

**DOCTORAL STUDIES AT
“LUCIAN BLAGA” UNIVERSITY OF SIBIU**

**CURRENT STATUS ASSESSMENT AND
DEVELOPMENT PROSPECTS**

January 2013

CONTENTS

CONTENTS.....	1
Abbreviations.....	2
1. National and institutional context regarding the organization and procedure of doctoral studies...	3
1.1. National context	3
1.2. Doctoral school at LBUS	6
1.2.1. Historical overview and quantitative information	6
1.2.2. Internal regulations for doctoral studies	13
1.2.3. Budget of doctoral school	15
1.2.4. Doctoral study program and research output / publications	16
2. Strategies for promoting doctoral studies and recruiting doctoral candidates.....	17
3. Further development trends and highlights of the role and remit of the doctoral school in the context of the LBUS 2020 strategy.....	19
References:.....	21

Abbreviations

LBUS – “Lucian Blaga” University of Sibiu

CNATDCU – National Council for the Attestation of Academic Titles, Diplomas and Certificates

CNCSIS – National Council for Research in Higher Education

POSDRU – Sectorial Operational Program – Human Resource Development

1. National and institutional context regarding the organization and procedure of doctoral studies

1.1. National context

The report on *Doctoral Studies in Romania – Organization of the Doctoral Schools in Romania – A Status Diagnosis and Prospects for a Possible Future* [2] performs an objective analysis of the procedure for doctoral studies in Romania for the recent years, hence it is relevant to render some passages from this report, in view of a better understanding of the national context.

The title of doctor of sciences (henceforth called doctorate) represents the highest academic degree in any field that may be awarded to a student who successfully graduated from a bachelor or master study program and subsequently enrolled in a doctoral study and research program affiliated to an accredited university, passed all required doctoral examinations and, ultimately, defended a doctoral thesis whose original ideas represent value-added knowledge in a specialized discipline recognized as such in the academic division of knowledge. Alternatively, the doctoral thesis may have proposed a technological innovation enjoying recognition on the manufacturing market or representing an artistic product of high creativity.

As a rule, in Romania, a scholar would first become a researcher or member of the academic staff and subsequently the individual enrolled in the doctoral study program. The opposite situation was rather the exception. Consequently, doctoral studies and employment almost overlapped entailing a double personal [and professional?] status – part time doctoral candidate and full time researcher. The goal of the doctoral student was one of recognition and consolidation of the current professional position, and a subsequent requirement for professional promotion. This practice generated a triple effect:

- doctoral studies did not benefit from specially assigned funding, since it included employees under the supervision of professors from the same academic institution
- doctoral studies were officially part time
- the status of the doctoral candidate was formally and primarily of academic staff or researcher (most often, junior researchers).

The doctoral candidate had to successfully meet to requirements of the professional position and, equally, the high standards of doctoral studies; whereas the doctoral supervisor enjoyed the privilege of including the activity of doctoral supervision in the teaching load (not always the case, though). Thus, in the early stages doctoral studies were subject to a multitude of requirements, administrative ones as well, and were awarded rather limited autonomy in developing doctoral research. Nevertheless, doctoral degree represented a prerequisite for the existence and/or promotion in the professional system.

After 1995, significant changes occurred. Mention should be made, first, of the system of core funding of academic studies, including doctorate as well as tuition-fee regime in public universities, entailing twofold consequences. On one hand, some universities received funding for a limited number of doctoral candidates who neither paid any tuition fee nor got any doctoral grant, and therefore had to live on a meager salary, in their capacity as instructors or teaching / research assistants. Doctoral candidates could enroll for full time or part time doctoral study programs. On the other hand, the tuition fee part time doctoral study program was also introduced.

Consequently, doctoral candidates from all walks of life and diverse professional positions enrolled for doctoral studies. The status of doctoral candidates has diversified considerably, including the following:

- full time state funded doctoral candidate, who was employed in a higher education institution and received a salary from the research budget;
- part time tuition fee paying doctoral candidate, who was employed in a non-academic position;
- part time doctoral candidate, employed as an academic instructor or junior researcher.

The most numerous category included part time doctoral candidates who were not involved in proper doctoral study programs, since they mostly performed research on their own and, occasionally, under the guidance of the doctoral supervisor.

The status of the doctoral candidates was rather disrupted given the double workload: both doctoral student (during extra-professional activities) and full time employee. Consequently, a drop-out rate emerged in doctoral candidates thus entailing a wide gap between the huge number of enrolled doctoral candidates and the low number of doctorate holders. Likewise, the average duration of doctoral studies is approx. 7-8 years, which also generated an uncommon bureaucratic situation, i.e. unexpected and precipitous cancelling or delaying completion of individual doctoral programs. Furthermore, part time doctoral studies were also subject to another peculiar and equally controversial phenomenon: some of the most “popular” doctoral advisors “managed” to supervise simultaneously over 50 doctoral candidates (or even, at times, 75 doctoral candidates in completion of their doctoral program) thus exceeding the legal limitation of maximum 15 doctoral candidates.

As of 2008, the European Social Fund enabled the opportunity to provide doctoral grants as an additional component to the existing system, thus the full time doctoral student is awarded a scholarship as well as a well-established and distinct status, however lacking a clearly defined social status. It is the dim prospect of having access to an academic career in a higher education institution or research institute that motivates doctoral candidates in pursuing the program.

The academic status of doctoral candidates is associated with a plethora of questions: Is the doctoral candidate a student or junior researcher? Does he/she receive a scholarship or a salary? Where is he/she going to be employed? What is the further evolution of the professional career for

current full time doctoral candidate? For the time being, such questions have not found a clear cut institutional answer.

