EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR RESEARCH & INNOVATION

Directorate B - European Research Area
Unit B.2 "Skills"

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Principles for Innovative Doctoral Training[1]

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 the boundaries of frontier research.

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.[2]

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.

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. musea). 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, and a wide array of people/technology/knowledge transfer activities.[3]

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1 Extract from "Report of Mapping Exercise on Doctoral Training in Europe "Towards a common approach" of 27 June 2011(final), adopted by the ERA Steering Group on Human Resources and Mobility. The Principles were defined with the help of experts from university associations; industry and funding organisations.They reflect the Salzburg Principles of EUA, good practice in Member States and the Marie Curie experience. The Principles have been endorsed in the Council conclusions on the modernisation of higher education, Brussels, 28 and 29 November 2011.
http://ec.europa.eu/euraxess/pdf/research_policies/Report_of_Mapping_Exercise_on_Doctoral_Training_FINAL.pdf
http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/educ/126375.pdf

2 http://ec.europa.eu/euraxess/pdf/brochure_rights/am509774CEE_EN_E4.pdf

3 http://www.eua.be/eua-work-and-policy-area/research-and-innovation/doctoral-education/doc-careers

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

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. Transferable skills may be acquired through training or through work experience".[4] It is essential to ensure that enough researchers have the skills demanded by the knowledge based economy. Examples include communication, teamwork, entrepreneurship, project management, IPR, ethics, standardisation etc.

Business should also be more involved in curricula development and doctoral training so that skills better match industry needs, building on the work of the University Business Forum[5] and the outcomes of the EUA DOC-CAREERS project.[6] There are good examples of inter-disciplinary approaches in universities bringing together skills ranging from research to financial and business skills and from creativity and design to intercultural skills.

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.

The common approach should provide a framework of reference, whilst preserving flexibility and autonomy for institutions and doctoral candidates.

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4 "Research Careers in Europe Landscape and Horizons", European Science Foundation 2010 http://www.esf.org/fileadmin/links/CEO/ResearchCareers_60p%20A4_13Jan.pdf

5 http://ec.europa.eu/education/higher-education/doc1261_en.htm

6 http://www.eua.be/eua-work-and-policy-area/research-and-innovation/doctoral-education/doc-careers