Development of "Alumni Network" as a mechanism for monitoring and analysis of indicators Group 5. Prestige and Group 6. Implementation and relation to the labor market by University Ranking system, developed and maintained by the Ministry of Education

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Abstract—**This article presents the system "Alumni Network" of the University of Forestry. It gives a view of the possibility for development as a mechanism for monitoring and analysis of indicators of the Group 5. Prestige and Group 6. Professional and career realization from University ranking system developed and maintained by Ministry of Education, Youth and Science. The obtained results of this analysis will help taking timely measures for improvement and sustainability of the values of these indicators and in this way increase the rating of University of Forestry.**

Keywords—**University ranking system, educational and scientific product, "Alumni Network".**

Introduction

The implementation of mechanisms of the university ranking system developed and maintained by The Ministry of Education and Science creates real prerequisites for assessing the efforts of higher education institutions in terms of their educational and scientific product.

In the University ranking system developed by Ministry of Education and Science [12] all possible rankings are divided by professional fields. Ranking system has two types of charts: "Standardized charts" and "Own charts".They provide access of each user to a large array of data for Bulgarian higher education.

The university ranking system in Bulgaria uses several sources to gather information: data from administrative database of the Ministry of Education and Science; AdminPro tool; data from National Social Security Institute; data available via the Internet on the website of the National Agency for Assessment and Accreditation; data from international databases Scopus; data provided by the universities themselves.

The system of indicators works with a total of 61 indicators divided into 6 groups. The list of indicators divided into groups is as follows [10][11]:

Group 1. Teaching and learning

Group 2. Science and research

Group 3. Teaching and learning environment

Group 4. Welfare and administrative services

Group 5. *Prestige*

Group 6. *Career and relevance to labor market*

With the greatest weight are two of the groups of University ranking system:

Group 6. Career and relevance to labor market (35 %). Indicators in it are: Graduates' insurance income; Unemployment among university graduates; Applicability of degree acquired; Contribution to the social security system; I created important contacts and friendships; Regional importance; I gained confidence that I will succeed in life.

Group 5. Prestige is with weight of 10 % in the University Ranking System. Indicators in it are: Secondary education diploma GPA; Foreign students; Prestige among students; First preference;

Importance of the indicators in Group 6 warranting their regular monitoring and evaluation.

In the Council of Europe of 14 February 2011 the role of education and training in the implementation of the strategy "Europe 2020" is emphasized that higher education institutions should seek to improve the quality and relevance of the offered courses. This will encourage a wider range of citizens to enroll higher education courses, and that should promote increased cooperation between university institutions, research institutes and enterprises with a view to strengthening the knowledge triangle as the basis for a more innovative and creative economy.

It is recognized that "Graduates' qualifications do not always match the needs of the labor market and society. Employers from the public and private sectors more often report mismatches and difficulties in finding suitable people for the evolving needs of the knowledge economy. Quality and practical significance of education courses are a key condition for the full exploitation of the intellectual capital of the Europe". [10]

In this aspect of the evaluation of the educational product of the Universities in the field of realization and

relationship with the labor market is becoming more important.

The incomes of a person are the main measure of both the market and the public (if working in the public sector) assessment of its work and of its potential to be socially active and to participate in society.

Other measures of realization are related to the proportion of unemployed graduates and the proportion of those who work in a position that requires university education. In the edition of Ranking System in 2014 are included new indicators that measure the relationship of universities with the national labor market and the local economy, and the contribution of graduates to the social security system of the country.

Empirically confirmed is the fact that poverty in Bulgaria is associated with lower educational status. Although "individuals with no secondary education represent only a third of the population over age 18, but among the poor of this group are over 70%". Moreover "poverty rates for individuals with no education courses are almost four times higher than average and ten times higher than among people with secondary education courses", but "one third of the non-poor in Sofia, Bulgaria have higher education" [8]. The analysis of the distribution of income among graduates, on the one hand, and the whole society on the other, shows that the income gap between those graduates are significantly smaller than income disparities in the population [8]. This means that the mass spread of higher education can contribute to reducing the social distance between people.

Indicators in these two groups have shown real assessment of all consumers for the quality educational and scientific product of the university and its adoption as an educational and research institution in society. The establishment of mechanisms for reporting and analysis would help to achieve high values of indicators and their sustainability.

Implemented modules in "Alumni Network"

In the system are implemented modules, extracting data for former alumni [1]:

Module "Database alumni"

Retrieves information about former alumni, which are filled in, in the database (information about the education and information about the professional status), divided by faculties and sorted by year of completion and names of registered users.

Module "Number of registered students"

Presents information on the number of registered users in the system and reports the number of "active users", filled in a year of completing the UF and the number of "passive users" - made its registration but not filled the field for year of completion.

