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New Forms of International Cooperation in Doctoral Training: Internationalisation and the International Doctorate – One Goal, Two Distinct Models¹

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Although the idea of a European doctorate has been discussed since the earliest years of the European Union it is only very recently that its time has finally come. This progress is the product of the efforts of a number of important players, including the European Commission, the European University Association, the main representative of institutions of higher education awarding doctoral degrees in Europe, and the Bologna Process. In synergy with the European Research Area's goals, the Bologna Process, in particular, has played a vital role in providing a new impulse to internationalisation of the doctorate in Europe. Despite the important steps already achieved towards the joint European doctorate, full recognition of its legal value is still a work in progress. Problems arise because of the national laws of some European Union members, but are also due to a still pervasive conservative view in European higher education that encourages academic 'protectionism' instead of promoting cooperation. The two main reasons for resistance to innovative joint doctoral programmes remain, however, the misinterpretation of international mobility as the goal rather than one of the strategic tools of doctoral training and a widespread fear that harmonisation will homogenise the diversity of European doctoral curricula, reducing its current richness to uniformity.

The Need for Internationalisation of Doctoral Training and Continuing Resistance to the European Doctorate

European political integration and global socio-economic processes have created a need for new generations of researchers and policy-makers who can work in different cultural settings and analyse as well as resolve social policy problems from a transnational perspective. In synergy with the goal of the European Research Area (ERA), the Bologna Process has given new impulse to the internationalisation of doctorates within Europe's higher education system. After the somewhat fragmented experience of international training networks inspired by the policies of the European Commission (EC) Directorate General (DG) for Research and by the DG for Education and Culture, it seems that the time has finally come to promote European doctorates, jointly awarded by institutions from various countries, and to overcome the diverse national laws and norms that regulate doctoral programmes.

There remain, however, two main reasons for resistance to these innovative joint doctoral programmes:

¹ Due to length restrictions, it was not possible in this paper to present a detailed account of the birth and growth of the European PhD on Social Representations and Communications. For further details see the European PhD web site (www.euophd.eu).

- Misinterpretation of international mobility as the goal rather than one of the strategic tools of doctoral training for the labour market both in and outside academia in the new scenario of the European Higher Education Area (EHEA) and ERA;
- Widespread fear that harmonisation will homogenise the diversity of doctoral curricula, reducing its current richness to uniformity.

There is no doubt that it is important to preserve different solutions appropriate to different contexts, especially between larger and smaller European countries and institutions. These can range from graduate schools in major universities to international, national, and regional collaboration between universities. Certainly, a European or international doctorate is not always the solution. It is not necessarily or automatically better than a valuable traditional doctorate from a single prestigious institution with top scientists, an international reputation, and high standards in research training.

That said, the still common and widespread reaction "We do not need European or international doctorates. We are already international scientists!" appears to be a defensive strategy against innovative practices that build collective and international educational enterprises to link research centres throughout Europe, pool expertise related to specialised fields of study, and cluster complementary competencies to train new generations of researchers through joint doctorates.

Joint European and international doctorates, developed via a bottom-up approach on top of well-established scientific communities with long histories of cooperation who by jointly establishing common institutional guidelines, codes, and regulations, defined clearly at the highest institutional level, can create a mechanism that enhances long-term research interests via exchanges both among different generations of 'experienced' researchers and with those in the making. Among other solutions, a structured international programme based on networking, multiple joint supervision, common rules for recruitment, training, and evaluation, and providing integrated physical and virtual mobility, which remove obstacles that still limit mobility throughout Europe, could be an appropriate response to doctoral trainees' demands to overcome their isolation and the limitations of the individual 'apprenticeship model'.

This paper is based on over thirteen years of personal experience by the author as the creator and coordinator of the first formally recognized European PhD within the three scenarios of universities, ministries and the European Commission (EC) DG for Education and Culture and the DG for Research² and on expertise acquired as the main coordinator of the 'Network of Networks' action within the Doctoral Programme Project launched in 2004 by the European University Association.

The Main Steps towards Internationalisation of Doctoral Programmes

As part of the effort to improve the process of European cultural integration and internationalise training and research standards, the idea of a European doctorate has been discussed since the earliest years of the European Union. In 1959, under the provisions of the Euratom Treaty, plans were developed to establish a 'European University' that would have awarded a European doctorate at the end of a two year

² Available at <http://www.euophd.eu>

course and on submission of a thesis. However, because of French opposition the university was never established and it was more than thirty years before substantial progress on joint degrees began to emerge. In 1992 Italy and France signed a framework agreement on university cooperation that, for the first time, formally established a double degree. In 1993 the 'Comité de Liaison des Conférences de Recteurs et des Présidents des Universités des Pays Member de la Communauté Européenne' established four requirements for labelling a PhD *Doctor Europeus*:

- A PhD thesis defence will be accorded if at least two professors from two higher education institutions of two European countries, other than the one where the thesis is defended, have reviewed the manuscript;
- At least one member of the jury should come from a higher education institution in another European country, other than the one in which the thesis is defended;
- A part of the PhD dissertation must be written in a European language other than the one(s) of the country where the doctoral programme was pursued;
- The doctorate must partly be prepared as a result of a research period of at least one trimester spent in another European country.

In 1995 the European Commission funded a study of the experience acquired by the International Temporary Advisory Committee on Doctoral Studies (CPRT), which included The Netherlands, France, Germany and Belgium. Although the study highlighted the diversity of European doctoral systems, it also showed convergences and suggested that, through cooperation and mobility, reinforcement of the quality of doctoral programmes and the establishment of a high level scientific and technological community were attainable goals.

In Florence in 1996 representatives of providers of postgraduate education, industry, and professional organisations that have a demand for postgraduate students and national and institutional policy-makers from throughout Europe met to discuss postgraduate education from a career pattern perspective. By analysing the differences in access, awarding of degrees, didactic structure, management, examination and assessment systems, preparation for academic careers or careers in public and private sector research, international cooperation, average duration, recognition, etc., twenty different PhD models were identified. They also found two extreme poles in the organization of postgraduate education: the Humboldtian model of university training exclusively for academia, and the professional model based on the North American and British traditions of viewing doctoral training as valuable in professional, industrial, and administrative contexts as well.

The June 1999 Bologna Conference discussed: (1) the architecture of learning with regard to the relationship between first and higher degrees; (2) flexibility in the structure of qualifications; (3) education paths; (4) competition and the European area for higher education; (5) human resource development. With the Bologna Declaration a new impetus was given to European harmonisation of a three level system of higher education: the short degree (first three years), the specialised degree (+two years), and the doctoral degree (+three years). That said, most efforts of the 'Bologna Process' were concentrated on the first two levels of the higher education system. Doctoral programmes continue to be marked by significant differences between countries in the selection, training, and evaluation criteria used to award a PhD.

