

The External Evaluation Report of a Doctoral Study Domain

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I. Introduction¹

I've been invited to cooperate as a foreign expert in the Periodical External Evaluation of the Institution Organizing Doctoral Study Programs (IOSUD), respectively of the doctoral study domain Cybernetics and Statistics, at the Babes-Bolyai University, Cluj-Napoca. The evaluation took place between 2.11. and 5.11.2021 via Zoom. Experts Committee for domain was led by prof. univ. dr. Albu Crisan as panel coordinator, students' representative Chitu Florentina and myself.

II. Methods used

This chapter will contain the methods and tools used in the external evaluation process, before and during the evaluation visit, including at least:

- The analysis of the internal evaluation report of the doctoral study domain under review and its Annexes;
 - The analysis of documents made available by the IOSUD, in physical format, during the evaluation visit (if such documents have been requested);
 - The analysis of documents, data and information available on the IOSUD/Doctoral School(s) website, in electronic format;
 - Visiting the buildings included in the institution's property, comprising (indicative and non-exhaustive list, which shall be changed according to the context):
 - classrooms;
 - laboratories;
 - the institution's library;
 - research centers;
 - the Career Counselling and Guidance Center;
 - lecture halls for students;
 - the student residences;
 - the student cafeteria;

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



- sports ground etc.;
- Meeting/discussions with doctoral students in the doctoral study domain under review;
- Meeting/Discussions with the graduates of the doctoral study domain under review;
- Meeting/Discussions with employers of the graduates in the doctoral study domain under review;
- Meeting/Discussions with the school officials of the Doctoral School(s) in which the doctoral study domain under review is operating;
- Meeting/Discussions with the doctoral advisors in the doctoral study domain under review;
- Meeting/discussions with the representatives of the various structures of the IOSUD/Doctoral School(s) in which the doctoral study domain under review is operating:
 - The Council of the Doctoral School, the University Senate, the Board of Directors, the Quality Assessment and Assurance Commission, the Quality Assurance Department, the Ethics Commission (including with the student representatives of these structures);
 - the Career Counselling and Guidance Center;
 - student organizations;
 - secretariats;
 - various departments/administrative offices (Social/Student residences-Cafeterias etc.);
- Application of questionnaires to doctoral students or academic staff in the doctoral study domain under review.

III. Analysis of ARACIS's performance indicators

Domain A. INSTITUTIONAL CAPACITY

**general description of domain analysis.*

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

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;

UBB operates under legal framework provided by the Romanian laws No. 1/2011, No. 75/2005, No. 87/2006 with subsequent amendments and in line with internal regulations and decisions, revised annually to optimise the registration and admission process.

(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;

Within ŞDSEGA, the main management structure is the ŞDSEGA Council. All decisions are taken by simple majority. The Council has engaged with a high frequency, even multiple times in a period of a month, according to the minutes from Annex A.1.1.1.g.

f) the contract for doctoral studies;

The doctoral university studies contract can be found in Annex A.1.1.1.h, and the additional contract for the extension of university studies in Annex A.1.1.1.i. The individual contracts of the doctoral students can be found in Annex A.1.1.1.j.

g) internal procedures for the analysis and approval of proposals regarding the training for doctoral study programs based on advanced academic studies.

The individual plans of the doctoral students approved annually by the ŞDSEGA Council were presented in Annex A.1.1.1.k.

Recommendations:

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.*

The internal evaluation criteria takes into account the scientific activity of the last 5 years, giving great importance to ISI publications in journals indexed in one of the fields of Economic Sciences. The method of carrying out the activities within the training program based on advanced university studies is regulated in articles 33-38. As part of the advanced training program for doctoral students in the first year, a common trunk has been introduced for all doctoral students, regardless of the field, with two compulsory disciplines. The first discipline is the Research Methodology and academic writing techniques, and the second one is a quantitative one that is chosen from a range of disciplines of Advanced Statistics and Econometrics, depending on the doctoral student's training.