In all the aforementioned situations, the status of the doctoral candidate – either full time or part time, tuition fee paying or state funded, employed in higher education institutions and research institutes or the beneficiary of a doctoral scholarship – is a rather inconsistent one. The status of the doctoral candidates relies on: simultaneously performing diverging social roles; the role of doctoral candidate is subordinated to other social roles, most often evincing no connection to the doctoral training, lack of social recognition for the status of doctoral candidate as well as considering it as a student involved in a maturing process. Such a perspective is contrary to present day European trends.

Let us highlight four important stages in the process of organizing the higher education system, including doctoral studies.

The year 1995: (As of the year 1995) the Education Law no.84/1995 included doctoral studies in the postgraduate study cycle thus making it an integral part of universities. According to an amendment to the Education Law (1999), higher education institutions and research institutes, including the ones under the authority of the Romanian Academy, are bound to cooperate for the training of a doctoral candidate. Hence, the doctoral diploma had to be issued by a university.

The year 1999: It represents a landmark year especially considering the changes to the funding system. As of 1999, once the core funding system was implemented in universities – including the new calculus algorithm based on formulas – the financing methods for the teaching activities in the doctoral program have changed. Doctoral studies have been assigned “1” equivalence coefficient calculated in keeping with the number of teaching hours performed by the doctoral advisor in view of the doctoral supervision of a doctoral candidate as well as a cost coefficient, calculated on the basis of current expenses and auxiliary teaching / research materials for a proper development of doctoral studies.

The year 2005: In the early stages, before and after 1990, the doctorate used to be regarded exclusively as a form of postgraduate studies part of a higher education institution or research institute entitled to organize doctoral studies. As of the academic year 2005/2006, the transition to the three-tiered academic structure, stipulated by the Bologna process, the doctorate represents the third cycled of academic studies. Furthermore, the Government Decision no. 567/2005, regarding the organization and procedure of doctoral studies, was issued the same year.

The year 2011 coincides with the publication of the new Romanian Education Law and subsequently the Code of Doctoral Studies, mostly accomplished in the framework of a doctoral study project undertaken in Romania <http://www.studii-doctorale.ro/> which radically changes the traditional organization of doctoral studies in an attempt of alignment with the European system. Nowadays, doctoral studies may only be pursued full time and a doctoral advisor must not exceed the limit of 8

doctoral candidates under his/her supervision. Unfortunately, most stipulations cannot be applied although beneficial (such as the setting up of doctoral schools imposing very high standards to be met by the council members of the doctoral school, which makes it downright impossible to set up such structures). On the other hand, the implementation of the assessment methodology for doctoral schools has been delayed, despite its publication in 2012. It is imperative to set more demanding standards regarding doctoral theses, given the fact that there are not clear-cut requirements for awarding the doctoral degree whereas the final decision is made by the CNATDCU committee (acknowledging that Romania is one of the few countries still resorting to such a practice).

The delay in transferring the authority for the validation of doctoral degrees to universities unfortunately maintains the same “rudimentary” quality system focused on the product (i.e. doctoral thesis) rather than the processes contributing to the “product” accomplishment. This decision is justified by the delay in the implantation of the mechanism for doctoral schools evaluation and authorization.

1.2. Doctoral school at LBUS

1.2.1. Historical overview and quantitative information

As of 1990, LBUS has enrolled the first series of doctoral candidates in the fields of: material technology, industrial engineering (specializations: machine components and mechanisms, machine tools), mathematical analysis, philology (specializations: English language and literature). In the following years, 1992-1993, the LBUS educational offer in the field of doctoral studies has expanded and added new fields of competence: theology and history, later on including economics and management, whereas the area of philology included Romanian language and literature as well as German language and literature. At present, LBUS organizes doctoral study programs in 14 areas: computer science and information technology; cybernetics and economic informatics; law; economics; philology; finance; material engineering; industrial engineering; engineering and management; history; management; medicine; theology, under the supervision of 68 doctoral advisors.

Table 1 and Figure 1 show the evolution of the number of doctoral candidates and supervisors throughout 2005-2012. Nevertheless, as of 2012 the number of enrolled doctoral candidates has recorded a falling rate mainly triggered by: the stipulations of the Education Law no 1/2011 concerning the maximum number of doctoral candidates in training (max. 8); the age limit for retirement (65); as well as the effects of the evaluation exercise setting certain limits for subsidized openings (reflected in table 2). In 2012, the distribution of the total number of student places overlooked hierarchies, so that universities could enjoy full autonomy in deciding upon the number of places (doctoral grants and tuition fee places).

Table 1. Evolution of the number of doctoral candidates and supervisors between 2005–2012

Enrolment year	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009 / 2010	2010 / 2011	2011 / 2012	2012 / 2013
Total number of doctoral candidates, of which	210	122	163	133	138	147	65	73
Tuition fee	117	78	134	52	68	70	37	37
Grant	10	4	11	76	64	70	20	35
Full time, no scholarship	81	37	12	5	6	5	-	-
Tuition fee paying foreign doctoral candidates	2	2	6	-	-	-	4	1
No tuition fee paying foreign doctoral candidates (scholarships, EMMA, etc.)	-	1	-	-	-	-	4	-
Doctoral supervisors	54	67	67	68	71	77	76	68

