

## **Doctoral Programmes in Europe BFUG Report**

### *Table of Contents*

<b>I.</b>	<b>Introduction</b>	
	1. The Importance of Doctoral programmes for European Higher Education and Research.....	p.2
	2. The Bergen Communiqué.....	p.2
	3. The Mandate of EUA.....	p.2
<b>II.</b>	<b>Methodology</b>	
	1. Terms of Reference.....	p.3
	2. Steering Committee.....	p.3
	3. Workplan and activities.....	p.3
<b>III.</b>	<b>Doctoral programmes in the Bologna Process.....</b>	<b>p.3</b>
<b>IV.</b>	<b>The Role of Universities</b>	
	1. Embedding in institutional strategies and policies - Organisational structure .....	p.4
	2. Access and admissions.....	p.6
	3. Supervision and assessment.....	p.6
	4. Transferable skills development.....	p.7
	5. Duration.....	p.8
	6. Researcher careers.....	p.8
	7. Including doctoral programmes in strategies for enhancing internationalisation.....	p.8
<b>V.</b>	<b>New developments in doctoral programmes</b>	
	1. Professional doctorates.....	p.9
	2. Intersectoral collaboration and mobility.....	p.10
<b>VI.</b>	<b>Status and career development of doctoral candidates and other early stage researchers</b>	
	1. Status of doctoral candidates.....	p.10
	2. Post-doctoral researchers.....	p.11
<b>VII.</b>	<b>Funding of doctoral programmes and early stage researchers.....</b>	<b>p.11</b>

## **I. Introduction**

### **1. The Importance of Doctoral Programmes for European Higher Education and Research**

Promoting „closer links between the European Higher Education and Research Areas as a means of strengthening Europe’s research capacity, and improving the quality and attractiveness of European higher education“ has been a major priority for the European University Association (EUA) since 2003<sup>1</sup>. These objectives have been translated into action through a focus on doctoral programmes and researcher careers that led to the adoption of the Salzburg principles in February 2005 (Annex 1) that have become the framework for the intense discussion on the development and future direction of doctoral programmes that has been gathering momentum over the last two years.

Growing awareness of the importance for Europe of increasing its research potential and the increasing spotlight on the role of universities as the providers of doctoral programmes and responsible for providing the unique environment in which young researchers are trained by and through research, has served to highlight still further the crucial role of doctoral programmes for Europe.

### **2. The Bergen Communiqué**

Specifically in relation the Bologna Process, the Ministers meeting in Bergen in May 2005 recognised that in order to *improve the synergies between the higher education sector and other research sectors and between the EHEA and the European Research Area* “doctoral level qualifications need to be fully aligned with the EHEA overarching framework for qualifications using the outcomes-based approach. The core component of doctoral training is the advancement of knowledge through original research. Considering the need for structured doctoral programmes and the need for transparent supervision and assessment, we note that the normal workload of the third cycle in most countries would correspond to 3-4 years full time. We urge universities to ensure that their doctoral programmes promote interdisciplinary training and the development of transferable skills, thus meeting the needs of the wider employment market. *We need to achieve an overall increase in the numbers of doctoral candidates taking up research careers within the EHEA. We consider participants in third cycle programmes both as students and as early stage researchers.*”

### **3. Mandate to EUA**

The Ministers furthermore gave a mandate to the European University Association, together with other interested partners, “to prepare a report under the responsibility of the Follow-up Group on the further development of the basic principles for doctoral programmes, to be presented to Ministers in 2007.”

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<sup>1</sup> EUA Graz Declaration, June 2003

## **II. Methodology**

### **1. Terms of Reference**

Terms of Reference for the project were submitted to and endorsed by the October 2005 meeting of the Bologna Follow-Up Group (Annex 2).

### **2. Steering Committee**

A project Steering Committee was formed including EUA, ESIB, EURODOC, and representatives of the Ministries of Education of Austria and France. EUA is grateful to the Ministries of both countries for providing funding for the core activities of the project. The Steering Committee met twice (November 2005 and August 2006) to discuss activities, methodology and time schedule of the project, and came together with other representatives of the BFUG in June 2006 for a specific discussion of issues related to the financing of doctoral programmes.

