AGENŢIA ROMÂNĂ DE ASIGURARE A CALITĂŢII ÎN ÎNVĂŢĂMÂNTUL SUPERIOR
THE ROMANIAN AGENCY FOR QUALITY ASSURANCE IN HIGHER EDUCATION

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Quality Assurance Review for Higher Education (QAR) is an academic publication which focuses on aspects related to quality assurance in higher education in Romania. The journal aims to become an instrument for the transfer of best practices and to support communication between internal and external experts, as well as to contribute to the development of a quality assurance culture. QAR was created for those interested in the theory, practice and policies related to quality assurance in higher education.

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The Shift from Institutional to Programme Evaluation: the Potential of External Examining

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Abstract: *There is a decisive move within quality assurance (QA) agencies across Europe to using a greater combination of institutional and programme review, as opposed to exclusively one or the other. This suggests that while HEIs may already have a well-developed system of internal programme review in place, this will become even more important in the future. HEIs already draw on a range of sources for their own internal programme review, including feedback from students and other stakeholders. This article explores the potential of external examining as a means of supporting HEIs in programme review and internal QA. This practice is found in certain higher education systems throughout the world, particularly those that have been influenced by the British system. While often understood primarily as a means of monitoring academic standards, the paper shows how it can extend more broadly to focus on other programme issues and can therefore make a valuable contribution to programme review and internal quality assurance.*

Keywords: *programme evaluation, external examining*

Introduction

Policy and practice in the external quality assurance (QA) of higher education programmes, including Master and PhD, continue to evolve. A recent report on the implementation of the European Higher Education Area shows that quality assurance systems are becoming more complex, and dealing with more information at different levels, i.e., programme and institutional:

> Only three systems – Belgium (French Community), the Czech Republic and Sweden –focus now more exclusively on programmes (although in the French Community of Belgium there are also elements of institutional evaluation) and another three countries – Bosnia and Herzegovina, Finland and the United Kingdom – focus on institutions (EC/EACEA/Eurydice 2015, p. 91).

In other words, a key trend in external QA is the move from using an institutional or programme approach only to one involving some combination of both. For

example, in the Netherlands, NVAO's approach includes both vertical and horizontal review trails to ascertain whether an institution's quality assurance system works at a programme level (NVAO 2015). In a vertical trail, the panel focuses on two or more programmes to examine to what extent the institutional quality standards are put into practice. Horizontal trails focus on the realisation of a single theme in the institutional policy across programmes.

The importance of HEIs conducting their own regular programmatic review is already encapsulated in ESG Standard 1.9: On-going monitoring and periodic review of programmes:

> Institutions should monitor and periodically review their programmes to ensure that they achieve the objectives set for them and respond to the needs of students and society. These reviews should lead to continuous improvement of the programme. Any action planned or taken as a result should be communicated to all those concerned.

Ongoing monitoring by HEIs of their programmes also features in the standard on the provision of public information, ESG 1.8: "Institutions should publish information about their activities, including programmes, which is clear, accurate, objective, up-to date and readily accessible" (ESG 2015, p. 15).

This trend suggests that HEIs will have an even greater responsibility in the future for assuring the quality of their programmes. It also reflects the reality that the quality of education rests with the teachers and students in the programmes of study. However, this transition may not be without challenges. Access to specific feedback will be important for individual programmes. Such feedback for individual programmes has been available in various forms, including from external programme review panels from the QA agencies. But if QA agencies are now shifting away from an exclusive use of programme review, and instead using some combination of institutional and programme review, then an important issue is how internal QA can be bolstered so that programme quality can continue to be the focus of attention.

This article argues that the practice of external examining is one way in which such external expertise could become available to HEIs at an individual programme level. While external examining is not a recent evolution in QA, the article suggests that it may have much to offer in the future shape of the evaluation landscape.

This is an issue for all of higher education provision, but is especially pertinent for Master studies - the theme for this particular edition of *Quality Assurance Review for Higher Education*, along with doctoral studies. While the design and delivery of higher education programmes have evolved in many ways in recent years (for example, individual learning pathways using electives, technology, student placement component), it is reasonable to suggest that the changes have been more pronounced at postgraduate level. For example, writing about higher

education in central Europe, Zádori notes that, at postgraduate level (as opposed to undergraduate), HEIs have been led to using:

> "more flexible educational programs (less contact hours, consultations at weekends, e-learning and distance learning methods, blended learning, validation, adult education programs, experimental learning etc.)" (Zádori 2017, p. 19).

Changes such as these are therefore rendering the task of quality assurance at Master's level more complicated. In such a context, there is a need to ensure that going forward, internal and external quality assurance systems complement each other in a comprehensive and effective way.

The article focuses on the use of external examining for programmes having a taught component. Of course this is relevant, not just for Master programmes, but also for doctoral level, given the growth in cohort doctoral programmes offering taught as well as research components. The article draws on an example of a reporting template from an Irish HEI where this author has worked as external examiner on a Master's level programme in teacher education. The analysis illustrates the potential of external examining and how it may be tailored to focus, not just on checking academic standards and compliance with assessment procedures, but also to support quality assurance and enhancement more generally.

External Examining

External examining is generally associated with countries where higher education systems were influenced by UK practice. The introduction of external examining in the UK can be traced back to the establishment of the University of Durham in 1832, before spreading later to countries such as India, New Zealand, and Ireland (Lewis 2005, p. 5). However, it would appear as if the UK system may not have been the first. In Denmark, for example, the historical creation of the system can be traced back to a law enacted in 1788 requiring two external referees during examinations (Nilsson and Näslund 1997, cited in Stensaker et al. 2008).

The practice of external examining has evolved a lot since then and today there can be significant variation in how the system operates in individual countries (Ross 2009). For example, in a short explanation on the Danish system (for the field of physics), Knudsen (2017) shows that, in line with the Ministerial order, one third of all ECTS for courses in a given subject area must involve an external examiner. This contrasts with national policy elsewhere where all courses within a programme are expected to be included – even though it may not be possible to examine all courses to the same extent.

Another particularity in the Danish system is that external examiners must be appointed by HEIs from a list of nationally approved candidates. On the other hand, in Ireland, for example, HEIs are free to select from the wider academic

community but must have the appointment ratified by the Academic Council. As the Irish guideline notes: "The external examiners' functions are of such critical importance to the provider's reputation that their approval and formal nomination require the confidence of the provider's whole academic community as represented by its academic committee (or equivalent)." (QQI 2015, p. 5).[1]

External examining can also vary within the same country whereby certain decisions about the process are left to the discretion of the HEI, including the extent to which external examiners scrutinise student work. In the UK, the recently revised UK Quality Code for Higher Education (QAA 2018) shows various possibilities for local modifications. For example, while external examiners are generally academics from other HEIs working in the relevant discipline, practitioners from industry may also be invited to serve (QAA 2018, p. 15). Of course, while such examiners may possess considerable professional experience, they may not have sufficient experience in the area of assessment. HEIs have the authority to consider such cases as exceptions to the usual criteria and may also appoint more than one examiner, thereby ensuring the required complementarity. In fact, in the context of the current debate on the importance of the interface between higher education and industry, Gaunt (2010) suggests that expanding the representation of practitioners in the external examining system would be a step in the right direction (Gaunt, 2010).

However, regardless of certain differences, in all cases, external examiners are expected to help HEIs ensure that standards are maintained at the appropriate level, and that student attainment is properly judged against this. Generally speaking, an external examiner is unlikely to be able to view all the assessed work, but will instead view samples (essays, examination scripts, student performances etc.) in order to judge the extent to which student performance has been duly assessed against the appropriate standards.

External Examining and Quality Assurance

The policies and procedures around external examining clearly point to the key role it can play in quality assurance. This can be illustrated in the UK context where external examining is clearly situated within the context of QA:

> External examining provides one of the principal means for maintaining UK academic standards within autonomous higher education providers. External examining is therefore an integral and essential part of institutional quality assurance. Higher education providers are therefore expected to "make scrupulous use of external examiners" (QAA 2018, p. 6).

The potential for quality enhancement – as opposed to quality control – is also obvious because apart from monitoring standards, external examiners provide

[1] In the UK, vacancies for external examiners can be found advertised on JiscMail, an online discussion forum, https://www.jiscmail.ac.uk/about/whatisjiscmail.html hosted by JISC (Joint Information Systems Committee), a not-for-profit company whose role is to support post-16 and higher education, and research.

informative comments and recommendations on: "good practice and innovation relating to learning, teaching and assessment observed by the external examiners opportunities to enhance the quality of the learning opportunities provided to students" (QAA 2018, p. 12).

It is readily apparent therefore that external examining could play a useful role in supporting the kind of internal QA as envisaged in the ESG. For example, within Standard 1.3 of the ESG, student-centred learning, teaching and assessment, HEIs are expected to have quality assurance processes for assessment as follows: "The assessment allows students to demonstrate the extent to which the intended learning outcomes have been achieved. Students are given feedback, which, if necessary, is linked to advice on the learning process" (ESG 2015, p. 12).

The next section takes a closer look at the practice of external examining in Ireland and draws on a sample reporting template in order to illustrate the potential of external examining for internal quality assurance at a programme level.

An Example from an Irish Context

In Ireland, external examining is defined by Quality and Qualifications Ireland (QQI) as a "quality assurance mechanism employed by providers that supports public confidence in academic qualifications" (QQI 2015, p. 1). The examiner focuses on the appropriateness of the learning outcomes in line with standards established nationally and/or within the relevant discipline, and considers the extent to which the programme successfully examines these. External examiners give an oral report during their site visit(s) having viewed the assessment results, and submit a written report subsequently.

The guidelines also emphasise the provider's ownership of the external examining process, as a means of safeguarding public confidence that graduates have been objectively judged to have reached the standard that is certified by the qualification. Great emphasis is placed on the independence and recognised expertise of the examiner:

> An external examiner is an independent expert who is a member of the broader community of practice within the programme's field of learning and whose accomplishments attest to his/her likelihood of having the authority necessary to fulfil the responsibilities of the role (QQI 2015, p. 1).

But if there is an emphasis on compliance checking (as implied in the title itself – "external examiner"), even a cursory glance at the kind of reporting template used shows that it can also support internal quality assurance. The following questions are taken from an External Examiners Report Template used by an Irish HEI where this author has served as an External Examiner for a teacher education programme at Master's level (EQF Level 7). The report items are re-arranged here for the purposes of the presentation.

As can be seen from the template items, the examiner is expected to do more than simply moderate the assessment results. The areas addressed in the template relate to documentation, assessment evidence, curriculum, standard of the assessment, standard of student work, relative standard of student work, fairness and consistency, learning environment, general overview, feedback and recommendations. It is also noteworthy that the last item asks the examiner to comment on how feedback provided in previous external examiner reports has been used in the intervening period.

1. Did you receive appropriate programme(s) documentation such as approved programme(s) schedule, module descriptors etc.?
2. Did you receive:
   - draft examination papers, marking schemes and worked solutions, prior to the examinations and in reasonable time to enable your work to be carried out?
   - a representative sample of examination scripts presented for assessment in each module?
   - a representative sample of continuous assessment/coursework presented for assessment in each module?
3. Are the curriculum and outcomes set out appropriate in light of relevant award standards and the national Framework of Qualifications?
4. Do you consider the assessment methods used appropriate to test the stated minimum learning outcomes, including range and depth of assessment methods used, including practical work assessment?
5. In your professional view, how did the students perform in the assessment?
6. How would you describe the standards of student performance in the programmes or modules examined in comparison with standards of similar programmes or modules in other institutions with which you have experience?
7. Would you describe the assessment processes for the programme and determination of awards fair, consistent and fit for purpose?
8. Please comment on the quality of the learning environment provided for the programme and processes provided to support it.
9. Examiner's general comment and overview on the programmes, modules being examined including:
   - a general comment on the programme and module assessment;
   - any recommendations arising from this report;
   - commendations of good practice and/or any areas that should be strengthened or risks which should be addressed in order to maintain confidence in standards on the programme;
   - curriculum design;
   - learning, teaching and assessment Methodologies.
10. Please include any feedback on developments in response to feedback provided in previous external examiner reports.

Therefore, while the external examination examines the appropriateness of the assessment and academic standards, the template shows how the role involves much more. This reflects the national guidelines which stipulate that the external examiner may be invited to comment on the design, structure and content of a programme and its constituent components (QQI 2015, p. 3). It is also in line with ESG Standard 1.2, design and approval of programmes, and with ESG Standard 1.3, student-centred learning, teaching and assessment.

Elsewhere, item 8 from the sample template clearly links to Standard 1.6 of the ESG, learning resources and student support: "Institutions should have appropriate funding for learning and teaching activities and ensure that adequate and readily accessible learning resources and student support are provided" (ESG 2015, p. 14).

Also noteworthy is the fact that the external examination is more than a once-off event. Item 2 above refers to the fact that the external examiner may be sent proposed assessment questions for comment before they are finally used in the student assessment. Other items relate more to the site visit at the end of the year when examiners may attend Exam Board meetings. However, collectively all of the items link with ESG Standard 1.9, ongoing monitoring and periodic review of programmes:

> "Institutions should monitor and periodically review their programmes to ensure that they achieve the objectives set for them and respond to the needs of students and society. These reviews should lead to continuous improvement of the programme. Any action planned or taken as a result should be communicated to all those concerned" (ESG 2015, p. 15).

The comprehensive nature of the reporting template (and the oral feedback and discussion that will have precede it during the site visit) suggests that it can make a valuable contribution to internal programme review and QA. The reporting templates from other HEIs (usually accessible on the site pages of the Vice-President, Academic Affairs) cover similar ground with regard to the examination process. In fact, a recent study by Drudy et al. (2017) which reports on the introduction of a standardised programme review process in one particular university, draws on external examiner reports, as well as other sources such as student opinion, and statistical data.

Challenges with External Examining

However, while external examining can constitute a valuable component in QA, it is worth considering certain challenges.

A key challenge relates to standards. Even within the same higher education system, examiners may have contrasting understandings with regard to the standards they should use when examining a programme. They could be, for example, standards derived from their own work in the relevant field, standards such as

national benchmarks, qualification framework or professional body requirements, or the standards as stated in the programme documentation. This points to the need for external examiners to be aware of the provenance of their standards and how these may influence their work.

There may also be varied opinion on what the focus of the examination should be, i.e., checking standards or broader programme issues related to teaching and learning. A recent study in the UK (QAA and HEA 2018) found varying views among examiners as to whether they should focus on academic standards or on broader issues related to teaching, learning and assessment and the student experience. While academic standards refer to judgements made on levels of student achievement based on consensus within a particular discipline or profession, the quality of learning opportunities refer to the means provided to students to assist them in reaching the specified academic standards. This distinction between academic standards and programme quality standards is not always so clear even in the literature as Sharp (2017) has shown. The latter may include "formal teaching, the provision of learning resources such as libraries and information technology laboratories, students support and guidance as well as classrooms, leisure facilities and extra-curricular activities" (2017, p. 142). It is therefore conceivable that a programme might set and maintain robust academic standards while offering poor learning opportunities with a weak QA system in place. Safeguarding academic standards cannot be achieved by process monitoring alone, while the corollary is also true. This can lead to a variability in examining practices.

There have also been anxieties about the potential for "cosy" relationships between examiners and HEI departments (QAA 2010), and concerns about clarity and authority in the examiners' role in assuring standards depending on their positioning between being the arbiter of standards and being a "critical friend". In the UK the recently-revised QAA code is part of the ongoing attempt to provide greater clarity, while also enabling HEIs to make the best use of the examining system according to their local context and the needs of the programme(s) in question. There is obviously a balance to be struck between prescription at a centralised or national level, and contextualisation by individual HEIs to reflect the local needs of the programme.

Conclusion

The shift by QA agencies across Europe (EC/EACEA/Eurydice 2015) to an external evaluation approach involving some combination of both institutional and programme review will increase the importance of the HEI's capacity for its own internal QA and regular programme review. This is a point that QA agencies are anxious to impress upon institutions.

The development of robust internal QA raises the issue of quality culture - currently a key issue in policy throughout Europe, for example, the EUA project,

Examining Quality Culture in Higher Education Institutions - EQC (Sursock 2010, 2011; Vettori 2012). That project defines culture as comprising: "shared values, beliefs, expectations and commitments toward quality (that are supported by structural and managerial elements and processes that enhance quality)" (Sursock 2012, p. 6).

The analysis here suggests that external examining could constitute one such process, especially where it is used not just for monitoring assessment but also as a platform for discussing broader issues relating to programme quality. Essentially, it provides the opportunity for staff across an entire programme to engage with each other and with an external expert on issues relating to quality in teaching, learning and assessment. This constitutes an important opportunity for professional development for both programme staff and examiners alike.

Recognition of the importance of culture can also be found in the discourse within individual countries. For example, in the Romania context, Pavel (2013) explains:

> Quality assurance is the responsibility of each Romanian higher education institution and the foundation for the development of quality culture and creativity in higher education. Quality culture, as a matter of internal institutional quality, is regarded as a priority for the development of Romanian higher education institutions and represents a key for continuous improvement, sustainable competitive advantage and excellence in the context of the knowledge-based society. (Pavel 2013, p.3805)

Overall, the article has shown how external examining can constitute an important resource for HEIs when conducting internal programme review and ultimately in the creation of a quality culture. Future worthwhile lines of enquiry should focus on the format and experience of conducting such reviews, and how this interacts with quality culture. This has been identified as a deficiency in what we currently know about internal QA (French et al., 2014), and will become all the more important according as external QA adopts a more blended approach, using some combination of institutional and programme review, as opposed to being exclusively one or the other.