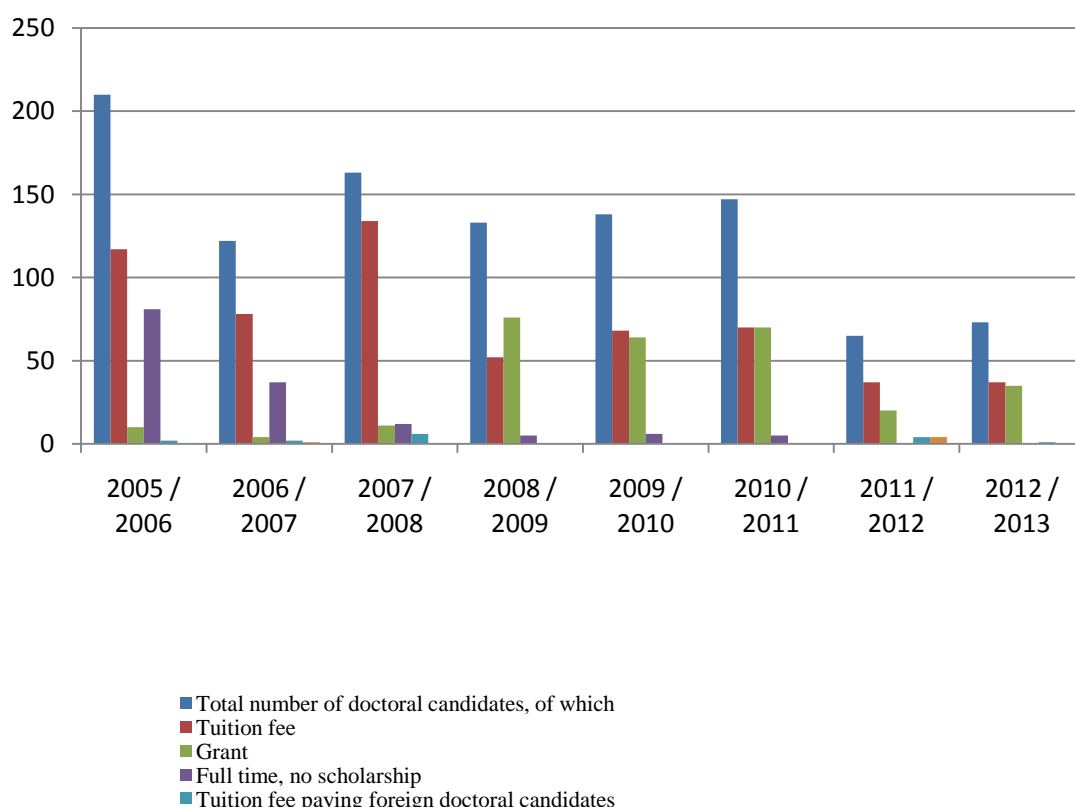


Figure 1. Evolution of the number of doctoral candidates and supervisors between 2005–2012

Table 2 shows the evolution of the number of doctoral candidates (D) enrolled at LBUS and doctoral supervisors (C) distributed according to accredited fields of study, for each academic year between 2005–2012.

Mention should be made that no student was enrolled in 2012 for certain areas (Law, Computer Science and Information Technology, Material Engineering), subsequent to the retirement of the doctoral supervisors.

Table 2 - The evolution of the number of doctoral candidates (D) enrolled at LBUS and doctoral supervisors (C) distributed according to accredited fields of study, for each academic year between 2005–2012

Enrolment year / Field of study	2005 / 2006		2006 / 2007		2007 / 2008		2008 / 2009		2009 / 2010		2010 / 2011		2011 / 2012		2012 / 2013	
	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C
Computer science and information technology	1	1	1	1	-	1	2	1	5	2	6	2	-	2	-	1
Cybernetics and economic statistics	7	1	-	1	4	1	-	-	-	-	-	-	-	-	-	-
Law	13	3	10	3	9	3	11	3	8	3	11	3	8	3	-	3
Economics	9	2	3	2	10	2	3	3	9	3	15	4	6	4	3	4
Philology	28	5	4	7	16	7	16	9	17	9	20	9	5	9	4	7
Finance	12	2	5	3	11	3	6	3	6	3	6	4	3	4	4	4
Material engineering	3	2	10	2	6	2	4	2	2	2	-	2	-	2	-	2
Industrial engineering	14	8	12	11	14	11	12	8	19	8	15	8	2	8	3	7
Mechanical engineering	4	1	2	2	1	2	4	2	7	2	2	2	-	2	2	2
Engineering and management	-	-	-	-	-	-	8	3	8	4	10	6	4	6	11	6
History	14	5	10	7	22	7	14	6	12	7	12	7	-	7	4	6
Management	31	5	9	5	15	5	11	5	14	5	12	6	13	6	7	6
Medicine	46	11	40	14	33	14	22	14	18	13	22	13	9	12	15	11
Theology	28	9	16	9	22	9	20	9	13	10	16	11	15	11	20	9
Total	210	54	122	67	163	67	133	68	138	71	147	77	65	76	73	68

As regards the 73 doctoral candidates enrolled in the academic year 2012/2013, 44 graduated from LBUS and the other 29 graduated from other higher education institutions, four of which are foreign universities (figure 2).