In the Fifth and Sixth Framework Programmes the EC DG for Research has put a strong emphasis on internationalisation and European harmonisation of the doctoral

degree and stressed the close relationship between research training through research and development of the European scientific research area. The EC DG for Education and Culture is sensitive to the need to produce an updated and comprehensive survey of data on doctoral studies in different universities and countries participating in the Socrates/Erasmus programme and to compare doctoral mobility in the Marie Curie Research and Erasmus programmes (Mitchell, 2001, 2002). A similar survey has recently been carried out under the auspices of the EC DG for Research, but it again focused on mobility within the Marie Curie programme and not on the organisation of joint doctorates.

The Stockholm Seminar on the development of European joint degrees in May 2002 recommended some common denominators for joint degrees, including that: (a) there be two or more participating institutions in two or more countries; (b) the duration of study outside the home institution should be substantial and continuous; (c) joint degrees should require a joint study programme established by cooperation and confirmed in a written agreement between institutions; (d) joint degrees should be based on bilateral or multilateral agreements on jointly arranged and approved programmes, with no restrictions concerning study archives or subjects; (e) full use should be made of the diploma supplement and the European Credit Transfer System (ECTS) in order to ensure comparability of qualifications; (f) a joint degree should preferably be documented in a single certificate issued by the participating institutions in accordance with national regulations; (g) joint degrees and study programmes should require student and staff/teacher mobility; (h) linguistic diversity in the European perspective should be ensured; (i) joint study programmes should have a European dimension, whether in physical mobility or intercultural competence in their curriculum.

Another important initiative promoted by UNESCO-CEPES and the Elias Foundation of the Romanian Academy led to a 2003 international seminar on European doctoral degrees and qualifications in Bucharest that compared organisational approaches, policy initiatives, and academic traditions concerning the structure and awarding of doctoral degrees in thirteen nations (Austria, France, Germany, Italy, The Netherlands, Norway, Poland, Romania, the Russian Federation, Spain, Sweden, the UK and the USA) (UNESCO-CEPES, 2003). The results of this project were published in a book edited by Jan Sadlak (2004), including an informative comparative analysis by Barbara Khem. The focus, however, was more on the national organisation of the doctorate than on its internationalisation.

After the Berlin Communiqué in 2003 the Bologna Process has given new impulse to the internationalisation of the third cycle of the Higher Education System in Europe (doctorate) in synergy with the goal of the ERA concerning advanced research training by research in international contexts:

Conscious of the need to promote closer links between the EHEA and the ERA in a Europe of Knowledge, and of the importance of research as an integral part of higher education across Europe, Ministers consider it necessary to go beyond the present focus on two main cycles of higher education to include the doctoral level as the third cycle in the Bologna Process. They emphasise the importance of research and research training and the promotion of interdisciplinarity in maintaining and improving the quality of higher education and in enhancing the competitiveness of European higher education more generally. Ministers call for increased mobility at the doctoral and postdoctoral levels and encourage the institutions concerned to increase

their cooperation in doctoral studies and the training of young researchers. (Conference of Ministers Responsible for Higher Education, 2003)

With the European Commission's support and as the main representative of institutions of higher education awarding doctoral degrees in Europe, the European University Association (EUA) in 2004 launched the Doctoral Programmes Project, setting two main objectives: to identify essential conditions for successful doctoral programmes in Europe; to promote and encourage cooperation in the development of doctoral programmes at the European level.

Responding to the EUA's 'open call', 143 applicants from forty-eight universities in twenty-two European countries were selected as project participants, organised in six thematic networks, each led by a main coordinator, with the goal to analyse key issues related to structure and organisation, financing, supervision and quality assurance measures, innovative practices, all themes (control group), and joint doctoral programmes. The 'Network of Networks' project, coordinated by the author was part of this programme and will be described later in this paper.

The key findings emerging from the six thematic networks – through discussion in internal meetings, SWOT analysis at each institutional and network level, two network coordinator's meetings, institutional and network reports, large conferences open to dialogue with higher education policy-makers (EUA Conference on 'Research Training as a Key to a Europe of Knowledge', held 28–30 October 2004 in Maastricht; the Bologna Seminar on 'Doctoral Programmes for the European Knowledge Society', held in Salzburg 2–3 February 2005) – helped in identifying the 'ten basic principles' (the so-called Salzburg Principles) for implementation of the 'third cycle' (EUA, 2005, pp. 41–42).

In short, the main points, further developed in follow-up workshops, focused on specific aspects of doctoral programmes (on multiple career perspectives and the labour market, Brussels, 23–24 November 2006 and Vienna, 1–2 June 2006; on doctoral/graduate/research schools and the Master's degree–PhD link, Brussels, 26–27 October 2006, with a view to providing recommendations on doctoral programmes for the inter-ministerial meeting in London in 2007) and were related to:

- The organisation of doctoral programmes at the highest university level with institutional guidelines, regulations, or codes of practice;
- The importance of creating critical mass by developing research groups, clusters, and networks;
- A research environment stimulating research collaboration, intellectual experience, and interdisciplinarity. These range from graduate schools in major universities to international, national, and regional collaboration between universities;
- The structure of doctoral programmes – development of graduate/research/doctoral schools with structured courses;
- Disciplinary differences in the organisation of doctoral programmes;
- The duration of doctoral studies – three to four years;
- The diversity of recruitment practices (a Master's degree as a main route to doctoral education, but not the only one; diversity of Master's degrees as a preparation for a PhD, research Master's one +three route).

At least three cross-cutting issues were focused on during the long process:

- Funding – diversity of financial sources, new ways of collaboration with other partners (e.g. industry), employment contracts, etc.;

- Mobility (cross-country and inter-sectoral) as a part of doctoral programmes and a recognised added value (important for career development);
- A European dimension in doctoral programmes – more joint programmes needed that are built on high quality standards and mutual trust.

Despite the important steps already taken towards a joint European doctorate, the road towards full recognition of its legal status is still rocky, both under the laws of some individual countries and, perhaps, even more in the minds of some conservative academics or institutions who prefer to protect their borders or compete with each other rather than promote cooperation, or simply do not know how to implement it.

“Nonetheless, despite the growing interest in Joint Degrees, there remains little available information about the number of existing programmes, with exact figures available only in a few countries, like France, Germany and Italy” (EUA, 2005, p. 17). The lack of information about joint degrees concerns all three cycles of the EHEA, but especially the doctorate (third cycle).

Faced on many occasions and from many sides with a demand to formally launch a European doctoral diploma the EC has always declared that, as a consequence of the Maastricht Treaty, which assigns these responsibilities to Ministries of Education, it does not have the power to legitimate the European doctoral diploma and must be satisfied with promoting European training networks, which in practice can contribute to the internationalisation of the whole process of research training through research and researcher mobility.

