ENTREPRENEURIAL UNIVERSITY CONCEPT AT THE COMENIUS UNIVERSITY IN BRATISLAVA

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Abstract

The main objective of the article is to create a theoretical and methodological framework of the concept of entrepreneurial university, analyze different approaches to the concept and examine the current situation at Comenius University in Bratislava. Importance of the work lies in the systematic processing of the theory, methodological concept of the entrepreneurial university, custom research and analysis on the current status of the selected university.

Introduction

Universities have their unique position in Slovakia and across the world for many decades. Their mission is to educate, prepare for practice, review and provide new insights. Their current greater coherence with the practice is only considered in recent years. Whether it is good to do business at universities, let them be engaged in a competitive environment and shape the business requirements remains unclear. Research in this area is very young and Slovakia encountered with the issues only marginally. In the literature you can find more "how university teaches business its students, not "how is university engaged in the business environment, or how could university do business". Although in practice there are several projects and it is obvious that we follow trends from abroad, coherent plan has lacked so far.

Our aim in the presented work is to summarize knowledge about entrepreneurship of universities in Slovakia, aimed at Comenius University in Bratislava. We consider the description of the potential future of universities that will be the bearer and creator of the knowledge society as one of the benefits of this work.

1 Definitions of entrepreneurship and entrepreneurial university

Entrepreneurship is a French word which means "implementation of innovation, financial management and business acumen in an effort to turn these innovations into economic asset". It is an economic phenomenon whose precise definition and understanding remains vague and uncertain.

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One of the modern and highly recognized authors who deals with business theory was Schumpeter (1937), who follows the Cantillon and Say theories. Schumpeter sees the entrepreneur as an active searcher of opportunity to innovate. Entrepreneur who is constantly trying to change the status quo, looking for profit opportunities and voluntarily runs the risk, trying to combine the resources of the company in new ways, represents the driving force of economic development.

From other authors we can mention the Austrian economist Kirzner, who defines entrepreneurship as a competitive behavior that drives the market processes. This definition provides an overview of both sides of the business process. On the one hand there are the outcomes of business markets affecting the whole society, on the other hand, this definition looks at the process in which these changes occur in the market, exploring behavior of individuals. Part of the business is a process that encourages changes in markets and in society and creates value for individuals (entrepreneurs) as well as for society. (Stokes, Wilson, 2010).

Universities in their traditional position have the role of education and training of young people for professional careers and practice. Their role ends on the day of graduation, completion of all required courses and tests. Since then graduates face company environment full of different values from those academic. Similarly, university research activities should bring innovation, new ideas and methods. Their application in practice remains to companies and institutions that are not directly linked to universities and thus their transfer and implementation remains vague.

In the 1980s, the situation especially in the US began to change. Universities invested in extrapolating the results of their research into practice, which brought many other benefits. Most investments included specific patents, licenses, business incubators, science parks, university spin-offs, support for start-ups.

In 1998 B. Clark presented in the publication Creating the Entrepreneurial University (1998), a complex view of the Entrepreneurial university, which should play the role of the newest knowledge into practice without any intermediary - company. He suggests a new concept of university, which would become knowledge center supporting national innovative system. (Youitea, Shapira, 2008)

The concept should be integrated as the most important condition for national and regional development. The role of universities is changing from passive participation in the formation of human capital in the active labor market participants. The ideal way of placing their graduates and exploiting their potential for sustainable development of the country and economic growth influences the overall level of life of the population. Particular importance is the transfer of research and development into practical use in the business. Universities then are not only separated islands of knowledge. (Klofsten, Jones-Evans, 2000)

Clark, in his first draft of this type of universities defined the basic characteristics as follows (Clark, 1998):

- **Strengthening of management** - the need to link traditional academic values with a strong control system.
- **Business Development** must be a dual management system which ensures both the operation of the traditional educational and research activities, but these must be
supported by control centers. Cooperation and coordination will ensure transfer of technology and knowledge, industry links, the development of ownership rights, continuing education and promotion activities raising funds for further development.