The doctoral student, according to Art. 59 (2), may request the ŞDSEGA Council to change the doctoral supervisor only on the basis of well-founded reasons. The opportunity of this change is analyzed and possibly approved by the SDSEGA Council. SDSEGA Council also mediates any conflicts that may arise between the doctoral student and the supervisor. Art. 68 specifies the situations in which a doctoral supervisor can be replaced by another. Art. 7 regulates the reasons and the procedure of carrying out the



discontinuance of the doctoral studies. At the CSUD level, there is a set of codes of ethics to prevent fraud in scientific research, including plagiarism. These codes can be found in Annex A.1.1.1.i. Furthermore, an orienting guide for UBB students is developed, which can be found in Annex A.1.1.1.m. At the same time, the Code of the UBB Ethics Commission can be found in Annex A.1.1.1.n, and the composition of this commission in Annex A.1.1.1.o.

Recommendations:

The indicator is fulfilled.

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

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.

Annex A.1.2.1.a. provides detailed description of the IT system. For the purpose of monitoring the doctoral students, the Doctoral School benefits from the computer system of BBU, called Academic Info, where the personal data of students are stored, the courses they enroll in and the situation of grades and credits accumulated. Additionally, within the Faculty of Economics and Business Management, PhD students have a direct, dedicated, integrated and digitized informational system that allows everyone to manage their administrative relations with the faculty through their own electronic devices (laptop, smartphone) with Internet access. The FSEGA SIS (Student Information System) application includes a number of functionalities such as: - direct access to the latest announcements of interest - the possibility of submitting inquiries for the issue of certificates - choice of optional subjects - direct access to the Academic Info application system.

It seems from the interviews conducted during the visit that the options IT system offers to students and other users are quite appropriate and satisfactory.

Recommendations:

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.

Annex A.1.2.2.a and Annex A.1.2.2.b describes the software for checking the similarity percentage. The Council for Doctoral University Studies adopted the decision on the approval of the Procedure regarding the generation and analysis of the Similarity Report, no. 12327 dated 29.06.2016. The procedure defines the use of the program for establishing the degree of similarity (anti-plagiarism) within the UBB in accordance with the technical specifications of the programs recognized by CNATDCU. This procedure applies to all doctoral theses that are defended in UBB, using the computer program—iThenticate.

The report provides one or more Similarity Coefficients. These Coefficients of Similarity differ from one system to another, but generally have the following meanings: - Similarity Coefficient 1 = the



percentage of the text with all similar phrases discovered by the system in other documents; - Similarity Coefficient 2 = the percentage of the text with similar fragments that exceed a given number of words (for example 25). The Similarity Report is an integrated part of the file that is submitted to ISD in order to defend the doctoral thesis.

In the annexes examples of checked dissertation with the attached reports were displayed, in order to understand the functioning. Method and use of results of plagiarism check seem appropriate and on the level of EU HEI's standards.

Recommendations:

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.

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.

Ph.D. supervisors in the field of Cybernetics and Statistics are part of 4 research grants that are being implemented at the time of submission of the internal evaluation file, as follows: - 1 grant as coordinator (Coordinator STSM - misiuni pe termen scurt și reprezentant al României în Comitetul de Management al acțiunii COST CA19310, Mare Codruța), and - 3 grants as member (Mare Codruța, Lazar Dorina), respectively. Other 4 grants were implemented in the last 5 years.

The full list is available in the Annex A.1.3.1. These research grants address topics that are relevant to the field of Cybernetics and Statistics. Quantitative research methods (statistics, econometrics) are an important component of the research methodology

Recommendations:

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%.

A situation of PhD students in the field of Cybernetics and Statistics, in different stages of training is available in the Annex A.1.3.2.a. Two students out of the 9 doctoral students on 30.09.2020 (2 out of 9;



22%) benefited from other sources of funding than government funding, for a period of at least 6 months (Annex A.1.3.2.b). This means that the criteria of other funding is more than prescribed 20%.

There were also fundings for shorter research periods, from some institutions or companies (Annex A.1.3.2.b). It is intended to include Ph.D. students in research projects coordinated by Ph.D. supervisors and to submit applications by Ph.D. students for additional funding (e.g. POCU type projects).

Recommendations:

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.).*

Details on the performance indicator related to training expenses, which shows that for this indicator the amounts exceed the threshold of 10% (they are between 13% and 50%) are presented within the Annex A.1.3.3. The related amounts were used to settle the training expenses of doctoral students such as: participation in conferences, summer schools, courses, internships abroad, personal laptop purchase, computer programs and statistics.