Given the absence of legal recognition by the EC of the European Diploma, other initiatives have developed that use an additional certificate with a European reference as a substitute. For example, the Coimbra Group, a network of historic European universities, launched a pilot programme that awards an extra certificate recognising the European ‘added value’ of the degree. This additional certificate is attached to the final diploma delivered by the university where the doctoral student is registered and is consistent with national doctoral regulations. This is done on the condition that a substantial part of the doctoral candidate’s training has been supervised by a foreign tutor belonging to another university from the Coimbra Group and after quality control of the doctoral training course by the Coimbra Group. Other university networks in Europe are moving in the same direction by competing to become the referential committee for awarding a supplemental certificate that declares its European ‘added value’.

This can be considered a step forward, but it should be made clear that a joint doctorate is different and more than an additional certificate. The founding universities are responsible for it in agreement with their own and national regulations.

A joint doctorate commits institutions to the integration of all planning phases and the implementation and awarding of a joint diploma. Scientists and institutions interested in developing the European dimension in doctoral programmes via joint programmes should be aware where, when, and under what conditions this is possible and consistent with national doctoral regulations which allow autonomy to universities. Even in some very centralised higher education systems, such as France, some specific actions promoted in cooperation between ministries of different countries, such as the French–Italian Vinci programme, allow institutions to apply for jointly established doctorates. In most cases scientists simply do not know how to do it and institutions have no knowledge about regulations approved by other universities in their own or other European countries.

As a third cycle of the EHEA joint doctorates can follow legal routes to award joint degrees.

In many countries they are now allowed, e.g. in Austria, Belgium, the Czech Republic, Finland, France, Germany, Greece, Italy, Slovenia and Spain. Higher education institutions (HEIs) in the United Kingdom have the most far-reaching autonomy in deciding whether to set up joint degree programmes and with whom. HEIs in Latvia, Lithuania, the Netherlands and Turkey can award joint degrees since the law does not mention them and therefore does not exclude them. Only in a relatively small group of countries, like in Estonia, Hungary, Norway and Sweden, are joint degrees still not possible, but amendments to the legislation are being prepared. In Danish HEIs, it is felt to be a question of the autonomy of institutions. Interest levels increased and greater offering of joint degrees in the coming years seems likely. Italy, for instance, sees joint degrees as a particularly important tool in the internationalization of its higher education system. (EUA, 2005b, p. 17)

For example, in Italy the PhD regulations approved in February 1999, and further developed in December 1999, June 2000, September 2001, and October 2003 by the Academic Senate of the University of Rome 'Sapienza'³, were part of the autonomy framework that has been granted to Italian universities by the Italian Ministry of

³ Within the autonomy framework that had been granted to Italian universities by the Italian Ministry for Universities and Research MIUR (Italian laws of 15 May 1997, no. 127 article 17, 3 July 1998, no. 210, article 4, and 30 April 1999, no. 224, article 2), the Academic Senate of the University of Rome 'Sapienza' on 12 February 1999 approved new regulations on research doctorates, subsequently (2 October 2003) modifying them into better organized regulations for international cooperation on PhD programmes. This has contributed to dissemination of the positive experience of the prototypical European PhD on Social Representations and Communication that has been evaluated as a best practice by the EC and the MIUR. The Regulation (article 14 <http://www.uniroma1.it/senatoaccademico/regolamenti/dottorato.htm>) finally and clearly distinguished: (a) the joint supervision of doctoral dissertations based on jointly supervised dissertations (*co-tutela*); (b) the bilateral schema of the doctorate with the European label; (c) the multilateral schema of joint titles recognised by the university network (International Doctorate). In brief:

I. The initiation of a jointly supervised dissertation via a specific agreement proposed by the Faculty Board of the two concerned doctoral programmes and agreed to by the two rectors of the universities in question. Following a favourable report from the evaluation committee, each institution commits to award the degree of PhD or its equivalent for the same dissertation or to award a joint degree that demonstrates the different completion modalities.

II. The initiation of a doctoral dissertation with a European label via a specific agreement proposed by the Faculty Board of the two concerned doctoral programmes and agreed upon by the rectors of the two universities in question. Instituting a doctoral dissertation with a European label also foresees faculty mobility, integration of collegiate organs and examination commissions, and diverse modalities for elaborating and defending dissertations.

III. More complex is the model of a jointly established international programme:

1. If the level of harmonization between Italian university regulations and those of another country allow for the creation of a unified doctoral program between 'Sapienza' and a university in that country the jointly formulated proposals for the programme must show the scientific and educational objectives of the doctoral programme, the didactic plan, the structure, the activities to be undertaken at both sites, and the mobility of both doctoral candidates and faculty.
2. The preceding elements will be integrated into a bilateral agreement that, analogous to what was foreseen in the previous article, will regulate the composition and competencies of the organs, modalities of access, dissertation elaboration, final examinations, and awarding of degrees. This is all under conditions of reciprocity between the cooperating universities.
3. Because of its character in being integrated with a foreign university, regulations of a doctoral programme established in this manner can deviate from the provisions of this regulation, drawn up in consideration with those of national doctorates and the University of Rome 'Sapienza'.

Scientific Research (Italian laws of: 15 May 1997, no. 127 article 17; 3 July 1998, no. 210, article 4; 30 April 1999, no. 224, article 2). On the basis of these new regulations university rectors were asked to establish autonomous doctoral programmes. This was to be done on the basis of opinions expressed by 'evaluation nuclei' within the academic institutions, who had responsibility for evaluating the doctoral programmes from their inception, monitoring their implementation and management and preparing a report on their evaluation activities. The National Committee for the Evaluation of the University System was given the task of editing an annual report on the state of instruction in doctoral programmes and on the evaluation procedures adopted by the universities. Prior to this change centralised control had made Italian doctorates one of the most restrictive educational programmes within or outside Europe.

The significant progress in the conception and management of Italian research doctorates that occurred in the last three years of the last millennium consisted not only of the transfer of competence from the Italian Ministry for Universities, Scientific and

