprise and mutual trust were mentioned as two essential components to build successful relations. Some skepticism was noted concerning intermediary bodies in the sense that, if not properly run, they can ruin the efforts in building this type of processes.

Doctoral candidates certainly valued the broader range of employment opportunities and were conscious that, as in any other kind of employment, different positions may require different sets of skills. However they questioned if the doctoral system as such really needed to change to incorporate specific training on transferable skills or the issue can be re-thought and linked to further specific training, e.g. on managing research.

The Working Group on Data Tracking reported the paucity of examples of institutional data tracking. Organisations which participated in the exercise highlighted the benefits, such as exploring the skills and competencies that doctoral graduates need, informing curricula development, attracting future doctoral candidates, increasing the social standing of doctoral graduates and promoting the academic status of the HEI. Main challenges relied in the generally low response rates and their representativeness of academic/non-academic paths and in the difficulty of comparing data outcomes from different institutions. The Working Group highly recommended every HEI should track their doctoral holders, developing soft tools to increase response rate (e.g. alumni networks), adopting existing good practice and taking advantage of technological developments in software.

From the high level of discussions and examples of successful university-industry doctoral cooperation during the workshop, it was deemed that there was now a window of opportunity for effective action on promoting the development of durable relations between the academic and business worlds. Participants agreed that there is a characteristic European culture in the way of responding to the university-industry challenges which needs further development. The doctoral education dialogue in Europe has a very good level of insight and sophistication, probably higher than in the US. However, it was apparent that all participants were among the “convinced” ones of the added value of closer collaboration. Strategies to better disseminate success case studies, practices showing how university and industry overcome challenging situations, and to bring into the dialogue the voice of the “unconvinced” should be sought to reinforce the dialogue.

In addition to the progress in dialogue, further work is needed to develop models for transferable skills: researchers still need training on them but at different levels and for different contexts and they are necessary for certain jobs (e.g. research management). It is important to make the implicit acquisition of skills on doctoral programmes more explicit to students and employers. Other areas for further review in the field of university-industry collaborative doctoral programmes are models of doctoral supervision and strategies for recruitment and retention of doctoral candidates. The skills of creative workers acquired during research training (e.g., capacity to deal with complex problems, capacity to work well in international environments, thinking “out of the box”), can serve the knowledge society by developing new ways to deal with problems or finding imaginative solutions.

EUA will continue carrying out the rest of the programmed activities in the DOC-CAREERS project and will publish a final consolidated report. The report will give recommendations to all stakeholders to foster university-industry relations based on evidence of good practice.