

The External Evaluation Report of a Doctoral Study Domain

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I. Introduction¹

This report was drafted during the evaluation visit of the doctoral studies field Informatică / Informatics within the UNIVERSITY OF BUCHAREST. The visit took place between November 22 and 26, 2021, and the composition of the commission of evaluators was:

- Coordinator Prof. Dr. Cristea Dan, Universitatea "Al. I. Cuza" din Iasi
- International expert Prof. Vilanova Arbos, Ramon Universitat Autònoma Barcelona
- PhD student Ștefăniță Sebastian-Aurelian Universitatea de Vest din Timișoara

Doctoral studies represent a long-lasting component of the educational and research activity of the University of Bucharest. At an institutional level, awarding the title of Doctor was regulated between 1897-1899. Currently, there are 22 doctoral schools in the University of Bucharest, stretching over 19 fields.

The Doctoral School of Informatics is a relatively small doctoral school within the University of Bucharest, both in terms of the number of scientific supervisors and the number of doctoral students. This aspect was determined by the situation of University Informatics which developed in the shadow of Mathematics under whose tutelage it "came out" only in the last 9-10 years when it was recognized as a field of hierarchy and implicitly as a field of doctoral studies. Despite its small size, the UB Doctoral School of Informatics enjoys prestige in the Romanian university community through the quality of school members and that of doctoral students who have completed their doctoral studies at the school.

¹ Each time when applicable the information shall be presented gender-wise.



II. Methods used

In the external evaluation process, before, and during the evaluation visit, the following methods and tools were used:

- Analysis of the Report of internal evaluation of the field of doctoral university studies
- evaluated and its annexes.
- Analysis of documents, data and information available on the IOSUD / School / Schools website
- Doctorates, in electronic format.
- Visit to buildings from the institution's patrimony, which include:
 - classrooms.
 - secretariat.
 - laboratories and research centres;
- Meeting / online discussions with doctoral students in the field of evaluated doctoral university studies.
- Meeting / online discussions with graduates in the field of doctoral studies evaluated.
- Meeting / online discussions with employers of graduates in the field of doctoral studies evaluated.
- Online meeting / discussions with the management of the Doctoral School in which the field of evaluated doctoral university studies operates.
- Online meeting / discussions with doctoral supervisors in the field of evaluated doctoral university studies.
- Online meeting / discussions with the person in charge of the evaluated doctoral university field and with the team that made the internal evaluation report.
- Online meeting / discussions with directors / managers / research laboratories related to the field of doctoral studies.
- Meeting / discussions with representatives of the various structures of IOSUD / School / Schools Doctoral degrees in which the evaluated doctoral university field of work operates
- Application of questionnaires to doctoral students in the field of evaluated doctoral university studies.



III. Analysis of ARACIS's performance indicators

Domain A. INSTITUTIONAL CAPACITY

IOSUD from the University of BUCHAREST generally proves a good institutional capacity, which allows the development of doctoral studies in appropriate quality conditions.

Criterion A.1. The administrative, managerial institutional structures and the financial resources

IOSUD within the University of BUCHAREST has approved and implemented the regulations provided in the specific legislation regarding the organization of doctoral studies.

Standard A.1.1. The institution organizing doctoral studies (IOSUD) has implemented the effective functioning mechanisms provided for in the specific legislation on the organization of doctoral studies.

Performance Indicator A.1.1.1. *The existence of specific regulations and their application at the level of the Doctoral School of the respective university doctoral study domain:*

- (a) the internal regulations of the Doctoral School;*
- (b) the Methodology for conducting elections for the position of director of the Council of doctoral school (CSD), as well as elections by the students of their representative in CSD and the evidence of their conduct;*
- (c) the Methodologies for organizing and conducting doctoral studies (for the admission of doctoral students, for the completion of doctoral studies);*
- (d) the existence of mechanisms for recognizing the status of a Doctoral advisor and the equivalence of the doctoral degree obtained abroad;*
- (e) functional management structures (Council of the doctoral school), giving as well proof of the regularity of meetings;*
- (f) the contract for doctoral studies;*
- (g) internal procedures for the analysis and approval of proposals regarding the training for doctoral study programs based on advanced academic studies.*

There do exist specific regulations and their application at school level doctoral studies of which the field of doctoral university studies is part

Recommendations: It is recommended that all decisions of the Doctoral School Board be posted on the school's website, and some pages should be translated into English. For example at <https://doctorat.unibuc.ro/studii-universitare-de-doctorat/> and <https://doctorat.unibuc.ro/consiliul-studiilor-universitare-de-doctorat/> no option for English has been found. Continuing the effort of constantly updating the website of the Doctoral School so that both doctoral supervisors and doctoral students or candidates for admission can find all the necessary information



The indicator is fulfilled

Performance Indicator A.1.1.2. *The doctoral school' Regulation includes mandatory criteria, procedures and standards binding on the aspects specified in Article 17, paragraph (5) of the Government Decision No. 681/2011 on the approval of the Code of Doctoral Studies with subsequent amendments and additions.*

Documentary proof is provided of the criteria, procedures and standards.

Recommendations: No further actions are required

The indicator is fulfilled

Standard A.1.2. The IOSUD has the logistical resources necessary to carry out the doctoral studies' mission.

IOSUD within the University of BUCHAREST has the software resources necessary to fulfil in good conditions the mission of doctoral studies.

Performance Indicator A.1.2.1. *The existence and effectiveness of an appropriate IT system to keep track of doctoral students and their academic background.*

In the University of BUCHAREST there is an information system for the record of doctoral students and their academic career. Starting with academic year 2018/2019, the University of Bucharest implements at the level of doctoral studies the programme the UMS programme, in order to manage the candidates' status. The information system that logs data on doctoral students and their academic route fully abides by GDPR regulations of personal data protection

Recommendations: No further actions are required

The indicator is fulfilled

Performance Indicator A.1.2.2. *The existence and use of an appropriate software program and evidence of its use to verify the percentage of similarity in all doctoral theses.*

Currently, in the institution two IT programmes are certified by Minister's Order 3485/2016, Turnitin and SistemAntiplagiat.ro. However, It is not clear that PhD students have access to this software.