Recommendations:

The indicator is 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.

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.*

Students at the domain have available a suitable material basis to guarantee the proper conduct of doctoral studies, in accordance with the established goals. The institution has resources allocated to

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.



each field of research depending on the nature of the activity carried out by doctoral students, meeting the requirements of volume, quality, technical condition and safety standards.

A significant volume of portable laptops is regularly supplemented to ensure the continuity of the research process outside the laboratories provided by the institution, to the necessary extent for this facility. Additionally, each laboratory is equipped with technical equipment and high-performance means of operation such as video projectors and screens in order to create a productive environment for the development of skills in documenting, developing and capitalizing on scientific papers.

The details on the teaching laboratories, on the equipment and software provided can be found in AnnexA.2.1.1.a., while the situation of secured space can be found in AnnexA.2.1.1.b. Proof of ownership of the spaces can be found in AnnexA.2.1.1.c.

The services and facilities offered by the Central University Library "Lucian Blaga" (BCU) jointly with its network of 29 branch libraries, 4 special libraries and 8 university extensions' libraries are diverse. In order to support and increase the quality of the instructive educational process that takes place at university level, BCU has developed long-term strategies for streamlining and modernizing the services it provides to its users. As an alignment with international trends in access to information, since 2012 the unique portal for simultaneous querying of the online catalog and electronic resources has been introduced and configured through the EBSCO Discovery Services (EDS) platform. The EDS portal allows the selection of titles and their direct export in its own database management applications such as EndNote, Zotero, RefWorks, an option required for the documentation and research process.

In parallel, the DSpace platform www.dspace.bcucuj.ro was configured in order to allow the full text query of the digital library, where this was possible. In order to increase the visibility of the documents within it, also in 2012 it was managed to transpose the electronic library from Dspace into the famous WorldCat catalog running on the OCLC platform (Online Catalog of Library of Congress). Thus, the documents found in the BCU collections and also in Dspace are visible in WorldCat.

At the level of library research, BCU "Lucian Blaga" continues to hold the certification of institutional research capabilities by ANCS, as evidenced by the development of bibliographic databases and the Philobiblon -Transylvanian Journal of Multidisciplinary Research in Humanities www.philobiblon.ro and www.philobiblon.eu, a journal accredited by CNCS in category B, indexed in Thomson Reuters, ERIH Plus and Scopus, also available in the Ebsco and Proquest databases. Research infrastructure dedicated to the use of doctoral students is renewed on an annual basis. The share of expenses from the total grants is available in Annex A.2.1.3, by years.

The room dedicated to the use of doctoral students in Cybernetics and Statistics is room 231 from FSEGA building (equipped with computers, printer, laptops, specific software, internet connection, library, access to databases). Additionally, the students may use the rooms 410, 411, and S01, respectively; these rooms are also equipped with computers with statistical software (Stata, Eviews, R, SPSS, GeoDa).



Recommendations:

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.

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.*

There are 3 active and 2 retired doctoral supervisors in the field of Cybernetics and Statistics in the evaluated period is the following: Prof. univ. Lazar Dorina. Full-time; Prof. univ. Dragoş Cristian, Full-time, Conf. univ. Mare Codruţa, Full-time. Retired doctoral supervisors are: Prof. univ. dr. Nicolae Tomai, Prof. univ. dr. Nicolae GhişoiuA. The indicator is fulfilled.

Recommendations:

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.*

Three out of five supervisors are full time employed, it represents 60%; which is more than demanded by ARACIS.

Recommendations:

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.*

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Recommendations:

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%.*

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Recommendations:

The indicator is fulfilled.

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

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 scientific activity of the Ph.D. supervisors in the field of Cybernetics and Statistics has been provided to evaluators in their CVs from AnnexA.3.2.1 as well as in the documents regarding the fulfillment of the minimum CNATDCU standards necessary and obligatory for obtaining the habilitation certificate AnnexA.3.1.1.a.. The CV includes the most representative publications as well as other achievements, with relevant significance for the field of Cybernetics and Statistics. Lazar Dorina reports 10 articles, of which 9 in Core Economics, 7 with AIS > 0.15; Dragoş Cristian 10 articles, of which 7 in Core Economics, 6 with AIS > 0.15; Mare Codruța 10 articles, of which 9 in Core Economics or Infoeconomics, 7 with AIS > 0.15. Consequently, all Ph.D. supervisors present at least 5 publications indexed Web of Science, in journals with impact factor, which include internationally relevant scientific contributions. The published papers propose and use quantitative methods (statistics and econometrics) to achieve the research objectives.