### **3. Workplan and Activities**

The project focused predominantly on following three clusters of issues, taking account of the Salzburg Principles and the Bergen Communiqué, and building on the outcomes of the EUA Doctoral Programmes Project<sup>2</sup>:

- *The quality of doctoral programmes:* with an emphasis on the nature of training by research, questions of supervision, monitoring and assessment, and on transferable skills development and its relation to employability
- *The role of higher education institutions:* in particular in creating critical mass through developing new structures such as research/ graduate/doctoral schools or structured programmes; linking the Master and PhD level, and promoting internationalization and mobility
- *Defining public responsibility and the role of the state:* in particular in relation to the funding of doctoral education and other aspects of legal and regulatory frameworks

An overview of the different events and other activities that were organized in relation to these themes is included in Annex 3.

## **III. Doctoral programmes in the Bologna process**

Doctoral programmes are the third cycle of the Bologna process and at the same time constitute the first phase of a young researcher's career.

The core component of the third cycle is the advancement of knowledge through original research. This makes the third cycle unique and different from the first and second cycles. For this reason the doctoral training phase constitutes the main link between the EHEA and the ERA. High quality doctoral programmes are crucial in achieving Europe's research goals.

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<sup>2</sup> EUA Doctoral Programmes Report, 2005

The specific character of the third cycle needs to be taken into consideration in the Bologna context. However, this does not mean that doctoral programmes should be seen in isolation, but rather as part of a continuum, closely linked to and following on from the first and second cycles, and in the context of the implementation of the three Bologna cycles as a whole. It is important for all institutions offering research based higher education to ensure that a research component is included and developed in all cycles thus allowing students to acquire research experience and encouraging an interest in research as a possible career. Particular attention should be paid to the articulation between the second and third cycles. This applies also in relation to the acquisition of transferable skills.

The articulation between the three cycles is underlined by the inclusion of descriptors for doctoral programmes as level 8 of the European Qualifications Framework (EQF) for Higher Education that was agreed in Bergen in 2005. These descriptors – the so-called “Dublin Descriptors” – are increasingly being used at national and institutional level. It is important for national governments when they are developing national Qualifications Frameworks, and higher education institutions when they are considering entrance requirements and the definition of learning outcomes for doctoral programmes to take account of and make use of these descriptors.

#### **IV. The Role of Universities**

Universities have the main responsibility for the development of high quality doctoral programmes. Providing training in and through research is one of their core tasks, both to prepare young researchers for careers in academia but also increasingly to be able to play a significant role in other areas of society, be it in the public sector or other research agencies, in industry, commerce or the service sector. This requires autonomous institutions able to act responsibly, and develop and implement institutional strategies for doctoral programmes in a number of different areas.

##### **1. Embedding in institutional strategies and policies: organisational structures**

One of the key questions being debated in institutions across Europe, and much discussed during the present project (cf Annex 3) relates to the choice of structures within the institution best suited to providing high quality programmes. Organisational structures chosen must demonstrate added value for the institution and for doctoral candidates, in particular in seeking to counteract the isolation of the early stage researcher from other disciplines, or from the larger peer group, or the larger scientific community; to improve transparency, quality, and admission and assessment procedures; create synergies regarding transferable skills development.

Different solutions may be appropriate to different contexts and the choice of structure is a matter for each institution, based upon the specific institutional aims which these structures are supposed to meet.

- Recent developments and an analysis of practice across Europe points to the emergence of **doctoral / graduate/ or research schools**. The EUA TRENDS V Report (2006)<sup>3</sup> reports that 30% of European higher education institutions

<sup>3</sup> TRENDS V Report, provisional analysis of questionnaires received from universities ...

surveyed say they have now established some kind of doctoral, graduate or research school. This question was also asked in the survey of Bologna Process member countries carried out specifically for this project<sup>4</sup>. Out of the 36 countries that responded, 16 countries reported that their institutions have introduced doctoral, graduate or research schools, alongside existing models such as traditional individual training or 'stand alone' structured doctoral programmes (Table 1).

The responses thus show an increasing trend towards the development of structured programmes and doctoral/ graduate/ or research schools in addition to individual training. However, a mix of different organisational types seems to be common practice in most countries. This reflects the need to achieve a critical mass of doctoral candidates in many cases, but also the existence of disciplinary differences that need to be taken into consideration in the organisation of doctoral training.