Recommendations: PhD students should be able to access the software

The indicator is fulfilled

Standard A.1.3. The IOSUD makes sure that financial resources are used optimally, and the revenues obtained from doctoral studies are supplemented through additional funding besides governmental funding.

IOSUD from the UNIVERSITY OF BUCHAREST must improve the use of financial resources in order to reach an optimal level.

Performance Indicator A.1.3.1. *Existence of at least one research or institutional / human resources development grant under implementation at the time of submission of the internal evaluation file, per doctoral study domain under evaluation, or existence of at least 2 research or institutional development / human resources grant for the doctoral study domain, obtained by doctoral thesis advisors operating in the evaluated domain within the past 5 years. The grants address relevant themes for the respective domain and, as a rule, are engaging doctoral students.*

The record of research, institutional development and human resources grants being implemented in 2020 and obtained by the doctoral advisers in the evaluated field in the past 5 years are reported at the internal evaluation report. 7 PhD students were included in the research teams of some of the grants listed above or other research grants

Recommendations: No further actions are required

The indicator is fulfilled

Performance Indicator *A.1.3.2. *The percentage of doctoral students active at the time of the evaluation, who for at least six months receive additional funding sources besides government funding, through scholarships awarded by individual persons or by legal entities, or who are financially supported through research or institutional / human resources development grants is not less than 20%.*

The record of PhD students who have participated in research projects during the last 5 years is included in Annex 8. 14 PhD students out of a total of 30 PhD students are identified, which represents a percentage of 46% - higher than the indicator (ie 20%).

Recommendations: It's not necessary.

The indicator is fulfilled



Performance Indicator *A.1.3.3.² *At least 10% of the total amount of doctoral grants obtained by the university through institutional contracts and of tuition fees collected from the doctoral students enrolled in the paid tuition system is used to reimburse professional training expenses of doctoral students (attending conferences, summer schools, training, programs abroad, publication of specialty papers or other specific forms of dissemination etc.).*

According to the internal autoevaluation report, reaching the 10% of the doctoral grants obtained by the university through institutional contracts and tuition fees from doctoral students enrolled in paid programmes, which would have amounted to 2.6 million RON in 2019, represents an objective for the following years. Also, additional information received during the visit audiences, have proven the university is really improving in such direction so the criterion and is by now almost fulfilling the percentage stated in the criterion.

Recommendations: *As stated in the autoevaluation report, the University of Bucharest is heading this objective, so continuous improvement is necessary.*

The indicator is partially fulfilled

Criterion A.2. Research infrastructure

Standard A.2.1. The IOSUD has a modern research infrastructure to support the conduct of doctoral studies' specific activities.

The Doctoral School of the University of BUCHAREST has a good quality research infrastructure that can properly support the activities specific to doctoral studies.

Performance Indicator A.2.1.1. *The venues and the material equipment available to the doctoral school enable the research activities in the evaluated domain to be carried out, in line with the assumed mission and objectives (computers, specific software, equipment, laboratory equipment, library, access to international databases etc.). The research infrastructure and the provision of research services are presented to the public through a specific platform. The research infrastructure described above, which was purchased and developed within the past 5 years will be presented distinctly.*

² The indicators marked with an asterisk (*) hold a special status, referring exclusively to the evaluation of doctoral studies domains, as per Article 12 from the annex No.1 of the Order of the minister of education No. 3651/12.04.2021 approving the Methodology for evaluating university doctoral studies and the system of criteria, standards and performance indicators used in the evaluation. In case they are not met, the Agency extends a period of maximum 3 years to IOSUD to correct the respective deficiencies.



The spaces and material basis of the doctoral field enable the development of research activities in the field, in accordance with the assumed mission and objectives. The infrastructure is periodically renewed, according to the annual acquisition plans of the Faculty of Mathematics and Informatics.

Recommendations: No further actions are required

The indicator is fulfilled

Criterion A.3. Quality of Human Resources

Standard A.3.1. At the level of each domain there are sufficient qualified staff to ensure the conduct of doctoral study program.

The Informatics field at the UNIVERSITY OF BUCHAREST has a qualified staff with experience for carrying out the doctoral study program.

Performance Indicator A.3.1.1. Minimum three doctoral thesis advisors within that doctoral domain, and at least 50% of them (but no less than three) meet the minimum standards of the National Council for Attestation of University Degrees, Diplomas and Certificates (CNATDCU) in force at the time when the evaluation is carried out, which standards are required and mandatory for obtaining the enabling certification.

The Doctoral School of Informatics (which is the only SD within the University of Bucharest that manages the doctoral field of Informatics) has 9 full-time PhD supervisors and 2 retired supervisors. In Annex 7 it is observed that at least 7 of the number of doctoral supervisors meet the current minimum CNATDCU standards for qualification (well above the minimum number of 3 for this criterion and at least 50% of the number of leaders).

Recommendations: No further actions are required

The indicator is fulfilled

Performance Indicator *A.3.1.2. At least 50% of all doctoral advisors have a full-time employment contract for an indefinite period with the IOSUD.

Out of the 11 doctoral supervisors in the Computer Science field, 9 are members of the



UDSOI (see Annex 1)

Recommendations. No further actions are required

The indicator is fulfilled

Performance Indicator A.3.1.3. *The study subjects in the education program based on advanced higher education studies pertaining to the doctoral domain are taught by teaching staff or researchers who are doctoral thesis advisors / certified doctoral thesis advisors, professors / CS I or lecturer / CS II, with proved expertise in the field of the study subjects they teach, or other specialists in the field who meet the standards established by the institution in relation with the aforementioned teaching and research functions, as provided by the law.*

The courses in the university advanced studies programme of each field are taught by teaching staff or researchers that can be doctoral supervisors / habilitated, professors, associate researchers I or associate professors // associate researchers II with proven expertise in the field or other professionals who meet the standards set by the institution and the strategic expectations specific to the field.