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The Profile of the Romanian Student

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Abstract: *The paper builds on the results of a comprehensive study carried out by The Romanian Agency for Quality Assurance in Higher Education. In this respect, the research has valorised the data collected within the framework of the survey, as well as statistical data, in order to provide an in-depth analysis regarding the graduates' competences and skills and their compatibility with the market needs. The sociological research has valorised the main actors' views concerning the capacity of the higher education system to develop appropriate competences and skills according to the requirements of the market. The innovative approach consists of melting together quantitative and qualitative aspects, i.e. results from statistical data analyses with conclusions derived from the survey, in order to illustrate the state-of-the-art of the Romanian higher education system concerning its capacity to meet the requirements of the market. The findings revealed some gaps between the higher education system and the market, as well as important bridges which consist in the capacity of the higher education system to identify and provide the adequate framework for the development of the employability skills.*

Keywords: *higher education, sociological research, graduates' professional profile*

1. Introduction

The research has been initiated within the framework of the changing global world with a significant impact on the society as a whole, and in particular on qualifications, practices and experiences. In this context, the study emphasizes the role of the higher education system (HES) as driver for supporting the adaptability to the technological and globalization challenges. However, whilst the enrolment in higher education has constantly increased, the graduates' employment rate has decreased. Consequently, the higher education institutions (HEI) should focus on the

employability, i.e. on those "skills and attributes that make an individual desirable to potential employers" (Pan Ying-Ju, Lee Lung-Sheng, 2011). In a wider perception, the employability represents "a set of achievements – skills, understandings and personal attributes – that make graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy" (Yorke, M., Knight T. P., 2003). Thus, the graduates' profile should be accordingly updated, and the "graduates' hard skills need to be complemented by a good blend of employability skills" (Ang M., 2015), and a good practical experience.

The purpose of this paper is to explore and compare the ranking of a set of skills required for entry-level jobs, as appreciated by the professors and students on one side, and by the employers on the other side. Thus, the article has a limited area of analysis, being focused on the graduates' profiles and their employability. The data analysed have been obtained within the framework of a significant Romanian project, i.e. "Development and Strengthening the Quality Culture in the Higher Education System", project carried out by the Romanian Agency for Quality Assurance in Higher Education. The analysis has taken into consideration the items referring to the competences and skills acquired by the students for the development of their professional profile. In this respect, the investigation has been focused on the identification of the mix of competences required on the market and the weight between professional and transversal competences. Significant aspects have been revealed also as regards the employers, their needs and their availability to cooperate with the HES.

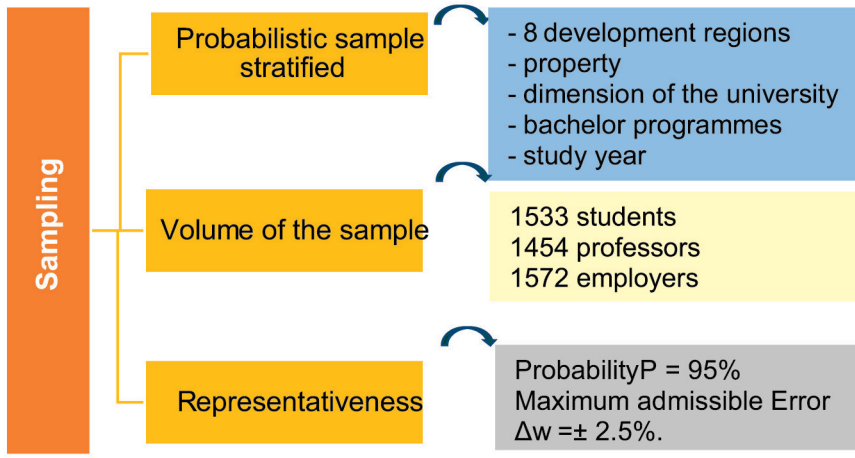
Analysing, on one side the employers' perceptions, in terms of market needs, and on the other side the students' perceptions about their professional career, as well as the professors' views, significant matches and mismatches have been revealed. Thus, addressing the mismatches between academic and socio-economic context represents the main way of improving quality in the HES.

2. Methodological Approach

As previously mentioned, the research builds on data provided by a comprehensive survey, which has been conducted between May and July 2015, on a representative sample. Data have been obtained, via three different sets of survey questionnaire, from the graduating students, professors and from the employers. The selected sample encompassed 1533 bachelor students, 1454 teaching staff in HEIs and 1572 employers, from all the regions of the country and all fundamental areas of bachelor studies. Besides the geographical representativeness, both state and private HEIs have been involved. The survey was aimed at gauging the respondents' perceptions in relation to policies and quality of the Romanian higher education system (RHES). In this regard, the survey had a wide ambitus, based on multidimensional perceptions, leading to a Quality Barometer in RHES. The present analysis has extracted, compared and interpreted the data regarding the main social actors' views

in relation to the graduates' profiles and their employability. An integrated view on the methodology regarding the survey is presented in the fig. 1.

Figure 1: *Sampling methodology*



As the research literature clearly shows, the cooperation between HEIs and the employers creates the best premises for ameliorating the discrepancies regarding the graduates' profile. Furthermore, this collaboration should be extended beyond the identification of individual employability skills, in order to develop common strategies for generating new knowledge according to actual challenges (Nixon, 2008). In this respect, the research has integrated the results of the survey and interviews involving both academic and business areas.

Moreover, the data provided by the survey have been articulated with the specific context of the higher education system, according to the statistical data and its actors' views. Consequently, the methodological approach combined both desk and empirical research, in order to refine the results and to provide an accurate image regarding the graduates' employability.

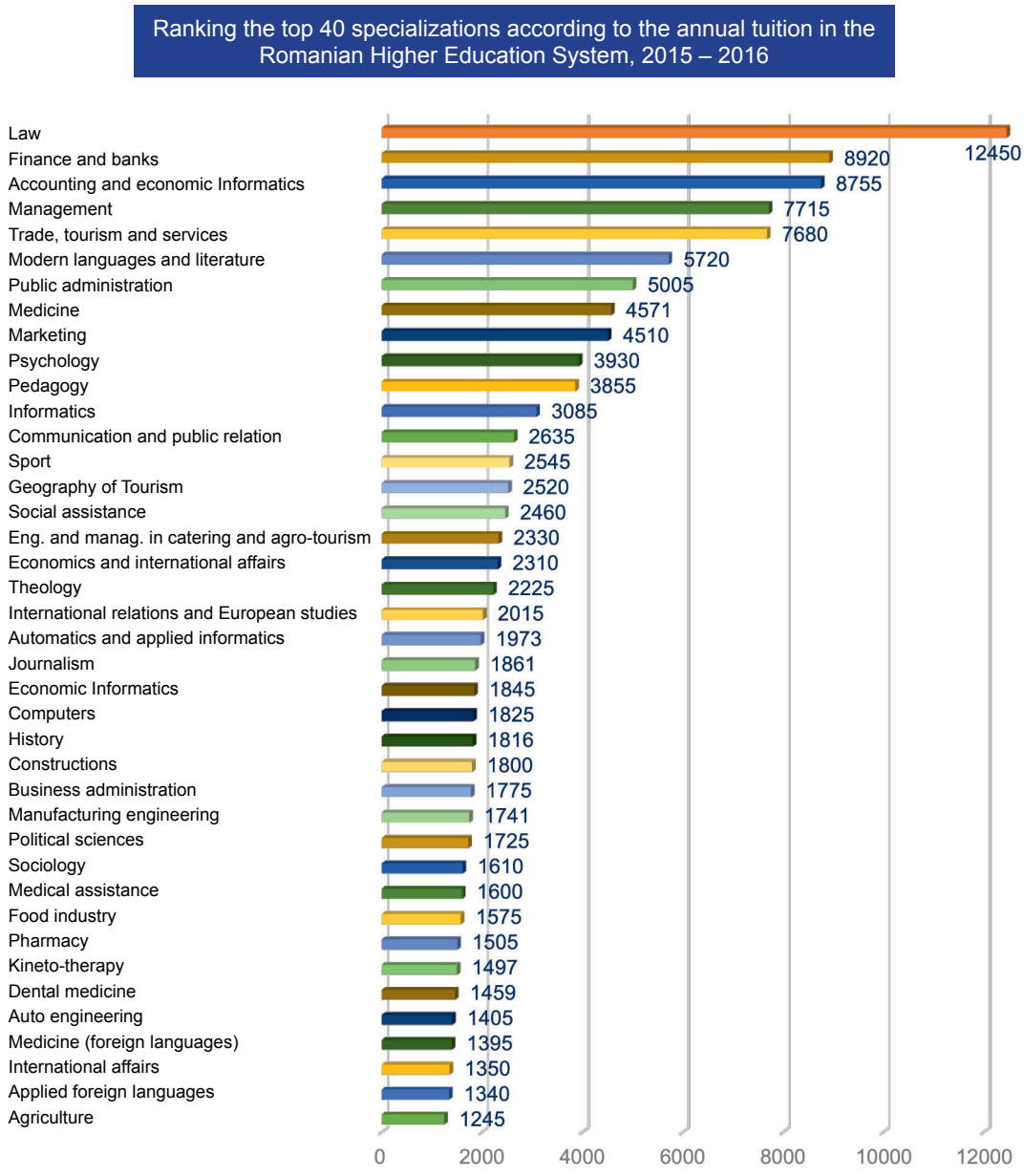
Additionally, the quantitative and empirical research has been complemented with a desk research, focused on reviewing the theoretical framework on employability skills.

3. Context of the Higher Education System

In the first phase of the research the state-of-the-art in the academic area has been analysed. The capacity of the RHES consists of 10 HEIs, out of which 56 are public HEIs and 47 private ones (INS, 2015). Within the HEIs there are 590 faculties, out of which 405 belong to the public HEIs. Another important indicator is represented by the educational offer structured on 6 fundamental domains, which encompass 32 branches of science, generating 86 bachelor domains, i.e. 379 specializations/

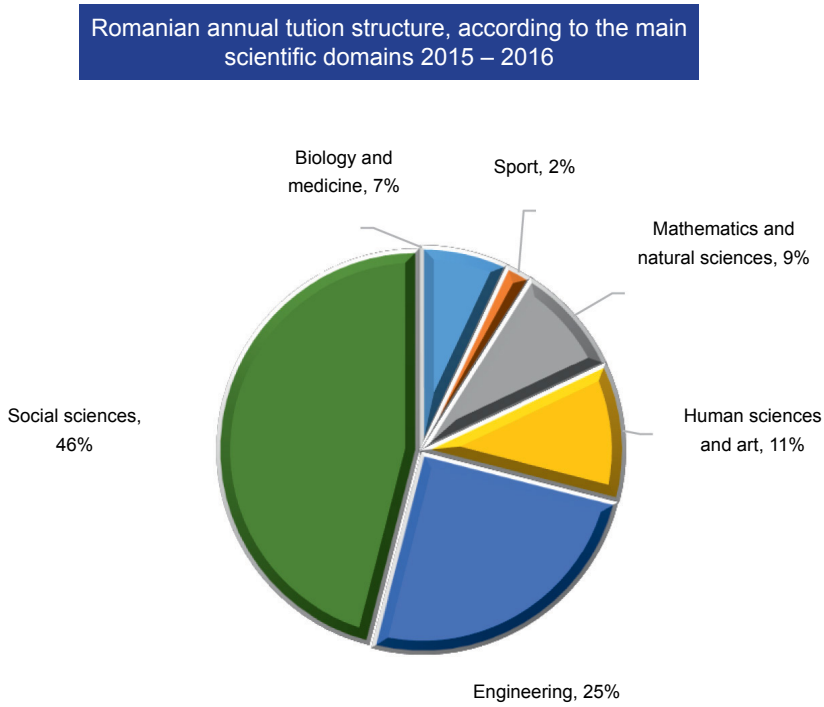
bachelor study programmes. Besides the macro perspective, tuition figures (maximum number of students who could be enrolled in the first year) have been also analysed, indicating whether or not the offer is articulated with the demand. Thus, the situation of the 2015-2016 does not show an appropriate correlation with the actual challenges and technological changes, since annual tuition for law specialization is the highest, being 10 times greater than the agriculture specialization, for instance. Moreover, the tuition fee for technical and various engineering specializations is quite low despite the actual technological changes, as it is illustrated in the figure 2.

Figure 2: *Annual tuition for each specialization*



The same tendency has been noticed regarding the main scientific domains, the annual tuition being weighted to the socio-human sciences, covering 57% (46% social sciences and 11% human sciences and art). The deficit in the engineering area is also obvious (25%), as it is revealed in the figure 3.

Figure 3: *Annual tuition per scientific domain*



The brief contextual analysis has revealed that the Romanian Higher Education System (RHES) does not provide an appropriate articulation with the market and shows a quite inertial behaviour, without sufficient permeability to the changing environment. Consequently, the simple quantitative analysis reveals that the RHES does not clearly demonstrate its capacity to provide the specializations required by the market. Besides the professional profiles, transversal skills also contribute to increase the graduates' employability. In this regard, the further analysis has been focused on the main actors' perceptions in relation to the professional and transversal skills, the ranking of skills and the extent to which these skills meet the employers' requirements.

4. Overall view on the quality of the HEIs

The educational process represents the main instrument for preparing individuals to meet the global market requirements. In this perspective, the HEIs play a major part in improving graduates' employability with direct benefits for economic progress (Archer and Davison, 2008). Employability has been defined as a main

objective of the higher education since earliest studies (Robbins, 1963). However, despite the conceptual and pragmatic efforts, employability still remains a complex issue and a significant challenge for the HEIs (Rae, 2007).

Beyond the political and strategical concern, the survey illustrates a pragmatic approach, highlighting clearly the pressure put on HEIs, but also the increased social responsibility. Thus, the responsibility perceived by universities (represented by professors), students and employers regarding the acquisition of employability skills is well balanced, each actor assuming its role and being simultaneously aware of the other partners' role (see table 1).

Table 1: *Comparative analysis regarding responsibilities for the acquisition of employability skills*

Respondents	HEIs		Students		Employers	
	To a large extent (%)	To a very large extent (%)	To a large extent (%)	To a very large extent (%)	To a large extent (%)	To a very large extent (%)
Professors	51	39	44	45	50	30
Students	51	33	38	48	45	22
Employers	50	36	41	48	45	27

Source: Own data processing of the survey (http://www.aracis.ro/proiecte/qualitas/)

The pressure on HEIs is also illustrated by the respondents' answers, all actors considering that universities have the main responsibilities for the graduates' employability. Students, of course, should be aware of the importance of developing a competitive professional profile and in this respect it is a consensus among the respondents. Thus, all actors have outlined the students' responsibilities, scores being clearly weighted in this respect. Interesting is that besides the universities, the other actors do not consider that the employers' role is as important as the universities' and students' one. Moreover, the employers' answers demonstrate that they do not assume their role seriously in the development of the graduates' professional profile.

In this context, the overall perception of the quality of the educational process in HEIs is positive, from both students' and employers' perspectives. Thus, significant conclusions have been drawn through the correlation of the students' answers regarding the global evaluation of the educational process, as it is illustrated in the table 2.

Table 2: *Students' global evaluation of the HEIs*

Specific global items	Total
The university is reliable	8,30
The study programmes meet the market requirements	7,81
The management of the HEI is efficient	7,62
Specialisation has an important social dimension	8,16

Source: Own data processing of the survey (http://www.aracis.ro/proiecte/qualitas/)

The students' answers are overall coherent, a strong correlation being noticed among the respondents' perception. In this respect, if the HEI is considered reliable, also management is efficient (r = 0,771) and the study programmes and their articulation with the market is also well appreciated (r = 0,778).

The overall employers' views are also positive in relation to the mission of the HEIs; 55% of the subjects consider that the universities have succeeded to provide appropriate competences for their students. Furthermore, 72% of the employers involved in the survey appreciated positively the quality of the educational process (26% to a very large extent and 46% - to a large extent). However, the weight in favour of those who still believe that universities are diploma mills remains significant (52%, out of which 24% - to a very large extent and 28% - to a large extent).

5. Graduates' Professional Portrait

There are still large debates in the scientific literature concerning the employability skills (Sumanasiri et al, 2015) without finding a consensus. Difficulties in this area are generated not only by the complexity of the problem, but also by the stakeholders' approaches, which are sometimes totally different (Wickramasinghe V., Perera L., 2010). Opinions and perspectives related to employability and appropriate skills for increasing the employability chances range from articulated frameworks and models to simple and pragmatic approaches. Without the intention to offer a comprehensive inventory in the field, some of the existing models related to employability are listed, starting with the first study done by Hillage & Pollard (1998), which defined a framework for the employability, without the identification of the main interfering factors. The concept of "employability skills" structured as basic skills, higher order thinking skills, affective skills and traits has been introduced by Kethleen Cotton (1993). Despite the definition of employability framework and skills, employment issues have not been covered and other models have been developed, such as: USEM models (Understanding, Skills, Efficacy beliefs and Metacognition) a theoretical framework defined by Pool and Sewell, in

2007; Career EDGE model creating a practical framework; integrated competence model of employability (knowledge, skills and personal aptitudes) proposed by Wellman (2010); JET (Journey of Employment) proposed by Copps & Plimmer in 2013, revealing the non-linear approach of the employment process and the interfering of a large set of factors.

Due to the difficulties in finding an appropriate model for employability skills, the survey has used a set of transversal skills, taking into consideration both academic and business-oriented dimensions. Regarding the graduates' professional profile, the subjects agreed that besides the professional skills, adjacent competences are needed for being competitive. In this regard, the questionnaires have integrated a set of adjacent skills considered important for increasing the graduates' employability. Some of the main employability skills recognized in the literature have been included in the questionnaires, such as: positive attitude, self-management, team working, communication, application of information technology (Lowden K. et al., 2011). The ranking of the employability skills (scale 1 to 5, where 1 = not important and 5 = very important), according the stakeholders' opinions, have been synthesized in the table 3.

Table 3: *Employability skills ranking (average level of importance)*

Employability skills	Students	Professors	Employers
Capacity to argue convincingly on a specific topic	3.88	4.04	3.6
Ability to draw up a report concisely and specifically	3.88	3.94	3.53
Analytical thinking	4	4.13	4.37
Critical thinking	3.93	3.92	3.9
Creativity	3.82	3.93	3.81
Digital competence	3.84	4.1	3.87
Ability to speak and write in a foreign language	3.6	3.66	3.59
Team working skills	3.89	4.08	4.01
Leadership	3.77	3.68	3.42
Self-management skills	3.92	3.95	3.57
Positive attitude towards work	3.87	4.13	3.81
Entrepreneurial skills	3.63	3.53	3.1
Good knowledge of the specific employment domain			4.11
Communication skills			4.09
Punctuality			3.91
Pro-active attitude			3.94

Source: *Own data processing of the survey (http://www.aracis.ro/proiecte/qualitas/)*

The social actors' views are convergent in relation with the analytical thinking, which is considered as being particularly important. Students highlighted also critical thinking and self-organised skills as important for employability and professors appreciate a positive attitude towards work and digital skills as important employability assets. Employers also consider important a good knowledge of the specific employment domain and the communication skills. Moreover, a strong correlation between students' and professors' views has been noticed (0.84), as well as between professors' and employers' opinions (0.82, since the distance between students' and employers' views is a bit greater (0.75).

