Abstract

The paper outlines the risks that higher education system has to overcome in the near future and gives possible solutions to the challenges appeared. The paper starts by presenting a SWOT analysis on Romanian research and innovation. The research method used in the paper is based on questionnaires so that we can also have a punctual point of view and offer solutions and similar research studies.

We concluded that financing the educational system and research system has to grow, but results have to be also better. Grants must be strictly correlated with industry needs in terms of innovation. Innovations based on solid research must be transferred into economies so that venture capital can use the innovation and grow businesses, create new jobs and increase GDP.

In order to increase innovation and the quality of innovation, new incentives must be implemented and curricula has to be redesigned in order to help creating new incentives to students and academics.

In conclusion the relationship between universities and economy must be a very good one and as we pointed out in part 6 entrepreneurial University has to be based primarily on innovation, technology transfer and venture capital.

1. Risk management in present Romanian higher education system

1.1. Introduction

In order to change the curricula design and became an entrepreneurial university, we should be first aware of the risk of not going in the right way. In the introduction we made a SWOT analysis to be aware of the actual situation in Romania. In order to be successful the policy makers regardless of the level should motivate people to change the model and became more entrepreneurial.

According to the global competitiveness index published in "The Global Competitiveness Report 2012-2013," Romania has fallen from the 67th position it occupied in 2010-2011 to no. 77, according to the data in 2011-2012 and no. 78 in the report for the years 2012-2013. Romania is on the penultimate place among the countries of the European Union, followed only by Greece which ranks 96 out of a total of 126 countries analyzed.3 [8]

Some high risk factors for Romanian higher education system are:

For 1st pillar indicators: “Public trust in politicians”- Rank 133; rank 114 for „Intellectual property protection” and “Diversion of public funds”; Transparency of government policymaking –rank 136 and Efficiency of legal framework in settling disputes- rank 133

For 7th pillar: Labour market efficiency, we consider a great risk the high level indicator “Brain drain” has- rank 136. So, we start by stating that one of the main reasons for the poor results in research and innovation is “brain drain”, which means qualified people decide to work for other countries and leave Romania. In order to strengthen this hypothesis we can look at the “Evolution of

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3 Rank 1 is the best place for a country, while rank 144 is the worst
population in EU27 from 2002 till 2011”. Romania is the first in this top having a decrease by 12% from 21,680,974 in 2002 to 19,042,936 in 2011. The European average was an increase of 3%. Other examples are: Estonia -2%, Germany -0.80%, Czech Republic 3%, Great Britain 5%, Belgium, France, Italy 6%, and Luxemburg 15%. [11]

1.2. The presentation of Romania’s indices of research and development activities

Analyzing in greater detail two of the components of the Global Competitiveness Index put together in 144 States, the research and innovation fields, we can highlight the following SWOT analysis in Romania [6].

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
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<tbody>
<tr>
<td>Rank 39- Tertiary education enrollment, gross %</td>
<td>Rank 77- Capacity for innovation</td>
</tr>
<tr>
<td>Rank 42- Secondary education enrollment, gross %</td>
<td>Rank 84- Quality of scientific research institutions</td>
</tr>
<tr>
<td>Rank 56- PCT patents, applications/million pop.</td>
<td>Rank 108- Quality of the educational system</td>
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<td>Rank 112- Quality of management schools</td>
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<td></td>
<td>Rank 113- University-industry collaboration in R&amp;D</td>
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<tr>
<td></td>
<td>Rank 114- Government’s procurement of advanced tech products</td>
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Oportunities

| Rank 55- Quality of math and science education |
| Rank 64- Internet access in schools           |
| Rank 82- Availability of scientists and engineers |

Threats

| Rank 87- Company spending on R&D              |
| Rank 112- Availability of research and training services |
| Rank 111- Extent of staff training            |

2. The purpose of motivation strategies in research and innovation activities

Motivation is an indispensable element for any activity. It is an internal state which triggers, directs and sustains behavior. P. Golu and I. Golu believed that learning motivation is part of the broad concept of motivation and is defined as "all the means that energetically sustain, activate and direct learning activities." [3] An important factor influencing the motivation to learn is the perception of self efficiency, having emotional repercussions. Information about one’s own efficiency stem from one’s performance in previous tasks, from the experiences of others or from those communicated directly, verbally. [6] Given the great complexity of the problems related to motivation, theorists and practitioners in the field have analyzed motivation from multiple and various perspectives. Thus, arose the theories of human motivation in general, and of school motivation, in particular. Of the most important theories of motivation we can mention: the hierarchical model of human needs developed by Abraham Maslow and ERG Theory motivation – C. Alderfer. [3] We consider motivation a key element for the people involved in the process, so the generated outputs can be greater than the inputs.