Recommendations:

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.



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.*

All Ph.D. supervisors are scientifically active, obtaining over 100% of the score required by the minimum CNATDCU standards in force at the time of evaluation, based on scientific results from the last 5 years. The documents regarding the fulfillment of these standards can be found in the Annex A.3.1.1.a.

Recommendations:

The indicator is fulfilled.

Domain B. EDUCATIONAL EFFECTIVENESS

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.

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.*

The ratio between the number of candidates in the last five years and the number of places financed from the state budget put up for competition within the field of doctoral studies Cybernetics and Statistics, itis presented in the Annex B.1.1, being 1.57.

Recommendations:

The indicator is fulfilled.

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

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.*



From the academic year 2015-2016, the admission in the field of Cybernetics and Statistics, consists in following two parts: - Written exam based on the topic related to the field of Cybernetics and Statistics ; - An interview in which the candidate's scientific concerns, research skills and the topic proposed for the doctoral thesis are analyzed. The candidate makes a presentation that includes at least the following scientific activity and previous results, proposed topic, framing the topic in recent research (current bibliography), research objectives and expected result. Specific details regarding the admission criteria for each PhD supervisor in the field of Cybernetics and Statistics can be found in Annex B.1.2.1. At the same time, public information regarding the admissions in 2019 and 2020 can be found at: https://www.econ.ubbcluj.ro/n2.php?id_c=24&id_m=4.

Recommendations:

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%.*

From the Annex B.1.2.2. it is clear that the dropout rate of doctoral students 3 years after admission in the field of Cybernetics and Statistics is: 25% (2015; 1 out of 4 registered), 0% (2016), 0% (2017), 0% (2018), 100% (2019; 1 out of 1 registered), the annual average being 25%, which is below the level of 30%. Regarding 2019, we mention that in 2019 only one student was enrolled in the field of Cybernetics and Statistics, he stopped at the end of year I. UBB University has implemented a strategy to reduce the risk of dropping out of studies, which aims to promote equal opportunities for students.

Recommendations:

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.

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.*

The archive with all the Curricula from the evaluated period 2016-2020 can be found at: https://econ.ubbcluj.ro/n3.php?id_s=178&id_c=106&id_m=3 and in Annex B.2.1.1.a. In the advanced training program for doctoral students in the first year, there are two compulsory subjects: Research Methodology and Academic Writing Techniques, and a quantitative one that is chosen from a basket of advanced Statistics and Econometrics disciplines, depending on the doctoral student's level. In the second basket with quantitative disciplines are found: - Advanced Econometrics (in English); - Advanced

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.



topics in applied statistics and econometrics;-Introduction to econometrics; - Advanced statistics for academic research in business. PhD students in Cybernetics and Statistics follow the Research Methodology and academic writing techniques, specialized disciplines (advanced statistics, advanced econometrics) as well as economics, finance or other fields, depending on the research topic addressed in the doctoral thesis.

Recommendations:

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.*

Aspects of ethics in scientific research are presented in the discipline Research Methodology and Academic Writing Techniques in Chapter 4. Details can be found in the Annex B.2.1.1.b..

Recommendations:

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.*

The subject sheet specifies the competencies, skills and aptitudes that doctoral students should acquire after completing each discipline (Annex B.2.1.3).

Recommendations:

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.*

Each PhD supervisors has in the research team a guidance committee made up of the PhD supervisors and three specialized teachers in the research area of the doctoral thesis. The guidance commissions for students in the field of Cybernetics and Statistics respect the SDSEGA Regulation as a constitution and are functional during the annual training of doctoral students. The guidance committee are given in Annex B.2.1.4..

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.