An interesting feedback has been obtained from the employers, analysing in parallel the ranking of the employability skills and their level of satisfaction in relation with the employees and their skills (scale 1 to 5, where 1=not important and 5=very important). The average scores, according to the employers' answers and the results of the statistical tests have been presented in the table 4.

Table 4: *Ranking employability skills versus employers' level of satisfaction*

Criteria	Average level of importance	Average level of satisfaction	Average difference	t	sig
Analytical thinking	4.37	4.02	0.35	11.31	.000
Good knowledge of the specific employment domain	4.11	3.85	0.26	7.51	.000
Communication skills	4.09	3.92	0.18	5.21	.000
Team working skills	4.01	3.87	0.14	4.12	.000
Pro-active attitude	3.94	3.56	0.38	10.67	.000
Punctuality	3.91	3.83	0.07	2.33	.020
Critical thinking	3.90	3.53	0.36	10.86	.000
Digital skills	3.87	4.13	-0.26	-8.50	.000
Creativity	3.81	3.80	0.01	0.20	.839
Positive attitude towards work	3.81	4.14	-0.33	-9.73	.000
Capacity to argue convincingly on a specific topic	3.60	3.87	-0.27	-8.51	.000
Ability to speak and write in a foreign language	3.59	4.31	-0.72	-22.12	.000
Self-management skills	3.57	3.56	0.01	0.30	.764
Ability to draw up a report concisely and specifically	3.53	3.88	-0.35	-10.13	.000
Leadership	3.42	3.64	-0.22	-5.38	.000

Source: Own data processing of the survey (http://www.aracis.ro/proiecte/qualitas/)

As the data clearly show, there is a perfect match between expectations and satisfaction concerning the employees' creativity and the self-organised capacity. In other cases, the employers are more satisfied than they have expected, for instance regarding digital skills and foreign language skills. As regards analytical and critical thinking, as well as knowledge of the specific employment domain, the average levels of employers satisfaction are lower than the expected ones.

6. Conclusions

The answers provided by teachers, students and socio-economic actors have outlined positive aspects, but also a number of weaknesses of RHES in structural terms and in relation with the educational performance of the HEIs. These signals could be further valorised for enhancing the quality in the higher education process.

The education system has grown and diversified in recent years, as confirmed by statistical data. However, the survey and the interviews with professors from HEIs revealed a gap between supply and actual market needs, in terms of specializations, and tuition figures. From this point of view, the data signals structural deficiencies and inconsistencies in internal communication of the RHES. A better correlation of the RHES offer with the actual market requirements represents a major issue that should be corrected, and in this respect strengthening the cooperation and developing a fluent communication between HEIs and the public entities responsible for the good functionality and quality of the RHES represents a priority.

The graduates' employability remains an open problem and further methodological refinements are needed, in terms of indicators, models and procedures to be applied for bridging the gap between academic and business areas. Anyway, evaluating the compatibility between HES and the socio-economic actors should represent a continuous and rigorous process, contributing to the amelioration of the quality in higher education at the systemic and institutional level.

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The Quality Governance for Accreditation of Master and Doctoral Programmes

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Abstract: *The accreditation of the master and doctoral programmes is the focus of global and European community public policy sectoral networks. The key IGOs and INGOs have developed their own viewpoint concerning the 2nd and 3rd level criteria. The national and specialised agencies act differently: the national agencies cannot meet the public policy criteria concerning measures for value of potential programmes. The specialised agencies are ahead in development of qualitative criteria for 2nd and 3rd level programmes, especially in the business and engineering area, reflecting practice orientation and research criteria. The ESG 2015 makes no distinction between types of programmes and misses the ERA and researcher mobility aspects and EURAXESS criteria for employment skills. The ENQA and ESG 2015 have a negative impact on different agencies (both national and specialised) enforcing silo type accreditation against formal type criteria. In UK's case, the research evaluation was eliminated from the scope of national accreditation agency. The experience in international accreditation reflects the formal silo without reflecting the expectation of a transformative role of 2nd and 3rd level programmes in European Higher Education and Research Area.*

Keywords: *EQFS, ESG 2015, specialised agencies, evaluation paradigms and approaches, cluster accreditation*

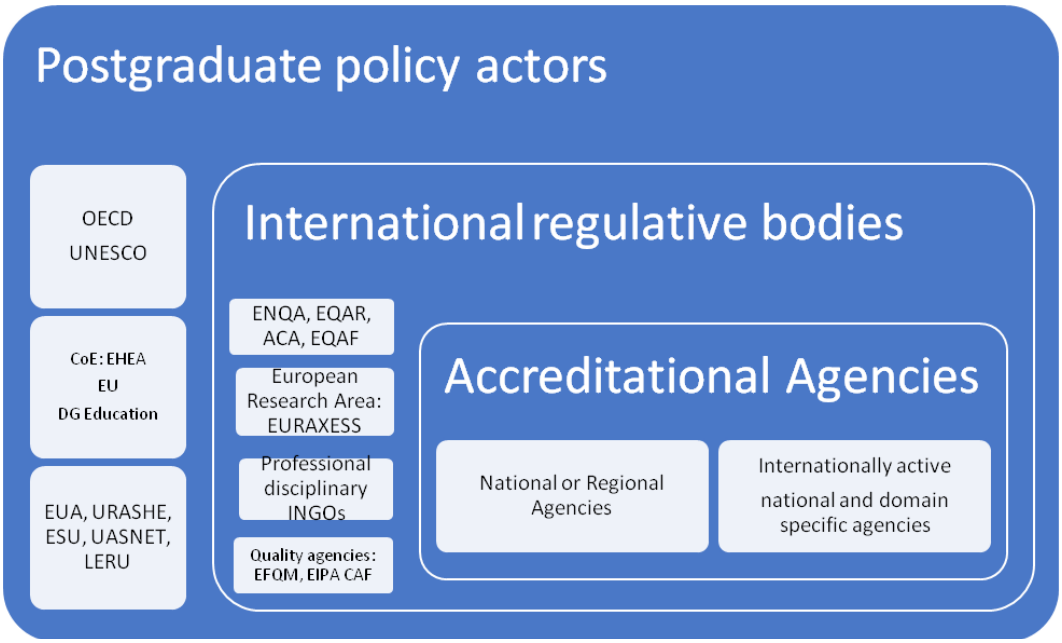
Introduction

The aim of the study is to compare the inner rules and criteria of quality assurance agencies in EHEA for implementing international and European IGO's public policies on Master and Doctoral level education. First we explore the role of global and European international governmental actors, next we explore the investigation of the policy statement of HEI sector NGOs. The third task is to explore the role of regional regulatory accreditation agencies. The fourth element of the research is a comparative analysis of the policy of different types of agencies, as direct actors in accreditation. The fifth element of the research aims to explore the investigating and evaluating experiences as an evaluator expert.

The main actors who developed their relevant policies concerning quality of masters and doctoral programmes are the UNESCO, the OECD, the Council of Europe (ministerial conferences), the EU Commission's relevant DGs and bodies. The second group of actors in quality education comprises the higher education professional NGOs as the European University Association (EUA), LERU, EURASHE, UASNET, ESU. The third groups are semi-public quangos, as actors regulating the activities of the European quality agencies: ENQA, EQAR, EQAF, ACA, ENIC-NARIC Network. The execution lies in the hands of these and national accreditation agencies, who are responsible for the implementation of policies, sectoral aims, transnational regulations forming a European Higher Education and European Research Area policies at community and nation state levels.

The governance of the master and doctoral degree programmes and its quality differs from graduate and short cycle degrees, because they concern the whole European economic competitiveness, EHEA policies, policies of the European Research Area, European Innovation and Technology Transfer policies, enterprise development and social innovation, and creative industry policies as well.

Diagram 1. *The governance of the higher education postgraduate education*



1. Global and European Governmental Actors Regarding the Function of Master and Doctoral Programmes

Council of Europe (ministerial conferences)

Bucharest Meeting Ministerial Conference of the Council of Europe declared the quality of master and doctoral programmes as part of public responsibility.

The Global and European organisations made a sound contribution forming policy documents concerning employability of graduates, ensuring a stronger link between research, teaching and learning at all levels. At EHEA Meeting, in 2012, the Bucharest Ministerial Communiqué put an emphasis on changing research priorities and emerging disciplines, and on the fact that research should underpin teaching and learning. The document underlined the diversity of doctoral programmes, the recommendation of Salzburg II and the principle for Innovative Doctoral Training, exploring quality, transparency, employability and mobility in the third cycle. The document made clear the role of doctoral education as a bridge between EHEA and ERA. The document underlined that high quality second cycle programmes are a necessary precondition for the success of linking teaching, learning and research, the importance of the qualification framework is essential for recognition for both academic and professional purposes, (CoE, 2012 Bucharest Communiqué,2)

"Our societies need higher education institutions to contribute innovatively to sustainable development and therefore, higher education must ensure a stronger link between research, teaching and learning at all levels. Study programmes must reflect changing research priorities and emerging disciplines, and research should underpin teaching and learning. In this respect, we will sustain a diversity of doctoral programmes. Taking into account the "Salzburg II recommendations" and the Principles for Innovative Doctoral Training, we will explore how to promote quality, transparency, employability and mobility in the third cycle, as the education and training of doctoral candidates has a particular role in bridging the EHEA and the European Research Area (ERA). Next to doctoral training, high quality second cycle programmes are a necessary precondition for the success of linking teaching, learning and research."

OECD

The ***OECD IMHE*** working programme (The Institutional Management of Higher Education made clear the importance of quality teaching):

- To balance performance on teaching and learning achievements along with research performance, since even for elite, world-class universities, research performance is no longer sufficient to maintain the reputation of the institution. Connecting teaching and research more intensively is the new task.
- Quality teaching policies should be designed consistently at institutional, programme and individual levels. The programme levels are the pivotal place where quality teaching is likely to flourish. "Strengthen links between teaching and research
  - Explore how the research activities of the institution affect the policies supporting teaching and learning (e.g.: in terms of learning environment, curriculum design, students assessment).
  - Provide support for faculty involved in fostering quality teaching so that their engagement does not undermine their careers as researchers.

- Build research capacity through the promotion of research-teaching linkages, such as:
  – Prove how research helps teaching
  – Engagement in research-inspired teaching
  – The development of undergraduate students' research-skills
- Engage undergraduate students in carrying out research as part of the teaching and learning strategy and encourage and support undergraduate students to publish their research.
- Exchange professional development for teaching and research as to increase mutual learning. Avoid distinctive professional development paths." (OECD IMHE, 2012,14)

EU DG Education, Youth, Sport and Culture

The report of the DG Education in 2015 stated that the criteria of 300 ECTS for first and second cycles is different in EHEA 58-member states. In four countries, it is accepted the 240 ECTS for minimum duration, and in one country- 270 ECTS. In integrated programmes it is accepted to develop 360 ECTS credits, while there are countries with 240 integrated degrees. 27 countries accept second cycle degree programmes outside Bologna system (150-180 credits, the so-called MPhil, and so on. There are differences between the admission to the second and third cycle programmes. In some countries, professional degrees must fill bridging programmes (7), in some countries the second cycle programmes are missing. If the applicant has qualification in a different field, he has to do additional examinations in 21 countries. The report of the DG Education stated that in 27 countries students are learning in Bologna-type third cycle programme, in 19 countries the access to the third cycle can be without the second cycle. In 2014, in 32 0countries the student learned in doctoral schools, there were 12 countries without doctoral schools, in 19 countries the majority is learning in such schools, in 7 countries there is no possibility to award degree without such schools. (64) There are differences between supervised doctoral studies and structured doctoral programmes. Professional doctoral programmes are not yet widespread, beside Kazakhstan, where all programmes are professional. The third cycle is included in national qualification framework only in 8 countries. (EC EHEA Report 2015, 40-42)

2. European International Non-governmental Organisations on Postgraduate Education

EUA

The European University Association in Executive summary stated the importance of the master programmes in employability, especially in knowledge society, with developing competences for doctoral research. "This is mostly marketized, costly, and curriculum depends on transnational collaboration. It has a strategic priority

in Bologna Countries, because of the Lisboan Agenda for sustainable growth." (Davies, 2009,10p.)

Davies makes a distinction, in *EUA Survey of master's degrees in Europe*, between three forms of master degrees: Taught masters, with a strong professional development application; Research-intensive masters integrated into the innovation and knowledge-transfer activities and function as pre-doctoral studies; Master level courses of varying duration delivered mainly for returning learners on in service, executive release or self-referral base. The categorisation of masters in other variation is the next:

- Academic master: the programmes offered by the university contrasted to professional masters awarded by non-university HEIs;
- Consecutive or continuation masters: as a continuance of the bachelor qualification;
- Conversion master: a distinctive programme, different from the subject of student's bachelor;
- Joint Master, delivered by two or more HEIs awarding single or multiple diplomas;
- Lifelong master: a master for returning students;
- Professional master: awarded by non-university HEIs.

Davies explores the speciality of the so-called Bologna Master: 60-120 ECTS, one or two full-time years, disciplinary content consistent with generic level descriptors, curriculum design and pedagogy defined by learning outcomes, a recognised point of entry to the European labour market. (Davies, 2009,15p) "Transnational, joint degrees, part-time, e-learning, post experience, distance, in company modes, as well as accredited prior-learning have become important features in the Bologna master landscape, and they have to access to doctoral studies. (Davies,2009,16.) "Students awarded a master degree must have achieved the level of knowledge and understanding, or high level in artistic competence when appropriate, which allows them to integrate knowledge, and handle complexity, formulate judgements and communicate their conclusions to an expert and to a non-expert audience. Students with a master's degree will have the learning skills needed to pursue further studies or research in a largely self-directed, autonomous manner." (Davies,2009,16.) It is consistent with the Dublin Descriptors. In the EUA survey 21% of HEIs reported that research was not systematically included, and only half of the student respondents were satisfied with research opportunities.

- The MBA is a most known example of professional master programme, and it is accepted the EFMD criteria for them;
- In case of regulated professions, there are other professional standards for making a difference between post-secondary level, bachelor and master levels. It is accepted the EUR-ACE criteria in case of engineering. Further requirements can be included in case of lawyers, notaries, accountants and architects.
- The Lisbon Agenda, the DG Enterprise and the OECD developed models for

enterprise education (HEI Innovate) with emphasis on enterprise development in the first and second cycles for flexibility of course structures, curriculum development, work placement, employer involvement, recognition for prior learning, intellectual property, innovation and incubation, HEI infrastructure. (59)

The European University Association was the main actor in forming quality criteria for doctoral programmes. The so-called Salzburg Bologna seminars were important in linking the EHEA and ERA pillars of knowledge society. The Salzburg II[1] 10 principles underlined the importance of PHD education and among them, crucial for accreditation, are the following:

- Advancement of knowledge through original research with meeting the needs of an employment market that is wider than academia;
- The importance of the diversity of programmes underpinned by quality and practice criteria;
- Doctoral candidates as early stage researchers should be recognised as professionals;
- Supervision must be based on transparent contractual framework with shared responsibilities between the candidate, supervision and institution;
- Achieving critical mass, with different solutions (cooperation between universities);
- Duration and possibility for LLL and international mobility;
- Innovative structures, interdisciplinarity training and the development of transferable skills;
- Appropriate and sustainable funding for doctoral candidates. (Christensen, 2005-2-8)

EURASHE, as another important actor in the European higher education area, developed criteria for professional education, and focused on first and second degrees- because the third degree was absent in university colleges or universities of applied sciences, and public finance for research was minimally accessible to the professional higher educations. Linking the subsector functions with Lisbon agenda, the organisation put an emphasis on entrepreneurship and innovation, the regional functions for sustainable entrepreneurship as a social dimension and as part of Corporate Social Responsibility. So, all degree programmes must be research and innovation must link and incorporate applied research dimensions. The programmes offered are practice-oriented, institutions develop into regional centres of knowledge and innovation and generate knowledge and solutions "on demand", courses will be upgraded and become more science-based. (EURASHE, 2005,4p)

[1] Cristensen, K. K. General Rapporteur's Report (2005): Bologna Seminar Doctoral Programmes for the European Knowledge Society. Salzburg, 3-5 February 2005 eua.be/eua/jsp/en/upload/Salzburg_Report_final.1129817011146.pdf.

UASnet, similarly to the EURASHE, declared its orientation for professional second and third cycle degrees and for integration to the ERA, to be capable for research and innovation and connection with regional development. They put an emphasis on professional master and doctoral degrees, especially for those who are mid-career professionals. (EURASHE, UASNET, 2012. p. 2.)

LERU is the network of research universities that promotes the so-called innovative doctoral training system and calls for education for research careers, aiming for fitting both academic and non-academic employment. They prefer formal research programmes in contrast to personal supervision model training. They offer comprehensive professional development programmes for researcher. They connect the ERA possibilities with university researcher education. (LERU, 2014,4p.)

ESU, as a representative of students, reports problems of quality concerning misuse of excellence concepts as programmes for elites, in case of academic-oriented programmes in second cycle the ESU suggests breaking with narrow specialisation and develop interdisciplinarity models. The second cycle professionally-oriented programmes must deepen the knowledge and introduce specific professional skills. They cannot accept the limits for access to the second cycle and extra fees and compulsory credits. In case of third cycle, they are against discrimination in case of non-university diplomas. The outcome of the research is weak at every level in student diplomas, and they feel very weak at these skills at all levels of education.

In summary, the EHEA main INGO actors have clear political vision for master and doctoral programmes. Horizon 2020 and EURAXESS network made a clear market for researchers. In case of research mobility, the role of master and doctoral degrees is crucial. The European Charter & Code for Researchers. Recently 32 000 researchers registered members of the ERA's EURAXESS Network[2].

The accreditation agencies, in their document, left all this policy programme without comment. Their strategy doesn't reflect the European policy goals.