- Financing the implementation of the project must involve transfer of funds from those who have to those who do not (regards movements within universities, respectively faculties). It is necessary to extend the possibility of obtaining finance (funds from government, industry and service sectors).
- Stimulation must also be ensured through the school rules, it must be accepted by each unit operating at the university.
- The measure will create an integrated corporate culture that supports innovative and entrepreneurial spirit of the company and will lead to progress and new direction of the economy.

The European Union supports the efforts to explore and implement the entrepreneurial university in practice in the project EUEREK (European Universities for Entrepreneurship: Their Role in the Europe of Knowledge), which began in 2004. The participating countries were the United Kingdom (Institute of Education, University of London - Coordinator), Sweden (KTH Stockholm), Finland (University of Turku), UNESCO (International Institute of Educational Planning), Spain (Universidad Politecnica de Valencia), Poland (Adam Mickiewicz University, Poznan), Russia (Higher School of Economics, Moscow) and Moldova (Moldova State University). The first phase involved developing a theoretical framework issues and culminated in the 2005 international conference in Turku, Finland. The results were published also by the OECD publication Higher Education Policy and Management (OECD).

The next stage in the years 2005-2006 in the participating countries was dealing with case studies of institutions. In March 2006, leaders from each country met in Paris with the presentation of their results. Among the main conclusions were (EUEREK, 2008):

- Improvement of theoretical knowledge in the field of activity of universities and their role in the knowledge society, which were also published and presented to the expert public.
- Detailed analysis of national policies of the countries represented in the consortium, which directly and indirectly affect the business universities.
- Presentation of European research in this area.
- Database of case studies from universities, policies, processes in higher education and other organizations that contribute to the formation of a knowledge society.
- Summary Report, which provided recommendations for the authors of national and institutional policies.
- The set of activities the dissemination of knowledge and application options for entrepreneurial university that will allow the deepening of understanding of the issue.

According to the outcomes of the project the essence of business are innovation, risk-taking and expectations of positive results. The results are not necessarily of a financial
nature, but those things are the key indicator of economic success implementation of business activity.

Clark (1998) defined the 20 terms of the entrepreneurial university as follows:

- Independence from government funds
- Emphasis on control center
- Staff quality management (especially in finance)
- Entrepreneurial culture
- Flat budget
- Financial contract-oriented production
- Flat structure
- Mission and Strategic Plan
- Extensive activities of graduates
- Cooperation with businesses and other (excellent) universities
- Competitiveness of university campus
- Additional funding
- Focus on a limited range of teaching and research
- Following the future opportunities in teaching and research
- Attractiveness for subsidies
- Attractiveness for young scientists
- The interdisciplinary nature of the research
- Technology transfer
- A high proportion of graduate and postgraduate students
- Incentives for spin-off companies

In March 2011, the University Business Forum took place within the European Union, which has worked together with companies and universities trying to find the optimal form of cooperation and knowledge sharing mechanisms. The result was an initiative of the European Commission, LEED OECD (Program for Local Economic and Employment Development) and six independent experts who created the evaluation tool enabling assessment of entrepreneurial universities. The instrument was named **HEInnovate** examining university in seven areas. These are (HEInnovate):

- leadership and management,
- entrepreneurial capacity, people and incentives,
- business development in teaching and learning,
- paths for entrepreneurs,
- university business activities / external relations for the exchange of knowledge,
- entrepreneurial universities as internationalized institutions,
- measuring the impact of entrepreneurial universities.

The areas are characteristics of the entrepreneurial university. HEInnovative allows evaluation of the strengths and weaknesses of the university, creating conditions for development at both regional and national level. It is designed for internal use, which involved employees and potential shareholders to confront their different approaches to the entrepreneurial university and are struggling to reconcile their present and future ideas.
Therefore it serves to effectively manage institutional and cultural changes. But it is not a tool for comparison between several universities.

Its implementation is possible for each individual managing authority, owners, or otherwise involved individuals who want to assess the current state of their universities and seek areas for improvements.

2 Forms of entrepreneurship of universities

Among the forms of entrepreneurship of universities we include science parks, business incubators, patents from research and spin-off companies.