Recommendations:

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 ratio between the number of doctoral students and the total number of professors offering guidance is 0.71 (10 doctoral students are guided by 14 professors), according to Annex B.2.1.4. and Annex B.2.1.5.

Recommendations:

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.

The situation of doctoral students in the field of Cybernetics and Statistics who defended their doctoral thesis in the period 2016-2020 is presented in the Annex B.3.1. and Annex B.3.1.1.c; six theses were defended. One thesis was awarded with the grade Excellent (coordinator Prof. Dorina Lazar), and five theses obtained the grade Very good.

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.

Annex B.3.1.1.a. contains the list of relevant articles of doctoral students who obtained the title of doctor in the evaluated period (2014-2018). The papers are included in the archive Anexa B.3.1.1.b. PhD students in Cybernetics and Statistics have obtained relevant scientific results, published in impact journals, from home and abroad, including indexed journals Web of Science (Energy Economics located in the Q2 quartile, Romanian Journal of Economic Forecasting, International Journal of Computers Communications & Control).

Recommendations:

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.



The list of presentations made at scientific conferences by doctoral students who completed their doctoral studies in the period 2016-2020, can be found in Annex B.3.1.2. The ratio between the number of presentations and the number of doctoral students who completed their doctoral studies in the evaluated period, for the field of Cybernetics and Statistics, is equal to 3.6 (22 presentations, 6 doctoral students). The students participated at international conferences in the country and abroad.

Recommendations:

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.

**general description of the standard analysis.*

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.*

The external scientific references related to the theses defended during the evaluation period (2016-2020) can be found in the Annex B.3.2.1.a and Annex B.3.2.1.b. For any of the PhD supervisors, the value of the indicator does not exceed the criteria.

Recommendations:

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.*

Domain C. QUALITY MANAGEMENT

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.

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;



The scientific work of doctoral advisors is relevant and reflects also in the published articles. Proofs presented in the CV's and other Annexes.

(b) the infrastructure and logistics necessary to carry out the research activity;

The infrastructure and logistics, already described earlier and seen on the site visit seems appropriate and allows scientific development of students.

(c) the procedures and subsequent rules based on which doctoral studies are organized;

Procedures are well designed and described, follow internal and national rules and laws, allow fluent and transparent organisation of doctoral studies.

d) the scientific activity of doctoral students;

The evaluation of the activity of PhD students is performed periodically, based on the decision of the Council of SDSEGA, by committees approved by the same council. Students present their work at conferences and publish articles in scientific journals.

e) the training program based on advanced academic studies of doctoral students;

Advisors are scientifically active and include their scientific work in the training program, students demonstrated great satisfaction with the modern knowledge of professors.

f) social and academic services (including for participation at different events, publishing papers etc.) and counselling made available to doctoral students.

The domain offers many opportunities for students to participate in various events, which they also use and use to network, check their ideas, publish articles and attend conferences.

Recommendations:

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.*

The methodology for assessing student satisfaction at the IOSUB level, as well as the results obtained from the study are found in Annex C.1.1.2.. The questionnaire addressed to doctoral students aims to identify the level of satisfaction and their needs, in order to improve academic and administrative processes.



Recommendations:

The indicator is fulfilled.

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

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

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:*

ISD publishes on its website all the useful information for PhD students, potential candidates, and other information of public interest (<https://doctorat.ubbcluj.ro/eng/>). Regarding the transparency of information of public interest, the SDSEGA website (<http://econ.ubbcluj.ro>) offers easily accessible public information on the objectives of the teaching-learning process, the resources, the results, and the management system. Information comply with the general regulation on data protection. This information is available by accessing the functional link found on faculty's website (https://econ.ubbcluj.ro/n2.php?id_c=106&id_m=3).

Recommendations:

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.

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.*

As information management, at FSEGA level an IT system with two components was implemented: FSEGA Online, for teachers and management staff (<https://econ.ubbcluj.ro/profesorii/>, AnnexC.2.2.1.a) respectively FSEGA SIS - Student Information System (<https://econ.ubbcluj.ro/sis/>, for students, including PhD students, used during the online activities. The doctoral school uses the Faculty's Moodle platform to organize online PhD admission and to ensure the accessibility of information necessary for PhD training. Here are posted, for the different fundamental, and specialized disciplines organized in the 1st year of the PhD program, primary sources of information, and other solutions for accessing research resources. On the same platform are posted other information of interest to PhD students, useful for their training during the other years of the program (for example, about European PhD, funding, projects, mobility) (AnnexC.2.2.1.b).