Module "Statistics"

Presents graphically ratio percentage of students who noted that occupy position and those who do not occupy position associated with the acquired qualification degree.

Module "New alumni"

Outputs a report of the graduates students and their registration date by months.

Module "Statistics by faculties"

Graphically represents the percentage of students, divided by faculties, who responded positively and negatively to the question "Is your position linked up with the acquired qualification degree".

Module "Present students"

Outputs a report of the current registered students and their registration date by months.

In the system there are 900 registered graduated users and 11 present students in the University of Forestry in the period from the beginning of 2012 to 2014.

Of all registered graduated students 359 have filled what position they occupy now or have occupied in the past. Total "occupy now or have occupied in the past" positions are 471.

Of these 471 positions:

93% (438 positions) of occupied positions are related to acquired qualification degree;

7 % (33 positions) of occupied positions are NOT related to acquired qualification degree.

They inputted information containing address, email address and phone number, allowing feedback with them.

Experimental use of alumni network "to conduct interviews with stakeholders"

In relation to the labor market and people the fundamental role that universities perform is necessary. They must "produce" educational services at a high level. To meet the expectations of direct and indirect users, universities should periodically analyze the opinion of employers and students who are potential participants in the labor market.

Together with experts on project BG051PO001-3.1.08-0033: „Improvement of the management systems at the University of Forestry" are designed and conducted the following surveys in the Alumni Network of UF:

Questionnaire for employers: http://elaiti.bg/anketi2014/employers/ [4]

Questionnaire for first year of "Bachelor" degree in all disciplines: http://elaiti.bg/anketi2014/bachelor1/ [2]

Questionnaire for last year of "Bachelor" degree in all disciplines: http://elaiti.bg/anketi2014/bachelor4/ [3]

Questionnaire for first year of "Master" degree in all disciplines: http://elaiti.bg/anketi2014/master1/ [5]

Questionnaire for last year of "Master" degree in all disciplines: http://elaiti.bg/anketi2014/master4/ [6]

Questionnaire for "Alumni" in all disciplines: http://elaiti.bg/questionnaire/ [7]

The questionnaires have been developed in accordance with the indicators in Group 5 and 6 of the Ranking System of universities in Bulgaria, 2014.

Developed on the basis of the indicators in Group 5 and Group 6 of the Ranking System, surveys are aimed at students of degree "Bachelor" and "Master" as current and future participants in the labor market, alumni and employers in University of Forestry.

Survey questionnaires for students are divided into four groups: "Bachelor degree" I year; "Bachelor degree" last year; "Master degree" I year; "Master degree" last year.

Based on differentiated four main user groups in the University of Forestry alumni completed questionnaires on their own will. The questionnaires were online on the site of the University of Forestry, Sofia. The results were processed with SPSS software.

SWOT analysis for Alumni in the University of Forestry

On the basis of responses is prepared SWOT analysis.

The scope of those surveyed was alumni in UF, registered in the system "Alumni Network", distributed as follows [9]:

Faculty	Number	Year of completion
Faculty of Forestry	214	1965-2012
Faculty of Forest Industry	59	1975-2011
Faculty of Ecology and Landscape Architecture	127	1979-2012
Faculty of Business Management	33	1999-2011
Faculty of Veterinary Medicine	20	1990-2011
Faculty of Agronomy	42	2000-2012
Total:	**495**	

Table 1. Faculties

Strengths

High average value assessment received in theoretical knowledge for all periods and subjects. On scale of 1 to 5, the value received is 3.74. This assessment covers the full achievement of the National Qualifications Framework for levels 6A and 7 in the criterion "Knowledge".

High average value assessment received in "Applicability of degree acquired" in the specialized courses in the specialty – 3.90 and the influence of education in professional skills – 3.84. This assessment covers the full achievement of the National Qualifications Framework for levels 6A and 7 in the criterion "Skills".

Positive assessments of the impact of education in the University of Forestry to interpersonal skills, decision-making, the formation and expression of personal opinion, establishing a team, analytical thinking and initiative to solve problems.

High average value assessment received in the field "individual work". On scale of 1 to 5, the value received is 3.92.

These assessments in point 3 and 4 cover the full achievement of the National Qualifications Framework for levels 6A and 7 in the criterion "Competences-Autonomy and responsibility and Communication and Social".

The positive assessment of the impact of education in the University of Forestry on skills in using personal acquaintances, contacts. On a scale of 1 to 5, it is 3.60.

Good realization on the labor market. People working in the specialty average are 63.52 %. Exception are people graduated in Faculty of Business Management - over 58 % started work up to 6 months after graduation. At the time of the poll workers are average 86.10% for all specialties.