When defining the science park we must take into account the perception of the concept of organization IASP (International Association of Science Parks and Areas of Innovation). It deems science park "organization managed by trained professionals whose main objective is to increase the prosperity of the park by promoting a culture of innovation and competitiveness of associated businesses and knowledge-based institutions. Science Park ensures the fulfillment of these objectives, it stimulates and controls the exchange of knowledge and technology between universities, scientific research institutions, companies and markets, facilitates the creation and growth of companies based on innovation and the incubation process (spin-off). In addition to exceptional quality equipment it provides other value-added services. Science Park is the perfect environment for companies and institutions of the global knowledge economy. "(Baccanti, 2000)

The second form of the business of universities is the creation of business incubators. In particular, the form of support for start-up businesses, which provide accommodation, basic services (lawyer, accountant, financial management), but there is also the possibility of creating significant business relationship.

A link to the university incubator has many advantages, among which we include proximity to the seat of the entrepreneur, facilitating market entry, entrepreneur responsibility for its business and the university is only the support, direct application of new technologies in the market, the prospect of further development. Their orientation is mainly aimed at supporting young researchers, PhD students, students with creative potential of giving initial help in starting a business.

An important means of ensuring the protection and exploitation of the results of a unique science and research at the university is granting a patent. According to Law no. 435/2001 Coll. on patents, supplementary protection certificates and on amendment of certain acts as amended (the Patent Act), patents granted for inventions which are new, involve an inventive step and are susceptible of industrial application, and that after making a formal legal and factual survey ( Act no. 435/2001 Coll. on Patents, Supplementary Protection Certificates and on amendments to certain laws, as amended). The problem in granting patents is the fact that universities must pay their own finance, which is very expensive. Patentable is only the territory of Slovakia; European or global level is unattainable due to the expenses.

Creating spin-off companies at the University is a major form of commercialization of research results. It is a form of business involving the employees of the University, where it has the company share. The difference with the start-up is the fact that the University has no share in start-up companies.
3 Research methodology and dataset

We realized the analysis of the current state of entrepreneurial university through a survey among the selected 17 respondents from Comenius University in Bratislava, which position at the university we pre-specified. We chose the technique of the interview and the questions was related to three following areas:

- Subjective perception of the entrepreneurial university,
- Factors that support and restricting entrepreneurial university activities,
- Possibilities to improve the entrepreneurial activities at the university and recommendations for the university.

Complementing the overall picture of the implementation level of the entrepreneurial university we used evaluation sheet, which summarized 20 Clarks entrepreneurial university conditions on a scale of 1-5, where 1 meant very poor, 2 - poor, 3 – average, 4 - strong, 5 - very strong performance conditions. Subsequently, we calculated average values, relative frequencies, standard deviation, which described the extent to which the university is entrepreneurial, and in which areas development can be realized. The approach represents a quantitatively assessment of the existing situation.

We selected presented methodology according to the existence of similar survey of authors Gjerding, Wilder, Cameron, Taylor and Scheunert within the development of the theory at OECD. Applying their approach we used validated methods of investigation and we can confront our findings with their outputs.

4 Results of the Conducted Survey

4.1 The perception of the entrepreneurial university

Respondents answered the first question about the definition of the entrepreneurial university. Their task was to describe the basic characteristics, in which such a university is specific according to the classical university. Their responses can be summarized in the following areas:

- Emphasizing the production and transfer of innovation and new inventions into practice,
- What is important is cooperation with companies in the sector,
- University orientation for profit and competitiveness,
- Increasing the attractiveness of study and enforcement of the graduates in the labor market.

Innovation and new ideas are the reason for the existence of the university, as science and research but also teaching processes are the basis for its functioning. It is these that shifted people thinking in a new direction. But their formation is not sufficient. Formation of innovations must be accompanied by the transfer and use them in practice, e.g. a sale, production of new products or of new services. Implement innovation into practice is possible trough direct entrepreneurial activities of university and cooperation with external environment, in the form of companies, institutions and associations, including patent offices.
and ministries. Acting on the industry and market innovations, the university influences and affects the society, which is becoming knowledge-based. Society shifts from industrial to higher forms where information and innovation are the most important property and shape the thinking of people.