Recommendations. No further actions are required

The indicator is fulfilled

Performance Indicator *A.3.1.4. *The percentage of doctoral thesis advisors who concomitantly coordinate more than 8 doctoral students, but no more than 12, who are themselves studying in doctoral programs³ does not exceed 20%.*

In the Doctoral School of Informatics there are no doctoral supervisors who coordinate at the same time more than 8 doctoral students or more than 12 who are in the period of doctoral studies

Recommendations. No further actions are required

The indicator is fulfilled

³ 3 years for the doctoral university studies with the duration stipulated at Article 159, paragraph (3), respectively 4 years for the doctoral university studies with the duration stipulated at Article 174, paragraph (3) of the Law of national education No.1/2011 with subsequent amendments and additions, with additional extension periods approved as per Article 39, paragraph (3) of the Code of doctoral studies approved by the GD No. 681/2011 with subsequent amendments and additions.



Standard A.3.2. *The Doctoral advisors within the domain are carrying out a scientific activity visible at international level.*

The Informatics field at the UNIVERSITY OF BUCHAREST has doctoral supervisors with an internationally visible scientific activity.

Performance Indicator A.3.2.1. *At least 50% of the doctoral thesis advisors in the evaluated domain have at least 5 Web of Science- or ERIH-indexed publications in magazines of impact, or other achievements of relevant significance for that domain, including international-level contributions that indicate progress in scientific research - development - innovation for the evaluated domain. The aforementioned doctoral thesis advisors enjoy international awareness within the past five years, consisting of: membership on scientific boards of international publications and conferences; membership on boards of international professional associations; guests in conferences or expert groups working abroad, or membership on doctoral defense commissions at universities abroad or co-leading with universities abroad. For Arts and Sports and Physical Education Sciences, doctoral thesis advisors shall prove their international visibility within the past five years by their membership on the boards of professional associations, membership in organizing committees of arts events and international competitions, membership on juries or umpire teams in artistic events or international competitions.*

The doctoral supervisors of the Doctoral School of Informatics have published, in prestigious journals and conferences. More than 50% of SDI PhD supervisors have more than 5 WOC publications. The participation in the scientific community of the members of the Doctoral School of Informatics is documented through CVs, publication lists, CNATDCU score sheets (see Annexes 1 and 2).

Recommendations. No further actions are required

The indicator is fulfilled

Performance Indicator *A.3.2.2. *At least 50% of the doctoral thesis advisors in a specific doctoral study domain continue to be active in their scientific field, and acquire at least 25% of the score requested by the minimal CNATDCU standards in force at the time of the evaluation, which are required and mandatory for acquiring their enabling certificate, based on their scientific results within the past five years.*

The lists of publications and the sheets regarding the CNATDCU scores of the members of the Doctoral School of Informatics (see Annexes 1 and 2) demonstrate the easy fulfillment of at least 25% of the score required by the minimum CNATDCU standards in force at the date of evaluation

Recommendations. No further actions are required

The indicator is fulfilled





Domain B. EDUCATIONAL EFFECTIVENESS

IOSUD from the UNIVERSITY OF BUCHAREST proves a good educational effectiveness, which allows the development of doctoral studies in appropriate quality conditions.

Criterion B.1. The number, quality and diversity of candidates enrolled for the admission contest

Standard B.1.1. The institution organizing doctoral studies has the capacity to attract candidates from outside the higher education institution or a number of candidates exceeding the number of seats available.

IOSUD from the UNIVERSITY OF BUCHAREST proves in the case of Informatics that it can attract candidates from outside the higher education institution.

Performance Indicator *B.1.1.1. *The ratio between the number of graduates of masters' programs of other higher education institutions, national or foreign, who have enrolled for the doctoral admission contest within the past five years and the number of seats funded by the state budget, put out through contest within the doctoral domain is at least 0.2 or the ratio between the number of candidates within the past five years and the number of seats funded by the state budget put out through contest within the doctoral studies domain is at least 1,2.*

In the years 2016-2020, a total of 8 master's degree graduates (including pre-Bologna degree) from other higher education institutions in the country or abroad entered the competition for admission to doctoral university studies, which in relation to the number a total of 39 places financed from the state budget put up for competition within the doctoral school represent 0.205.

Recommendations. No further actions are required

The indicator is fulfilled

Standard B.1.2 Candidates admitted to doctoral studies demonstrate academic, research and professional performance.

IOSUD from the UNIVERSITY OF BUCHAREST proves in the case of the field of Informatics that it imposes quality standards within the admission, and the field is attractive considering the low dropout rate.



Performance Indicator *B.1.2.1. Admission to doctoral study programs is based on selection criteria including: previous academic, research and professional performance, their interest for scientific or arts/sports research, publications in the domain and a proposal for a research subject. Interviewing the candidate is compulsory, as part of the admission procedure.

According to the internal evaluation report, the SDI admission methodology is based on the interview evaluation of all candidates, the evaluation of the file of each candidate and the selection of 2 research topics from the list of 10 topics proposed by each candidate. prospective mentor). No link is provided to website where it is easy to locate this information.

Recommendations: A clearer methodology has to be put in place. Also, public information regarding the evaluation methodology should be available at the web site.

The indicator is fulfilled

Performance Indicator B.1.2.2. The expelling rate, including renouncement / dropping out of doctoral students 3, respectively 4, years after admission⁴ does not exceed 30%.

According to the internal evaluation report the average abandonment rate during the 5 years under analysis does not exceeds the percentage of 30%.

Recommendations. No further actions are required

The indicator is fulfilled

Criterion B.2. The content of doctoral programs

Standard B.2.1. The training program based on advanced university studies is appropriate to improve doctoral students' research skills and to strengthen ethical behavior in science.