According the indicator „Regional importance" of the Ranking System of Universities in Bulgaria after year 1996, the University of Forestry has relation with the economics in Sofia city because average of all specialties 59.01 % works in the city.

Weaknesses

Inadequate assessment of the impact on training in UF on ability to create business ideas and skills to negotiate.

Unsatisfactory evaluations received in UF knowledge in the areas of Information Technology, Economics and Foreign Languages courses.

The assessment of practical knowledge gained during training in UF is unsatisfactory. On a scale of 1 to 5, it is 3.02.

Alumni are not confident that as a result on their studies at UF will succeed in life. Their evaluations are unsatisfactory. On a scale of 1 to 5 the average score is 2.50.

Inadequate assessment on the statement "created important contacts and friendships that helped me in professional life". On a scale of 1 to 5 the average score is 3.19. This evaluation shows weak influence of the university to establish a professional community where ideas are exchanged and which support each other.

Opportunities

Enhance training in the field of economic studies and entrepreneurship.

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Enhance training in the field of information technologies and their implementation in specific areas of application in different specialties.

Improving the quality of the received theoretical knowledge through active involvement of the business in education, implementation of a set of measures for modernizing curricula with the participation of representatives of business, and regular feedback from students for its evaluation.

Increasing the quality of the received knowledge and practical skills by developing a partnership with business and the development of joint training programs.

Attracting foreign students and the introduction of foreign language teaching.

Building and maintaining partnerships with universities from the EU, Russia and the neighboring countries of Bulgaria.

Providing mobility for students and teachers in the projects financed by the EU Structural Funds.

Introduction of electronic distance learning and validation of the University of Forestry as a center for lifelong learning.

Development of the center for research and knowledge transfer in University of Forestry in four major research areas: agricultural, natural, technical and social. Its main purpose is the dissemination of knowledge in a wide range of topics in the field of forestry, woodworking and furniture industry, engineering design, ecology and environmental protection, landscape architecture, agriculture and veterinary medicine, as well as management of the activities in these areas.

Threats

Weak impact of the University to establish a professional community.

Reduction of interest to some disciplines by the applicant students.

Competition from other universities. For professional fields offered in the University of Forestry they are:

• Veterinary Medicine, Trakia University-Stara Zagora City;

• Administration and Management: Available from 16 universities;

• Crop: Agricultural University-Plovdiv, Trakia University, Technical University-Varna City;

• Plant Protection: Agricultural University-Plovdiv, Shoumen University "Bishop Konstantin of Preslav";

• Earth Sciences: Sofia University "St. Kliment Ohridski", University of Mining and Geology "St.

Ivan Rilski", Agricultural University-Plovdiv, Veliko Tarnovo University "St. St. Cyril and Methodius", Southwestern University "Neophyte Rilski", New Bulgarian University.

Demographic crisis and the decline in the number of students;

Disproportions in the labor market.

Comparative analysis which presents the results from the Ranking System and received within the survey conducted by the University of Forestry

The following table presents the results obtained in the survey and reported by the The ranking system in 2014 [10]:

Indicator	Professional field	Result of the The ranking system, 2014	Result of surveys
Unemployment among university graduates	Earth Sciences	4,67	15,00
	Forestry	2,68	9,84
	Administration and Management	4,44	0,00
	Plant Protection and Plant growing	3,92	33,33
	Veterinary Medicine	1,75	42,86
	Engineering	4,19	30,00
Graduates' average insurance income	Earth Sciences	775,58	721
	Forestry	879,67	766
	Administration and Management	923,08	909
	Plant Protection and Plant growing	721,01	643
	Veterinary Medicine	709,08	646
	Engineering	606,97	-
Applicability of degree acquired	Earth Sciences	52,44	76,92
	Forestry	54,60	78,69
	Administration and Management	39,06	66,67
	Plant Protection and Plant growing	49,37	46,67
	Veterinary Medicine	85,23	57,14
	Engineering	13,33	40,91
Regional importance	Earth Sciences	50,00	46,15
	Forestry	15,29	29,51
	Administration and Management	43,21	100,00
	Plant Protection and Plant growing	24,14	100,00
	Veterinary Medicine	20,00	57,14
	Engineering	27,06	0,00
I gained confidence that I will succeed in life	Earth Sciences	7,24	5,85
	Forestry	7,49	4,43
	Administration and Management	6,35	5,33