An important difference from traditional university, according to respondents, is focus of university on revenue growth which separately produced on the basis of its activities in the market. It is necessary to become competitive enough to achieve a desired position on market. Attractiveness, the unique position on market and usability of innovation are a prerequisite for obtaining a customer. However, university should also ensure quality workforce that will manage and support the change of orientation of the university. Although the university already has qualified personnel, they may not be able to establish themselves on competitive market and be sufficiently flexible. Recruitment in this area is the challenge, as it is a special situation when management must accept the uniqueness of the university environment, but at the same time they need to push for a more entrepreneurial direction.

In the survey the respondents also pointed out that the existence of the entrepreneurial university adds to the attractiveness of study and attract clever students who have the potential to contribute university. This will involve synergy study and teaching process. Since it is expected to increase the quality of teaching process at such university, graduates can thus have more opportunities to find a job either directly at entrepreneurial entity in university, in research or in the open market.

4.2 Factors supporting entrepreneurial activities at the university

We found out following factors supporting entrepreneurial behaviour of university:

- Strategy of university,
- Organisational structure,
- The search for new forms and methods for cooperation with the external environment.

The three areas for improving the entrepreneurial university are gradually incorporated into the normal functioning of the Comenius University in Bratislava. Their success depends on the willingness and readiness of employees affected by the change. The truth is that the university has historically its place and mission, therefore, implementation of innovative changes may lead to the rejection of change, which probably stems from the employees fear. One respondent commented on this problem saying, "Any amendment stands or falls on the people and their willingness to speed to adapt."

The changed organizational structure requires the establishment of competencies of a senior executive in the field of science, research and teaching activities a senior executive in entrepreneurial activities. Both components, however, are strongly linked and must ensure effective communication, reporting and conducting regular meetings and consultations.

Another possibility of developing the entrepreneurial university is the incorporation of the key conditions to the objectives and strategy of the university. As far as its functioning, competence, method of implementation are well defined, planned and supported by staff, the university is on the best way to achieve success and to ensure the necessary organizational structure. In pursuing the strategy it is important to choose the appropriate leadership method, leading to a strong employee motivation.
Unless the university wants to be successful in entrepreneurial, it requires partners in the form of companies, entrepreneurialism, medical facilities, technology institutes, laboratories as well as research institutes and other universities operating in Slovakia and abroad. Sharing know-how, support for research and the subsequent possibility of applicability innovation in practice is an essential problem of the university.

4.3 Factors hindering entrepreneurial activities at the university

The following three barriers are considered by respondents as the most important:

- Bureaucracy and rigidity in decision-making,
- Employees outside academia environment,
- Willingness to take risks.

The administrative burden on universities and regulation by the government, Ministry of Education, Science, Research and Sport SR, level of centralization leads to undesired lengthening decision-making processes that are in conflict with the need to respond flexibly to market. Planning is as well too rigid, subjected to various government institutions, state and the European Union.

The barrier can be, according to respondents, the method of hiring the new employees who should be responsible for managing and perform entrepreneurial activities at the university. It should also be emphasized the fact that academics are not used for entrepreneurial environment that is significantly different from the university. It is the question how quickly and to what extent they will be able to adapt and adopt different philosophy of the university. The priority seems to be a precise definition of the roles individual employees involved at the entrepreneurial university.

The last barrier is related to a new culture and a focus of university. Unless it enters the market and wants to make a profit, it is not possible without accepting some degree of risk. It is present in the entrepreneurial environment; it is an integral part of and related to the uncertainty of success, attracting customer and competition. As traditional university is not exposed to this type of risk, respectively this is largely based on the certain environment, long-term process of research and recurring pedagogical processes, people do not feel the need to take risks. This setting people need to change and communicate the benefits of such proceedings of university.