Table 1. Organisation of doctoral education

Organisation of doctoral education	Number	Countries
Individual education only (1)	5	Bosnia-Herzegovina, Cyprus, Georgia, Malta, Montenegro
Structured programmes only (2)	4	Croatia, Estonia, Lithuania, Spain
Doctoral/graduate research schools only (3)	3	France, Liechtenstein, Turkey
Mixed (1) and (2)	11	Andorra, Austria, Belgium-Flanders, Czech Republic, Greece, Iceland, Latvia, Poland, Romania, Russia, Slovak Republic
Mixed (2) and (3)	2	Italy, Norway
Mixed (1) and (3)	2	Belgium-Wallonia, Netherlands
Mixed (1), (2) and (3)	9	Albania, Armenia, Germany, Denmark, Finland, Scotland, Sweden, Switzerland, UK

*A doctoral, or graduate, or research school is an independent organisational unit with effective administration, strong leadership and specific funding supporting this structure.*

An analysis of trends across Europe shows two main organisational models emerging as vehicles for promoting high quality, internationally oriented and networked doctoral/research/graduate schools:

- **Graduate school** – an organisational structure that includes doctoral candidates and often also Master students. It provides administrative, development and transferable skills development support, organises admission, courses and seminars, and takes responsibility for quality assurance.
- **Doctoral/ Research school** – an organisational structure that includes only doctoral students. It may be organised around a particular discipline, research theme or a cross-disciplinary research area and/ or it is focused on creating a research group/ network and is project-driven. It may involve one institution or several institutions and organise co-operation among them.

These models are not mutually exclusive and often have shared characteristics. Countries or institutions may adopt both models within their systems and/or structures.

<sup>4</sup> Results of questionnaire sent to BFUG members in September 2006

The advantages and added value of doctoral/ graduate/ research schools may be summarised as follows:

- Define a mission or vision shared by all partners that facilitates the process of turning doctoral candidates into excellent researchers
- Provide a stimulating research environment and promote cooperation across disciplines
- Provide a clear administrative structure for doctoral programmes, candidates and supervisors, and offering a clear profile and status for doctoral candidates
- Ensure critical mass and help to overcome the isolation of young researchers
- Bring junior and senior researchers together
- Support and facilitate the task of supervising candidates and the role of supervisors
- Organise admission with transparent rules and regulations
- Provide teaching and transferable skills training
- Provide enhanced career development opportunities, including advice on funding opportunities (scholarships, projects)
- Guarantee quality assurance and monitoring
- Provide a framework allowing the development of codes of practice, procedures and mechanisms within the university structure and act as an independent arbitrator or ombudsman where necessary
- Enhance opportunities for mobility, international collaboration and inter-institutional cooperation

## **2. Access and Admissions**

In a fast-changing environment, it is essential to maintain flexibility in admissions to doctoral programmes, and full institutional autonomy: diversity of institutional missions and context, and the growing importance of lifelong learning mean that there are good reasons for different access requirements in different institutions and for different programmes provided fairness, transparency and objectivity is ensured.

The Bologna commitment that the second cycle gives access (= right to be considered for admission) to the third cycle should be maintained, but access to the third cycle should not be restricted to this route.

Higher Education Institutions need to pay greater attention to the social dimension of the third cycle. Equality of access to the third cycle is a major concern, whether inequality derives from gender, ethnicity, social or other disadvantage.

## **3. Supervision and assessment**

The question of supervision, monitoring and assessment of doctoral researchers has been a major topic of discussion for universities in the course of this project. Already an important issue in 2005, and included in the Salzburg principles, it is crucial that discussion continues, and that universities are encouraged and supported in the development and dissemination of good practices in the management of research degrees. Not only recent debates but also the publication of several national evaluation reports shows that there is a great need to develop new supervision practices in doctoral training.

Arrangements need to be developed based upon a transparent contractual framework of shared responsibilities between doctoral candidates, supervisors and the institution, and, where appropriate other partners as mentioned in the Salzburg Principles. Attention should be paid in particular to ensuring: multiple supervision arrangements, the

continuous professional skills development of academic staff, and performance reviews of supervisors. Multiple supervision arrangements should be encouraged also at international level through tutoring and co-tutoring by supervisors from academic and research institutions in different European countries.

The importance of ensuring good supervision needs to be properly recognised as a task of staff supervising doctoral candidates, should be included in their workload and task descriptions, and thus also taken into consideration in academic career structures and decisions on promotion. Some universities report that it is useful to develop workload models to ensure that a supervisor dedicates enough time in support of each doctoral candidate.