In this respect, teachers, researchers, on the one hand, as well as students and future researchers need to be motivated. First of all, innovation has to be based on solid research. In higher education system, one has to overcome the tension of customization versus standardization curricula design. Students have an important role in this process. From our perspective differentiation from the competition can be achieved through the development of innovative services.
3. Optimizing the activities of teaching and research

Optimizing teaching is a very important process in order to reach / maintain the high standards of quality that the consumers of educational services expect. These consumers of educational services are not just students but also adults in different stages of their professional development. More emphasis is laid on “Life Long Learning Education,” a type of education addressing more specifically the changing needs of the labor market.

In this context, more and more adults will be forced to accept retraining in another profession or obtaining additional specializations for their job. Therefore a very high mobility and flexibility are very important in this context when we talk about the dynamics of the labor market.

In this context, universities and individual training departments for those who need courses / trainings need to revise / improve their capability to support the students, so that they can better integrate on the labor market.

In this respect, a good collaboration with the private sector is strictly necessary, because this sector has a very hard word to say in the professional training of students and in assessing university products.

For example, if we talk about an accountant, he must be able to use Excel as well as other accounting programs at an experienced level and he must know program check keys. A translator must be able to use Word at an experienced level – preferably the latest version, Office 2007, but also one or two translation programs. It is no longer enough for an adult with extensive experience in translations to know the terminology and meaning of words very well because the yield is not as great as in the case of the use of such software.

And, if the possible customer of such courses decides to follow a course to help him increase his productivity, he will have to choose that course depending on the teacher's performance and experience in that field. In our opinion, we foresee an average duration between 3 and 6 months for postgraduate retraining courses that are strictly focused on a particular domain. [2]

Starting from the fact that in the coming years the trend of following online courses on well implemented platforms is already successful in other Western countries, we have devised a question related to this topic in the questionnaire. [1]

4. Online vs. Offline training

An example which confirms the information above is the conference organized by the Financial Newspaper "ONLINE vs. OFFLINE TRAINING: Will e-learning revolutionize the local market of training services?"

"In addition to the price, another advantage of e-learning programs is their availability (because employees don't have time to lose one or two days to go to training and choose for themselves when to go through the course), as well as the fact that these courses can be accessed by a large number of employees in a short time," said Craig Murray, EMEA account Manager at SkillSoft, who coordinates the activity of the e-learning program supplier in over 20 markets.

Globally, the market for e-learning services has reached the value of 48 billion dollars, and the first virtual education programs were used in the US. [10]

Financial Newspaper has launched a section of e-learning on the site (http://www.zf.ro/e-learning), which offers hundreds of courses in areas such as management, leadership, sales, project
management, HR, communication, personal development, team building, marketing, customer service, finances or Microsoft Office 2007, and the prices are affordable.

5. Survey- optimizing teaching and research

The applied part of this work consists in the interpretation of two sets of questionnaires. The first set of questions was applied to a total of 30 students who have completed the first year at the Faculty of Economic Sciences of the University “Lucian Blaga” of Sibiu. The question "Do you consider that teachers generally create an atmosphere which supports quality teaching or research activities?" had 3 possible answers and the situation was the following: 9 of the students believe that in most cases teachers create an atmosphere which supports quality teaching activities, and 21 students consider that only in some subjects is the atmosphere appropriate for the educational process.

-The question "Do you consider that nowadays faculties have proper education and research means?" 20 of the 30 students are satisfied; while only 10 of them believe that at the present moment faculties do not have sufficient education means necessary for proper activities.

The question "Which of the following aspects you think are those that contribute the most to motivating students?" had four possible answers. Thus, most of the students, 14, representing 45% of the total, believe that self accomplishment motivates students to the fullest extent, 9 of the students, i.e. 29% of those who answered consider that the link student-teacher motivates students. 6 students believe that grades have the biggest impact in motivating students, while a single student believes that students learn out of a desire to please their parents.