The policy of accreditation agencies depends on ENQA standards and guidance. The ENQA focuses on quality of education and quality of research in case of postgraduate programmes. ENQA summarised in a 2009 research that standards for the 1st and 2nd cycle programmes cannot be automatically applied to doctoral education: it depends on the mission of the university, functions, strategy. Contrary to the differences, it cannot be taken separately. As the master's degree is a gateway to the 3rd cycle, it needs a better comparability with 3rd cycle research degrees. In case of external evaluation of doctoral programmes, the quality of teaching and research is included. ECTS is not an appropriate tool for doctoral education, but there are needs in the evaluation of research quality: progress of the student's work and scientific contribution and qualitative aspects of research education. It is important to measure the quality of supervision and mentoring, the capabilities of supervisors, the quality of interaction between supervisors and students. It is

[2] file:///C:/Users/Gyöngyvér/Downloads/EURASHE_UASnet_position_paper_April2012.pdf 2018.08.17.

a problem for QA agencies, how to measure the quality of human relationships. (ENQA, 2010, 32-39pp.)

The other important organisation is the ACA, the Academic Cooperation Association which is interested in internationalisation in European and global scope.

3. European Union Quality Assurance NGOs

In the European Union, for university accreditation, the main responsibility in forming the regulation policy is in the power of ENQA, EQAR, ENiC-NARIC Network and ECA.

ENQA

ENQA defined the role of agencies as independent ones in the 2009 position paper (ESG): "Agencies should be independent to the extent both that they have autonomous responsibility for their operations and that the conclusions and recommendations made in their reports cannot be influenced by third parties such as higher education institutions, ministries or other stakeholders. [...] The definition and operation of its procedures and methods, the nomination and appointment of external experts and the determination of the outcomes of its quality assurance processes are undertaken autonomously and independently from governments, higher education institutions, and organs of political influence."

The ENQA ESG 2005 and 2015 didn't make distinctions between institutional, quality system, and program accreditation, types of institutions, types of degrees, types of cycles. The new ESG 2015, standard 1.2. prescribes that in case of designing and approval of programmes declares its reference to the national qualification framework and EFQS level, and the four purposes of European Higher Education; standard 1.3. reflects for student-centred learning without understanding the problems in postgraduate and doctoral levels. Standard 1.4. shifted in case of teaching staff from high qualification in research to competence for implementing student-centred learning. In case of standard 1.5., the funding has to be focused on learning and teaching, standard 1.8. concerning public information prescribes clear, accurate, objective, up-to date and readily accessible information on programmes. The ESG 2015 1.9. standard in case of periodic programme review focuses on the objectives set for them and the needs of students and society. In comparing the document, the additional interpretation is the following: evaluation of the programme in light of the latest research on the subject, needs of society, workload, progression and the competition rates, effectiveness of the student assessment methods and learning environment and available support services, mainly from student and other stakeholder feedback: expectation of their needs and satisfaction.

The ENQA membership consists of national or international comprehensive and so-called domain-specific agencies. These agencies serve the regulated access to professions. Basically, the methods and standards are the same, but the domain-specific agencies might include prescribed academic standards. The IQM-HE handbook suggests taking into consideration the next: continuous improvement of

study programmes, fitness for purpose approach, student's participation, the national qualification framework, defined responsibilities and stakeholder involvement together with transparency of results. (IQM_HE, 2016, 1. pp)[3]

In case of national and domain type of agencies, the emphasis is on competence structure models, and it is often missing the measures for competence level indicators. The main problem for both of them is the non-standardised data structure.

ECA mainly accredited joint master programmes in the framework of Erasmus Mundus and Erasmus Mundus Doctoral programmes. It decided the Guidelines for Good Practice for Awarding Joint Degrees.

4. Quality Approaches of National Accreditation Agencies in Case of Master and Doctoral Programmes

The AQA, the Austrian accreditation agency, a truly international one with a European and global practice plays an influential role in CENQAA network. The British QAA is important because of its success helping the international competitiveness of British universities.

The standards in case of Hungary (HAC) and Austria (AQA Austria) are highlighted by ESG 2015, and partly matched in case of QAA in the United Kingdom.

"AQA Austria"

In case of Austrian AQA practice, there is a shift for international direction, because of the state-owned or other public universities (while they are maintained by an GMBH), are freed from programme accreditation. The Fachhochschules needs programme accreditation following the criteria of degree programme management, the business world's or society demands, the student's needs for the practice possibility and by the qualification objectives to meet the scientific and professional requirements. In case of universities of Applied sciences, special criteria added for evaluation of applied research:

"Applied research and development

a. The objectives and perspectives of applied research and development defined for the degree programme are consistent with the strategic orientation of the institution.
b. The members of the teaching and research staff are involved in application-related research and development projects. The interaction between applied research and development and teaching is ensured.
c. To the extent required by the type of degree programme, students will be integrated into research and development projects.
d. The (planned) organisational and structural framework conditions are sufficient and suitable to implement the scheduled research and development activities." (AQ Austria 2015)

[3] IQM-HE Handbook https://iqmhe.wordpress.com/quality-management-in-competence-based-higher-education/ 2018.08.17.

In the case of private universities, the criteria is the EHEA Qualification Framework for master and doctoral programmes. The AQA uses in everyday practice the ESG 2015 – instead of special guidelines as in case of UAS. Decree on Accreditation of Private Universities (2015) thoroughly describes the accreditation requirements similarly to UAS with special requirement the accreditation of Doctoral Programmes:

"A well-established research environment is in place at the institution. This requires especially that: the staff designated for the degree programme and the supervision of doctoral students:

- possesses the scientific and/or artistic qualifications (habilitation or equivalent qualification) relevant to the profile of the doctoral degree programme;
- can prove recent research activities at the university, which may be proven through publications or third-party funded projects;
- has gained sufficient experience in tutoring doctoral students. In any case, a habilitation degree in the relevant scientific and/or artistic subject is required for independently tutoring doctoral students;
- in addition to any other teaching and administration work, the permanent scientific and/or artistic staff is able to handle research activities and supervision responsibilities for doctoral students. The benchmark for an adequate tutoring ratio is no more than eight doctoral students per tutor. It furthermore ensures close contact between doctoral students and scientific staff doing research and/or artistic staff, as well as the opportunity for intrauniversity and non-university cooperation;
- in the case of interdisciplinary doctoral degree programmes, all subjects involved are covered by scientific and/or artistic staff possessing sufficient qualifications;
- the minimum duration of the doctoral degree programme is three years."

In case of UAS AQA, Boards decide on the term of accreditation.

In case of international accreditation, the AQA developed special guidelines for international accreditation of bachelor, master and PhD programmes. The agency added the ESG 2015 and EQFS description, the ECTS Uses' Guide, the Diploma Supplement. The International Criteria, its latest version is from 2013, didn't match the ESG 2015. It reflects a structure-based on 6 standards: programme management, staff, quality assurance, funding and infrastructure, research and internationalisation. The AQA program management criteria are specified for institution, the qualification level is connected to EQF, ECTS, and makes distinction only in case of PhD level (1.13.):

- "A well-established research environment is in place at the institution, which ensures the contact between doctoral students and scientific research staff and/or artistic staff as well as the opportunity for intra-university and non-university cooperation.
- For PhD programmes, the number of permanent scientific and/or artistic staff possessing the relevant qualifications, having carried out recognised research activities and having gained experience in tutoring doctoral students is sufficient.

In any case, a teaching qualification (venia docent) in the scientific or artistic subject is required for independently tutoring doctoral students. In the case of interdisciplinary PhD programme, all subjects involved are covered by scientific and/or artistic staff possessing sufficient qualifications.

- In addition to any other teaching, research and administration work, the permanent scientific and/or artistic staff is able to handle the teaching and tutoring responsibilities within the scope of PhD programme in accordance with the number of doctoral students." The accreditation is valid for 6 years.

AQA developed special criteria for the accreditation of institutions and programmes in Germany. There are interesting points 1.2. concerning special rules for combined programmes, and the so-called cluster accreditation. In case of combined programmes, it declares meeting criteria in each program. The cluster accreditation is made for universities by discipline clusters: social sciences, natural sciences, humanities, which is reflected in the formation of the study groups. According to the 2.3. section, the study programme concept covers the specialised knowledge and interdisciplinary knowledge as well as of technical and procedural and generic competencies according to the qualification level. The 2.4. is about the academic feasibility, 2.5. is about the examination system, 2.6. is about programme related co-operations, and the accreditation is valid for 7 years. (AQA 2013/2)

QAA UK

The QAA in the United Kingdom is the only institution which developed special description concerning the programmes. It works as the Intended Learning Outcome concerning a disciplinary area. The descriptions don't make a difference in case of qualification level and don't reflect the distinction between research degrees and professional degrees. It reflects a flexible and diverse landscape. QAA makes distinction between taught and research degrees. The document describing the characteristics of master degrees, in appendix makes distinction among research, specialised/advanced study and professional/practice degrees. The HEIs can develop degrees for specialised aspects, for deepening the knowledge, for research with structured learning, enabling students to undertake a research project, or to become highly specialised in practice area. They can be led to postgraduate certificate or master's degree, professional doctoral degree or bachelor with honours giving a master degree. The Framework for higher education qualifications in England, Wales and Northern Ireland refers to the EQFS descriptors. In case of programme accreditation, the QAA makes accreditation on the bases of benchmark statement.

The research accreditation is organised into the Research Assessment framework. It is a public – independent from the sector exercise and evaluation, and the main objectives are the next: to investigate the university accountability for public investment in research, to provide benchmarking with giving reputational yardstick, and to inform for selective allocation. The UK funding body evaluated 1911 research units in different types of universities in 2014, 52061 academic staff,

191150 research outputs, 6975 impact case studies. 30% of the university units were accredited as world-leading, 46% internationally excellent, 20% recognised internationally and 3% recognised nationally. The research exercise is a very complex administrative process and makes universities equal with universities of UAS. The British universities are suffering from this activity, but it gives a clear vision concerning theirs research performance.

If we compare the national and nationally-funded accreditation agencies, we can state that the national agencies cannot be compared because of national traditions and different views on higher education systems.

5. The Role and Practice of Professional NGOs and Professional Accreditation Agencies in Developing Accreditation Approaches

The European specialised accreditation agencies developed their standards concerning different levels of programmes: In the European Higher Education Area the AASIIN, the FIBAA, the AHPGS in Germany and the EFMD in Belgium are the most important agencies.

AHPGS

The social sciences are accredited by AHPGS, the member of ENQA. In its guidance documents, the first criteria are the study program objectives: the objectives have to cover professional and extraprofessional or interdisciplinary objectives, the domain of academic competences, competence for employment, skills for social commitment and personal development. It uses the Dublin descriptors as criteria for accreditation. It has to reflect the ECTS criteria. The self-evaluation describes in detail the modularization: common modules in university, programme specific modules, skills-oriented design of exam system qualification objectives with regard to scientific qualification, for qualified occupation, for social responsibility and for personal development. The AHPGS accredited probably 100 programmes in health, social work, law areas- mainly for private universities. The university has no special criteria for master programmes and didn't evaluates doctoral programmes.

FIBAA

The FIBAA is making the accreditations according to the ESG 2015, EQUAL EUROPEAN MBA Guidelines, using ECTS system and Dublin descriptors, and EQFS. The FIBAA developed guidelines for programmes in Management Studies, Economics, Law and Social sciences in 2015. It has a very detailed criteria and sub criteria system with so-called Asterix criterion- and if the criteria is not met, then there is no accreditation. The Guidance is reflecting a more fragmented viewpoint with 33-page description. The program criteria are very weak in accessing the research and making differences at bachelor and master levels "Methodological competences and scientific practice are thoroughly trained. Students are equipped with the necessary skills for research-oriented work and for applying those skills in the respective vocational fields." (FIBAA, 2015, pp.15.). The doctoral programme

evaluation guidance reflects the structure of the first and second-level programmes "The offer covers the relevant requirements of discipline to achieve the pursued research competency of the doctoral students. It corresponds with the focus of research of the scientists and doctoral students involved in the programme. The courses on different research methods and approaches to science are part of the curriculum." (FIBAA, 2013,13pp.).

EFMD

EFMD is a complex accreditation organisation with membership of the institutions. It is based in Brussels with offices in the USA and Asia. It runs according to EQUIS, EPAS, CLIP, EOCCS, BSIS and EDAF criteria. It makes differences between academic, corporate and on-line course accreditations. While the EQUIS is an institutional accreditation system, the EPAS is a programme accreditation system. It accredits master and doctorate programmes as well. It does service the member institutions, who can apply for stand-alone programmes, cluster of programmes or joint programmes. They accredit against institutional, national and international environment. The process considers a wide range of programme aspects including:

- The market positioning of the programme nationally and internationally;
- The strategic position of the programme within its institution;
- The design process including the assessment of stakeholder requirements– particularly students and employers;
- The programme objectives and intended learning outcomes;
- The curriculum content and delivery system;
- The extent to which the programme has an international focus and a balance between academic and managerial dimensions;
- The depth and rigour of the assessment processes (relative to the degree level of the programme);
- The quality of the student body and of the programme's graduates;
- The institution's resources allocated to support the programme;
- The appropriateness of the faculty that deliver the programme;
- The quality of the alumni and their career progression- EFDM, 2018.

The EFDM accreditation guidelines didn't reflect the EQFS, but they refer to the EQUAl Guidelines for MBA and Principle for Responsible Management. It needs explanation of personal development of students, corporate interactions, ethics, responsibility and sustainability, quality of students work, graduate quality and career placement among others.

They enclose guideline of EQUAL on undergraduate degrees in General Business & Management. EQUAL developed a special position on master's degree titles in management education Europe. They make differences among generalist (type A), specialised (Type B) with research-orientation or professional subtypes, generalist professionally oriented (type C) with significant work experienced programmes. Type A: made for Generalist Master for younger students (Master of Management

or MSC in Business Studies). Specialised Masters can be research or profession-oriented and can be taken without work experience or some years in the work place (MSc in Finance). The C type is the MBA, as treated as a generalist programme with strong practical and professional orientation for career acceleration or change. This MBA is described in detail concerning content and module structure. The EQUAl Guidelines for Doctoral Programmes in Business and Management were accepted in 2016. The guidelines follow the Salzburg Principles, and were jointly developed by EAMBA and EIASM, AMBA and the EFMD international NGOs[4].

It is a well-developed system of professional doctorates in business and management studies. The function of academic doctorate is to provide the qualification for entering the research community as a direct continuity of a Master research programme, working in faculties and research institutes. The professional practice doctorate (DBA), with aims doing research on a part-time basis, is supported with a research led university. Its objective to make contribution to a management practice in industry, advanced professional and personal development, and likely to be interdisciplinary in nature. It in detail describes the standards for research environment, have to be equivalent to 8th level of EQFS. Those who have a career in the academic environment have to gain teaching experience, but professionals have to become reflective practitioners. It developed standards for doctoral coursework and dissertation, supervision on dissertation process and final assessment.

The EQUAL Guidance of Collaborative Provision

The EQUAL Guidelines reflect on international dimensions of Business education and its qualitative aspects: international content in all areas, international cooperation with business environment, research that is relevant to the international challenges and openness of the institution to foreign cultures. It clearly defined what is the degree internationalisation: policy, strategy, reputation, advisory board content, curriculum and learning resources, research and development, the language (English), faculty and visiting professors, student mobility, staff mobility, management mobility, networks (clients and recruiters, alliances and partners, offshore activities (EQUIS March 2018).

AACSB American-based International Agency

The Florida based AACSB agency has the most developed guidance with highly deep accent:

1. Strategy with continuous improvement and innovation consistent with mission;
2. Intellectual contribution concerning theory, practice and teaching in business and management: discipline-based or discovery scholarship, applied or integration scholarship, teaching a learning scholarship, impact of intellectual contribution;
3. It has financial strategies and allocation of resources;
4. Prepares students during different university pathways, and student cycles;

[4] http://equal.network/guidelines-position-papers/ 2018. 08. 17.

5. It employs and deploys a faculty in balanced rate for different programmes, support faculty members participate in intellectual or in operational life;
6. It has a well-documented and well-managed process concerning the support of faculty members;
7. It has a quality professional staff;
8. The school uses well-documented, systemic processes for determining and revising degree programmes;
9. The curriculum content is appropriate for the degree programme. The AACSB defines the role of General Business Master Programmes and objectives and tasks of specialized programmes differentiating the professional and research-oriented degrees. The AACSB didn't make distinction between specialised research masters and doctoral programmes: both of them have to develop advanced research skills, understanding managerial and organisational context of specialisation, preparing for faculty responsibilities in teaching and research;
10. It facilitates student-faculty and student-student interactions according to the programme type;
11. The programmes are equal in different delivery modes;
12. The school has policies for accrediting the effectiveness of faculty and professional staff;
13. The curricula facilitates the student's academic and professional career, according to the type of the degree programmes;
14. The programme is well elaborated for executive education;
15. It evaluates the different types of academic and support staff;
16. It describes the impact of the programme connected to the mission, academic impact (research outcome), teaching and instructional impact, bachelor or master level education and doctoral education impact, impact on community and practice, executive education impact and research-centred impact (AACSB International 2013).

ASIIN

ASIIN is a special accreditation agency for engineering, computer science, natural sciences. The agency developed criteria using EUR-ACE label concerning engineering (ENAEE), Euro-Inf label concerning bachelor and master degrees in informatics (EQANIE), Eurobachelor and Euromaster for Chemistry (ECTN). The guidance document is similar to other programme accreditations and benchmarked against ESG 2015 criteria. What is new: there is a concept accreditation, first accreditation and renewed accreditation. They developed individual, cluster and two stage procedures, complementary procedures and procedures for international cooperation (ASIIN, 2015)[5]. The Agency adds 13 subject-specific information and other functional professional criteria. In case of the US, a conceptual framework for Research Engineering higher education was developed. . (Svinicki, 2010, 10-25pp.)

[5] https://www.asiin.de/en/quality-management/accreditation-degree-programmes/procedure/types-of-procedures.html.

6. Experiences of International Accreditation Practices Concerning Master and Doctorate Level

During the last ten years I could attend international accreditations as a user, and in the role of the evaluator. The agencies were international comprehensive and specialised as well, but the processes were similar.