4. Requests concerning the establishment of doctoral programmes under this article will be evaluated by the University Commission, which will also take into consideration the specificities of those doctorates by employing the same criteria used for proposals for regular doctorates as concerns scientific and educational validity.
5. Taking into consideration the time needed to complete agreements and the various procedures linked to internationalisation projects within government ministries, proposals for international doctorates can be submitted to the University Commission at any time of the year.
Proposals must:
 - (a) (in the case of first time proposals) be accompanied by a positive appraisal from the Department and Faculty Councils that are submitting the proposal and the outline of the agreement to be made with the partner universities;
 - (b) show proof of having been presented as international doctoral proposals;
 - (c) provide information concerning the scientific and didactic plan, the composition of the faculty board, publications by the members of the faculty board for the previous five years, and, in the case of renewal, provide indicators of the performance of research trainees and PhD recipients for the past few years.
 - (d) specifically justify the reasons by which the proposal has an international character and, at the same time, indicate the organizational strategies by which the proponents plan to reach their declared objectives;
6. In addition, in a specific attachment, the proposals must indicate:
 - (e) the modalities for the nomination and the composition criteria for the Evaluation Committee responsible for admission to the programme;
 - (f) the Italian and foreign partner institutions, showing the details of their contribution to the scientific-educational plan, organization, co-financing of expenses, and eventual scholarships;
 - (g) if there is mutual recognition of the degree or the awarding of a joint degree as well as general conditions of a joint nature between the partners;
 - (h) finally, the proponents must present a comprehensive financial plan.
7. As regards the composition of the Faculty Board, the rules valid for normal doctorate proposals are not applicable. However, the Board must in any case guarantee the participation of faculty from 'Sapienza' that is substantially proportionate with faculty from the other participating institutions and should be no less than three faculty members. The Board should have at least 10 faculty members participating with full rights.
8. The final Evaluation Committee should be composed of either three or five members, designated in agreement with the participating institutions and from outside the Faculty Board.
9. Doctoral candidates must complete part of their educational programme (from a minimum of 6 to a maximum of 18 months) in at least one foreign partner university. They should be conducting research within the scope of a project approved and agreed upon by the Faculty Board.
10. Authorization to defend a dissertation is granted on the basis of written reports from the dissertation advisors from the cooperating universities and from at least two foreign faculty members that belong to other universities.
11. Writing and defending the dissertation should, in part, be in the language of the cooperating university.
12. International doctorates approved for a cycle are automatically renewed for the successive cycle. Subsequent requests for renewal should be presented at the usual time and be accompanied by the appropriate documentation and a report that describes the results for the previous two years.

Technological Research (MURST) to the universities (in conformity, however, with the general criteria established by the ministry) but also consisted of a new definition of the PhD, no longer conceived as "an academic title of value only for scientific research" and therefore only designed for university careers, as found in the previous regulations (Italian law of 19 November 1990, no. 341, article 5). It is now conceived as an educational path appropriate to provide "the necessary skills to perform high level research in a university, or in public or private institutions" (Italian law of 3 July 1998, no. 210). The intention was to expand the professional future of doctoral research trainees to include employment outside the academic context and create incentives for cooperation between doctoral programmes and the world of business and industry. The law of 3 July 1998, no. 210, article 4 also permits the establishment of agreements between public and private institutions and universities to fund grants for doctoral research. In addition, at that time increasing international cooperation, including research trainee and researcher mobility, was being cited as a tool for improving the training standards of Italian PhD candidates.

More recently, meetings⁴ specifically dedicated to PhD programmes and to discussing the internationalization of the doctorate have been organized by the Italian Conference of Rectors (CRUI), the Ministry of Education, Universities and Research (MIUR), Fondazione RUI-CIMEA, and Socrates Bologna Promoters. Among the 329 projects approved within the framework of the three tri-annual programmes launched since 1998 by the MIUR aimed at internationalisation of the Italian higher education system, forty-two per cent (139 programmes) concern the third cycle (doctorates). Among them, the European PhD on Social Representations and Communication, coordinated by the University of Rome 'Sapienza', has been identified as a 'best practice' to be disseminated as "A model of internationalization of the doctorate: from research training to awarding the joint degree" (De Rosa, 2004a, 2004b) and has been approved again within the third MIUR call on the basis of the programme: 'Action for the Sustainability of the European PhD on Social Representations and Communication: support to the structured and integrated international mobility (physical and virtual)', also co-funded by the University of Rome 'Sapienza'.

Several years were needed to transform the idea of creating the European PhD on Social Representation and Communication into institutional 'best practice' and to disseminate its experience as a prototype (De Rosa, 2004b). In the cultural climate of the Bologna Process other European and international doctoral programmes were launched both outside and within the University of Rome 'Sapienza'. These included another doctoral programme in the social sciences entitled 'Socio-Economic and Statistical Studies' and two doctorates in the natural sciences, 'International Relativistic Astrophysics' and 'Cognitive Plasticity and Rehabilitation', confirming that it makes no sense to make distinctions about the added value of the European doctorate between the social sciences and humanities, the natural sciences and technical disciplines, if they are rooted in institutional collaboration in international research networks aimed at solving common research problems and developing common research areas.

⁴ Meeting in Padua (19 December 2003) and meeting in Rome (16 December 2004) organized by MIUR, Fondazione RUI-CIMEA, and CRUI. All documents are available at <http://interlink.miur.it/2004>. Bologna Promoter Meeting organized by Socrates Italia, Socrates Bologna Promoters, MIUR, University of Padua, and CRUI in Padua (16 December 2005).

Participation in the EUA project on doctoral programmes as a main coordinator of the actions of the 'Network of Networks' has been a privileged position for acquiring an understanding of the degree of acceptance or resistance to innovative practices in establishing joint European and international doctorates.

Scientific Networks versus Institutional Scientific Networks with Joint Integrated Programmes

Before discussing the key issues of the 'Network of Networks' project a few general comments must be made concerning the character of networks. First of all, not all scientific networks are *per se* institutional networks, even though all individual members of an academic network belong to institutions of higher education (de Wit, 2001).⁵ This is true not only of doctoral programmes, but even more so for doctorates, because of the implications for the legal value of the degree awarded. There are two dominant patterns in networks. The first is the bottom-up approach, in which the network is based on cooperation among individual partners, in most case scientists in a specific field of study, without a substantial institutional character. The members of these communities are usually more concerned about performing and disseminating their research and field than the institutional implications of their cooperation. They may be extremely vital scientific networks, but run the risk of being unsustainable in the long-term and can easily dissolve if the leading individuals disappear or lose their commitment. The second is a top-down approach, leading to an institutional network, and is a kind of institutional engineering where top leaders of an institution make decisions based on a strategic policy. Participants may not previously have known each other and might have no common field of study. Such networks are protected, however, by a strong institutional commitment, sometimes driven by political agreements or financial investment by external public or private entities. These two different approaches correspond to the network policies pursued (at least in the last decade) by the EC DG for Research and the DG for Education and Culture.

If we look at the actions launched by the DG for Research, such as high level conferences and networks of excellence, it is clear that the focus is on a bottom-up approach and strongly encourages the idea that the quality of the training provided by each participating partner must be mutually recognised by all the partners. The partners become the reference point for the value of the programme. In contrast, moving from the early years of the Erasmus Programme to Socrates-Erasmus between 1995 and 1996 the policy of the DG for Education and Culture has been to encourage a top-down approach. One of the advantages of this strategy is the solidity of contracts established at the level of rectors and the institutional legal value afforded to the programmes. The disadvantage is that the process is rigid and lacks flexibility.

In our view the best approach in an intellectual and educational enterprise like a joint doctorate is a bottom-up approach brought to the top. The genesis of a network

⁵ A detailed study on the internationalisation of higher education, including the similarities and differences between scientific and institutional networks, in which he illustrates the growing phenomena of international associations, consortia, and networks of academic organisations resulting from the globalisation of economies and societies and its impact on higher education.

should be anchored in the partners' genuine interest in their scientific discipline and be based on pre-existing cooperation. It should, however, seek the long-term value and stability offered by institutions.