As doctoral programmes change in response to changes in the labour market, thus also the role of the supervisor. This has led to a growing awareness of the importance of ensuring professional skills development for supervisors. This discussion is, however, in its early stages and has not yet begun in many European countries. The UK successfully introduced professional skills development of supervisors in 2004 on the basis of a Code of Practice developed specifically for research programmes by the UK Quality Assurance Agency<sup>5</sup>. Such training is usually organised in an informal way, as one-day-out meetings, based on case studies, discussions, sharing of good practices and experience. Innovative ways of motivating supervisors to introduce effective and high quality practices of supervision also include practices such as annual awards/incentives for the best supervisors.

The final stage of the doctorate, i.e. the assessment of the thesis, is crucial, and assessment procedures should be based on objective and transparent criteria. Due recognition should be given to the original research contribution made by the doctoral candidate. Assessment should be done by an expert university committee with external representation, preferably chosen at international level. The impact of the supervisor on the outcome of the process should be limited. This does not preclude participation of the supervisor in the examining body, especially when this is a large body, or when the thesis defence is public. Models of organisation of the assessment of the thesis and the composition of the committee differ significantly from country to country and further discussion at European level is needed.

#### **4. Transferable skills development**

Transferable skills development should be an integral part of first, second and third cycle programmes. The main goal at the level of the third cycle should be to raise awareness among doctoral candidates of the importance of both recognising and enhancing the skills that they develop and acquire through research, as a means of improving their employment prospects both in academia and on the wider labour market.

Courses should be offered in the context of whatever overarching institutional support structures are in place at doctoral level. Training can be organised in different ways ranging from traditional courses and lectures to more student-centered methods, especially through learning by doing at institutional, inter-institutional and international summer schools or through specialised institutional or inter-institutional support and personal development centres, as offered in the UK by the UK GRAD programmes and the UK Council on Graduate Education. An important element of transferable skills development is bringing together doctoral candidates from different disciplines and

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<sup>5</sup> The Quality Assurance Agency for Higher Education, Code of practice for the assurance of academic quality and standards in higher education, Section 1: Postgraduate research programmes, UK 2004

different levels (1-3 year) to encourage interdisciplinary dialogue and foster creative thinking and innovation.

Ensuring that adequate funding is devoted to transferable skills development is crucial. It is likewise important to ensure that reference to transferable skills development is embedded in institutional quality assessment procedures. Academic staff involved in skills development should include both academics that are active in research and understand the need to teach other skills, and external consultants (e.g. industry, companies). Teaching transferable skills should be recognised in evaluation and promotion of academic staff involved.

## **5. Duration**

Full time doctoral programmes are usually of 3 – 4 years' duration. Part time studies take longer. In most countries time to degree (TTD) tends to be longer than the average duration of funding for doctoral candidates and programmes. This is an important issue in relation to the funding of doctoral programmes. It will become increasingly important for universities to monitor carefully the development of time to degree for doctoral candidates. Experience in North America suggests that this can be done most successfully within the graduate or research school structure.

## **6. Researcher careers**

Universities, together with public authorities in Europe, share a collective responsibility for promoting attractive research careers and career perspectives for doctoral and post-doctoral researchers (cf also Section....). This should be done in collaboration with partners outside academia in order to facilitate the development of clear career paths inside and outside academia, and between academia and other sectors of employment. It is also the responsibility of universities to create attractive conditions for research, taking account of the European Researchers' Charter & the Code of Conduct for the Recruitment of Researchers.

## **7. Including doctoral programmes in institutional strategies for enhancing internationalisation**

Doctoral programmes are a key component of the discussion on European higher education in a global context, while at institutional level, attracting the best doctoral candidates from all over the world, encouraging mobility within doctoral programmes and supporting European and international joint doctoral programmes and co-tutelle arrangements, are central to the development of any international strategy. Universities are encouraged to enhance their efforts to support mobility at doctoral level within the framework of inter-institutional collaboration as an element of their broader international strategy. International mobility, including transsectoral and transdisciplinary mobility should be recognised as having an added value for the career development of early stage researchers.

For some institutions and indeed, some smaller countries, mobility may also be a means of training their own young researchers in disciplines and transdisciplinary research areas where a critical mass of doctoral candidates, or capacities or infrastructure does not exist or is not available at home.