- Both national and programme-accreditation agencies missed the quality teaching policies of relevant international actors and evaluated the programme without reflections for quality in teaching in EHEA and four criteria of the CoE.
- No agency had any theoretical knowledge concerning program-accreditation paradigms and criteria. If we try to understand the accreditation, they were expertise accreditation models, when the judgement relies on expert opinion, mixed with consumer-oriented and utilisation-focused approach and rarely reflected the organisational learning approach. The data concerning programme planning, implementation and evaluation were accidental, they didn't reflect time-series design and mostly missed the facts. The universities were hardly understanding the continuous-improvement principle of ESG and the PDCA cycle in exploring data. I didn't meet a self-evaluation document well-written and based on working higher education quality system.
- Both national and programme agencies took the knowledge of the expert as precondition. They choose the expert team internationally. The expert teams reflected the programme's discipline area, consisted from discipline experts, and rarely had professional knowledge for higher education program accreditation, and naturally represented the agency, the industry and the student body. Both agencies invited experts from national environment too.
- Both agencies worked in a cluster type of programme accreditation with focusing on a faculty or on a group of programmes in vertical lines. Both agencies worked with extremely large expert groups, more than 25 visitors settled to the university, and they made impossible the normal university life for a couple of days.
- The role of agency expert was crucial in finalising the report, who acted according to the agency inner rules and guidelines. All agencies worked accepting the European Policies concerning ESG, Dublin Descriptors, EQFS, and none of them made distinction between the type of accreditation (initial, in process, returning). All agencies made crucial error in preparing for accreditation, didn't think of cultural gaps: in central and Eastern Europe, Central Asia there is no possibility to start a programme by one own's initiative. So, the universities made the self-evaluation document as a static description for initial accreditation, while some part of the programme worked 20 years, 10 years or some years, or other part had no students with awarded diploma.
- The cluster accreditation of the programmes needed collection of different data, both it was missing from the guidance document which data are crucial for accreditation. The detailed descriptions produced archive-type mass

documentation (some thousands of pages). If the agency didn't match the expert with special programmes (from the bachelor to doctorate), they had to read the whole cluster documentation.

- The agencies developed criteria for evaluation as met by the international standards, but the absence of professional accreditation and evaluation knowledge made personal the evaluation of the self-evaluation document, the miss of clear data needed a lot of questions and additional data services. As the universities have no experience in forming programme objectives, there were frequent mismatches between first, second and third level programmes, and it was difficult to explore the EQFS level of the subject.
- In case of new disciplines as social work, social pedagogy, communication and media, politics and international relations, there are no professional programme criteria instead of British subject benchmark document (without distinction the qualification level), so it needed a deep research for matching the programmes with international practice. In EHEA, the doctoral schools are very young in case of social work, or before the Bologna degrees the master or doctoral degrees were absent. Without access to official documents in national language, it is impossible to accredit against national law or framework system. Practices concerning site visit differs in forming the focus groups, and in case of cluster accreditation it is difficult to meet the right persons and students.
- Regarding practices concerning co-working and co-evaluation in clusters the agencies have different rules: if the agency reports the evaluation of a cluster of programmes in a single document, it needs a lot of time for coming to an accepted solution. If the agency is making the evaluation for each vertical programme it is more easily to draw a common statement. It was common that in forming the final document the agency's project leader had a crucial role.

7. Experiencing of Evaluating Phase for Different Level of Programmes

There are no clear criteria for evaluating the teaching staff: some agencies make crucial the international component of the staff without any distinction if they are recently networked into international community or they gained their diploma decades ago abroad, or there is a permanent staff of visiting teachers. It is problematic that the real performance of the teachers is connected to the mainstream programme or they all perform research and teaching in a peripheral area of the programmes. In case of old state universities, the professors fit for all, in case of new universities the key persons are from professional area. There are no distinctions between the orientations of the programmes, so the evaluation of the staff as fit for purpose is difficult.

Evaluating the Curriculum is a complex task: there are mandatory national prescriptions, and there are different practices in credit allocations. The programme leadership criteria in case of both types of agencies reflects the faculty structure of the university and works for conservation traditional roles. In case of both type

of agencies is missing the quest for linking the strategic and operative culture. In self-evaluation documents we hardly find program development objectives, improvement actions, evaluations, roles in regional setting. The master and doctorate degrees rarely meet criteria for actions and programmes for adapting to the knowledge economy. Evaluating admission practices is formal because of the absence of national regulations. There is small emphasis on educational environment, for funding of research and research infrastructure, and for evaluation the level of internationalisation. The European Parliament formed a policy and best practice guidance, but it needs time for informing universities and agencies as well. The agencies built the information criteria to the guidance, but there are no clear standards at international level.

Summary

The international accreditation practice became an important feature of the EHEA, but the accreditation of master and doctoral level is going mostly of the bachelor level silo. The specialised agencies made a distinctive contribution for understanding the role of master and doctoral programmes, but it is more problematic in case of national agencies. All reflects formally the ESG 2015 criteria, without correcting their guidelines, and without domain specific descriptors. So, it is difficult for understanding them, and translating the EQFS for discipline area. The practice of cluster accreditation made visible the weaknesses of the Bologna processes, made possible master levels and doctoral programmes in truly professional areas without practice orientation. The practice of accreditation misses the stakeholder's viewpoint, the EU's aims and the needs of ERA. Only the Business accreditation area was engaged with professionalisation for research profession completing certificate for researchers. The ENQA's role is crucial meeting the targets of European public policy actors. In case of second and third level programmes its role is a conservator role, pushes the agencies for accreditation silo without helping them meet European Lisboa objectives for knowledge economy. It could not be able to reflect the needs of European Research Area. There was no agency which formed some criteria meeting employment good practice of EURAXESS criteria for research related jobs in universities and programmes for professional researcher education.

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Analiză de benchmarking pentru inițierea programului de studii de licență de *Fizică medicală* la Universitatea „Dunărea de Jos” din Galați

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Rezumat: *Prin intermediul analizei de benchmarking, s-a urmărit justificarea necesității inițierii demersului de autorizare a unui nou program de studii de licență, cel de Fizică medicală în cadrul Facultății de Științe și Mediu din Universitatea „Dunărea de Jos” din Galați, justificare făcută atât în contextul evoluției propriilor programe de studii, cât și din punct de vedere al ratei de succes privind acest program derulat la alte instituții de învățământ superior românești cu același specific/profil de Științe. Cuantificarea atractivității programelor de studii de licență între 2015 - 2017 s-a efectuat prin prisma gradului de ocupare a locurilor scoase la concurs, inclusiv a celor de la programele de Masterat, dat fiind că succesul programelor de la ciclul I de studii universitare se răsfrânge asupra și este reflectat și de gradul de ocupare a locurilor la ciclul al II-lea de studii superioare întrucât o mare parte dintre absolvenții programelor de studii de licență este reprezentată din candidații la programele de studii de masterat.*

Cuvinte cheie: *analiză de benchmarking, Fizică medicală, licență, oportunitate*

Abstract: *The benchmarking analysis aims to justify the necessity of initiating the authorization of a new study program of 1st cycle - Bachelor's Degree in Medical Physics at the Faculty of Sciences and Environment from the „Dunarea de Jos” University of Galati. This justification was made in the context of the evolution of study programs at the specified faculty, but also regarding the success rate of this program running at other Romanian higher education institutions with the same*

specificity/profile of Sciences. The quantification of the attractiveness of the 1st cycle - Bachelor's degree programs between 2015 and 2017 was made through the degree of occupation of the places available at admission, including those from the 2nd cycle - Master's programs, since the success of the programs at the 1st cycle of university studies reflects on and it is also reflected by the occupation degree at the 2nd cycle of higher education, since many of the graduates of the Bachelor programs are candidates for Master's programs.

Keywords: *benchmarking analysis, Medical Physics, 1st cycle - Bachelor's study programs, opportunity*

1. Introducere

În contextul integrării europene a României și al globalizării, inclusiv la nivelul educației, dar și din punct de vedere al evoluției rapide, dar și a instabilității pieței muncii, oferirea de programe de studii superioare noi, atractive pentru candidați, cât și pentru angajatori, atât la nivel de licență, cât și de masterat constituie o necesitate a fiecărui centru universitar de care poate depinde însăși „supraviețuirea" unei facultăți și chiar a întregii universități. Ca urmare, s-a ajuns la o adevărată concurență între ofertanții de programe de studii, precum cea dintre societățile comerciale, ceea ce a condus la preluarea de către instituțiile de învățământ a unora dintre practicile economice. Una dintre cele mai recente practici preluate de către învățământ din economie este cea a benchmarking-ului. Terminologia a apărut în anii '80, când compania XEROX a fost nevoită să studieze concurența acerbă și să ia măsuri pentru a se menține pe piață (Alstete 1996, Andreescu et al. 2009, MERI/ NCDTVET-PIU 2009). Astfel, analiza de benchmarking reprezintă studierea și compararea practicilor dintr-un domeniu de activitate și identificarea celor mai bune, care, aplicate propriei societăți sau instituții, să o învețe să își îmbunătățească performanțele (McNair and Watts 2006). Acest tip de analiză s-a dovedit a fi unul de succes, alături de alte tehnici de analiză a concurenței, precum modelul Boston Consulting Group (B. C. G.), modelul A. D. L. și modelul McKinsey (Raboca 2018).

În domeniul educației, utilizarea benchmarking-ului a devenit din ce în ce mai diversificată, de la domenii individuale, de tipul comparării programelor de studii la o anumită specializare, precum Psihologia (Dunn et al. 2007), studiile de contabilitate (World Bank 2016) sau Licența în afaceri (Inter-University Council for East Africa 2013), privind cuantificarea relevanței consilierii și orientării în carieră (Boarescu 2009) sau referitor la succesul unei școli de vară (Dao Thao 2015), trecând la chestiuni cu extindere teritorială, cum sunt: stabilirea percepției studenților universităților agronomice românești privind calitatea învățământului (Neamț 2015) sau identificarea tendințelor programelor de licență în domeniul Artelor în Australia (Gannaway and Sheppard 2012) sau per mai multe domenii, așa cum o constituie autoevaluarea unei întregi instituții de învățământ (Universitatea Creștină „Dimitrie Cantemir" 2013). Actualmente, s-a ajuns la elaborarea și

re-elaborarea de metodologii de întocmire a unei analize de benchmarking la nivel de învățământ (MERI/ NCDTVET-PIU 2009; Andreescu et al. 2009) sau de ramură de activitate (Teplanova, 2012).

Astfel, analiza de benchmarking se dovedește a fi extrem de utilă în evaluarea calității învățământului și în luarea deciziilor privind necesitatea, oportunitatea și șansa de succes a schimbărilor, inclusiv în ceea ce privește eliminarea sau introducerea de noi programe de studii în oferta instituțiilor atât la nivel universitar, cât și preuniversitar. Pentru ca o astfel de analiză să se dovedească într-adevăr utilă, este foarte importantă alegerea corectă a criteriilor de studiu și de comparație și a înselor elementelor cu care să se facă comparația. În cazul evaluării unui program de studii, este importantă alegerea unor instituții de învățământ similare ca și capacități materiale și umane, ca extindere a ariei de acoperire privind potențialii candidați. Problematică este, însă, disponibilitatea datelor privind programele de studii, de multe ori fiind publice doar locurile scoase la concurs, iar cele ocupate fiind date uneori în serie, per facultate, ceea ce face dificilă găsirea de date de comparație.

În cazul lucrării de față, s-a pornit de la identificarea semicantitativă a necesității diversificării ofertei educaționale a Facultății de Științe și Mediu a Universității „Dunărea de Jos*"* din Galați, în contextul în care toate facultățile cu profil de Științe din România înregistrează un declin accentuat al atractivității programelor lor de studii, datorat probabil nivelului salariilor absolvenților care se încadrează în Învățământ sau Cercetare, dar și datorită numărului limitat de posturi în Învățământ, mai ales în mediul urban, comparativ cu mult mai ofertantele domenii: *Medicină, Ingineria calculatoarelor* și *Drept*, care nu se saturează pe piața muncii, mai ales în contextul românesc al exodului în căutarea unor salarii mai mari și a unei vieți la un nivel mai ridicat în străinătate. În plus, date fiind competențele dobândite prin studii de specialitate și ani de experiență în cercetarea aplicativă a Fizicii în domeniul Medicinei, s-a decis la nivel de colectiv de Fizică al Facultății de Științe și Mediu din Galați, introducerea unui nou program de studii de Licență cu specializarea *Fizică medicală.* În sprijinul abordării acestei idei a venit și legislația dată recent la nivelul Uniunii Europene (Directiva 2013/59/Euratom a Consiliului UE) și la nivel național privind necesitatea încadrării unui specialist fizician medical în cadrul fiecărei unități medicale (spital, policlinică, centru de diagnostic, cabinet medical, laborator de analize, etc.) care dispune de aparatură imagistică și/sau nucleară de investigare și/sau tratament medical.

Aliniindu-se la cele mai recente și mai competitive metode de întocmire a dosarelor de autoevaluare în vederea autorizării sau a acreditării unui program de studii, s-a considerat necesară întocmirea unei analize de benchmarking privind oportunitatea introducerii programului de studii de *Fizică medicală* la Facultatea de Științe și Mediu a Universității „Dunărea de Jos" din Galați, analiză realizată și prezentată în lucrarea de față.

2. Prezentarea datelor folosite și a metodologiei de analiză

După cum am menționat anterior, evaluarea probabilității de succes a abordării unui nou program de licență la Facultatea de Științe și Mediu și a *Fizicii medicale* în special s-a efectuat din perspectiva analizei atât a evoluției propriilor programe de studii de licență și masterat pe care această facultate le derulează, cât și prin studierea comparativă a evoluției unor seturi similare de programe de la alte facultăți din țară.

Astfel, au fost selectate pentru analiză și comparație cu programele noastre (de exemplu, ale Facultății de Științe și Mediu) datele disponibile din perioada 2015 – 2017 privind admiterea și ocuparea locurilor scoase la concurs la specializările următoarelor facultăți, enumerate în ordinea alfabetică a localităților unde acestea își au sediul:

- Facultatea de Științe a Universității din Craiova;
- Facultatea de Fizică a Universității „Alexandru Ioan Cuza" din Iași;
- Facultatea de Științe a Universității din Oradea.

Alegerea celor trei facultăți sus-numite s-a făcut datorită similitudinii programelor de licență derulate de acestea în raport cu cele derulate la facultatea noastră, precum și din considerentul disponibilității publice a datelor privind numărul de locuri scoase la admitere și cel al numărului de locuri ocupate.

Facultatea de Științe și Mediu din Universitatea „Dunărea de Jos" din Galați a derulat în perioada 2015 – 2017 un număr de trei programe de licență, alături de un număr de cinci programe de masterat.

Corespunzător, **Facultatea de Științe a Universității din Craiova** a derulat în perioada 2015 – 2017 un număr de 12 programe de studii de licență și un număr de șapte programe de masterat.

În aceeași perioadă 2015 – 2017, **Facultatea de Fizică a Universității „Alexandru Ioan Cuza" din Iași** a derulat cinci programe de licență, alături de patru programe de masterat.

În cazul **Facultății de Științe a Universității din Oradea**, aici s-au derulat între anii 2015-2017 10 programe de licență și cinci programe de masterat.

După cum se va prezenta în cele ce urmează, cele trei facultăți din Craiova, Iași și, respectiv, Oradea prezintă o corespondență destul de bună a programelor derulate la licență și masterat în raport cu Facultatea de Științe și Mediu din Galați, cu variații de specialități datorate zonei geografice și tradiției fiecăreia, astfel încât se justifică alegerea celor trei facultăți din afara orașului Galați ca referință (benchmarking).

Datele privind locurile scoase la concursurile de admitere la licență și masterat din anii 2015, 2016 și 2017, precum și locurile ocupate atât la buget, cât și la taxă la cele trei facultăți alese pentru comparație cu Facultatea de Științe și Mediu din Galați au fost obținute de pe site-urile de admitere ale acestora, care sunt publice, după cum urmează:

– pentru Craiova: http://cis01.central.ucv.ro/admitere/
– pentru Iași: http://admitere.uaic.ro/
– pentru Oradea: http://www.facultatea-stiinte-oradea.ro/admitere

Corespunzător, datele privind locurile scoase la concursurile de admitere la licență și masterat din perioada 2015 – 2017, precum și locurile ocupate la buget și la taxă de la Facultatea de Științe și Mediu din Galați au fost obținute atât de pe site-ul de admitere al Universității „Dunărea de Jos" din Galați: http://www.admitere.ugal.ro/site/, cât și direct de la Decanatul facultății noastre.

În cele ce urmează, datele și rezultatele analizei de benchmarking sunt prezentate atât tabelar, cât și sub formă de diagrame și grafice, fără a fi redundante, ci tocmai evidențiindu-se aspectele de interes ale programelor de studii, de exemplu atractivitatea lor pentru eventualii candidați, astfel încât facultatea și universitatea noastră să ia decizia corectă privind abordarea sau nu a programului de studii de licență la specializarea *Fizică medicală*, cu răspuns/rezultat pozitiv în cele din urmă.

Rezultatele analizei sunt prezentate în două etape:

1. ***analiza de benchmarking intern***, în care se analizează evoluția propriilor programe de studii de licență și de masterat, pentru a le diagnostica rata de succes și pentru a identifica soluții de îmbunătățire a situației înmatriculărilor;
2. ***analiza de benchmarking extern***, în care se analizează nivelul de succes al facultăților de profil similar celui al Facultății de Științe și Mediu din Galați, facultăți care pot fi privite nu atât drept competitori ai noștri, cât mai ales surse de inspirație privind atât evoluția tuturor programelor lor de studii în general, cât mai ales referitor la programul de studii de licență de la specializarea *Fizică medicală*. Mai întâi este analizată separat fiecare dintre cele trei facultăți alese pentru comparație și ca referință, după care este realizată o comparație între cele trei facultăți, dar și cu facultatea noastră, privind evoluția și succesul programelor de studii oferite.

Analiza facultăților este făcută atât separat, privind evoluția fiecărui program de licență în parte și, mai ales, a programului de la specializarea *Fizică medicală*, pentru a evidenția rata lor de succes, cât și per total evoluție absorbție de candidați de către fiecare facultate analizată, pentru a vedea rata de succes a facultății însăși, prin imaginea sa publică și atractivitatea sa, în general.

3. Rezultate și discuții

3.1 Analiza de benchmarking intern

În perioada 2015 – 2017, Facultatea de Științe și Mediu din cadrul Universității „Dunărea de Jos" din Galați a scos la concursul de admitere de la programele de licență un număr de trei specializări aferente specificului celor două departamente din cadrul facultății: Departamentul de Chimie, Fizică și Mediu și, respectiv, Departamentul de Matematică.