We are grateful that the EC DG for Research (within the fourth, fifth, and sixth Framework programmes 'Human Mobility Capital', 'Training Mobility Researchers', 'Marie Curie Multipartner Organisation Site', and 'Marie Curie Actions') and the DG for Education and Culture ('Erasmus', 'Socrates Curriculum Development', the 'Intensive Programme' and the 'Thematic Network') have both lent their support to the European PhD on Social Representation and Communication since its foundation, promoting an anticipatory experience in the Bologna Process of integration between the EHEA and the ERA. This – continued with the approval of the Ministries of Higher Education in Italy (internationalisation programmes) and in France (Vinci programme) – was a way to 'bring to the top' institutional recognition of the inter-institutional agreements signed by rectors rooted in the bottom-up approach of the European PhD network, which came into being as a natural outgrowth of a pre-existing community of researchers working with the Laboratoire Européen de Psychologie Sociale (LEPS-MSH) who had similar research goals and epistemological interests. This common historical background greatly contributed to the complementary nature of the European PhD's research interests and the training skills that have been developed since its foundation.

It is also not merely by chance that the EUA Doctoral Programmes Project received support from both the DG for Education and Culture and the DG for Research. Research training represents an important interface between the two missions of universities: higher education and research. Hopefully a vision of higher education rooted in research and research invigorated by contact with a new generation of research trainees will contribute to removing the resistance of some institutions to fully consider the doctorate as the third cycle in the Bologna Process, to seek harmonisation in the link with Master's degrees (the second cycle) as the main route to access the PhD and to provide the different schemata of doctorates with common quality criteria.

The 'Network of Networks' EUA Doctoral Project

This EUA project had as its goal an improvement in the information base available on doctoral programmes in Europe and the identification of innovative practices for internationalisation. It has contributed to providing an important overview of the diverse scenarios of the so-called European doctorates and to a reflection on the difference between internationalisation and an international doctorate as two distinct models.

Coordinated by the University of Rome 'Sapienza' (European PhD on Social Representations and Communication) the other participants included the Technical University of Eindhoven (The Netherlands), representing the USO-Built in conjunction with the CLUSTER network in the pluri-disciplinary area of architecture, engineering, urban studies etc., the University of Maastricht (The Netherlands), representing the EURON network in neuroscience, the Technical University of Dresden (Germany), representing the IQN network in traditional and innovative methods in masonry, the Autonomous University of Barcelona (Spain), representing the ENTER network in economics, and University College Dublin (Ireland), later replaced by the University of

Munich (Germany), representing the CeTIM network in information, technology and innovative management.

Each of these networks was expected to focus their analysis on their networks, not their home institutions. However, with an eye on identifying obstacles and solutions, each network was also expected to examine the organisation of traditional doctorates in their home institutions in order to identify differences and/or commonalities. Five basic areas of the networks were considered: structure, organisation and management; institutional level of cooperation (scientific versus institutionalized networks); quality of doctoral programmes; recognition of the degree; financing. Detailed information was collected on how doctoral programmes were organised and structured (courses offered, length of study, periods of mobility – compulsory or voluntary – supervision arrangements), institutional policies concerning recruitment and selection procedures, funding of doctoral programmes (tuition fees, institutional or other grants, other sources), quality assurance mechanisms for doctoral programmes (means of evaluation, monitoring supervision, work programmes and follow-up, thesis defence), language policy, degrees and titles awarded and by whom, and obstacles to traditional doctoral programmes and joint European/international doctoral programmes (legal, institutional, financial, etc.).

Analysis shows that while all ideas suggested to bring about internationalisation of the traditional doctorate were present in all the networks, e.g. co-tutoring, international mobility, an international research environment, etc., joint diplomas based on a joint structured and integrated curriculum are still rare. In fact, among the six networks EUA chose for this programme, as coordinator of the European PhD on Social Representations and Communication, only the University of Rome 'Sapienza' awards a legally recognized joint PhD diploma.

The main thesis here is that 'the end starts from the beginning': a joint diploma comes from enrolment in the network and not in an individual institution.

The main difference between the jointly established multilateral model (such as the European PhD on Social Representations and Communication) and the additional certificate model (such as the networks participating in EUA action 6, the CLUSTER pluri-disciplinary certificate in architecture, engineering, urban studies, etc., the ENTER certificate in economics, the EURON certificate in neuroscience, and the IQN certificate of the Internal Quality Network for Traditional and Innovative Methods in Masonry) concerns not only the legal value of the certificate compared with that of a joint diploma awarded in agreement with local regulations or national laws.

What we mean by 'the end starts from the beginning' is the recruitment of applicants and the entry criteria, admissions procedures and registration. If the recruitment and selection of new candidates is not made by a centralised committee, candidate enrolment continues to operate at the level of individual institutions.

Even before selection, access to information is very important in the recruitment process and in stimulating applications by potential candidates. When the admissions process is decentralised – for example via different web sites rather than a common portal – information can be inconsistent. The guidelines and even the admissions criteria might not be equally accessible or could vary in different institutions and countries.

Centralised applicant selection is an opportunity to share responsibilities among the partners (or those that belong to the Executive Committee) from the outset of the applicants' relations with the programme. It is also an opportunity for the partners to

share their views and compare them with those of their colleagues, as well as an opportunity to reflect on the programme and its developments while examining candidates.

One of the great advantages of adopting a centralised model both for scientific coordination and for administrative procedures is the enrolment of candidates at the network level, rather than at local individual universities.

Administration directly implies a network management structure. The structure is closely related to the size of the network. For larger networks (more than six or seven institutions) we highly recommend the establishment of a well-organized structure, which clearly defines the scientific/didactic/administrative structure by dividing tasks and responsibilities among the partner institutions and identifying functional roles: Programme Director, Scientific Coordinator, Core Executive Committee, European Scientific Board, European Recruitment Board, International Evaluation Board. This allows close monitoring of the process and rapid decision-making through a Core Executive Committee.

The European Dimension of the Doctorate and the European Doctorate: One Goal, Two Distinct Models

A common framework for all doctorates (traditional and innovative, national and international) can be identified in the ultimate single goal of research training for and by research and the acquisition of competence in both the specialised field of the thesis and in personal and managerial skills, including: facing the unknown, quickly extracting and synthesising knowledge, discovering innovative solutions, solving complex problems, developing strategies by combining multiple perspectives, creativity, networking, communication and quality assessment, and time and resource management, as well as failure management.

However, we do need to clarify the difference between the internationalisation of an existing doctorate and a joint European doctorate. The European dimension of the doctorate and the joint European doctorate are two distinct models.

The widespread recognition of the need for mobility in doctoral programmes and the increasing practice of international mobility supported by EC or national ministry funded programmes has led to the perception that an existing doctorate plus international mobility in one or two countries within an integrated framework of cooperation between universities and other partners can be considered a European doctorate. Our belief is that international mobility is one of the requirements for a European doctorate, but in and of itself is not sufficient. Even if students' international mobility is reinforced by bilateral schema of recognition via a jointly supervised dissertation, other requirements still need to be satisfied to constitute a European joint doctorate.