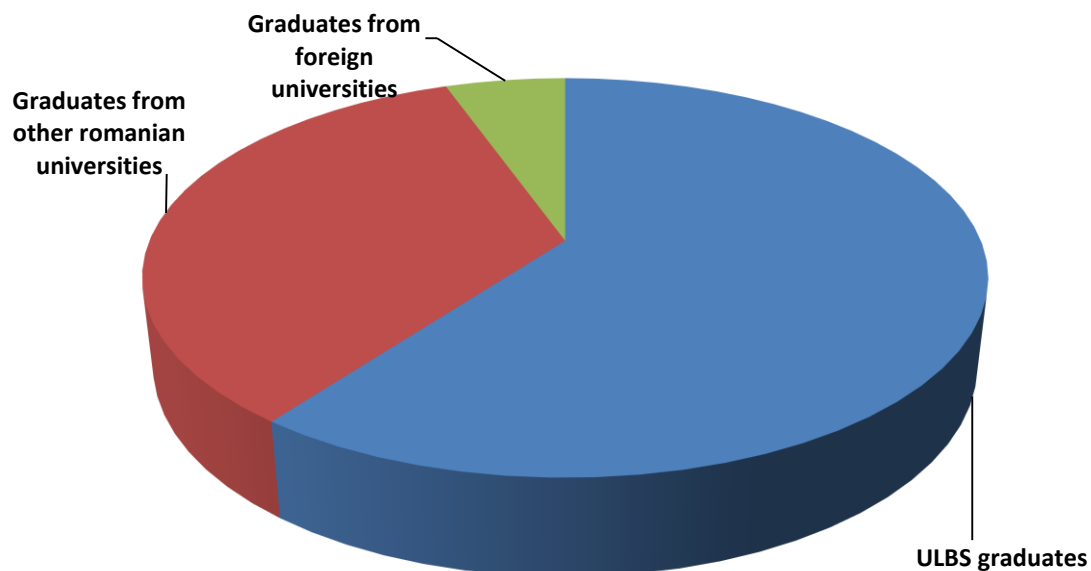


Figure 2 Distribution of doctoral candidates enrolled in 2012 according to graduated university

As regards doctoral supervisors, certain fields of study are well represented (such as: Engineering and Management, Theology and Medicine), whereas other fields (such as Law, Computer Science, Information Technology and Material Engineering) are underrepresented as a consequence of the retirement of some doctoral advisors as well as the gridlock in academic promotion for the past few years. At LBUS, almost half of the doctoral advisors have reached retirement age (65) which means that they are entitled to co-supervise doctoral students (abiding by the Education Law no 1/2011). Here is a brief overview of the distribution of doctoral advisors according to age groups (figure 3).

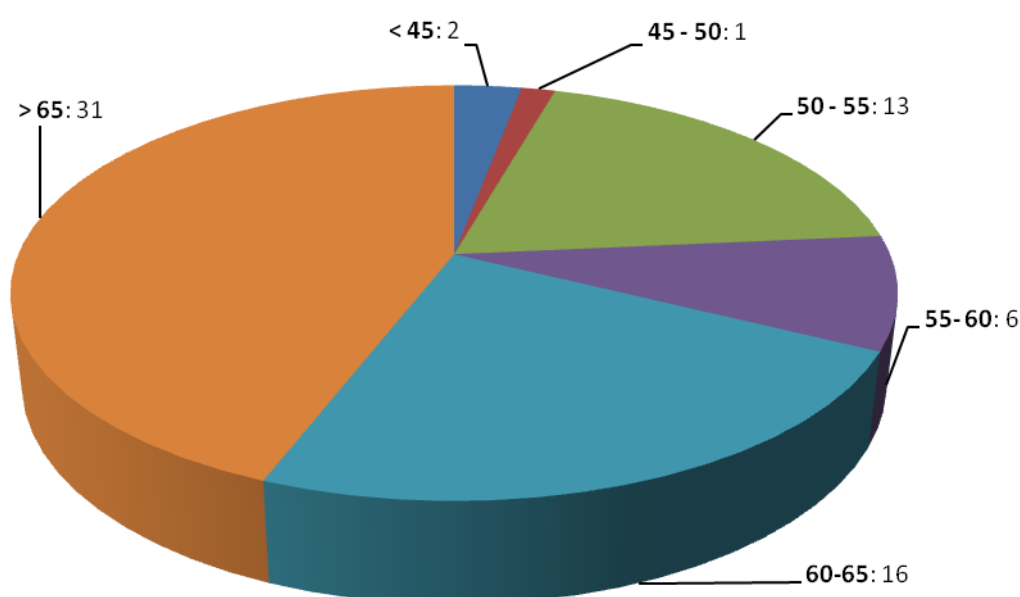


Figure 3 Number of doctoral supervisors according to age groups

It is also worth having a look at the evolution of doctoral candidates and duration of doctoral studies (represented in table 3). Almost half of the doctoral candidates (109) succeeded to obtain their doctoral degree, of the total number enrolled in 2005 (210). The other cohort of students should defend their doctoral thesis by October 2013 at the latest, or they shall be expelled from the doctoral program. There is a similar situation in 2006 and a slightly better one in 2007. One can notice an improvement of the results of the doctoral program since 2008, once the first cohort of POSDRU doctoral candidates have enrolled at LBUS, given the more restrictive funding stipulations and duration of the doctoral program. 133 doctoral candidates were enrolled in 2008, of which 71 – most of them benefiting from a POSDRU scholarship – obtained their doctoral degree. We estimate a similar rate for the doctoral candidates enrolled in 2009.

Table 3. Duration of doctoral studies

Doctoral candidates enrolled in the academic year 2005 / 2006: 210												
Graduated in	2007		2008		2009		2010		2011		2012	
	Total of defended theses	CNAT DCU rejection / deferrals	Total of defended theses	CNAT DCU rejection / deferrals	Total of defended theses	CNAT DCU rejection / deferrals	Total of defended theses	CNAT DCU rejection / deferrals	Total of defended theses	CNAT DCU rejection / deferrals	Total of defended theses	CNAT DCU rejection / deferrals
Except for Medical Studies	1	-	20	-	32	-	20	-	15	-	1	-
Medicine	-	-	2	-	3	-	6	-	5	-	4	-
Total	109											
Doctoral candidates enrolled in the academic year 2006 / 2007: 122												
Graduated in	2008		2009		2010		2011		2012			
	Total of defended theses	CNAT DCU rejection / deferrals	Total of defended theses	CNAT DCU rejection / deferrals	Total of defended theses	CNAT DCU rejection / deferrals	Total of defended theses	CNAT DCU rejection / deferrals	Total of defended theses	CNAT DCU rejection / deferrals	Total of defended theses	CNAT DCU rejection / deferrals
Except for Medical Studies	1	-	5	-	15	-	10	-	1	-		
Medicine	-	-	1	-	9	-	7	-	8	1		
Total	58											