The training program based on advanced university studies in the field of Informatics is adequate to improve the research skills of doctoral students and to strengthen ethical behaviour in science.

⁴ 3 years for the doctoral university studies with the duration stipulated at Article 159, paragraph (3), respectively 4 years for the doctoral university studies with the duration stipulated at Article 174, paragraph (3) of the Law of national education No. 1/2011 with subsequent amendments and additions.



Performance Indicator B.2.1.1. *The training program based on advanced academic studies includes at least 3 disciplines relevant to the scientific research training of doctoral students; at least one of these disciplines is intended to study in-depth the research methodology and/or the statistical data processing.*

According to the internal report and clarified in the visit audiences, in the first semester of the first year there are scheduled two courses (ethics and research). In the second semester of the first year there are two reading courses that are taken with the supervisor/advising committee and are tailored to each student individually. This information is in the Annex 2 at page 40 of the report.

Recommendations... No further actions are required

The indicator is fulfilled

Performance Indicator B.2.1.2. *At least one discipline is dedicated to Ethics and Intellectual Property in scientific research or there are well-defined topics on these subjects within a discipline taught in the doctoral program.*

According to the internal report, several courses regarding important components of research ethics and deontology, academic writing and scientific project management, courses which were already listed in the course offer of some of the doctoral schools, were included in the list of course dedicated to transversal competencies, being therefore available to doctoral students from all doctoral schools in the University of Bucharest.

Recommendations. No further actions are required

The indicator is fulfilled

Performance Indicator B.2.1.3. *The IOSUD has mechanisms to ensure that the academic training program based on advanced university studies addresses „the learning outcomes”, specifying the knowledge, skills, responsibility and autonomy that doctoral students should acquire after completing each discipline or through the research activities⁵.*

⁵ Or by what the graduate should know, understand and to be able to do, according to the provisions of the Methodology of 17 March 2017 regarding inscription and registration of higher education qualifications in the National Register of Qualifications in Higher Education (RNCIS) approved by the Order No.3475/2017 with subsequent amendments and additions.



IOSUD UNIVERSITY OF BUCHAREST an internal mechanism through which study programs are initiated, approved, monitored and evaluated, including doctoral programs.

Recommendations. No further actions are required

The indicator is fulfilled

Performance Indicator B.2.1.4. *All along the duration of the doctoral training, doctoral students in the domain receive counselling/guidance from functional guidance commissions, which is reflected in written guidance and feedback or regular meeting.*

The general operating report of these steering committees was presented in the internal evaluation report.

Recommendations. No further actions are required

The indicator is fulfilled

Performance Indicator B.2.1.5. *For a doctoral study domain, the ratio between the number of doctoral students and the number of teaching staff/researchers providing doctoral guidance must not exceed 3:1.*

The number of doctoral supervisors, members of advisory panels, together with course instructors in the preparation programme of advanced postgraduate studies is 25, for a total number of 44 doctoral students. The resulted ratio is 1.76:1, which is lower than 3:1.

Recommendations. No further actions are required

The indicator is fulfilled

Criterion B.3. The results of doctoral studies and procedures for their evaluation.

Standard B.3.1. Doctoral students capitalize on the research through presentations at scientific conferences, scientific publications, technological transfer, patents, products and service orders.



In the case of Informatics at the UNIVERSITY OF BUCHAREST, the research is capitalized by doctoral students through presentations at scientific conferences and scientific publications.

Performance Indicator B.3.1.1. *For the evaluated domain, the evaluation commission will be provided with at least one paper or some other relevant contribution per doctoral student who has obtained a doctor's title within the past 5 years. From this list, the members of the evaluation commission shall randomly select 5 such papers / relevant contributions per doctoral study domain for review. At least 3 selected papers must contain significant original contributions in the respective domain.*

For the Informatics doctoral domain, the complete list of scientific articles published by the doctoral students of the Doctoral School of Informatics can be found in Annex 4. Internal evaluation report shows relevant contributions.

Recommendations. No further actions are required

The indicator is fulfilled

Performance Indicator *B.3.1.2. *The ratio between the number of presentations of doctoral students who completed their doctoral studies within the evaluated period (past 5 years), including posters, exhibitions made at prestigious international events (organized in the country or abroad) and the number of doctoral students who have completed their doctoral studies within the evaluated period (past 5 years) is at least 1.*

Within the field of Informatics publishes significantly in conferences, which has led to publications of doctoral students in conferences. The estimated ratio is around $3 > 1$.

Recommendations. No further actions are required

The indicator is fulfilled

Standard B.3.2. *The Doctoral School engages a significant number of external scientific specialists in the commissions for public defense of doctoral theses in the analyzed domain.*

The Doctoral School appeals for the field of Informatics to a significant number of external scientific references in the commissions for public defence of doctoral theses for the analysed field.



Performance Indicator *B.3.2.1. *The number of doctoral theses allocated to one specialist coming from a higher education institution, other than the evaluated IOSUD should not exceed two (2) in a year for the theses coordinated by the same doctoral thesis advisor.*

According to the internal evaluation report, Annex 11 presents the distribution of external references in the public support commissions of the doctoral theses defended within the Doctoral School of Informatics in the years 2015-2019.

Recommendations. No further actions are required

The indicator is fulfilled

Performance Indicator *B.3.2.2. *The ratio between the doctoral theses allocated to one scientific specialist coming from a higher education institution, other than the institution where the defense on the doctoral thesis is organized, and the number of doctoral theses presented in the same doctoral study domain in the doctoral school should not exceed 0.3, considering the past five years. Only those doctoral study domains in which minimum ten doctoral theses have been presented within the past five years should be analyzed.*

In the field of Informatics fulfillment of criterion B.3.2.2. can be verified from Annex 11..

Recommendations. No further actions are required

The indicator is fulfilled



Domain C. QUALITY MANAGEMENT

IOSUD from the UNIVERSITY OF BUCHAREST proves a good quality management, which allows the development of doctoral studies in appropriate quality conditions.