The answers to the open question "What are in your opinion the main ways to motivate students?" were the following:
- finding a job in the field
- teachers' professionalism and their achievements
- close links between teacher and student
- fair grades
- scholarships
- good grades
- the interest of businesses to hire students who have just graduated
- non-discrimination and equal treatment among college students
- rewarding the students’ efforts
- positive and negative stimulation methods
- open seminar activities where each student can present their own views and opinions

The second set of questionnaires was applied to a total of 25 respondents, representatives of the students in the University Senate of Lucian Braga University of Sibiu and refers to 3 questions:

Question one, which refers to the degree of familiarity of the student (with the advantages / disadvantages of online teaching) received the following answers: 43% of students are fairly familiar, 50% of respondents said they are not very familiar, and 7% are familiar with this alternative way of teaching.

Question two, an open question which aimed to centralize the main improvements to be made to the process of classic teaching in the opinion of student representatives in the University Senate of “Lucian Braga” University of Sibiu, received the following answers:
- putting theory into practice, linking the themes taught to current information needs of students and more case studies
• more practical applications, removing / replacing laboratory classes where students sum up the information in their books, making the course material available at the beginning of the semester.
• the teacher should focus on the student, use modern teaching means, both technical and communication; the teaching activity should become a process with a practical aim; the importance of the subjects to be taught should be shown, proven and interiorized, and all the information received should be reinforced through practice
• an intensive use of computer program specific to each domain
• modern means in teaching the course, an increase in the level of applicability
• new methods of teaching based on practical examples, by inviting practitioners in the field to give lectures during courses / seminars
• courses dedicated to effective ways of studying (e.g., time management)

The answers to the next open question, which refers to the impediments of following a course online, refer to:
• the better understanding of a notion when you interact face to face with the teacher
• the direct relationship that is established between teacher and student
• when questions, shortcomings, or contradictions arise, the teacher’s absence makes them create gaps that often cannot be covered; furthermore, a teacher, or rather a good teacher, can sense the level of the class, the structure and possibilities of the students, and, taking into account all these factors, he teaches the course in a certain way, using different methods which suit the class, so that the level of understanding be maximum
• the lack of interaction and debates with the teacher

So, the study case can help us figure out that curricula has to be redesigned so that it incentives innovation and turn out students in entrepreneurs, that will search for financing their business ideas.

6. Entrepreneurial University- based on innovation, technology transfer and venture capital

In our view future entrepreneurial universities must focus much more on innovation, technology transfer and venture capital. If we obtain the increase of innovation activities and in the same time transfer innovation into real economy and grow business we can have also a solution to the worldwide economic crises.

In order, to achieve the results proposed the curricula should be designed so that innovation is promoted. To obtain better results a government should assure:
• favourable tax regime (effective tax rate differential)
• Easing formal and informal sanctions on involvement in failed ventures.
• Easing barriers to technology transfer.
• Entrepreneurship education for students and professionals alike.

Another idea found in the report is to take advantage of expatriate experience (e.g. Advisors for policymakers, mentors in research grants, etc.) [4]

Some punctual solutions have been assigned in a letter sent in 2011 to Secretary Locke by National Advisory Council on Innovation and Entrepreneurship named: Recommendations to facilitate university- based technology commercialization. The paper was signed by all important universities in USA and now it is in course of implementation. Some key notes include:
• Create new curricula and grow activities in campuses to encourage undergraduates, graduate students, and post-doctoral students to pursue careers as innovators and entrepreneurs.
- Implement new cross-disciplinary programs that connect business with science, math, technology and engineering fields.
- Create new programs and expand programs that connect academia with industry, entrepreneurial mentors, technology transfers, accelerator facilities and venture creation services.
- Workshops to exchange best practices and attract talent and resources for commercialization activities. [5]

7. Conclusions

The paper offers concrete answers to policymakers in order to improve the quality of the higher education system. Online courses can become a solution during the internet era, a time when people have less and less time for traditional study. Although, financing the educational system and research system has to grow, results have to be also better. Grants must be strictly correlated with industry needs in terms of innovation. Innovations must be transferred into economies so that venture capital can use the innovation and grow businesses, create new jobs and increase GDP. There are a lot of things we have mentioned in the study case that have to improve in the educational system and give possible solutions to some of them. As we could figure out from the Competitiveness Report 2012-2013, Romania has poor results in research and innovation, even worse than it has on average as a country. Even so, Romania is the last country after Greece in the UE27 top. We have outlined the risks that need a special approach in the very near future.

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9. References