Doctoral candidates enrolled in the academic year 2007 / 2008: 163										
Graduated in	2009		2010		2011		2012			
	Total of defended these	CNAT DCU rejection / deferrals	Total of defended these	CNAT DCU rejection / deferrals	Total of defended these	CNAT DCU rejection / deferrals	Total of defended these	CNAT DCU rejection / deferrals		
Except for Medical Studies	2	-	30	-	19	-	16	-		
Medicine	-	-	-	-	6	-	8	-		
Total	81									
Doctoral candidates enrolled in the academic year 2008 / 2009: 133										
Graduated in	2010		2011		2012					
	Total of defended these	CNAT DCU rejection / deferrals	Total of defended these	CNAT DCU rejection / deferrals	Total of defended these	CNAT DCU rejection / deferrals				
Except for Medical Studies	-	-	40	1	27	-				
Medicine	1	-	1	-	1	-				
Total	71									
Doctoral candidates enrolled in the academic year 2009 / 2010: 138										
Graduated in	2011		2012							
	Total of defended these	CNAT DCU rejection / deferrals	Total of defended these	CNAT DCU rejection / deferrals						
Except for Medical Studies	2	1	38	-						
Medicine	-	-	-	-						
Total	40									

Further to the results consolidation, one can notice that approx. 20% of the doctoral candidates enrolled between 2005 - 2009 accomplish to complete their doctoral studies within the 3-year (4-year for Medical Studies) legal timeframe, whereas the other doctoral candidates are pending the presentation of their doctoral thesis, currently in a state of postponement, suspension or a grace period, thus extending the time limit of their doctoral program.

Table 4. Synthetic situation regarding duration of doctoral studies
(Aggregate situation, including Medical Studies with a4-year duration)

Enrolment year	2005	2006	2007	2008	2009	Total	% of the total enrolled doctoral candidates
Duration of studies (years)	Number of graduates						
2	1	1	2	1	2	7	0,92%
3	22	6	30	41	38	137	17,93%
4	35	24	25	28		112	14,66%
5	26	17	24			67	8,77%
6	20	9				29	3,80%
7	5					5	0,65%
Total number of graduates	109	57	81	70	40	357	46,72%
Total number of enrolled doctoral candidates	210	121	163	132	138	764	100%

The very low graduation rate for the planned doctoral study program (i.e. 3 and respectively 4 years), though comparable / similar to other Romanian universities, may be justified by the national context previously presented in chapter 1. Mention should also be made of a significant factor i.e.: the research master degree programs proved non-operational, although they are meant to train young researchers for further doctoral studies and research; this is precisely the fundamental reasoning of the Bologna process. Romanian bachelor graduates are very keen on finding a job immediately after graduation (most of them were employed while attending university studies) so that the master degree is a part time study program, with few exceptions. There is an increased demand for interdisciplinary master degree programs due to the flexibility of employability it provides, whereas genuine research master degree programs are virtually non-existent.

We should highlight a positive effect represented by the very low number of doctoral theses rejected by CNATDCU – only 3 theses rejected throughout this time interval.

Another positive issue is related to the international experience of the candidates. Since 2010, 107 doctoral POSDRU candidates accomplished international research stages in more than 70 universities and research centers from 13 countries (Table 5). Some of these universities are: Academia di Romania, Roma, Italy; Almos Alfons Mosel, Nittendorf, Germany; Aristotle University of Thessaloniki, Greece; Cambridge University, Great Britain; Le Centre d'Études Byzantines Néo-Helléniques et Sud-Est Européennes, Paris, France; Le Centre Aixois d'Études Romanes, Provence, France; Department of General, Visceral, Vascular and Pediatric Surgery, University of Saarland, Germany, IKGS München, Germany; Institute of Industrial Technologies and Automation, Milan, Italy; Institut für Informatik der Universität Augsburg, Germany; Institut für Oberflächen-und Dünnschichttechnik, Wismar, Germany; Institut für Umformtechnik (IFU) Stuttgart, Germany;

Institut Fur Ur-Und Fruhgeschichte Der Universitat, Austria; International Museum of Ceramics, Faenza, Italy; Hungarian Meat Research Institute, Hungary; National Center for Spinal Disorders, Budapest, Hungary; University of East England, Norwich, Great Britain; University of Alicante, Spain; Universita di Bologna, Italia; Universite Sorbonne Nouvelle - Paris 3, France; Eberhard Karls University, Tübingen, Germany; Wirtschaftsuniversitat, Wien, Austria, etc.