Higher education institutions, and public authorities at national and European level, should offer funding instruments facilitating the mobility of doctoral candidates from all 45 Bologna countries, and with the objective of increasing mobility. Legal, administrative

and social obstacles, for example concerning visas, work permits and social security issues should be addressed by all partners in the process.

Finally increasing internationalisation inside universities, especially at doctoral level is also important, and should not be forgotten. Doctoral training is *per se* international in nature and sufficient opportunities should be provided for doctoral candidates to engage internationally. This can be done, for example, through the recruitment of more international staff; the organisation of international workshops, conferences and summer schools; the development of more European and international joint doctoral programmes and co-tutelle arrangements. The use of new technologies, such as using teleconferences, e-learning etc. should also be used to foster the internationalisation of doctoral programmes.

## **V. New Developments in doctoral programmes**

A range of innovative doctorate programmes are emerging to respond to the changing demands of a fast-evolving labour market. Employability of doctoral candidates within and outside academic institutions, as well as individual and societal needs for lifelong education and training, have acted as a catalyst to the development of new programmes, including professional doctorates, more university - industrial collaboration based doctorates and increased European and international cooperation, often leading to joint or European doctorates. Diversity of doctoral programmes and doctorates reflects the increasingly diversity of the European Higher Education landscape in which higher education institutions have the autonomy to develop their own missions and profiles and thus their own priorities in terms of programmes and research priorities.

Nevertheless, all the discussion on different new developments has led to the consensus that there should be no doctorate without original research and that all awards described as doctorates (no matter what their type or form) should be based on a core of processes and outcomes. Original research has to remain the main component of all doctorates.

Core processes and outcomes should include the completion of an individual thesis (based upon an original contribution to knowledge or original application of knowledge) that passes evaluation by an expert university committee with an external representation.

### **1. Professional Doctorates**

Programmes known as "Professional doctorates", or practice related doctorates, are doctorates that focus on embedding research in a reflective manner into another professional practice. They must meet the same core standards as "traditional" doctorates in order to ensure the same high level of quality. It may be appropriate to consider using different titles to distinguish between this type of professional doctorates and PhDs.

In order to develop a broad discussion on this topic it will be important to ensure the dissemination of information from those European countries that have experience in this area, and particularly the UK, where the number of professional doctorates is growing rapidly across the European higher education sector.

## **2. Inter-sectoral collaboration and mobility**

Universities are increasingly involved in cooperation at doctoral level with other sectors such as industry, business, independent research organisations or public services. Inter-sectoral mobility and in particular doctorates earned through intensive university – industry collaboration and the placement of doctoral candidates in industrial and other laboratories enhances university industry cooperation and adds value to the individual researchers concerned, enhancing their experience, skills and employment prospects. Building strong links between universities with other sectors thus ultimately supports efforts to strengthen the transmission of knowledge as a determining factor in innovation.

## **VI. Status and career development of doctoral candidates and other early stage researchers**

Ensuring career opportunities for early stage researchers is not the responsibility of higher education institutions alone but needs to be regarded a collective effort if Europe is to meet its goals. In reaching these goals a particular emphasis is put on increasing the number of researchers as highly skilled young researchers make a significant contribution to the production of knowledge and innovation. Ensuring appropriate working conditions, rights and career prospects for young researchers, both in academia and in a range of other sectors is thus of the utmost importance and one of the crucial preconditions for success. This has been underlined in particular in the European Commission’s Charter for Researchers and Code of Conduct for the Recruitment of Researchers (2005) that stresses the importance of sustainability and continuity of career development for researchers at all stages of their career including early stage researchers (doctoral candidates and post-doctoral researchers).

### **1. Status of doctoral candidates**

Doctoral candidates are early stage researchers who are vital to Europe’s development and, as stated in the Salzburg principles, should have all commensurate rights. Universities and public authorities in Europe share a collective responsibility to address the status and conditions of doctoral researchers.

The results of the EUA survey among the Bologna Process member countries focusing on funding of doctoral candidates and programmes indicates that, out of 36 participating countries, in 22 countries the status of a doctoral candidate is mixed, which means that doctoral candidates are considered both as students and employees (Table 2). In 8 countries doctoral candidates are seen only as students and in 3 countries only as employees. Whatever the status of a doctoral candidate is, it is crucial that s/he is given all commensurate rights including healthcare, social security and pension rights.