Recommendations:

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.*



At the IOSUD level there are mechanisms for preventing plagiarism through the subscription-based use of iThenticate and Turnitin services. (AnnexA.1.2.2.a and AnnexA.1.2.2.b). Also, SDSEGA has a Guide for the elaboration of doctoral theses. SDSEGA offers on request access to the verification of thesis originality through the Turnitin application managed by the Faculty (AnnexC.2.2.2)

Recommendations:

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.*

SDSEGA, through the Faculty channel, organizes the access of PhD students to its own Library, statistical laboratories, rooms, and equipment that ensure the connection with scientific journals and financial databases (STATA, Eikon and others) (AnnexC.2.2.3.a, AnnexC.2.2.3.b and AnnexC.2.2.3.c).

Recommendations:

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.

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.*

At the SDSEGA level, agreements are signed for international cooperation organized in the form of Erasmus-type mobility of doctoral students (AnnexC.3.1.1.a.). Mobility of FSEGA doctoral students, for the evaluated period (2015-2020) are given in AnnexC.3.1.1.b. As shown in AnnexC.3.1.1.c, on average, the participation of PhD students belonging to various fields in international mobility is over 200%; for the field of Cybernetics and Statistics the percentage of 35% is exceeded (21 participations / 8 students). Regarding the field of Cybernetics and Statistics, AnnexC.3.1.1.d contains a synthesis regarding the participation of doctoral students in research internships, summer schools/courses, presentations at conferences/workshops, with organizers exclusively from abroad or in collaboration with institutions/scientific personalities from abroad.

Recommendations:

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.*

The co-supervised PhD students of SDSEGA are presented in AnnexC.3.1.2.a.. SDSEGA and the Faculty regularly invite renowned researchers and professors who give useful lectures to doctoral students. Evidence of these events can be found on the FSEGA website . One of the regular events is CEBSS, which brings extra knowledge for PhD students, who are invited with priority. Other professors were invited, for the benefit of students, including PhD students, for various specific PhD fields, in projects, conferences or workshops, as shown by the filesby fields.In the field of Cybernetics and Statistics, one PhD student completed a PhD organized in international co-supervision, in collaboration with the Université Clermont Auvergne in France (the co-supervision agreement is available in Annex C.3.1.2.b).

Recommendations:

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.).*

SDSEGA association with the organization of international conferences (Central and South-East European PhD Network, (<https://ceseehd.net/>), promoting PhD studies on the institution's websites and effective communication with potential PhD students, to increase the number of foreign PhD students who choose to collaborate with PhD supervisors of SDSEGA (AnnexC.3.1.3.a)

Then there are other forms, like: inviting foreign doctoral supervisors, SDSEGA affiliates; inviting professors affiliated with foreign universities as members of the guidance commissions (Anexa C.3.1.3.b)and in the commissions for public defense of doctoral theses (Anexa C.3.1.3.c; the structure of the representatives within the SDSEGA Council outside the doctoral school, which is intended to be completed with persons affiliated to foreign universities; for example, in the current structure of the SDSEGA Council two people are reputable foreign teachers.

Recommendations:

The indicator is fulfilled.

IV. SWOT Analysis

<u>Strengths:</u>	<u>Weaknesses:</u>
<ul style="list-style-type: none"> - favorable setting for carrying out an adequate research activity, within the doctoral field; - The doctoral supervisors are experienced researchers, 	<ul style="list-style-type: none"> - Lack of the necessary financial resources for the continuous and long-term financing of the research activity carried out by doctoral students (governmental instruments, research