În Tabelele 1 și 2 se prezintă numărul de locuri bugetate și cu taxă scoase la concursul de admitere și, respectiv, ocupate cu candidați la programele de licență ale Facultății de Științe și Mediu din Galați în anii 2015, 2016 și 2017. Diagramele din Fig. 1 prezintă distribuția procentuală a gradului de ocupare a locurilor la aceste programe în fiecare an de înmatriculare din perioada aleasă pentru studiu, iar graficele din Fig. 2 prezintă evoluția gradului de ocupare a locurilor la buget și, respectiv, cu taxă la cele trei specializări derulate.

Tabelul 1: *Locuri bugetate scoase la concursul de admitere și, respectiv, ocupate la programele de licență ale Facultății de Științe și Mediu din cadrul Universității „Dunărea de Jos" din Galați*

an înmatric.	Matem. inform.		Chimie		Știința mediului	
	disp.	ocup.	disp.	ocup.	disp.	ocup.
2015	26	28	24	19	26	27
2016	27	24	20	7	28	27
2017	27	27	20	11	28	10

Tabelul 2: *Locuri cu taxă scoase la concursul de admitere și, respectiv, ocupate la programele de licență ale Facultății de Științe și Mediu din cadrul Universității „Dunărea de Jos" din Galați*

an înmatric.	Matem. inform.		Chimie		Știința mediului	
	disp.	ocup.	disp.	ocup.	disp.	ocup.
2015	4	10	5	3	24	4
2016	11	5	20	1	36	0
2017	11	5	10	0	22	1

Din tabelele 1 și 2 se constată existența unei distribuții destul de echilibrate a numărului de locuri bugetate pentru cele trei programe de licență, în timp ce la cele cu taxă s-au scos mai multe locuri la concurs la specializarea *Știința mediului*, din considerentul noutății programului la nivel local, dar mai ales din considerentele necesității și atractivității prezumate în contextul amplificării problemelor de mediu și al necesității aderării la cerințele Uniunii Europene privind protecția mediului, dar și datorită succesului acestui program în primii lui ani derulați (2010 – 2014).

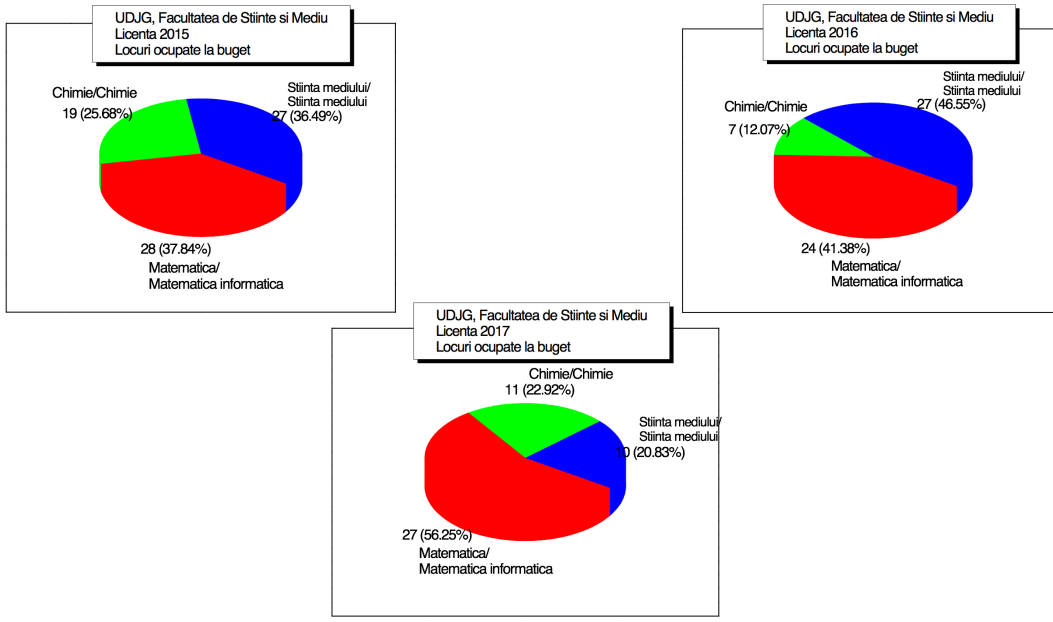

Fig. 1: *Diagramele privind distribuția procentuală a locurilor la buget ocupate din total scoase la concurs pentru fiecare specializare la licență la Facultatea de Științe și Mediu din Galați*

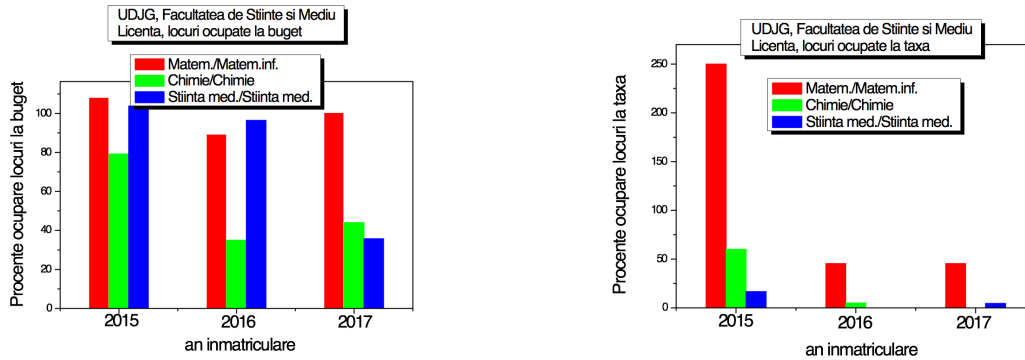

Fig. 2: *Preponderența locurilor ocupate la buget și, respectiv, cu taxă din totalul locurilor scoase la concurs la programele de licență precizate, în fiecare an considerat, în cadrul Facultății de Științe și Mediu din Galați*

Din analiza tabelelor 1 și 2 și a Fig. 1 și 2 se observă predominanța specializării de Matematică-Informatică ca rată de ocupare a locurilor la buget în comparație cu programele de licență de *Chimie* și de *Știința mediului*. Astfel, *Matematica-Informatică* a înregistrat o creștere continuă a gradului de ocupare a locurilor la buget, în timp ce *Chimia* și *Știința mediului* au manifestat fluctuații, cu un evident declin al celei din urmă, ceea ce a reprezentat una dintre cauzele pentru care s-a luat în considerare demersul de a supune autorizării ARACIS a unui nou program de studii de licență, care să compenseze succesul redus al unora dintre programele aflate în derulare. Cât privește locurile ocupate la taxă, Fig. 2 relevă o descreștere

continuă a gradului lor de ocupare la toate specializările, descreştere a cărei cauză o considerăm a fi situaţia economică dificilă în care se află ţara noastră, în general şi regiunea sudului Moldovei, în special, în care ne aflăm, care determină scăderea posibilităţilor financiare de a urma programe de licenţă la forma cu taxă.

Analiza de benchmarking intern a Facultăţii de Ştiinţe şi Mediu din Galaţi a continuat cu studierea programelor de masterat derulate în facultate deoarece, după cum am motivat şi mai sus, gradul de ocupare a locurilor la masterat este influenţat de succesul programelor de licenţă care le oferă, în mare parte, candidaţii. Astfel, în Tabelele 3 şi 4 se prezintă numărul de locuri bugetate, respectiv cele cu taxă scoase la concursul de admitere şi, respectiv, ocupate la programele de masterat ale Facultăţii de Ştiinţe şi Mediu din Galaţi în anii 2015 – 2017, iar diagramele din Fig. 3 şi 4 prezintă distribuţia procentuală a acestor programe în fiecare an de înmatriculare.

Din datele prezentate se constată predominanţa locurilor scoase la concurs la forma bugetată a specializării *Monitorizarea şi managementul mediului* (MMM), în timp ce la taxă, în anii 2015 şi 2016, s-a înregistrat o distribuţie mai echilibrată a locurilor disponibile la toate specializările derulate la facultatea noastră, iar în 2017 a crescut semnificativ numărul de locuri pentru un anumit program de masterat, mai precis cel de-abia inaugurat, la specializarea *Analiza şi controlul produselor agrochimice, farmaceutice şi cosmetice* (ACPAFC), cu potenţial de atractivitate pentru candidaţi.

Tabelul 3: *Locuri bugetate scoase la concursul de admitere şi, respectiv, ocupate la programele de masterat ale Facultăţii de Ştiinţe şi Mediu din cadrul Universităţii „Dunărea de Jos" din Galaţi*

an înmatric	Ing. mediului/ Monit. si manag. mediului (MMM)		Matematica/ Matem. did. (MD)		Ştiinta mediului/ Eval. param. fiz.-chim. de biodiv. ai mediului (EPFCBM)		Ştiinta mediului/Eval. param. fiz.-chim. de biodiv. ai mediului (în lb. engl.) (EPFCBM Engl.)		Chimie/Analiza şi controlul prod. agrochim., farm. şi cosmetic (ACPAFC)	
	disp.	ocup.	disp.	ocup.	disp.	ocup.	disp.	ocup.	disp.	ocup.
2015	36	40	20	20	0	0	0	0	0	0
2016	27	37	21	21	0	0	0	0	0	0
2017	30	31	20	19	0	0	0	0	0	0

Tabelul 4: *Locuri cu taxă scoase la concursul de admitere şi, respectiv, ocupate la programele de masterat ale Facultăţii de Ştiinţe şi Mediu din cadrul Universităţii „Dunărea de Jos" din Galaţi*

an înmatric.	Ing. mediului/ Monit. şi manag. mediului		Matematica/ Matem. did.		Ştiinta mediului/ Eval. param. fiz.-chim. de biodiv. ai mediului		Ştiinta mediului/Eval. param. fiz.-chim. de biodiv. ai mediului (în lb. engl.)		Chimie/Analiza şi controlul prod. agrochim., farm. şi cosmetice	
	disp.	ocup.	disp.	ocup.	disp.	ocup.	disp.	ocup.	disp.	ocup.
2015	14	5	30	8	25	0	25	0	0	0
2016	21	2	27	2	22	0	23	0	0	0
2017	2	1	13	2	0	0	0	0	40	9

În ceea ce privește gradul de ocupare a locurilor la programele de masterat ale Facultății de Științe și Mediu, se constată o ușoară descreștere pentru forma buget la specializarea *Monitorizarea și managementul mediului* și o ușoară creștere a programului de *Matematică didactică*, în timp ce la forma cu taxă evoluția procentuală a celor două programe a fost inversă față de buget pentru anii 2015 și 2016, iar pentru anul 2017 cel mai mare procent de ocupare a locurilor la taxă s-a înregistrat la noul program de *Analiza și controlul produselor agrochimice, farmaceutice și cosmetice*, pentru care, deși nu au fost locuri disponibile la buget, forma cu taxă s-a dovedit a fi suficient de atractivă, după cum se și estimase, prin prisma oportunităților oferite de a lucra, după absolvire, ca reprezentanți sau agenți de vânzări de produse farmaceutice sau cosmetice sau chiar agricole.

Așadar, din analiza de benchmarking intern rezultă necesitatea înnoirii, diversificării ofertei de specializări pentru licență la Facultatea de Științe și Mediu a Universității „Dunărea de Jos" din Galați, care să compenseze pierderile înregistrate la programele a căror atractivitate a scăzut destul de mult, mai ales în ce privește specializarea de *Știința mediului*, a cărei descreștere ca grad de ocupare a locurilor bugetate scoase la concurs se poate explica prin saturarea pieței muncii locale, care deja a obținut un număr important de specialiști în domeniu oferiți de facultatea noastră în anii de dinainte de 2015.

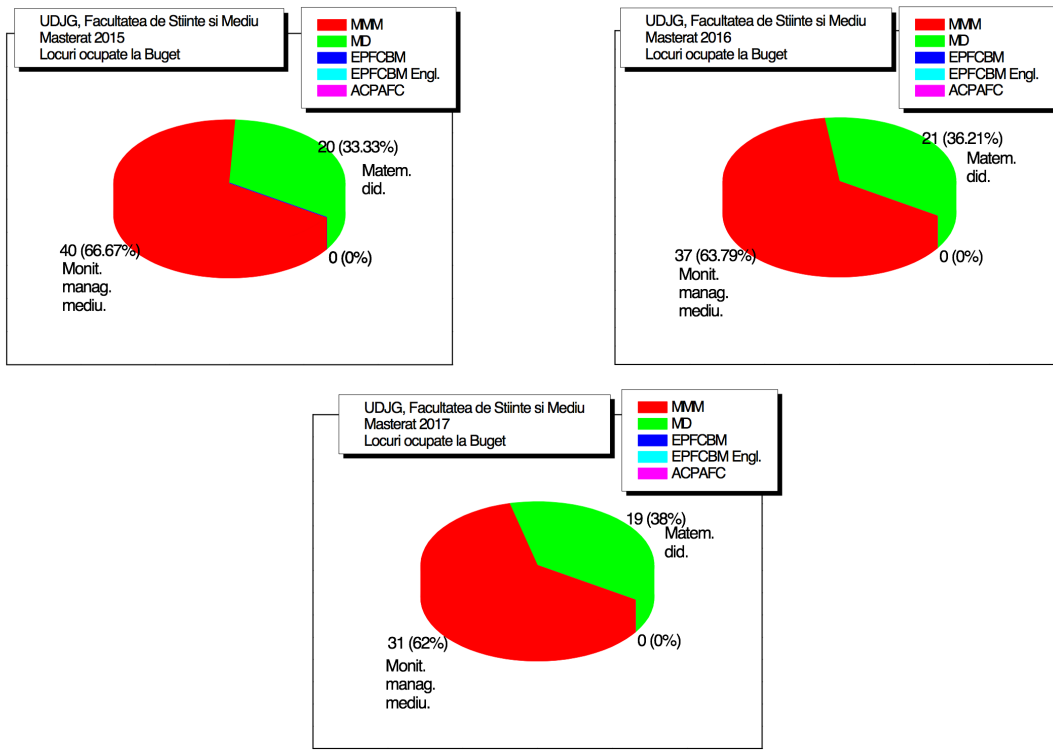

Fig. 3: *Diagramele privind distribuția procentuală a locurilor la buget ocupate din total scoase la concurs pentru fiecare specializare la masterat la Facultatea de Științe și Mediu din Galați*

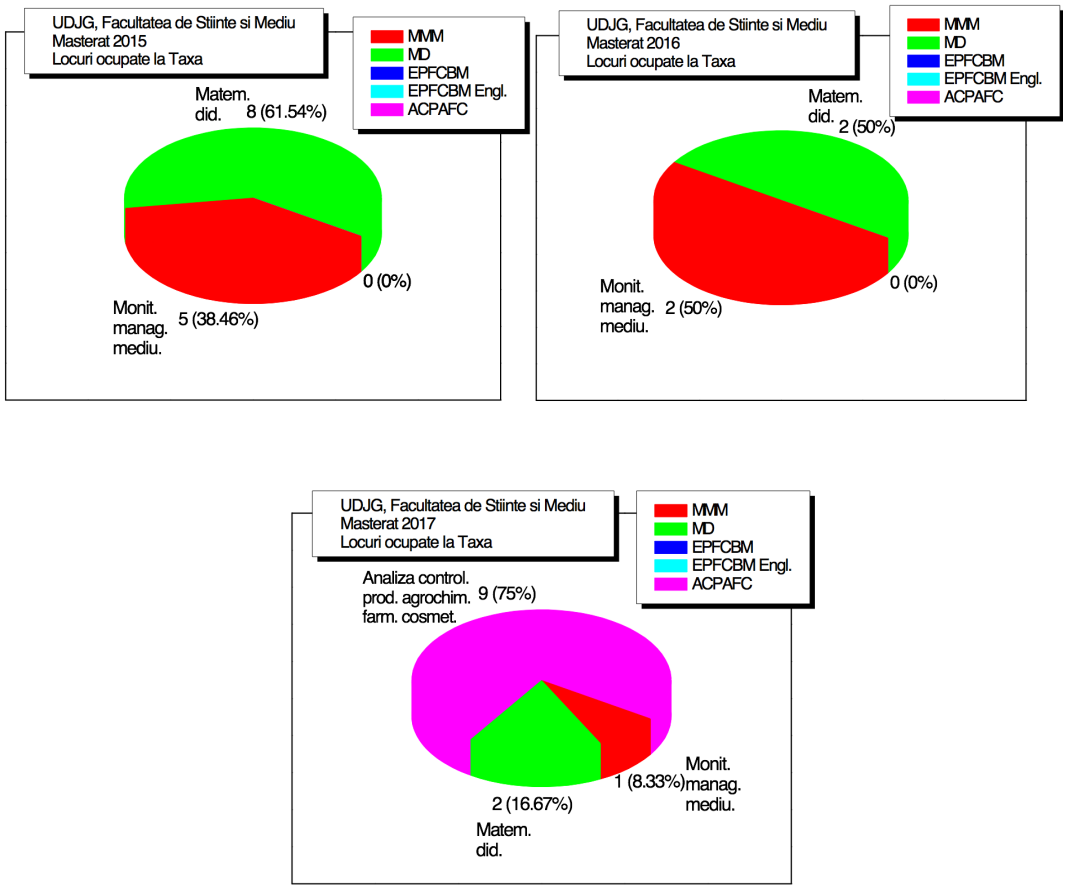

Fig. 4: *Diagramele privind distribuția procentuală a locurilor la forma cu taxă ocupate din total scoase la concurs pentru fiecare specializare la masterat la Facultatea de Științe și Mediu din Galați*

3.2 Analiza de benchmarking extern

În etapa a II-a a analizei de benchmarking, s-a studiat evoluția programelor de studii de licență și masterat de la facultăți din România cu specific similar Facultății de Științe și Mediu a Universității „Dunărea de Jos" din Galați. Analiza de benchmarking extern s-a axat pe identificarea gradului de atractivitate a programului de licență de *Fizică medicală* în ansamblul de programe derulate de alte facultăți, pentru a putea concluziona dacă se justifică necesitatea inițierii demersului de autorizare a acestui program la nivelul colectivului de Fizică al facultății noastre, însă a urmărit și evoluția per ansamblu a succesului fiecărei facultăți selectate în privința tuturor programelor de studiu de licență și de masterat pentru a obține informații despre dinamica și managementul ofertei educaționale la nivel național, în contextul unei piețe naționale a muncii destul de puțin ofertante în privința științelor naturii și a științelor exacte.