Criterion C.1. Existence and periodic implementation of the internal quality assurance system

Standard C.1.1. There are an institutional framework and procedures in place and relevant internal quality assurance policies, applied for monitoring the internal quality assurance.

IOSUD from the UNIVERSITY OF BUCHAREST has the institutional framework created for internal quality assurance.

Performance Indicator C.1.1.1. *The Doctoral school in the respective university study domain shall demonstrate the continuous development of the evaluation process and its internal quality assurance following a procedure developed and applied at the level of the IOSUD, the following assessed criteria being mandatory:*

- (a) the scientific work of Doctoral advisors;*
- (b) the infrastructure and logistics necessary to carry out the research activity;*
- (c) the procedures and subsequent rules based on which doctoral studies are organized;*
- (d) the scientific activity of doctoral students;*
- (e) the training program based on advanced academic studies of doctoral students;*
- (f) social and academic services (including for participation at different events, publishing papers etc.) and counselling made available to doctoral students.*

The UNIVERSITY OF BUCHAREST Doctoral School has specific procedures that prove the constant development of the process of evaluation and internal quality assurance.

Recommendations. No further actions are required

The indicator is fulfilled



Performance Indicator *C.1.1.2. *Mechanisms are implemented during the stage of the doctoral study program to enable feedback from doctoral students allowing to identify their needs, as well as their overall level of satisfaction with the doctoral study program in order to ensure continuous improvement of the academic and administrative processes. Following the analysis of the results, there is evidence that an action plan was drafted and implemented.*

At the level of the UNIVERSITY OF BUCHAREST, evaluation mechanisms are implemented that aim at identifying the needs of doctoral students. Thus, there is an elaborated procedure for evaluating customer satisfaction, the doctoral students completing a questionnaire in this regard. In order to prove the application of this procedure, a clarification was requested. The answer includes questionnaires completed by doctoral students.

Recommendations: It is recommended to develop a measure plan focused on the needs of students following the questionnaires of needs and satisfaction and its public presentation.

The indicator is fulfilled

Criterion C.2. Transparency of information and accessibility of learning resources

IOSUD from the UNIVERSITY OF BUCHAREST proves transparency in the presentation of information and accessibility to learning resources.

Standard C.2.1. Information of interest to doctoral students, future candidates and public interest information is available for electronic format consultation.

IOSUD from the UNIVERSITY OF BUCHAREST ensures the transparency of information of public interest, via access to necessary data and information in both electronic and hardcopy format the information of interest for doctoral students, future candidates, respectively the information of public interest.

Performance Indicator C.2.1.1. *The IOSUD publishes on the website of the organizing institution, in compliance with the general regulations on data protection, information such as:*

- (a) the Doctoral School regulation;*
- (b) the admission regulation;*
- (c) the doctoral studies contract;*
- (d) the study completion regulation including the procedure for the public presentation of the thesis;*
- (e) the content of training program based on advanced academic studies;*
- (f) the academic and scientific profile, thematic areas/research themes of the Doctoral advisors within the domain, as well as their institutional contact data;*



- (g) the list of doctoral students within the domain with necessary information (year of registration; advisor);
- (h) information on the standards for developing the doctoral thesis;
- (i) links to the doctoral theses' summaries to be publicly presented and the date, time, place where they will be presented; this information will be communicated at least twenty days before the presentation.

From the internal evaluation report, it results that are published on the University of BUCHAREST website, the information regarding all aspects of the doctoral studies.:

Recommendations: Ensuring all relevant pages in English as well, especially if they aim to attract students from abroad and improving the appearance.

The indicator is fulfilled.

Standard C.2.2. The IOSUD/The Doctoral School provides doctoral students with access to the resources needed for conducting doctoral studies.

PhD students have access to the resources necessary to carry out doctoral studies in good conditions.

Performance Indicator C.2.2.1. *All doctoral students have free access to one platform providing academic databases relevant to the doctoral studies domain of their thesis.*

IOSUD –UNIVERSITY OF BUCHAREST accesses and has accessed during the entire evaluated period the services provided through the ANELIS Plus programme, to offer doctoral students free access to a platform with academic data bases relevant for the organised domains. Consequently, within IOSUD – UNIVERSITY OF BUCHAREST, all doctoral students have permanent and free access to this platform, with an account and password, by using their email account

Recommendations. No further actions are required

The indicator is fulfilled

Performance Indicator C.2.2.2. *Each doctoral student shall have access, upon request, to an electronic system for verifying the degree of similarity with other existing scientific or artistic works.*

According to the internal evaluation report, at UNIVERSITY OF BUCHAREST, on demand and with the coordinator's consent, each doctoral student has access to an electronic system which checks the degree of similitude of the paper with other existent scientific or artistic works.



Recommendations. No further actions are required

The indicator is fulfilled

Performance Indicator C.2.2.3. *All doctoral students have access to scientific research laboratories or other facilities depending on the specific domain/domains within the Doctoral School, according to internal order procedures.*

All doctoral students have access to a work room equipped with desks and computers, as well as to the computer laboratories of the faculty, according to internal rules.

Recommendations. No further actions are required

The indicator is fulfilled

Criterion C.3. Internationalization

Standard C.3.1. There is a strategy in place and it is applied to enhance the internationalization of doctoral studies.

The Doctoral School of the UNIVERSITY OF BUCHAREST proves internationalization, the situation can be substantially improved by adopting an internationalization plan with clear and specific measures that will be part of the mission of doctoral studies.

Performance Indicator *C.3.1.1. *IOSUD, for every evaluated domain, has concluded mobility agreements with universities abroad, with research institutes, with companies working in the field of study, aimed at the mobility of doctoral students and academic staff (e.g., ERASMUS agreements for the doctoral studies). At least 35% of the doctoral students have completed a training course abroad or other mobility forms such as attending international scientific conferences. IOSUD drafts and applies policies and measures aiming at increasing the number of doctoral students participating at mobility periods abroad, up to at least 20%, which is the target at the level of the European Higher Education Area.*



For the field of Informatics, the University of Bucharest has not concluded ERASMUS agreements at doctoral level but there are discussions to conclude agreements within the CIVIS consortium. Over 50% of SDI PhD students have presented at international conferences or completed international research internships.