<ul style="list-style-type: none"> - There is an ascending trend regarding internationalization, through the mobility of doctoral students at prestigious universities abroad (summer schools, research internships), respectively their participation in international conferences; - The organization of co-supervised doctorates is the basis of international collaborations and the consolidation of future research groups; - The research infrastructure is adequate, and includes: access to statistical databases 	<p>projects, applied research contracts with profile companies or professional associations);</p> <ul style="list-style-type: none"> - strengthening several research groups, with common research topics, in order to facilitate the consolidation of work in research teams.
<p style="text-align: center;"><u>Opportunities:</u></p> <ul style="list-style-type: none"> - doctoral students obtaining research grants or internal scholarships offered by UBB; - stimulating the research activity at the level of the University and the Faculty; programs to support innovation infrastructure and technology transfer; - Erasmus Plus mobility programs for doctoral students; - Further capitalize on the already consolidated relations with foreign universities for mobility and the development of joint projects. 	<p style="text-align: center;"><u>Threats:</u></p> <ul style="list-style-type: none"> - Hiring doctoral students with part-or full-time program and reducing the time allocated to research; - Insufficiency of financial resources allocated through government instruments to doctoral students, respectively research activity; - Limited options for continuing the research activity after graduating from doctoral studies.

V. Overview of judgments awarded and of the recommendations

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
1.	A.1.1.1.		compliant	
2.	A.1.1.2.		compliant	
3.	A.1.2.1.		compliant	
4.	A.1.2.2.		compliant	
5.	A.1.3.1.		compliant	
6.	A.1.3.2.		compliant	
7.	A.1.3.3.		compliant	



No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
8.	A.2.1.1		compliant	
9.	A.3.1.1		compliant	
10.	A.3.1.2		compliant	
11.	A.3.1.3		compliant	
12.	A.3.1.4		compliant	
13.	A.3.2.1		compliant	
14.	A.3.2.2		compliant	
15.	B.1.1.1		compliant	
16.	B.1.2.1		compliant	
17.	B.1.2.2		Compliant	
18.	B.2.1.1		Compliant	
19.	B.2.1.2		Compliant	
20.	B.2.1.3		Compliant	
21.	B.2.1.4		Compliant	
22.	B.2.1.5		Compliant	
23.	B.3.1.1		Compliant	
24.	B.3.1.2		Compliant	
25.	B.3.2.2		Compliant	
26.	C.1.1.1		Compliant	
27.	C.1.1.2		Compliant	
28.	C.2.1.1		Compliant	
29.	C.2.2.1		Compliant	

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
30.	C.2.2.2		Compliant	
31.	C.3.1.1		Compliant	
32.	C.3.1.2		Compliant	
33.	C.3.1.3		compliant	

The recommendations contained in the report shall be resumed in the indicators' analysis. Other general recommendations may be made that do not fit within a particular indicator.

VERY IMPORTANT!!! – Each identified weakness must be correlated with at least one recommendation to improve the situation!

VI. Conclusions and general recommendations

Several important issues raised during the evaluation are resumed and some general conclusions are drawn on the quality of the education provided within the doctoral study domain under review; the Experts' Panel also presents general assessments about the institution. Other general recommendation may also be presented, which cannot be related to a specific indicator and have not been presented at point V.

A decision is proposed, together with the reasons for granting it (if the Experts' Panel members do not reach a consensus, each of them can propose and argue his/her own decision).

The domain Statistics and Cybernetics seems to be very well organized, teaching staff is very competent, students are happy and satisfied with the program. But they would like to see that there are more grants available for their publishing in prestigious journals. It would be also very beneficial, if graduates, employers and other external stakeholders would be consulted on yearly basis upon the development of the study program, to fit better with the society needs development.

Overall, the compliance with the ARACIS standards can be confirmed.

assoc. prof. dr. Armand Faganel
University of Primorska,
Slovenia

VII. Annexes

The following types of documents shall be attached:

- *The detailed schedule of the evaluation visit – MANDATORY.*



- *The survey questionnaire applied to doctoral students or academic staff in the doctoral study domain under review, the results - optional (e.g., in graphic form) and their interpretation - if applicable.*
- *Scanned documents – any document requested from the IOSUD during the evaluation visit and received, which is not found in the internal evaluation file received before the visit and referred to in the report.*
- *Pictures – if relevant issues are raised regarding the condition of the student residences, cafeterias, premises for teaching and learning activities, library etc.*
- *Screenshots/Print screens of the Doctoral School/IOSUD website proving specific claims in the report, accompanied by the date when they were accessed and saved.*
- *Any other documents relevant to the evaluation process referred to in the report.*