Table 5. Synthetic situation regarding the international mobility of doctoral candidates

Country	Number of universities and research centers	Year	Number of doctoral candidates with international research stages (min. 3 month abroad)
Austria	4	2010	32
Bulgaria	1		
Czech Republic	1		
France	9		
Germany	26		
Great Britain	8	2011	45
Greece	1		
Hungary	13		
Ireland	2		
Italy	8	2012	30
Netherlands	2		
Slovakia	1		
Spain	2		

1.2.2. Internal regulations for doctoral studies

The organization of doctoral studies at LBUS abides by the stipulations of the National Education Law no. 1/2011 and the Government Decision no. 681/2011 regarding the approval of the Code of Doctoral Studies. The Doctoral School at LBUS includes the following regulations and procedures (table 6)

Table 6. Rules and other internal regulations of the doctoral school

Rules / procedures	Date of approval
Role and remit of LBUS doctoral school, establishing medium and long-term strategy; code of ethics	Pending; work-in-progress as part of the ULBS2020 strategy
Regulations for doctoral degree programs	30.11.2011
Regulations for CSUD / Doctoral School Council	25.04.2012
Recruitment methodology for the selection of director and members of CSUD (Doctoral School Council)	25.04.2012

Rules / procedures	Date of approval
Methodology for the organization and procedure of admission examination to doctoral studies	20.06.2012
Sample contract for doctoral study programs	01.10.2012
Curriculum and syllabi for advanced theoretical training	01.10.2012
Course organization according to the new system	1 st sem., academic year 2012-2013
Doctoral school budget	01.10.2012
Doctoral school staff establishment	01.10.2012
Platform disseminating scientific results of doctoral students http://www.doctorate-posdru.ulbsibiu.ro/pages/romana/proiecte.php	As of 2010 (for POSDRU doctoral candidates) March 2013 (for all doctoral candidate enrolled since 2008)
Procedure for doctoral thesis elaboration : guidelines, assessment criteria and methodology	June 2013
Procedure for the financial assistance of doctoral candidates` scientific activity: e.g. conference participation, publications, literature acquisition, etc	March 2013
Procedure for scientific performance standards to be accomplished by members of doctoral committees	June 2013
Periodical evaluation of tenured doctoral advisors (own performance in research, scientific output of doctoral candidates under supervision, etc)	According to ARACIS methodology
Evaluation of doctoral candidates, especially regarding the capitalization of doctoral research by means of publications, conference participation, etc.	According to ARACIS methodology
Organization of doctoral study programs, identifying and implementing indicators for monitoring and evaluation	According to ARACIS methodology

Before 2012, doctoral supervisors used to be affiliated to a specific chair / department and, respectively, faculties, without being integrated in distinctive structure. The Institute for Doctoral Studies (ISUD) was set up in 2012 – in accordance with the Regulations for Doctoral Studies – coordinated by the Vice-Rector in charge of research, development, innovation and doctoral studies, whose decisions are favorably endorsed by the Advisory Board and approved by the University Senate. LBUS is currently undergoing a process of establishing and regulating the organization and operation of doctoral schools (table 7).

Table 7. Doctoral schools at ULBS

No.	Name of doctoral school	Doctoral fields
1	Theology	Theology
2	Humanities	Philology History
3	Economic Sciences	Economics

		Management Finance Cybernetics and economic statistics
4	Engineering	Engineering and management Industrial engineering Material engineering Mechanical engineering Computer science and information technology
5	Law	Law
6	Medicine	Medicine

The University is now seeking to appoint a director for the Institute of doctoral studies; meanwhile the activity is coordinated by the Vice-rector for scientific research, development, innovation and doctoral studies.

1.2.3. Budget of doctoral school

Since the academic year 2012 – 2013 we have created a distinctive budget of the Doctoral School. The funds have various sources: assigned by the Ministry of Education, Erasmus Mundus projects, tuition fees, enrolment and administrative fees; for the academic year 2012 – 2013 they amount up to 3,241,358 RON. This budget is distributed into the following chapters (figure 4):

- doctoral scholarships
- payment for doctoral supervisors and advisory board
- funds assigned for the advanced theoretical training program
- funds assigned for research (expenses incurred by conference participation, access to scientific publications, reagents, etc.)
- funds assigned for the additional training program (including expenses incurred by organizing workshops, conferences, inviting guest speakers, etc.)
- Overhead