3.2.1 Analiza de benchmarking extern privind programele de studii ale Facultății de Științe de la Universitatea din Craiova

Facultatea de Științe a Universității din Craiova a derulat în perioada 2015-2017 un număr de 12 programe de studii de licență, dintre care șapte au început a fi derulate din toamna anului 2016. Tabelele 5 și 6 prezintă locurile bugetate și, respectiv, cu taxă scoase la concurs de către această facultate în perioada precizată. Din aceste tabele se observă existența unei distribuții echilibrate în anii 2015 și 2016 a numărului de locuri bugetate pentru programele de licență derulate la Facultatea de Științe din Craiova. Simbolurile „-*" din Tabelele 5 și 6 indică faptul că pentru anii 2015 Și 2016 nu au fost găsite informații publice privind locurile scoase la admitere la specializarea *Informatică* de la Universitatea din Craiova. În 2017, datele disponibile privind admiterea la specializarea *Informatică* au permis observarea faptului că numărul de locuri scoase la concurs pentru această specializarea au fost predominante față de celelalte opțiuni ale Facultății de Științe din Craiova, cel mai probabil deoarece această specializare este una dintre cele mai căutate în țară și străinătate, dat fiind potențialul ridicat de angajare al absolvenților în cele mai variate domenii, în contextul creșterii accelerate a informatizării generalizate.

Tabelul 5: *Locuri bugetate scoase la concursul de admitere la programele de licență ale Facultății de Științe din cadrul Universității din Craiova*

an înmatric.	Fiz.	Chim.	Chim. mediu.	Biochim. tehnol.	Fiz. inf.	Fiz. medic.	Geogr. turism.	Geogr.	Matem.	Matem. inform.	Chim. farmac.	Info.
2015	65	55	20	0	0	0	0	0	0	0	0	-*
2016	0	25	20	30	20	40	34	29	20	13	0	-*
2017	0	15	20	25	17	36	29	28	31	15	20	124

Tabelul 6: *Locuri cu taxă scoase la concursul de admitere la programele de licență ale Facultății de Științe din cadrul Universității din Craiova*

an înmatric.	Fiz.	Chim.	Chim. mediu.	Biochim. tehnol.	Fiz. inf.	Fiz. medic.	Geogr. turism.	Geogr.	Matem.	Matem. inform.	Chim. farmac.	Info.
2015	5	5	5	0	0	0	0	0	0	0	0	-*
2016	0	5	5	5	2	3	44	98	2	3	0	-*
2017	0	5	5	5	5	2	50	60	17	18	5	30

În ceea ce privește locurile cu taxă la Facultatea de Științe din Craiova, acestea au crescut spectaculos în 2016 și 2017 față de 2015, date fiind noile programe de *Geografie* și *Geografia turismului* inițiate în 2016, respectiv *Informatică* în 2017. În anul 2016, când a fost inițiat programul de *Fizică medicală* la Universitatea din Craiova, i s-a repartizat un procent relevant de locuri la buget (peste 17%), însă doar câteva locuri cu taxă, în timp ce în 2017 a scăzut procentul de locuri bugetate din total (10%) în favoarea Informaticii. Tabelele 7 și 8 prezintă locuri ocupate la buget și respectiv, cu taxă la programele de licență ale Facultății de Științe din Craiova, iar Fig. 5 prezintă graficele evidențiind, sub formă de coloane, preponderența locurilor ocupate la buget și, respectiv, cu taxă în fiecare an considerat. Și în tabelele 7 și 8 simbolurile „-*" evidențiază indisponibilitatea publică a datelor privind locurile ocupate la admitere la specializarea Informatică a Universității din Craiova.

Tabelul 7: *Locuri bugetate ocupate la programele de licență ale Facultății de Științe din cadrul Universității din Craiova*

an înmatric.	Fiz.	Chim.	Chim. mediu.	Biochim. tehnol.	Fiz. inf.	Fiz. medic.	Geogr. turism.	Geogr.	Matem.	Matem. inform.	Chim. farmac.	Info.
2015	58	23	40	0	0	0	0	0	0	0	0	-*
2016	0	8	10	25	20	41	34	29	20	13	0	-*
2017	0	14	15	15	11	27	29	28	30	15	18	122

Tabelul 8: *Locuri cu taxă ocupate la programele de licență ale Facultății de Științe din cadrul Universității din Craiova*

an înmatric.	Fiz.	Chim.	Chim. mediu.	Biochim. tehnol.	Fiz. inf.	Fiz. medic.	Geogr. turism.	Geogr.	Matem.	Matem. inform.	Chim. farmac.	Info.
2015	1	3	0	0	0	0	0	0	0	0	0	-*
2016	0	0	0	1	0	1	13	2	0	1	0	-*
2017	0	1	0	1	0	2	11	10	4	2	1	20

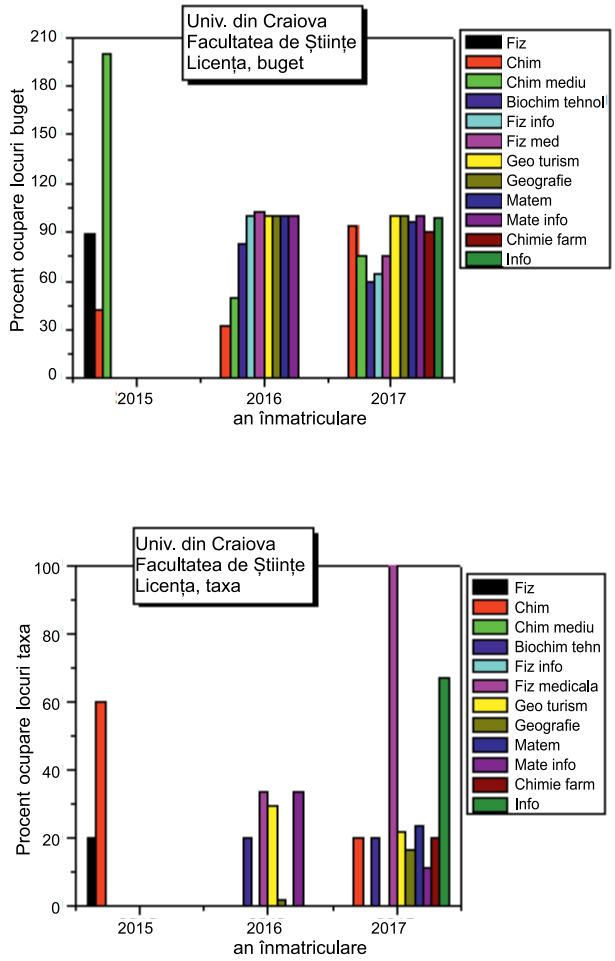

Fig. 5: *Preponderența locurilor ocupate la buget și, respectiv, cu taxă din totalul locurilor scoase la concurs la programele de licență precizate, în fiecare an considerat, în cadrul Facultății de Științe din Craiova*

Din aceste ultime tabele și grafice se constată că, la buget, doar în 2015 a predominat net ocuparea locurilor la specializarea *Chimia mediului* (unde s-au suplimentat locurile), în timp ce în 2016 și 2017 procentele de ocupare au fost relativ echilibrate la toate specializările. *Fizica medicală* a înregistrat un ușor declin în 2017 față de 2016 în privința ocupării locurilor la buget, situație explicabilă prin introducerea în 2017 a *Informaticii* ca nou program atractiv de studii de licență. La forma cu taxă au fost ocupate în mare măsură locurile la *Chimie* în 2015, în timp ce în 2017 a crescut gradul de ocupare a locurilor la *Fizică medicală*, deși numărul efectiv de locuri scoase la concurs a fost redus.

Așadar, la Facultatea de Științe a Universității din Craiova, programul de *Fizică medicală* rulează la un nivel destul de bun, cu grad de ocupare a locurilor la buget de peste 60% în fiecare an în care programul a rulat.

Trecând la analiza programelor de studii de masterat de la Facultatea de Ştiinţe a Universităţii din Craiova, aceasta a derulat în perioada 2015-2017 un număr de şapte programe de masterat, după cum Tabelele 9 şi 10 prezintă situaţiile locurilor scoase la concursul de admitere şi, respectiv, ocupate la buget, respectiv la forma cu taxă. Din datele prezentate pentru programele de masterat ale Facultăţii de Ştiinţe din Craiova, se constată că aceasta şi-a diversificat oferta de programe în anul 2017, în timp ce în cei doi ani precedenţi a rulat doar două programe. Gradul de ocupare a noilor programe de masterat a fost foarte ridicat, tot astfel cum a rulat la un grad înalt de ocupare şi programul mai vechi de *Chimia compuşilor biologic activi* atât la buget, cât şi la forma cu taxă.

Tabelul 9: *Locuri bugetate scoase la concursul de admitere şi, respectiv, ocupate la programele de masterat ale Facultăţii de Ştiinţe din cadrul Universităţii din Craiova*

an înmatric.	Chimie/ Calitatea mediului		Chimie/ Chimia compuşilor biologic activi		Theoretical Physics		Geografie/ Turism şi dezvoltare durabilă		Matematici aplicate		Fizică aplicată		Metode şi modele în inteligenţa artificială	
	disp.	ocup.	disp.	ocup.	disp.	ocup.	disp.	ocup.	disp.	ocup.	disp.	ocup.	disp.	ocup.
2015	21	21	34	34	0	0	0	0	0	0	0	0	0	0
2016	3	2	0	0	3	3	0	0	0	0	0	0	0	0
2017	1	1	0	0	0	0	0	0	2	1	4	4	7	7

Tabelul 10: *Locuri cu taxă scoase la concursul de admitere şi, respectiv, ocupate la programele de masterat ale Facultăţii de Ştiinţe din cadrul Universităţii din Craiova*

an înmatric.	Chimie/ Calitatea mediului		Chimie/ Chimia compuşilor biologic activi		Theoretical Physics		Geografie/ Turism şi dezvoltare durabilă		Matematici aplicate		Fizică aplicată		Metode şi modele în inteligenţa artificială	
	disp.	ocup.	disp.	ocup.	disp.	ocup.	disp.	ocup.	disp.	ocup.	disp.	ocup.	disp.	ocup.
2015	10	1	10	4	0	0	0	0	0	0	0	0	0	0
2016	10	0	9	3	∞	0	29	1	∞	0	0	0	0	0
2017	10	4	9	8	0	0	19	5	3	2	5	1	3	1

Niciuna dintre specializările oferite la masterat de Facultatea de Ştiinţe a Universităţii din Craiova nu oferă o continuitate pentru programul de licenţă de *Fizică medicală*, acesta fiind încă, probabil, în faza de testare, în timp ce pentru

Chimie, Geografie și *Informatică* sunt derulate programe de masterat cu continuitate de la corespondentele de la programele de licență, al căror succes nu face necesară autorizarea unui alt program de masterat în viitorul apropiat.

Din analiza programelor de licență și masterat ale Facultății de Științe a Universității din Craiova se observă creșterea ratei sale de succes în privința atractivității programelor de studiu oferite, care rezultă din creșterea gradului de ocupare a locurilor scoase la admitere atât la buget, cât și la forma cu taxă, creștere datorată diversificării ofertei didactice, printre care se numără și *Fizica medicală*, care a înregistrat un grad de ocupare la buget de peste 60 % în fiecare dintre anii în care a rulat.

3.2.2 Analiza de benchmarking extern privind programele de studii ale Facultății de Fizică de la Universitatea „Alexandru Ioan Cuza" din Iași

Trecând la analiza programelor de licență și masterat ale Facultății de Fizică din cadrul Universității „Alexandru Ioan Cuza" din Iași, cu precădere în ceea ce privește specializarea de *Fizică medicală*, prezentăm în Tabelele 11 și 12 numerele de locuri scoase la concursul de admitere în anii 2015, 2016 și respectiv 2017 la formele buget, respectiv cu taxă, iar numărul de locuri ocupate la buget la fiecare dintre cele cinci specializări derulate sunt prezentate în Tabelul 13, în timp ce la forma cu taxă s-a ocupat câte un singur loc doar în 2017 la specializările *Fizică* și, respectiv, *Fizică informatică*.

Specific acestei facultăți este scoaterea la concursul de admitere a unui număr total, nediferențiat, egal distribuit, de locuri la buget și taxă la toate cele patru specializări de licență în domeniul Fizică, anume: *Fizică, Fizică informatică, Biofizică* și, respectiv, *Fizică medicală*, număr total aflat în ușoară scădere din 2015 și până în 2017, în timp ce pentru programul de *Fizică tehnologică* din domeniul *Științe inginerești*, numărul de locuri scoase la concurs a variat cu foarte puțin. Această ofertă de tip global, cu număr mare per total de locuri disponibile, nediferențiate la programele din domeniul Fizică poate fi considerată a oferi mai multă încredere candidaților în privința șansei lor de reușită la admitere. În același timp, acest tip de ofertă permite facultății să facă o redistribuire mai ușoară a candidaților care au bifat mai multe specializări de Fizică ca opțiuni la înscriere.

Tabelul 11: *Locuri bugetate scoase la concursul de admitere la programele de licență ale Facultății de Fizică din cadrul Universității „Alexandru Ioan Cuza" din Iași*

an înmatric.	Fizică/Fizică	Fizică/Fizică inform.	Fizică/Fizică medicală	Fizică/Biofizică	Științe ing./Fizică tehnol.
2015	85				15
2016	77				14
2017	62				14

Tabelul 12: *Locuri cu taxă scoase la concursul de admitere la programele de licenţă ale Facultăţii de Fizică din cadrul Universităţii „Alexandru Ioan Cuza" din Iaşi*

an înmatric.	Fizică/Fizică	Fizică/Fizică inform.	Fizică/Fizică medicală	Fizică/Biofizică	Ştiinţe ing./Fizică tehnol.
2015	11				4
2016	10				1
2017	10				1

Tabelul 13: *Locuri bugetate ocupate la programele de licenţă ale Facultăţii de Fizică din cadrul Universităţii „Alexandru Ioan Cuza" din Iaşi*

an înmatric.	Fizică/Fizică	Fizică/Fizică inform.	Fizică/Fizică medicală	Fizică/Biofizică	Ştiinţe ing./Fizică tehnol.
2015	6	30	29	3	3
2016	7	14	12	1	1
2017	7	11	15	1	8

Pentru a calcula, pentru fiecare specializare de Fizică rulată la Facultatea de Fizică din Iaşi în anii 2015, 2016 şi, respectiv, 2017, gradul de ocupare a locurilor la buget şi, respectiv, cu taxă, am luat în considerare o divizare în mod egal a locurilor scoase la concurs la buget şi, respectiv, cu taxă. Ca urmare, se observă din Fig. 6, care prezintă preponderenţa locurilor ocupate la buget la programele de licenţă ale Facultăţii de Fizică din Iaşi, că s-a înregistrat o rată extrem de ridicată de succes la admitere a specializărilor de *Fizică informatică* şi de *Fizică medicală* la forma buget, în 2017 aceasta depăşind *Fizica informatică*, ceea ce dovedeşte atractivitatea crescândă a *Fizicii medicale*. Faptul că locurile la forma cu taxă s-au ocupat în număr mic la toate specializările este cauzat, probabil, de situaţia economică precară a regiunii geografice a Moldovei, care face puţin atractivă forma nebugetată a programelor de licenţă. Se observă că specializarea *Fizică medicală* a avut o contribuţie importantă la gradul de ocupare a locurilor bugetate scoase la concursul de admitere la licenţă la Facultatea de Fizică din Iaşi.

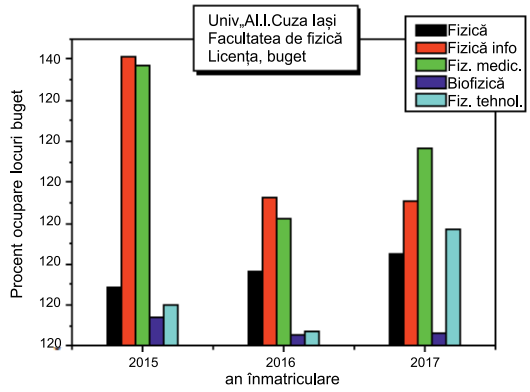

Fig. 6: *Preponderența locurilor ocupate la buget din totalul locurilor scoase la concurs la programele de Licență precizate, în fiecare an considerat, în cadrul Facultății de Fizică din Iași*

Aceeași manieră nediferențiată după specializări a fost adoptată și pentru locurile scoase la concursul de admitere la masterat la Facultatea de Fizică a Universității „Alexandru Ioan Cuza" din Iași, după cum se poate constata din datele prezentate în Tabelul 14. Dintre acestea, locurile bugetate ocupate la fiecare specializare sunt prezentate în Tabelul 15, la forma cu taxă nefiind ocupat nici un loc în niciunul dintre cei trei ani selectați pentru analize.

Dintre specializările rulate la masterat, la Facultatea de Fizică din Iași, cea mai de succes s-a dovedit a fi în fiecare an cea de *Metode fizice aplicate în kinetoterapie și recuperare medicală*, urmată de cea de *Biofizică și Fizică medicală* (cu predare în limba engleză), ambele specializări reprezentând bune opțiuni de continuare a programului de licență de *Fizică medicală*.

Tabelul 14: *Locuri bugetate, respectiv cu taxă scoase la concursul de admitere la programele de masterat ale Facultății de Fizică din cadrul Universității „Alexandru Ioan Cuza" din Iași*

an înmatric.		Fizică / Metode fizice aplicate în kinetoterapie și recuperare medicală	Fizică/ Fizică și protecția mediului	Fizică / Biofizică și fizică medicală (cu predare în limba engleză)	Fizică / Științe (interdisciplinar, cu domeniile Chimie, Biologie)	Fizică / Fizică pentru tehnologii avansate (in limba engleza)	Fizică / Fizică aplicată în tehnologiile informației și comunicații
2015	buget	100					
	taxă	20					
2016	buget	99					
	taxă	20					
2017	buget	100					
	taxă	20					

Tabelul 15: *Locuri bugetate ocupate la programele de masterat ale Facultăţii de Fizică din cadrul Universităţii „Alexandru Ioan Cuza" din Iaşi*

an înmatric.	Fizică / Metode fizice aplicate în kinetoterapie şi recuperare medicală	Fizică/ Fizică şi protecţia mediului	Fizică / Biofizică şi fizică medicală (cu predare în limba engleză)	Fizică / Ştiinţe (interdisciplinar, cu domeniile Chimie, Biologie)	Fizică / Fizică pentru tehnologii avansate (in limba engleza)	Fizică / Fizică aplicată în tehnologiile informaţiei şi comunicaţii
2015	40	6	14	6	6	4
2016	40	0	6	14	8	3
2017	23	1	11	4	6	0

Aşadar, şi la Facultatea de Fizică din cadrul Universităţii „Alexandru Ioan Cuza" din Iaşi, specializarea de licenţă de *Fizică medicală* s-a dovedit a fi atractivă pentru candidaţi, cu un grad de ocupare de peste 65% în ultimii trei ani de înmatriculare, alături de care programele de masterat de profiluri înrudite au înregistrat succese similare, încurajându-ne în demersul nostru ca departament şi ca facultate de a oferi această specializare şi potenţialilor candidaţi din sud-estul României.