Within CIVIS it is estimated to reach at least 20% of training mobility and exchange of experience within doctoral students.

Recommendations: No further actions are required

The indicator is fulfilled.

Performance Indicator C.3.1.2. *In the evaluated doctoral study domain, support is granted, including financial support, to the organization of doctoral studies in international co-tutelage or invitation of leading experts to deliver courses/lectures for doctoral students.*

For the field of Informatics, through the scientific connections of the doctoral supervisors and, in some cases, with funding from the grants obtained by them, the doctoral students were co-opted to scientific collaborations with specialists from abroad.

Recommendations: No further actions are required

The indicator is fulfilled.

Performance Indicator C.3.1.3. *The internationalization of activities carried out during the doctoral studies is supported by IOSUD through concrete measures (e.g., by participating in educational fairs to attract international doctoral students; by including international experts in guidance committees or doctoral committees etc.).*

The Council of the Doctoral School of Informatics has strictly applied the scientific quality standards for the members of the doctoral commissions. Specialists from abroad were also part of the commissions, as it is reported in Annex 7

Recommendations: No further actions are required

The indicator is fulfilled.



IV. SWOT Analysis

<p style="text-align: center;"><u>Strengths:</u></p> <ul style="list-style-type: none"> • PhD supervisors prove a good research activity; • The research infrastructure corresponds to the assumed mission and objectives; • Attracting international doctoral students on research topics related to the local specific. 	<p style="text-align: center;"><u>Weaknesses:</u></p> <ul style="list-style-type: none"> • Insufficient funding from the total amounts collected by the university related to doctoral grants or tuition fees; • Lack of additional funding compared to government funding; • Lack of mechanisms to effectively encourage doctorates in co-supervision and to invite international experts for lectures in the field
<p style="text-align: center;"><u>Opportunities:</u></p> <ul style="list-style-type: none"> • The quality of doctoral supervisors and the local specifics of the research topics approached allow obtaining a high degree of internationalization; • The topicality of the doctoral field allows attracting a significant number of candidates. 	<p style="text-align: center;"><u>Threats:</u></p> <ul style="list-style-type: none"> • According to the documents provided during the visit, starting with November 22, 2021, the field of Informatics no longer benefits from the full fulfillment of criterion A1.3.1. • Lack of consistent funding with possible implications on access to the facilities required for the doctoral thesis adopted, especially in a leading field such as Informatics.

V. Overview of judgments awarded and of the recommendations

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
1.	PI	<p>A.1.1.1. The existence of specific regulations and their application at the level of the Doctoral School of the respective university doctoral study domain:</p> <p>a) the internal regulations of the Doctoral School;</p> <p>b) the Methodology for conducting elections for the position of director of the Council of doctoral school (CSD), as well as elections by the students of their representative in CSD and the evidence of their conduct;</p> <p>c) the Methodologies for organizing and conducting doctoral studies (for the admission of doctoral students, for the completion of doctoral studies);</p> <p>d) the existence of mechanisms for recognizing the status of a Doctoral advisor and the equivalence of the doctoral degree obtained abroad;</p> <p>e) functional management structures (Council of the doctoral school), giving as well proof of the regularity of meetings;</p> <p>f) the contract for doctoral studies;</p> <p>g) internal procedures for the analysis and approval of proposals regarding the training for doctoral study programs based on advanced academic studies.</p>	The indicator is fulfilled	<p>It is recommended that all decisions of the Doctoral School Board be posted on the school's website, and some pages should be translated into English. For example at https://doctorat.unibuc.ro/studii-universitare-de-doctorat/ and https://doctorat.unibuc.ro/consiliul-studiilor-universitare-de-doctorat/ no option for English has been found. Continuing the effort of constantly updating the website of the Doctoral School so that both doctoral supervisors and doctoral students or candidates for admission can find all the necessary information</p>
2.	PI	<p>A.1.1.2. The doctoral school' Regulation includes mandatory criteria, procedures and standards binding on the aspects specified in Article 17, paragraph (5) of the Government Decision No. 681/2011 on the approval of the Code of Doctoral Studies with subsequent amendments and additions.</p>	The indicator is fulfilled	No further actions are required
3.	PI	<p>A.1.2.1. The existence and effectiveness of an appropriate IT system to keep track of doctoral students and their academic background.</p>	The indicator is fulfilled	No further actions are required
4.	PI	<p>A.1.2.2. The existence and use of an appropriate software program and evidence of its use to verify the percentage of similarity in all doctoral theses.</p>	The indicator is fulfilled	PhD students should be able to access the software

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
5.	IP	<p>A.1.3.1. Existence of at least one research or institutional / human resources development grant under implementation at the time of submission of the internal evaluation file, per doctoral study domain under evaluation, or existence of at least 2 research or institutional development / human resources grant for the doctoral study domain, obtained by doctoral thesis advisors operating in the evaluated domain within the past 5 years. The grants address relevant themes for the respective domain and, as a rule, are engaging doctoral students.</p>	<p>The indicator is fulfilled</p>	<p>No further actions are required</p>
6.	PI *	<p>A.1.3.2. The percentage of doctoral students active at the time of the evaluation, who for at least six months receive additional funding sources besides government funding, through scholarships awarded by individual persons or by legal entities, or who are financially supported through research or institutional / human resources development grants is not less than 20%.</p>	<p>The indicator is fulfilled</p>	<p>No further actions are required</p>
7.	PI *	<p>A.1.3.3. At least 10% of the total amount of doctoral grants obtained by the university through institutional contracts and of tuition fees collected from the doctoral students enrolled in the paid tuition system is used to reimburse professional training expenses of doctoral students (attending conferences, summer schools, training, programs abroad, publication of specialty papers or other specific forms of dissemination etc.).</p>	<p>The indicator is partially fulfilled</p>	<p>As stated in the autoevaluation report, the University of Bucharest is heading this objective, so continuous improvement is necessary</p>
8.	CPI	<p>A.2.1.1. The venues and the material equipment available to the doctoral school enable the research activities in the evaluated domain to be carried out, in line with the assumed mission and objectives (computers, specific software, equipment, laboratory equipment, library, access to international databases etc.). The research infrastructure and the provision of research services are presented to the public through a specific platform. The research infrastructure described above, which was purchased and</p>	<p>The indicator is fulfilled</p>	<p>No further actions are required</p>