Before indicating the musts for a European doctorate, the identified models will be reviewed, to different degrees, concerning how they relate to formalising the internationalisation of doctorates. The range of different practices is more complex than the four models indicated below would suggest, but in the interest of clarity some reduction of this complexity was necessary. Thus, four fundamental models for the internationalisation of doctorates were identified. Not all these models, however, can be considered joint European doctorates.

- A. The single institution doctoral model: 'One degree' plus a joint certificate. A doctoral degree issued by the university in which the candidate is enrolled, plus a certificate recognising the international mobility of the candidate.
- B. The cumulative bilateral doctoral model: 'Double degree'. A double doctoral degree issued on the basis of a bilateral inter-institutional agreement signed by the rectors, which usually involves two supervisors, one from each university, some periods of study and research at the other university for each participating candidate, and a double diploma issued after the defence of the doctoral thesis.
- C. The integrated bilateral or multilateral doctoral model: 'Double degree' with a joint certificate with the title *Doctor Europaeus*: A bilateral or multilateral doctorate with a double or multiple degree and a joint certificate with a title such as 'Doctor Europaeus', based on a bilateral or multilateral agreement signed by the rectors, with a higher level of curriculum integration and collaboration following informal guidelines prepared by the former Conference of European Union Rector's Conference.
- D. The jointly established multilateral doctoral model: European doctorate. A single joint diploma signed by the rector of the coordinating university and at least two other rectors of partner universities in different European countries, on the basis of the regulations of and agreements between all participating universities and legally supported by national ministries of education.

All these models share the common goal of internationalising doctorates and in practice all contribute to encouraging the mobility of doctoral candidates as a fundamental part of their research training, a widely diffused practice even within the traditional schema of national or local doctorates (model A). However, from model A, which is simply open to the idea of doctoral candidate mobility, the level of complexity increases as you move towards models that also include shared responsibility for joint supervision. These range from the bilateral cumulative model (B) to the bilateral integrated models that lead to the European label degree (C) and the more structured jointly established model (D). Strictly speaking the European doctorate is identifiable exclusively with model D.

The European doctorate is not the same as doctorates that are duplicated in various European countries. It is, instead, a jointly established multilateral programme with a degree established at the network level where doctoral candidates receive a single diploma signed by at least three universities in three different European countries. As it is based on a pre-existing scientific community in a specialised area of study or in a multidisciplinary subject, the European doctorate seeks to pool the expertise throughout European countries in order to develop a critical mass of internationally recognised scientists. In concrete terms, these scientists decide to share the planning, implementation, and development of a joint programme and to train together new generations of researchers interested in their specialised area.

The 'Musts' of a Joint European Doctorate

At a seminar in Salzburg, Dr Guy Haug indicated some minimal criteria for establishing joint/double doctoral degree programmes, including the necessity of a European dimension in the topic or scope, international mobility, a bilateral schema of recognition via a jointly supervised dissertation, as well as a translation of the main findings (Haug, 2005).

More clearly defined indicators of strength shall be added here, including not only what it is necessary to include in training activities, but also the preconditions to establishing a network that will guarantee European scientists access to expertise, world-wide links, excellent working conditions, and shared criteria for advanced training, as well as effective management of the network.

The 'musts' for establishing a joint European doctorate include a series of elements related to the entire organisational process.

Network Build-up

The first 'must' is the creation of a well-established institutional network of prestigious European higher education institutions in at least three European countries, built on a community of well-known scientists and leaders in the research field. The process of building a network and the level of formalisation sought, expected, or obtained is a fundamental factor effecting the organisation of the network, its way of functioning and management, the personal and institutional commitment, and its sustainability in a long-term perspective. This includes its ability to deal with crises that may occur at any point in its existence, such as internal conflicts among a sub-group of partners, crisis or change in the leadership, loss of partners, etc. The nature of the networks (scientific versus institutional) and the level of their joint structure have consequences for their organisation and directly affect important phases of a joint doctoral programme: the absence or presence of centralised selection and supervision procedures; the legal value of a joint certificate; integrated systems for advanced research training; financial commitment by the institutions, etc. If from the outset there is a strong, shared commitment to planning a joint programme, it is important that the award of a joint certificate be part of the network's mission build-up.

Another aspect is greater access to expertise: European PhD research trainees should be offered a broader range of international expertise for their research than would be possible at a national level.

Concerning the benefits of a variety of methodological approaches and complementary clusters of competencies, research trainees should be exposed not only to a variety of methodological approaches but also to international experts in their preferred methodological approach.

Joint Criteria Concerning the Whole Process of Planning, Implementing, and Monitoring

The European standards developed on the basis of joint criteria should characterize all planning, curricular, organizational, policy, and procedural aspects needed to design and implement the European doctorate. These concern the whole process related to:

- candidate selection;
- training of participants from different nationalities;
- research activity and training in an international environment;
- intensive didactic 'stages' in multilingual and multicultural settings;
- adoption of specifically designed schemata of structured training;
- a language policy and format for the PhD dissertation;
- evaluation of the whole training process and quality system;
- formal recognition of the degree and award of a joint diploma.

Structured Training

One important issue under this 'must' is tutoring and co-tutoring in a triadic system (multiple supervision): in the course of their doctorate research trainees should be in continual contact with three tutors in three different European countries. Under the open learning system tutors should have online access to research trainees' work and thus be able to make didactic use of the web site and monitor research trainees' progress quickly and directly. The European PhD should guarantee a maximum of two to three research trainees per tutor per year. This ensures individualised multiple tutoring and close monitoring of research trainees' progress.

Structured international mobility of both research trainees and teaching staff should imply that international mobility be achieved both at the individual and collective levels. In the first case individual research trainees should move abroad for at least six months to work in two different European countries and two different research centres and host institutions with which their tutors are associated and from whom they receive individual tutoring and co-tutoring in their research work. In the second case collective mobility should involve all research trainees enrolled in the programme and the tutors from all the partner universities and can be achieved during intensive stages, such as international summer schools or face-to-face sessions in international laboratory meetings. Leading scientists and experts from outside the network, invited by the teaching staff, and a limited number of post-doctoral researchers and research trainees enrolled in other doctorates in related scientific fields from any country should be admitted as participants to allow improved cross-fertilization of ideas and research practices between research trainees with different levels of expertise.

The linkage between international physical and virtual mobility (including access to a dedicated portal and web auditoria interactive systems) means that innovative practices should be adopted for teaching, tutoring and co-tutoring, network management, etc., as well as for flexibility in open distance learning. The system of open distance learning – through dedicated video chat, forum discussion and multipoint videoconferences via web auditoria – guarantees flexibility in meeting the needs of research trainees. It enables research trainees to organise their research in a suitable way within the confines of the didactic structure. Open distance learning can also be adapted to provide additional temporary more specific training if required by the trainee.