3.2.3 Analiza de benchmarking extern privind programele de studii ale Facultăţii de Ştiinţe de la Universitatea din Oradea

Ultima facultate supusă analizei de benchmarking extern a fost Facultatea de Ştiinţe din cadrul Universităţii din Oradea, în cadrul căreia se derulează, de asemenea, un program de licenţă la specializarea *Fizica medicală*, după cum se poate observa din Tabelele 16 şi 17 care prezintă numerele de locuri bugetate şi, respectiv, cele cu taxă scoase la concursurile de admitere la programe de licenţă în anii 2015, 2016 şi, respectiv, 2017. Astfel, Facultatea de Ştiinţe din Oradea a derulat 10 programe de licenţă în anii precizaţi, iar pentru *Fizică medicală* a fost disponibilă din 2017 şi specializarea cu predare în limba engleză, pentru care au fost alocate doar locuri cu taxă. Din datele prezentate se constată împărţirea echilibrată a locurilor între specializările acreditate/autorizate, printre care se numără şi *Fizica medicală*.

Tabelul 16: *Locuri bugetate scoase la concursul de admitere la programele de licenţă ale Facultăţii de Ştiinţe din cadrul Universităţii din Oradea*

an înmatric.	Biol. / Biol.	Chimie / Chimie	Fizică / Fizică	Fizică / Fizică medicală	Fizică / Fizică medicală- în lb. engleză	Inform. / Inform.	Matem. / Matem.	Matem. / Matem. inform.	Matem. / Matem. - în lb. engl.	Ştiinţa mediului / Ecol. şi prot. mediului
2015	24	23	0	23	0	23	10	0	13	0
2016	23	23	0	23	0	23	23	0	0	0
2017	23	23	0	24	0	25	24	0	0	0

***Tabelul 17:** Locuri cu taxă scoase la concursul de admitere la programele de licență ale Facultății de Științe din cadrul Universității din Oradea*

an înmatric.	Biol. / Biol.	Chimie / Chimie	Fizică / Fizică	Fizică / Fizică medicală	Fizică / Fizică medicală- în lb. engleză	Inform. / Inform.	Matem. / Matem.	Matem. / Matem. inform.	Matem. / Matem. - în lb. engl.	Știința mediului / Ecol. și prot. mediului
2015	56	17	40	17	-	27	40	40	17	40
2016	80	40	40	40	-	50	50	40	30	40
2017	57	17	40	16	40	25	26	40	30	40

În Tabelele 18 și 19 se prezintă numărul de locuri ocupate la fiecare specializare de licență derulată la Facultatea de Științe din Oradea, separat pentru formele buget, respectiv cu taxă, iar Fig. 7 prezintă evoluția ratei de ocupare a locurilor bugetate, respectiv cu taxă în fiecare dintre anii aleși pentru analize.

***Tabelul 18:** Locuri bugetate ocupate la programele de licență ale Facultății de Științe din cadrul Universității din Oradea*

an înmatric.	Biol. / Biol.	Chimie/ Chimie	Fizică / Fizică	Fizică / Fizică medicală	Fizică / Fizică medicală- în lb. engleză	Inform. / Inform.	Matem. / Matem.	Matem. / Matem. inform.	Matem. / Matem. - în lb. engl.	Știința mediului / Ecol. și prot. mediului
2015	24	19	0	23	0	26	22	0	0	0
2016	19	10	0	14	0	24	12	0	0	0
2017	24	14	0	20	0	35	24	0	0	0

***Tabelul 19:** Locuri cu taxă ocupate la programele de licență ale Facultății de Științe din cadrul Universității din Oradea*

an înmatric.	Biol. / Biol.	Chimie/ Chimie	Fizică / Fizică	Fizică / Fizică medicală	Fizică / Fizică medicală- în lb. engleză	Inform. / Inform.	Matem. / Matem.	Matem. / Matem. inform.	Matem. / Matem. - în lb. engl.	Știința mediului / Ecol. și prot. mediului
2015	14	8	0	17	0	24	7	0	0	0
2016	1	1	0	1	0	28	3	0	0	0
2017	9	7	0	6	0	27	6	0	0	0

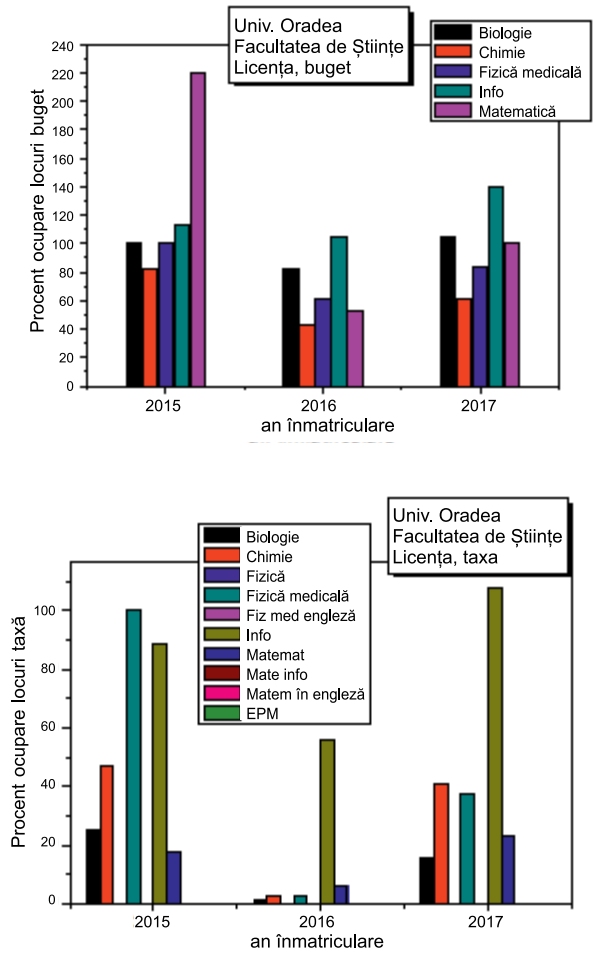

Fig. 7: *Preponderența locurilor ocupate la buget și, respectiv, cu taxă din totalul locurilor scoase la concurs la programele de licență precizate, în fiecare an considerat, în cadrul Facultății de Științe din Oradea*

Atât din datele prezentate în Tabelele 16-19, cât și din Fig. 7 se constată că programele de licență cele mai de succes la forma buget s-au dovedit a fi, la Oradea, cele de *Matematică* și de *Informatică*, primul necesitând suplimentarea locurilor în 2015, iar cel de-al doilea necesitând aceeași operațiune în anul 2017. Programul de licență la specializarea *Chimie* a înregistrat o scădere a ratei de ocupare la buget în 2016, asemenea celorlalte specializări derulate, urmate de un reviriment în 2017. În ceea ce privește programul *Fizica medicală,* s-a înregistrat ocuparea integrală a locurilor în anul 2015, urmată de o scădere în 2016, apoi de creșterea la peste 80% rată de ocupare în 2017. În privința ocupării locurilor scoase la concursul de admitere la forma cu taxă a specializărilor derulate de Facultatea de Științe din Oradea, graficele din Fig. 7 evidențiază rata ridicată de ocupare la *Informatică*, urmată de *Fizica medicală* și de *Chimie*, mai ales pentru anii 2015 și 2017.

Trecând la analiza ratei de succes a specializărilor oferite și derulate la masterat de către Facultatea de Științe a Universității din Oradea, după cum se poate observa din compararea numărului de locuri ocupate la buget și, respectiv, cu taxă cu numărul de locuri scoase la concursul de admitere în anii 2015, 2016 și 2017, date prezentate în Tabelele 20 și 21, se constată că gradul de ocupare a locurilor bugetate a fost ridicat la toate cele cinci specializări derulate: *Biologie/Biodiversitatea și monitorizarea ecosistemelor, Chimie/Chimie structurală și aplicativă, Fizică/ Fizică explorărilor și terapiilor biomedicale, Informatică/Sisteme distribuite în Internet* și, respectiv, *Matematică/Matematică didactică*. În schimb, numărul de locuri ocupate la forma cu taxă a fost relativ redus, însă acest lucru s-a întâmplat, probabil, din cauza numărul exagerat de mare de locuri scoase la concurs, mai ales în anii 2015 și 2017.

Programul de masterat la specializarea *Fizica explorărilor și terapiilor biomedicale* este perfect corelat cu programul de licență de *Fizică medicală*, având distribuite locuri în mod echilibrat în raport cu celelalte specializări de masterat și având rată de succes ridicată.

***Tabelul 20:** Locuri bugetate scoase la concursul de admitere și, respectiv, ocupate la programele de masterat ale Facultății de Științe din cadrul Universității din Oradea*

an înmatric.	Biologie/ Biodivers. și monitoriz. ecosist.		Chimie/ Chimie struct. și aplic.		Fizică/ Fizica explor. și terapiilor biomed.		Informatică/ Sisteme distribuite în Internet		Matematică/ Matematică didactică	
	disp.	ocup.	disp.	ocup.	disp.	ocup.	disp.	ocup.	disp.	ocup.
2015	10	10	9	8	9	9	9	9	9	7
2016	12	12	12	12	12	11	11	11	12	12
2017	9	6	9	10	9	9	9	7	8	7

***Tabelul 21:** Locuri cu taxă scoase la concursul de admitere și, respectiv, ocupate la programele de masterat ale Facultății de Științe din cadrul Universității din Oradea*

an înmatric.	Biologie/ Biodivers. și monitoriz. ecosist.		Chimie/ Chimie struct. și aplic.		Fizică/Fizica explor. și terapiilor biomed.		Informatică/ Sisteme distribuite în Internet		Matematică/ Matematică didactică	
	disp.	ocup.	disp.	ocup.	disp.	ocup.	disp.	ocup.	disp.	ocup.
2015	90	4	41	2	141	6	41	4	141	0
2016	50	1	50	1	50	0	50	10	50	6
2017	91	0	41	3	141	5	141	0	42	0

Se observă că, în fiecare an, peste 80% din locurile bugetate au fost ocupate, cu maximul atins în anul 2016, în timp ce la forma cu taxă, gradul de ocupare nu a atins 10% în niciunul dintre anii selectați pentru analize, din aceeași cauză presupusă mai sus, anume numărul prea mare de locuri din oferta educațională de la masteratul cu taxă.

Din datele prezentate rezultă că programul de licență la specializarea *Fizică medicală* este unul de succes și la Facultatea de Științe a Universității din Oradea, alături de care a înregistrat un succes similar și programul de masterat asociat.

3.2.4 Analiza de benchmarking extern comparativă privind programul de licență de Fizică medicală la cele trei facultăți selectat pentru analiză

Tabelele 22 și 23 prezintă, pentru comparație, pentru fiecare dintre cele 3 facultăți alese pentru analiza de benchmarking extern, numărul de locuri bugetate, respectiv cu taxă, scoase la concursurile de admitere la programul de licență la specializarea *Fizică medicală* în anii 2015, 2016 și, respectiv, 2017, alături de numărul de locuri ocupate și de gradul de ocupare, în timp ce Fig. 8 prezintă doar evoluția gradului de ocupare la buget și, respectiv, cu taxă.

***Tabelul 22**: Compararea numerelor de locuri bugetate scoase la concursul de admitere, a celor ocupate și a gradului de ocupare la programul de licență la specializarea Fizică medicală la cele 3 facultăți selectate pentru analiza de benchmarking extern*

an înmatric.	**Licență, buget: Fizică/Fizică medicală**								
	Univ. din Craiova Facultatea de Științe			Univ. din Iași Facultatea de Fizică			Univ. din Oradea Facultatea de Științe		
	scoase la Admitere	ocupate	grad de ocupare (%)	scoase la Admitere	ocupate	grad de ocupare (%)	scoase la Admitere	ocupate	grad de ocupare (%)
2015	0	0	0.0	21	29	138.1	23	23	100.0
2016	40	41	102.5	20	12	60.0	23	14	60.9
2017	36	27	75.0	16	19	118.8	24	20	83.3

***Tabelul 23:** Compararea numerelor de locuri cu taxă scoase la concursul de admitere, a celor ocupate și a gradului de ocupare la programul de licență la specializarea Fizică medicală la cele 3 facultăți selectate pentru analiza de benchmarking extern*

an înmatric.	**Licență, taxă: Fizică/Fizică medicală**								
	Univ. din Craiova Facultatea de Științe			Univ. din Iași Facultatea de Fizică			Univ. din Oradea Facultatea de Științe		
	scoase la Admitere	ocupate	grad de ocupare (%)	scoase la Admitere	ocupate	grad de ocupare (%)	scoase la Admitere	ocupate	grad de ocupare (%)
2015	0	0	0.0	3	0	0.0	17	17	100.0
2016	3	1	33.3	3	0	0.0	40	1	2.5
2017	2	2	100.0	3	0	0.0	16	6	37.5

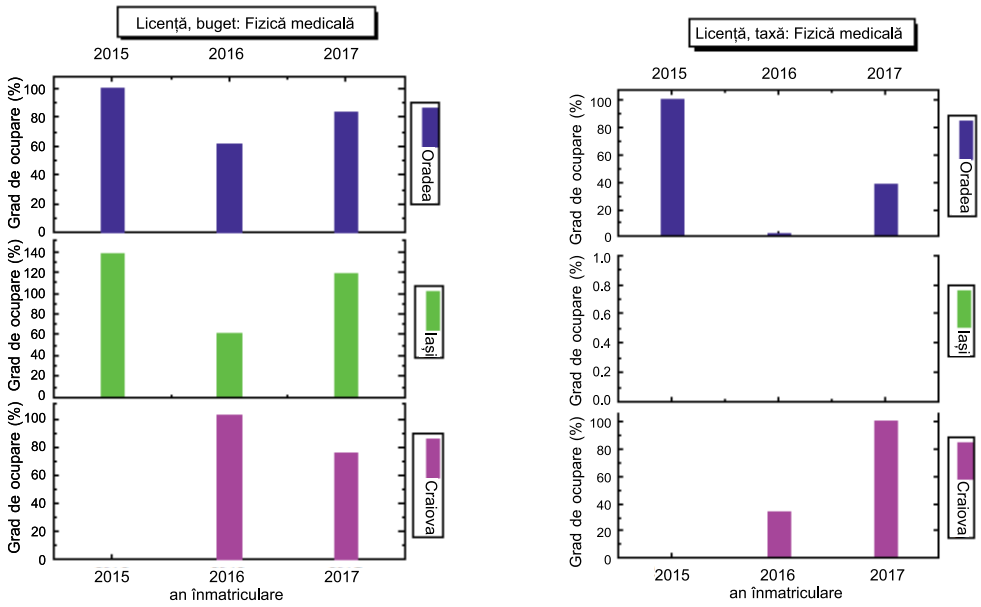

Fig. 8: *Evoluția gradului de ocupare a locurilor bugetate (stânga), respectiv cu taxă (dreapta) scoase la concursul de admitere la specializarea Fizică medicală la cele 3 facultăți supuse analizei de benchmarking extern*

Din analiza datelor prezentate în tabelele 22 și 23 și în Fig. 8 se constată că specializarea *Fizică medicală* a fost una atractivă atât la Craiova, cât și la Iași și Oradea la forma buget, cu o evoluție a gradului de ocupare specifică fiecărei facultăți și universități, care se corelează strâns și cu situația socio-economică a regiunii geografice în care sunt situate acestea. La Facultatea de Fizică din Iași, în 2015 programul chiar a necesitat suplimentarea locurilor și tot astfel a fost nevoie să se procedeze în 2016 la Facultatea de Științe a Universității din Craiova. Chiar și la forma cu taxă, la Oradea și Craiova, programul de licență de *Fizică medicală* s-a dovedit a fi extrem de atractiv.

Concluzii

Coroborând analiza de benchmarking intern a Facultății de Științe și Mediu din cadrul Universității „Dunărea de Jos" din Galați cu analiza de benchmarking extern la Facultățile de Științe de la Universitățile din Craiova și Oradea și la Facultatea de Fizică a Universității „Alexandru Ioan Cuza*"* din Iași, s-a concluzionat că se justifică întru totul demersul de autorizare a unui nou program de studiu la specializarea *Fizică medicală* în cadrul Facultății de Științe și Mediu din Galați.

Un astfel de program s-a dovedit a fi atractiv pentru candidații de la facultățile precizate din Craiova, Iași și, respectiv, Oradea, datorită tehnologizării accentuate în toate domeniile vieții și în special în Medicină, pentru diagnostic, terapie și cercetare, unde principiile și legile fizice și aparatura și metodele fizice de analiză

sunt esențiale și necesită personal specializat care să le utilizeze, să le optimizeze, să le asigure mentenanța corectă și să ofere decizia corectă privind alegerea de noi dispozitive performante care să fie achiziționate de unitățile medicale.

Această nouă specializare are potențialul de a aduce un reviriment Facultății de Științe și Mediu din Galați ca rată de succes în ocuparea locurilor scoase la concursul de admitere, iar candidații admiși vor beneficia de cunoștințele, abilitățile și rezultatele cercetării științifice ale cadrelor sale didactice.

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AGENŢIA ROMÂNĂ DE ASIGURARE A CALITĂŢII ÎN ÎNVĂŢĂMÂNTUL SUPERIOR
THE ROMANIAN AGENCY FOR QUALITY ASSURANCE IN HIGHER EDUCATION

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