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		developed within the past 5 years will be presented distinctly		
9.	CPI	A.3.1.1. Minimum three doctoral thesis advisors within that doctoral domain, and at least 50% of them (but no less than three) meet the minimum standards of the National Council for Attestation of University Degrees, Diplomas and Certificates (CNATDCU) in force at the time when the evaluation is carried out, which standards are required and mandatory for obtaining the enabling certification.	The indicator is fulfilled	No further actions are required
10.	PI *	A.3.1.2. At least 50% of all doctoral advisors have a full-time employment contract for an indefinite period with the IOSUD.	The indicator is fulfilled	No further actions are required
11.	PI	A.3.1.3. The study subjects in the education program based on advanced higher education studies pertaining to the doctoral domain are taught by teaching staff or researchers who are doctoral thesis advisors / certified doctoral thesis advisors, professors / CS I or lecturer / CS II, with proved expertise in the field of the study subjects they teach, or other specialists in the field who meet the standards established by the institution in relation with the aforementioned teaching and research functions, as provided by the law.	The indicator is fulfilled	No further actions are required
12.	PI *	A.3.1.4. The percentage of doctoral thesis advisors who concomitantly coordinate more than 8 doctoral students, but no more than 12, who are themselves studying in doctoral programs does not exceed 20%.	The indicator is fulfilled	No further actions are required
13.	CPI	A.3.2.1. At least 50% of the doctoral thesis advisors in the evaluated domain have at least 5 Web of Science- or ERIH-indexed publications in magazines of impact, or other achievements of relevant significance for that domain, including international-level contributions that indicate progress in scientific research - development - innovation for the evaluated domain. The aforementioned doctoral thesis advisors enjoy international awareness within the past five years, consisting of: membership on scientific boards	The indicator is fulfilled	No further actions are required

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		of international publications and conferences; membership on boards of international professional associations; guests in conferences or expert groups working abroad, or membership on doctoral defense commissions at universities abroad or co-leading with universities abroad. For Arts and Sports and Physical Education Sciences, doctoral thesis advisors shall prove their international visibility within the past five years by their membership on the boards of professional associations, membership in organizing committees of arts events and international competitions, membership on juries or umpire teams in artistic events or international competitions.		
14.	PI *	A.3.2.2. At least 50% of the doctoral thesis advisors in a specific doctoral study domain continue to be active in their scientific field, and acquire at least 25% of the score requested by the minimal CNATDCU standards in force at the time of the evaluation, which are required and mandatory for acquiring their enabling certificate, based on their scientific results within the past five years	The indicator is fulfilled	No further actions are required
15.	PI *	B.1.1.1. The ratio between the number of graduates of masters' programs of other higher education institutions, national or foreign, who have enrolled for the doctoral admission contest within the past five years and the number of seats funded by the state budget, put out through contest within the doctoral domain is at least 0.2 or the ratio between the number of candidates within the past five years and the number of seats funded by the state budget put out through contest within the doctoral studies domain is at least 1,2.	The indicator is fulfilled	No further actions are required
16.	PI *	B.1.2.1. Admission to doctoral study programs is based on selection criteria including: previous academic, research and professional performance, their interest for scientific or arts/sports research, publications in the domain and a proposal for a research subject.	The indicator is fulfilled	A clearer methodology has to be put in place. Also, public information regarding the evaluation methodology should be available at the web site.

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		Interviewing the candidate is compulsory, as part of the admission procedure.		
17.	PI	B.1.2.2. The expelling rate, including renouncement / dropping out of doctoral students 3, respectively 4, years after admission does not exceed 30%.	The indicator is fulfilled	No further actions are required
18.	PI	B.2.1.1. The training program based on advanced academic studies includes at least 3 disciplines relevant to the scientific research training of doctoral students; at least one of these disciplines is intended to study in-depth the research methodology and/or the statistical data processing.	The indicator is fulfilled	No further actions are required
19.	PI	B.2.1.2. At least one discipline is dedicated to Ethics and Intellectual Property in scientific research or there are well-defined topics on these subjects within a discipline taught in the doctoral program.	The indicator is fulfilled	No further actions are required
20.	PI	B.2.1.3. The IOSUD has mechanisms to ensure that the academic training program based on advanced university studies addresses „the learning outcomes”, specifying the knowledge, skills, responsibility and autonomy that doctoral students should acquire after completing each discipline or through the research activities.	The indicator is fulfilled	No further actions are required
21.	PI	B.2.1.4. All along the duration of the doctoral training, doctoral students in the domain receive counselling/guidance from functional guidance commissions, which is reflected in written guidance and feedback or regular meeting.	The indicator is fulfilled	No further actions are required
22.	CPI	B.2.1.5. For a doctoral study domain, the ratio between the number of doctoral students and the number of teaching staff/researchers providing doctoral guidance must not exceed 3:1.	The indicator is fulfilled	No further actions are required
23.	CPI	B.3.1.1. For the evaluated domain, the evaluation commission will be provided with at least one paper or some other relevant contribution per doctoral student who has obtained a doctor's title within the past 5	The indicator is fulfilled	No further actions are required