Due to the integrated and joint nature of these programmes the adoption of the ECTS should be specifically designed as a system for credit accumulation, rather than a comparison of distributed teaching offers and transfer of learning outcomes. 'ECTS without the T' means that the idea of transfer is not necessary in a jointly structured programme of activities. By conceptualising the academic year not exclusively in terms of time but in terms of earned credits the system allows flexibility in meeting the needs of full-time and part-time research trainees.

The thesis – or at least a part of the PhD dissertation – should be written in a language other than the one(s) of the country where the doctoral programme is pursued. Depending on the jointly established criteria, it should be published or at least evaluated ready to be submitted to international journals by a final jury from the international evaluation board.

The international evaluation board, which evaluates the research trainees' final PhD dissertations, should consist of academics from partner network universities, as well as invited international experts external to the European PhD network.

Societal relevance of the field of study, which may be interdisciplinary, represents an additional value.

Infrastructure

The installation of an adequate infrastructure and dedicated facilities at the coordinating university and network universities, including a common web site, is a further 'must'.

Management

This point implies transparency in defining the codes of conduct for both research trainees and tutors, as stated in the regulations approved by the Academic Senates of the joint network universities, and includes working rules for participants, such as obligations and rights. Good management of a network also requires proven skills in network management and good practice in administration, as well as a common fee structure and centralised administration established as part of inter-institutional agreements that have jointly agreed policies for fund-raising and financial resource management.

Before ending this segment, I would like to underscore the extremely important issue of fees. One of the great advantages in adopting a centralised model for both scientific coordination and for administrative procedures is that this brings with it the immediate benefit of creating equal conditions in terms of fees, avoiding differences in tuition fees that could influence an applicant's choice of network universities. From a substantive as well as a symbolic point of view, differences in the fees at each institution, rather than a common fee structure for the entire network, are an indicator of a basic lack of coordination. It can be perceived as unfair and cause difficulties for both applicants and staff members. Money is one of the most powerful symbolic systems of resource exchange among individuals, social groups, and institutions. How money is raised and distributed is a core indicator of organisational management.

Of course, the adoption of a common fee structure and a centralised administration is only one of the complex tasks that must be achieved when establishing a joint European doctorate. Due to the existing differences in financial policy and economic conditions among countries and institutions the process of defining a common fee structure requires substantial negotiation. A centralised administration also implies establishing a fund-raising policy and agreement on resource management. This should be clearly stated in and integrated into the regulations or inter-institutional agreements that are approved by all partner institutions.

In the case of the jointly established European PhD on Social Representations and Communication, which involves institutions from nine countries that have extremely different financial policies for higher education funding and educational costs, the decision of "how much should the fee be" was one of the core arguments discussed in the years preceding programme activation in 1996. During the process of negotiating the lowest possible fee (at that time €1,000) one of the fundamental questions was: "Can we allow a European doctorate to cost less than a local doctorate?" It was feared that applicants would shift from choosing local programmes to the European doctorates. When establishing a joint European programme, although most partners are seeking to improve international cooperation, especially from a scientific point of

view, they are not always eager to confront conflicts that can arise within their home institutions.

Obstacles to a Joint Doctoral Programme and Recommendations

Legal Obstacles

Over the years various efforts have been made at the European level to internationalise doctoral programmes, which have been of fundamental importance to achieving the goal of a joint European doctorate, one potential schema in advanced research training programmes inspired by a European dimension. However, along with a general resistance to the concept due to the fear of homogenising the diversity of doctoral curricula and confusion about the different types of doctoral degrees currently available in Europe, most countries still encounter the major problem of legal recognition of the degree. Often the institutions most committed to removing obstacles are the coordinating universities and those that have most actively contributed to the programme over the course of many years. This can create unrealistic expectations of the coordinating university on the part of partner institutions and can encourage a kind of parasitism or inertia in the management of their own local legal and financial problems.

To solve the problem of legal recognition of this degree in countries where ministries shift legal responsibility to universities, the European doctorate can be legally recognised under certain specific conditions clearly defined in regulations adopted by the universities in agreement with more general policies defined by the ministries and possibly by an inter-ministerial communiqué.

Institutional Obstacles

Like any other collective enterprise, obstacles related to the nature of the network affect the entire life of a joint programme. As mentioned earlier in this paper, the author maintains that the best approach is the bottom-up brought about at the top. The genesis of a programme should be anchored in a genuine interest in the research area and based on pre-existing expertise and scientific cooperation. However, it should also be attached to an institution that can provide long-term value and impact. The nature of the networks (scientific versus institutional) and their level of joint structure have organizational consequences that directly influence important phases of joint doctoral programmes. These include the absence or presence of centralised selection and supervision procedures, the legal value of a joint certificate, integrated systems for advanced research training, and financial commitments by the institutions.

To this end, it is important to conduct a follow-up study of final reports of existing training networks, which would make more information available on the analysis of EC documents, such as the final reports related to existing training networks like the Marie Curie Multipartner Organisation, Socrates as it relates to doctoral programmes, and the Italian thematic network 'Internationalisation of the Higher Education System' programme, and documents and materials available from EUA member institutions and European national educational institutions.

Financial and Logistical Obstacles

The costs related to management and integrated didactic activities, which include structured mobility for international doctorates, are very high. The EC DG for Research provides substantial financial support to networks of excellence for training early stage researchers and for organising series of training courses for doctoral candidates under the Marie Curie scheme. The EC DG for Education and Culture offers support within the Erasmus-Socrates programme for new joint advanced curricula development and for international summer schools (intensive programmes), as well as for doctoral candidates and staff mobility. In some countries, such as Italy for example, several ministries have developed specific programmes aimed at internationalisation of the higher education system, funding a selected number of joint international doctorates, previously selected at the top level by universities. However, in order for the duration of doctoral programmes not to depend on the duration of specific projects and contracts, universities should include specific items in their budgets, not only for their implementation, but also for consolidation and development. Establishing institutional networks of excellence in doctoral training is extremely costly, not only economically but also in terms of management and training. Therefore, their duration cannot be limited to the length of specific contracts. Providing procedures for monitoring quality and to ensure that results are satisfactory, it is necessary to take measures that guarantee the consolidation of institutional networks.

In this perspective a strong commitment is essential, both to enhance the institutional impact within the coordinating university and within each partner institution and to seek resources to ensure the sustainability of the joint programme. With the reality of decreasing public funding there is a need for professional fund-raising, especially from private organisations and foundations, which can represent an alternative or, at least, an additional source of funding. This highly demanding and time consuming fund-raising activity is now primarily undertaken by the scientific coordinator. Compared with the number of applicants that can be admitted and supported by three year grants, the application rate is still very high. Financial restrictions are frequently the reason for students dropping out, especially among those candidates who come from economically disadvantaged countries or who are not eligible for EC funding (in this case the application of a lower fee can be considered).