	Plant Protection and Plant growing	6,88	4,00
	Veterinary Medicine	4,46	5,43
	Engineering	6,02	5,20
	Earth Sciences	8,68	5,46
	Forestry	9,02	7,21
I created important contacts and friendships	Administration and Management	7,90	4,67
	Plant Protection and Plant growing	7,46	5,47
	Veterinary Medicine	7,55	5,43
	Engineering	7,29	7,20
	Earth Sciences	5,17	4,85
	Forestry	4,98	4,95
Secondary education diploma GPA	Administration and Management	4,82	5,19
	Plant Protection and Plant growing	4,87	4,91
	Veterinary Medicine	5,32	5,61
	Engineering	5,13	4,66
	Earth Sciences	52,27	86,67
	Forestry	62,35	61,54
	Administration and Management	44,44	59,32
First preference	Plant Protection and Plant growing	28,92	86,67
	Veterinary Medicine	72,94	50,00
	Engineering	75,29	78,79

Table 2. Results by indicators

Comparative analysis of popular indicators

Unemployment among university graduates

The resulting from the study reported values significantly exceed the rating system. This may be due to the fact that these results in the Ranking System are based on data from official statistics. There is a chance a large majority of the respondents in the survey that are unemployed to be not registered in the Labor Offices and not reported by the NSI (National Statistical Institute). Results of the study are an advantage in the analysis as they are cause for concern on the realization of UF graduates in the labor market.

Graduates' average insurance income (currency "BGN").

Results of the study and those of the Ranking System fall in the same range. This gives grounds to say that the analyzes made in this indicator are adequate to the actual situation.

Applicability of degree acquired

The resulting from the study reported values significantly exceed the rating system. This may be due to the fact that in the Ranking System is reported percentage of the insured persons who have completed professional field in Bulgarian universities in the previous five years working in positions requiring higher education, while the study considers the percentage working in the specialty without considering the requirement for higher education. The analyzes in this indicator focuses on the relevance of the received specialized

knowledge and skills in the individual professional fields of education in UF on the labor market.

Regional importance

The resulting from the study reported values significantly exceed the rating system. This may be due to the fact that in the Ranking System are reported the attitudes of respondents in sociological survey of students planning their careers in the city or in the area of their university, while the study takes into account the actual realization of the students after graduation. This implementation is highly dependent on the current economic situation and imbalances on the labor market.

I created important contacts and friendships

Received values in the survey in most of the professional fields are lower than those reported in the Ranking System. This may be due to the fact that in the Ranking System are reported the attitudes of students in training, while the study account of the realistic attitudes after graduation and involvement in the labor market. The received low ratings from the survey are an advantage in the analysis, as they give cause for concern and are a prerequisite for taking urgent measures to improve them.

Secondary education diploma GPA

Results of the study and those of the Ranking System fall in the same range. This gives grounds to say that the analyzes made in this indicator are adequate to the actual situation.

First preference

The received in the survey values are similar or higher than those reported in the Ranking System. This may be due to the fact that the study did not take into account your answer "I did in the specialty, which was my first desire," but "I did in university, which was my first wish".

The analyzes in this indicator reported prestige of University of Forestry among students. Enrollment in university referred as first desire is an indication of greater competitiveness of candidates.

Conclusion, main findings and recommendations

The results of the study give rise to the following conclusions:

System "Alumni Network" can be used as a mechanism for monitoring and analysis of indicators of Group 5. Prestige and Group 6. Professional and career realization from University ranking system developed and maintained by Ministry of Education, Youth and Science.

All results achieved during the analysis conducted will allow to take timely action to improve sustainability and the values of these indicators and thus increase the rating of the University of Forestry.

Although the differences obtained in the comparative analysis between estimates in the Ranking System and the results of the studies, the analyzes are adequate to the actual

situation and based on them may be proposed measures and initiatives ensuring sustainability and improving the performance of the University of Forestry.

Measures for ensuring sustainability activities or improving results:

Enhance training in the field of information technology, languages, economic studies and entrepreneurship;

Increasing the quality of the received theoretical knowledge;

Increasing the quality of the received practical knowledge and skills in UF;

Regular reporting of the indicators of University Ranking System;

Determining the cost of activities; evaluation of their efficiency; measurable and achieved level of compliance with the criteria in Ranking System for universities in Bulgaria;

Attracting foreign students;

Attracting Bulgarian students;

Providing mobility for students and professors;

Modernization of the training courses and accreditation of distance learning;

Establish the University of Forestry as a center for lifelong learning.

Recommendations

To develop the Alumni System in University of Forestry, so as to be easier to use it as a mechanism for regular feedback from current and former students of the University, allowing the monitoring of indicators of Group 6 and Group 5 of the Ranking System of universities developed by Ministry of Education, Youth and Science. This can be achieved through:

adding fields for additional information including indicators from both groups;

developing the relevant modules for extraction and statistical processing of the data;

developing and carrying out regular surveys of the registered members

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