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		years. From this list, the members of the evaluation commission shall randomly select 5 such papers / relevant contributions per doctoral study domain for review. At least 3 selected papers must contain significant original contributions in the respective domain		
24.	PI *	B.3.1.2. The ratio between the number of presentations of doctoral students who completed their doctoral studies within the evaluated period (past 5 years), including posters, exhibitions made at prestigious international events (organized in the country or abroad) and the number of doctoral students who have completed their doctoral studies within the evaluated period (past 5 years) is at least 1.	The indicator is fulfilled	No further actions are required
25.	PI *	B.3.2.1. The number of doctoral theses allocated to one specialist coming from a higher education institution, other than the evaluated IOSUD should not exceed two (2) in a year for the theses coordinated by the same doctoral thesis advisor.	The indicator is fulfilled	No further actions are required
26.	PI *	B.3.2.2. The ratio between the doctoral theses allocated to one scientific specialist coming from a higher education institution, other than the institution where the defense on the doctoral thesis is organized, and the number of doctoral theses presented in the same doctoral study domain in the doctoral school should not exceed 0.3, considering the past five years. Only those doctoral study domains in which minimum ten doctoral theses have been presented within the past five years should be analyzed.	The indicator is fulfilled	No further actions are required
27.	PI	C.1.1.1. The Doctoral school in the respective university study domain shall demonstrate the continuous development of the evaluation process and its internal quality assurance following a procedure developed and applied at the level of the IOSUD, the following assessed criteria being mandatory: a) the scientific work of Doctoral advisors; b) the infrastructure and logistics necessary to carry out the research activity;	The indicator is fulfilled	No further actions are required

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		<p>c) the procedures and subsequent rules based on which doctoral studies are organized;</p> <p>d) the scientific activity of doctoral students;</p> <p>e) the training program based on advanced academic studies of doctoral students;</p> <p>f) social and academic services (including for participation at different events, publishing papers etc.) and counselling made available to doctoral students.</p>		
28.	PI *	<p>C.1.1.2. Mechanisms are implemented during the stage of the doctoral study program to enable feedback from doctoral students allowing to identify their needs, as well as their overall level of satisfaction with the doctoral study program in order to ensure continuous improvement of the academic and administrative processes. Following the analysis of the results, there is evidence that an action plan was drafted and implemented.</p>	<p>The indicator is fulfilled</p>	<p>It is recommended to develop a measure plan focused on the needs of students following the questionnaires of needs and satisfaction and its public presentation.</p>
29.	CPI	<p>C.2.1.1. The IOSUD publishes on the website of the organizing institution, in compliance with the general regulations on data protection, information such as:</p> <p>a) the Doctoral School regulation;</p> <p>b) the admission regulation;</p> <p>c) the doctoral studies contract;</p> <p>d) the study completion regulation including the procedure for the public presentation of the thesis;</p> <p>e) the content of training program based on advanced academic studies;</p> <p>f) the academic and scientific profile, thematic areas/research themes of the Doctoral advisors within the domain, as well as their institutional contact data;</p> <p>g) the list of doctoral students within the domain with necessary information (year of registration; advisor);</p> <p>h) information on the standards for developing the doctoral thesis;</p> <p>i) links to the doctoral theses' summaries to be publicly presented and the date, time, place where they will be presented; this information will be communicated at least twenty days before the presentation.</p>	<p>The indicator is fulfilled</p>	<p>Ensuring all relevant pages in English as well, especially if they aim to attract students from abroad and improving the appearance</p>

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
30.	PI	C.2.2.1. All doctoral students have free access to one platform providing academic databases relevant to the doctoral studies domain of their thesis.	The indicator is fulfilled	No further actions are required
31.	PI	C.2.2.2. Each doctoral student shall have access, upon request, to an electronic system for verifying the degree of similarity with other existing scientific or artistic works.	The indicator is fulfilled	No further actions are required
32.	PI	C.2.2.3. All doctoral students have access to scientific research laboratories or other facilities depending on the specific domain/domains within the Doctoral School, according to internal order procedures.	The indicator is fulfilled	No further actions are required
33.	PI *	C.3.1.1. IOSUD, for every evaluated domain, has concluded mobility agreements with universities abroad, with research institutes, with companies working in the field of study, aimed at the mobility of doctoral students and academic staff (e.g., ERASMUS agreements for the doctoral studies). At least 35% of the doctoral students have completed a training course abroad or other mobility forms such as attending international scientific conferences. IOSUD drafts and applies policies and measures aiming at increasing the number of doctoral students participating at mobility periods abroad, up to at least 20%, which is the target at the level of the European Higher Education Area.	The indicator is fulfilled	No further actions are required
34.	PI	C.3.1.2. In the evaluated doctoral study domain, support is granted, including financial support, to the organization of doctoral studies in international co-tutelage or invitation of leading experts to deliver courses/lectures for doctoral students.	The indicator is fulfilled	No further actions are required
35.	PI	C.3.1.3. The internationalization of activities carried out during the doctoral studies is supported by IOSUD through concrete measures (e.g., by participating in educational fairs to attract international doctoral students; by including international experts in guidance committees or doctoral committees etc.).	The indicator is fulfilled	No further actions are required



VI. Conclusions and general recommendations

The doctoral studies in the field of Informatics within the Doctoral School / IOSUD – UNIVERSITY OF BUCHAREST generally benefit from an institutional capacity, institutional efficiency and quality management that allow it to be carried out at a high level. This level is mainly due to the quality of doctoral supervisors, but also to the existing research infrastructure. Thus, there is a great development potential for internationalization and connection with other institutions outside Romania, especially taking into account the specificity of the research topics addressed. This potential must be developed by adopting measures to encourage international cooperation. The completed doctoral theses are of quality, aspect highlighted and by the quality of the generated publications.

There is the need for a continuous improvement related to the financial issues for providing grants to PhD students. As stated in the internal autoevaluation report, this is an objective of the University of Bucharest for the next **years**