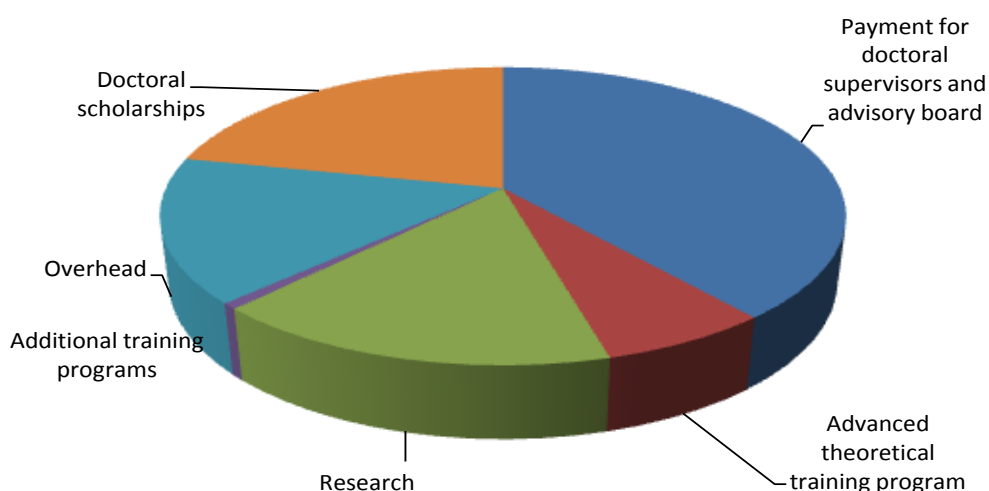


Figure. 4 Distribution of the doctoral school budget into chapters

1.2.4. Doctoral study program and research output / publications

In keeping with the National Education Law no. 1/2011, doctoral candidates have to undergo an advanced training program (as a rule, comprising three disciplines and take an exam afterwards) followed by a research program requiring to prepare and submit three reports. Doctoral candidates are under the guidance of the doctoral supervisor as well as a doctoral advisory committee who endorse both the research activity throughout the doctoral training program and the doctoral thesis submitted for public defence. The doctoral thesis shall be publicly defended in front of a committee comprising: a president (commonly the faculty dean), the doctoral supervisor and minimum three experts – provided that two of them are affiliated to other higher education institutions. Doctoral theses supervised by this committee are scheduled for public defence and they are subsequently submitted to CNATDCU. Although a significant criterion in the endorsement of doctoral theses, there was a lack of clearly defined minimal as well as progressive standards, correlated with the distinctions and assessment of the scientific activity undertaken by doctoral candidates. Therefore, CNATDCU introduced such criteria in 2011 <http://www.cnatdcu.ro/criterii/teze-de-doctorat/> intended to be applied only to the cohort of doctoral candidates enrolled as of the academic year 2012-2013. These criteria are subject to change before their application, so that CNATDCU is currently working on a new set of criteria in view of the assessment of doctoral candidates` scientific activity. LBUS has launched a pilot informatics platform for the cohort of doctoral candidates enrolled in POSDRU projects (**210 doctoral candidates**) between 2008 – 2010 in view of reporting research results as well as accomplishing an interface for communication with doctoral candidates <http://www.doctorate-posdru.ulbsibiu.ro/pages/romana/proiecte.php> (table 8).

Table 8. The scientific production of doctoral POSDRU candidates (**210** doctoral candidates), enrolled between 2008- 2010

No.	Item	No
1.	Scientific articles published in ISI indexed journals / conference proceedings	34
2.	Scientific articles published in BDI indexed journals (except ISI)	186
3.	Scientific articles published in conference proceedings	377
4.	Scientific articles published in CNCSis indexed national journals	113
5.	Artistic products	11
6.	Books issued at CNCSIS indexed publishers	40
7.	Patents	4
8.	Prizes, awards	29

These are quite satisfactory results for the doctoral candidates, since no doctoral thesis was subject to invalidation by CNATDCU, on the basis of insufficient scientific publications. We are currently expanding the platform in view of including all doctoral candidates enrolled in 2008 and

upload additional data. Mention should also be made of the annual system of awarding the best performing young researchers for their scientific activity, as well as encouraging doctoral candidates to scientific articles in ISI-indexed journals: since 2007, LBUS awards a 200 – 500 euro prize for such articles, depending on the ISI journal impact factor.

2. Strategies for promoting doctoral studies and recruiting doctoral candidates

The report on *The Doctorate and the Organization of Doctoral Schools. Diagnosis of Status and Prospects for a Possible Future* was published as part of the European Social Fund – POSDRU structural project “Doctoral Studies in Romania – Organization of Doctoral Schools” [2] and it aims to present a minute and thorough analysis of the Romanian recruitment procedure of doctoral candidates. The authors of the report consider that after 1990, two recruitment procedures of doctoral candidates may be singled out, mainly generated by the structuring of the higher education system. The traditional method relied on selecting doctoral candidates from the pool of bachelor graduates with a 4-6 duration of study program. After 1995, the introduction of postgraduate or master degree study programs and especially after 2004, which marked the standardization of master degree study programs (nationwide), the common practice has been to recruit doctoral candidates from the pool of master graduates. The selection methodology usually consists of an admission exam with two components: analysis previous academic performance and evaluation of the research-related knowledge according to the project submitted by the doctoral candidate. However, this represents the formal stage of the recruitment, since the selection of doctoral candidates relies heavily – almost exclusively – on the former professional / academic collaboration established between doctoral advisor and candidate, throughout bachelor or master degree study program, or even in other non-academic contexts.

Most doctoral candidates, about two thirds of them, have been recruited from the alumni of the host university or faculty. Hence, doctoral studies insure the continuity of a particular academic discipline, as well as for the respective university or faculty. Before 1990, the number of foreign doctoral candidates enrolled at Romanian universities was fairly competitive at European and global levels. Nowadays, the situation has changed radically, since only 2.77% of all the doctoral candidates enrolled at Romanian universities come from foreign universities. Thus recruitment of doctoral candidates has gradually become one of the most urgent problems to be solved by doctoral study programs. At European and global levels, doctoral studies have been regarded as contributing to the process of economic and academic competitiveness, thus it is essential to find the right answers to the questions: how can the recruitment of creative talents be best performed? Is there any possibility to achieve continuity in retaining creative talents even after the doctoral program. For a long time after 1990, the top graduates of Romanian universities have been encouraged to pursue postgraduate and

especially doctoral studies at European and US universities. It follows that we have inadvertently prompted the brain-drain phenomenon. Nowadays the major problem is represented by the phenomenon of reverse brain drain. No appropriate means of cooperation with Romanians among the scientific diaspora have been identified, despite significant efforts undertaken by CNCSIS or ANSTI.

The recruitment of doctoral candidates entails different procedures according to academic disciplines. The higher demand for university graduates, the more difficult it becomes to attract doctoral candidates. The most relevant case in this respect is the field of informatics as well as other commonly regarded as the avant-garde of contemporary scientific development.

LBUS has introduced since 2012 a new regulation for the admission to doctoral studies. Competition for the subsidized (grant) places is organized at the level of university instead of each doctoral area of study; the common practice had been the distribution of subsidized places according either to doctoral fields or doctoral supervisors. It is our aim to promote a new trend in the methodology of recruiting doctoral candidates, i.e. the participants to this competition in view of winning a doctoral grant are not only doctoral candidates but rather the **triad: doctoral supervisor, doctoral candidate and the research proposal submitted for approval in view of selecting the best applications**. Doctoral candidates are required to prepare and submit a research project proposal and subsequently defend it in front of a doctoral committee subject to the prior approval of the Rector. The scientific activity is also an important criterion in the assessment of the doctoral candidate. Thus distribution of doctoral grants is ultimately made according to the score obtained for the two main criteria.