Table 2. Status of doctoral candidates

Status	Number of countries	Countries
Students only	8	Czech Republic, Estonia, Georgia, Iceland, Italy, Latvia, Russia, Scotland, UK
Employees	3	Bosnia-Herzegovina, Denmark, Netherlands
Mixed	22	Albania, Andorra, Armenia, Austria, Belgium-Flanders, Belgium-Wallonia, Croatia, Cyprus, Finland, France, Germany, Greece, Liechtenstein, Lithuania, Malta, Norway, Poland, Romania, Slovak Republic, Spain, Sweden, Switzerland, Turkey

## 2. Post-doctoral researchers

Appropriate status and working conditions should be also recognised as essential for post doctoral researchers for whom clear academic structures and a variety of career perspectives are also needed. Post-doctoral researchers must be recognised as highly skilled professionals with a key role in developing the European knowledge society, as underlined in the EC Charter and Code of Conduct for the Recruitment of Researchers. This implies that:

- The duration of the post doctoral phase without a clear career perspective should be limited to five years;
- They should be eligible to apply for national and international grant schemes to fund their research;
- Initiatives like the Independent Researcher grant scheme of the ERC should be encouraged;
- If the number of researchers is to rise and be covered by appropriate salaries, governments should invest more into research and social infrastructure for researchers in order to make the European Research Area more attractive.

## VII. Funding<sup>6</sup>

Ensuring appropriate and sustainable funding of doctoral programmes and doctoral candidates as well as greater and targeted investment in higher education institutions and their infrastructure is the 10<sup>th</sup> and final Salzburg principle, and quite simply needs to be implemented, given the crucial role of doctoral education and training as the key formative stage of a research career in both academia and non-academic sectors of employment and that because the attractiveness of a future career in research is determined largely at the doctoral stage; hence the importance of ensuring status and financial support of the doctoral candidate, and of offering adequate incentives.

<sup>6</sup> This section is based upon the analysis of the questionnaires received from the Ministries of education/ science in 36 Bologna Process member countries in September 2006

On the basis of the analysis of the questionnaires received from the BFUG member countries it is clear that scholarships/ fellowships/ grants are the main mode of funding doctoral candidates, although in about half of the countries, salaries or teaching assistantships are also offered, in the Slovak Republic only salaries. In most cases, a mix of modes is used to fund doctoral candidates (Table 3). When grants are made to doctoral programmes, more often these are given to research projects (26) rather than to higher education institutions (16) (Table 4), but here again, the majority of countries use a mixture of funding modes.

Table 3. Modes of fund allocation for doctoral candidates

Allocation mode	Number of countries	Countries
Salaries only (1)	1	Slovak Republic
Scholarship/fellowship/grants (2)	8	Bosnia-Herzegovina, Czech Republic, Georgia, Lithuania, Poland, Russia, Scotland, UK
Teaching assistantships (3)	0	
Mixed (1) and (2)	5	Austria, Croatia, Denmark, Finland, Sweden
Mixed (1) and (3)	1	Montenegro
Mixed (2) and (3)	6	Albania, Andorra, Armenia, Latvia, Romania, Spain
Mixed (1), (2) and (3)	11	Belgium-Flanders, Cyprus, Estonia, France, Germany, Greece, Iceland, Liechtenstein, Malta, Switzerland, Turkey

Table 4. Modes of fund allocation for doctoral programmes

Allocation mode	Number of countries	countries
Grants for research projects	11	Albania, Belgium-Flanders, Croatia, Estonia, Finland, Malta, Montenegro, Romania, Russia, Spain, Turkey
Grants to institutions/academic units	4	France, Georgia, Liechtenstein, Scotland
Both	16	Andorra, Armenia, Austria, Czech Republic, Denmark, Germany, Greece, Iceland, Italy, Latvia, Lithuania, Poland, Slovak Republic, Sweden, Switzerland, UK

Tables 3 and 4 show the different funding allocation models for individuals and programmes. There are considerable differences from country to country in the proportion of overall resources being allocated to candidates and programmes/schools. Estonia, for example, gives one third to candidates and two thirds to programmes while in France 30% is paid as individual allocations, whereas 70% goes in bulk funding to

institutions or doctoral schools. Latvia cites 43.33% for individual support and 54.67% to programmes in 2005. Romania gives 40% to individuals and 60% to programmes. In Italy, funding is not given to individual doctoral candidates, but exclusively to doctoral programmes. The trend therefore appears to be that more support is given to programmes/schools than to individuals. However, a contrary trend is indicated by Germany where 85% of funding goes to candidates and 15% to programmes. It may be that the share is linked to the degree of centralisation of higher education and research in a given country.