From a logistical point of view, long-term mobility plans can be difficult to organise when financial support for candidates comes from contracts for tasks not directly related to the research projects but related to local faculty or a departmental need. When sufficient resources fully dedicated to international mobility (such as the Marie Curie grants) are not available to non-European candidates or become unavailable, a partial solution might be to improve cooperation among the network universities in order to mutually make contracts available to enrolled foreign doctoral research trainees to perform tasks at the faculty or departmental level (as is the model in the USA). Of course, this is only possible if there are no restrictions concerning the working language for the specific tasks and contexts (this is often the case when work involves assisting undergraduates or administrators within the local university that offers the contract). The best solution, of course, would be for each partner university in a joint European doctorate to contribute to the cost of the programme (including grants for doctoral candidates, international mobility of research trainees, professor mobility, staff costs, and general expenses) and to establish its own budget based on a needs analysis.

Recommendations

The list of 'musts' for a joint European doctorate presented earlier in this paper is, in and of itself, a comprehensive list of recommendations. In the globalised and economically interdependent education and research market, the diffusion in Europe of jointly established and institutional advanced research training networks represents an opportunity to improve scientific cooperation not only within but also beyond Europe.

However, it is important to insist that a continuous quality control monitoring system must be in place, not only when the programme is established, but also during its consolidation and even after it has become a successful and recognized programme.

Some of the most critical issues can be summarized as a need for stronger coherence between top-level institutional best practice recognition and the personal and institutional commitment to improve the quality of the programme, to guarantee long-term sustainability.

Looking towards solutions, from the partners' side the following recommendations are made:

- The promotion of each partner's carefully recruited candidates;
- The concerted and intensive use of thoughtfully designed tutoring and co-tutoring training formulae, avoiding the delegation of responsibilities among the three tutors and a 'free-flowing state' for PhD research trainees;
- The systematic use of tools designed with shared criteria for evaluating initial, intermediate, and advanced research reports;
- The provision of regular information to update credits for research trainees;
- The promotion of initiatives dedicated to European PhD research trainees or simply extended to them (such as local PhD seminars) organised by each partner university;
- Information about everyone's scientific activity and the activity of other partners, disseminated by actively updating the information available on the European PhD web site;
- The promotion of other qualified tutors;
- A strong commitment to increase the institutional impact within each partner institution and to seek resources to render the joint programme sustainable;
- An active role in scientific and training activities related to the European PhD programme (internally for its development and for its external dissemination).

From the research trainees' side the following points are of importance:

- An early awareness of the strong commitment necessary to accomplish all requirements of the programme in order to avoid dropping out;
- The careful observation of institutional obligations (reports on the state of their PhD work, fees, participation in the intensive stages, etc.);
- Frequent contact with their own tutors and responses to tutor's recommendations;
- A serious commitment to respect the obligation to complete the PhD in three years;
- The development of a sense of belonging to the scientific community and to be active in European PhD alumni initiatives.

Conclusions

The impact that the diffusion of best practices for European and international jointly established doctorates has outside Europe will be a powerful tool for increasing the

visibility of the effort the European scientific community – driven or supported by EC policies – has dedicated to establishing a stronger link between the EHEA and the ERA as two pillars of a projected knowledge-based society. In a world where cooperation and competition are inevitably interlocked, in education and research as well in the economic marketplace, the objective of creating joint institutional ventures among European centres of academic excellence for the training of new generations of researchers goes hand in hand with the goal of increasing the attractiveness of European academic offerings. The word ‘coop-tition’ was creatively used by Debra Stewart, President of the US Association of Graduate Schools, at a 2005 Salzburg conference to illustrate the new strategies for cooperation and competition adopted by US academic institutions offering doctoral programmes. She said that they had woken up to the new reality of dramatically decreasing numbers of international doctoral candidates. According to her, this was not only a consequence of restrictions that followed the tragic events of 11 September 2001, but was also due to other options that applicants now have around the globe. In a context where even the USA – traditionally the mythical recipient of the ‘brain drain’ – needs to become more competitive through inter-institutional cooperation, the question of a European versus international label to describe jointly established doctorates based on large worldwide networks becomes crucial.

As a strategic option a European doctorate, even when open to international cooperation outside Europe, is likely to be the best solution to stress the key role of the EHEA and ERA, in particular when the initiative for introducing and coordinating networks is led by European institutions. Inter-institutional links or, more simply, scientific cooperation with institutions outside Europe will be an opportunity to learn how to cooperate in an even more competitive scenario. This means academics must not only be scientists, but scientists who take on the responsibility to train new generations of researchers by promoting international mobility and creative intellectual exchanges, who are flexible enough to embrace worldwide learning contexts and knowledge. Being attractive to international candidates and expert researchers from around the globe is also a ‘must’. One way to achieve this is the systematic organization of large annual scientific events, such as seminars, international summer schools, and multipoint interactive video conference connections as part of the training structure of European doctorates.

Enhancing the attractiveness of the EHEA and ERA by combining these three sides of the knowledge triangle – education, research, and innovation – is at the core of the initiative recently proposed by the EC to create the European Institute of Technology (EIT) (European Commission, 2006a), whose mission is “to perform postgraduate education, research and innovation in emerging trans- and interdisciplinary fields”, “to develop research and innovation management skills”, “to attract the best researchers and students world wide”, “to disseminate new organizational and governance models”, and “to mark the knowledge landscape with a new European identity”. The EC intention in setting up the distinctive EIT education model “would attract MA students and PhD candidates and would be responsible for giving them an education at the highest international standard”, “drawing on excellence where it now exists and encouraging its development where it does not”. “It will pool resources of different kinds: personnel and infrastructure seconded by partner organisations and financial resources from public and private sources. The physical resources may remain geographically dispersed, but the knowledge community will operate as an integrated whole” (European Commission, 2006b).

In a press release (European Commission, 2006b) the “knowledge and innovation communities (KICs)” are presented as based on but going beyond a network approach and as being able to create joint ventures with partner organisations representing universities, research organisations, and businesses who come together to form an integrated partnership in response to calls for proposals from the EIT.

However “the feasibility of awarding degrees from the EIT also needs to be clarified, with EUA promoting the development of joint degrees”.⁶

To avoid a fully centralised top-down approach taking control of this process, the leading scientific networks must rise to the occasion and fit joint European and international doctorates into their agendas, bringing into this ‘institutional’ project the value of their ‘bottom-up’ network expertise.

Universities should valorise and support the most dynamic scientific networks which are able to combine internationally recognised scientific excellence, quality of doctoral training, and innovation.

In conclusion, the long list of ‘musts’ shows the quality of the joint European doctorate. Each institution must evaluate whether enough of a commitment exists to take on the challenge of this innovative and highly demanding scientific and administrative enterprise. In the end, for those of us involved in the joint European doctorate the main point is not to promote or oppose traditional or innovative, national or regional, European or International doctorates, it is to foster awareness that each solution has intrinsic value as long as quality is not negotiable.

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