Another problem still calling for a solution is the wide diversity of research topics for the doctoral fields of study. It is imperative to consolidate and synthesize several research trends for each doctoral school or doctoral fields and subsequently to recommend certain research topics to be undertaken by doctoral candidates; this represents our objective for the academic year 2013–2014. Doctoral studies are promoted by LBUS by means of its own website; and from this year on we also plan to expand promotional activities to educational fairs, as well. Formerly, the major problem was the lack of any information about the total number of student places and, respectively, the number of state-funded doctoral grants; whereas, for the academic year 2012–2013, higher education institutions were notified about the total number of places for the doctoral school as late as August (taking into account that the admission process begins in September), with a negative impact on the promotional activities.

Legislation represents an additional problem to be solved, since there was no legal stipulation regarding the universities entitled to organize doctoral studies? (in the long run, the answer was in the affirmative). Another question to be answered was: which categories in the hierarchy of Romanian universities are entitled to organize doctoral studies? (for instance, in 2011 doctoral study programs

could only be organized for certain fields in the A-C categories; in 2012 such restrictions were done away with).

However, funding still remains the fundamental problem in the process of recruiting talented doctoral candidates, considering that a doctoral scholarship is currently about 170 euro/month. We are in the process of identifying methods of involving doctoral candidates in research projects, teaching activities at the host university as well as collaborations with private companies in view of creating / generating additional income. Since 2012, we have concluded agreements with several private companies aimed at doctoral candidate recruitment and supporting doctoral related activities. The partnership concluded with Continental Automotive Systems stipulates the identification of joint research topics and recruitment of doctoral candidates from Continental research teams (there are 500 engineers currently employed at the R&D Centre in Sibiu). It is our plan to conclude a similar partnership with Green Energy Cluster whose aim is to provide funding to doctoral research in view of identifying solutions to a series of issues in the field of renewable energies, in particular.

An important objective of the LBUS doctoral school is to attract foreign doctoral candidates. However, there is a lack of effective promotion at international level, a mission we aim to undertake and accomplish in the future, especially by a stronger cooperation with our partner institutions. The Erasmus Mundus Program is still an important alternative, taking into account that the promotion and evaluation processes are performed by the European Commission thus managing to select top-ranking doctoral candidates who are equally well funded. We managed to enroll 4 Erasmus Mundus doctoral candidates in the academic year 2011-2012 (one from the Republic of Moldova and three from Germany) as well as another Erasmus Mundus doctoral candidate who completed a mobility doctoral training at LBUS. For the academic year 2012-2013, only one Erasmus Mundus doctoral candidate was enrolled at LBUS.

3. Further development trends and highlights of the role and remit of the doctoral school in the context of the LBUS 2020 strategy

The solution out of the present situation for the doctoral candidates in the Romanian higher education system requires a shift from the traditional perspective of approaching doctoral studies. At present, doctoral programs are designed as both study and research programs available to mature individuals who wish to pursue either an academic or non-academic career in the knowledge-based society. There is an urgent need to depart from the situation when teaching assistants used to be the almost the exclusive target of doctoral programs. Nowadays, a full time doctoral candidate brings about a clearly defined status, i.e. junior researcher benefiting from a salary and entitled to an autonomous development of future professional career in the transparent and predictable context.

The most significant outcomes of the “Salzburg recommendations”, the “Aarhus declaration” or other EUA documents regarding the European doctorate – all of them leading to the constitution of the *Council for Doctoral Education* – are represented by the launching of complex reforms in the field of doctoral studies; nurturing a greater number of research-focused doctoral candidates; providing transparency in the recruitment process and improving the support – particularly financial – awarded to these doctoral candidates [4,5].

Societies and economies change, likewise universities and their doctoral activities undergo self-assessment, testing new methods of distancing from traditional perspectives although not departing completely from them, since higher education institutions have always evinced a conservative nature.

Some people believe that academic research has radically changed which also entails a change, a “re-definition” of doctoral studies, according to C. Park [1]. Such a re-definition requires, among others, the accomplishment of several complex transitions:

- from national to international and global orientation
- from a predominantly discipline-focused and prompted by an epistemic curiosity to interdisciplinary research focused on relevant including practical results
- from small laboratories or single exploration rooms to team work in both research institutes or centers of excellence
- from academic to professional orientation
- from research topics aiming at endless horizons to research oriented to well structured programs and projects whose outcomes are expected by beneficiaries
- from public or academic funding to multiple-source including private funding.

The LBUS doctoral school should set the objective of integration in such a complex transformation process, and its development trends shall be further delineated in the LBUS2020 strategy; some of these development trends are the result of internal regulations presented in table 4. Nevertheless, the short-term priorities may be summed up as follows:

- setting up new doctoral schools (Performing Arts, Sociology, Environmental Protection)
- strengthening the existing doctoral fields by attracting experts from diaspora in their capacity as doctoral supervisors (on the basis of a Ministerial Order which automatically grants membership to an EU doctoral supervisor), as well as promoting our own specialists in the fields of Computer Science and Information Technology; Mechanical Engineering, Law – all these ask for immediate solutions;
- attracting foreign doctoral candidates, especially mediated by Erasmus Mundus programs
- identifying mechanisms for the funding of doctoral candidates, such as collaborations with companies in view of (co)-funding doctoral training

- identifying further research trends for each doctoral school / field as well as proposing new doctoral research topics; hence doctoral candidates shall apply only for these research topics
- introducing clear and transparent criteria for doctoral candidate recruitment
- increasing the number of doctoral theses jointly supervised with foreign doctoral advisors
- transparency in establishing the advisory boards and monitoring their activity

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