Table 5 refers to the overall funding mechanisms used by governments. Two thirds of the respondent countries allocate funds as lump sum payment from the government. Competitive grants are used in half of the countries. But in one third of the countries, the mechanism is mixed. National or private foundations or other entities, as well as the European Science Foundation (ESF) mentioned by some countries, provide additional funding sources. Some of the countries that have doctoral/graduate/research schools have specific funds for them, for example the 'Deutsche Forschungsgemeinschaft' in Germany. France has a dedicated budget line for funding doctoral schools while in the UK, Research Council funds allocated to post graduate education can be allocated for this purpose. In Switzerland an inter-institutional agency, and the Swiss National Science Foundation, provide funds for the introduction of structured doctoral programmes.

Table 5. Funding mechanisms

Funding mechanism	Number of countries	Countries
Lump sum from government	11	Bosnia-Herzegovina, Croatia, Cyprus, Greece, Latvia, Montenegro, Norway, Poland, Russia, Scotland, Slovak Republic
Competitive grants	6	Albania, Andorra, Armenia, Finland, Malta, Turkey
Mixed	12	Austria, Czech Republic, Denmark, Estonia, Germany, Iceland, Italy, Lithuania, Romania, Spain, Sweden, UK
Special funds for doctoral programmes/schools	10	Andorra, Estonia, France, Germany, Netherlands, Norway, Romania, Scotland, Switzerland, UK

As for foreign sources of funding, many countries cited the EC Framework Programme and specific European schemes including Marie Curie Research Training Scheme, but also Erasmus Mundus and TEMPUS. Nordic countries cite regional programmes such as the NordForsk. Smaller countries cite ESF or larger countries' programmes such as Fulbright, DAAD and British Council programmes as support mechanisms.

Thus there is great diversity in the funding channels, mechanisms and modes. A number of different types of organizations provide funding in many countries. As we move towards the knowledge society, it may be expected that this diversity is likely to increase,

as more types of organisations may want to fund doctoral education. As with organizational types, diversity in funding sources, channels, mechanisms and modes is not a bad thing. As this is probably an irreversible trend, co-ordination among the diverse modes to bring about optimum mode of funding for the candidate, quality control in doctoral education and training will become an increasingly important, but complex issue.

On the basis of the analysis of the EUA survey among the Bologna Process member countries it is recommended that:

- Funding for doctoral candidates should be stable, covering the full period of the doctoral programme, and provide sufficient means to live and work in decent conditions.
- Funding should be sufficiently attractive to encourage suitably-qualified candidates from lower income groups, as well as sufficiently flexible to support the needs of part time students over a longer period of study.
- More information on funding mechanisms and funding levels of doctoral candidates and doctoral programmes/ schools is needed in order to create a vision of doctoral education within a European Higher Education Area that is attractive and competitive on a global scale.
- There is an urgent need for greater consultation and coordination at the regional, national and European levels between government ministries, research councils and other funding agencies on doctoral education funding and career development.

Brussels, 20 January 2007

Annex 1  
**Salzburg Principles**

Annex 2  
**Terms of Reference**

Annex 3  
**List of Project Events and other activities**

- Two thematic workshops (cluster 1 and cluster 2) were organised in Brussels for a wide academic audience. The main aim was to share good practices and to further discuss the Salzburg principles in order to improve understanding of issues related to development of doctoral programmes in Europe.
- Workshop related to Cluster 3 on “Doctoral candidates as young professionals: funding and supporting mechanisms” was organised during the EUA/Austrian Presidency/DG Research Conference in Vienna, 1-2 June 2006
- Questionnaire was sent to the BFUG governmental representatives on the funding of doctoral programmes & candidates.
- A Bologna Seminar “Doctoral programmes in Europe” was organised in Nice, France, on 7 – 9 December 2007 with the support of the French Ministry of Education. 400 participants attended the Seminar. The conclusions and recommendation have provided major input to this report.
- A workshop „Graduate Schools in Europe: How can they enhance university research?” was organised at the Imperial College in London on 11-12 November 2005 as a part of leadership seminars organised by the EUA.