4.4 Opportunities for improving entrepreneurial activities and recommendations for the university

Within the possibilities of developing the entrepreneurial university respondents recommend:

- Supports the completion and operationalization of emerging science park,
- Promoting cooperation with Slovakia and abroad companies,
- Inspiration from abroad.

Respondents jointly agreed that the immediate future of the entrepreneurial universities is in the completion and commissioning of the science park. Another area could be cooperation with companies in many sectors because the university covers with its
faculties several areas of the economy. Many possibilities are open for it and we can say that Comenius University has unique position in the Slovak market.

The last option, which could bring the university development, is finding inspiration in a world where such university are established and this is a normal practice. As an example we can mention Harvard University, Cambridge, Oxford, or Stanford University.

4.5 Review of the current state of the concept Entrepreneurial University universities at the Comenius University in Bratislava according to quantitative survey

In the next section we present the results of a quantitative survey of respondents who rated Comenius University on a scale from 1 to 5 points (from the weakest the strongest) and assessed the implementation rate of 20 Clark Entrepreneurial University conditions at the Comenius University in Bratislava. This assessment will allow us to evaluate the current status of the concept of entrepreneurial university in terms of the university.

Table 1: Evaluation of the Comenius University in Bratislava

<table>
<thead>
<tr>
<th>Condition</th>
<th>Average Value</th>
</tr>
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<tbody>
<tr>
<td>Independence</td>
<td>3.0</td>
</tr>
<tr>
<td>Central management</td>
<td>3.5</td>
</tr>
<tr>
<td>Quality management</td>
<td>4.3</td>
</tr>
<tr>
<td>Orientation to change</td>
<td>3.3</td>
</tr>
<tr>
<td>Flat-rate budget</td>
<td>4.0</td>
</tr>
<tr>
<td>Funding tied to results</td>
<td>3.8</td>
</tr>
<tr>
<td>Flat structure</td>
<td>2.7</td>
</tr>
<tr>
<td>Strategic planning</td>
<td>3.0</td>
</tr>
<tr>
<td>Graduates activities</td>
<td>3.9</td>
</tr>
<tr>
<td>Cooperation</td>
<td>4.1</td>
</tr>
<tr>
<td>Campus infrastructure</td>
<td>2.4</td>
</tr>
<tr>
<td>Additional resources</td>
<td>3.0</td>
</tr>
<tr>
<td>Specialization</td>
<td>2.0</td>
</tr>
<tr>
<td>New activities</td>
<td>3.9</td>
</tr>
<tr>
<td>Subsidies</td>
<td>3.2</td>
</tr>
<tr>
<td>Successful young scientists</td>
<td>3.6</td>
</tr>
<tr>
<td>Multidisciplinarity</td>
<td>3.6</td>
</tr>
<tr>
<td>Technology transfer</td>
<td>3.0</td>
</tr>
<tr>
<td>Students / PhD students</td>
<td>2.9</td>
</tr>
<tr>
<td>Spin-off</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3.26</strong></td>
</tr>
<tr>
<td><strong>Relative abundance</strong></td>
<td><strong>65.2%</strong></td>
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<tr>
<td><strong>Spread</strong></td>
<td><strong>0.44</strong></td>
</tr>
<tr>
<td><strong>Standard Deviation</strong></td>
<td><strong>0.66</strong></td>
</tr>
</tbody>
</table>

Source: own processing
The survey shows that the Comenius University in Bratislava meets the 20 conditions of Clark's Entrepreneurial university according to respondents up to 65.2%, while the overall average value is 3.26. It is above average rating, but there is room to increase the rate of introduction of the concept of entrepreneurial universities. Respondents highlighted differences between faculties, while those of a technical, but also biochemical nature exhibit a higher rate of entrepreneurship as well as their potential is above average. Faculties of arts, theological and social character lagged in evaluations. The broad representation of fields of activity of the University says, it is necessary to take into account the partial distortion, but our aim was to describe the university in one entity, so that the results are relevant.

The analysis results showed that quality management staff, in which the role of universities is to recruit high quality professionals and offer them development activities in order to maximize their contribution and stabilization achieved the highest score (4.3) by respondents. This condition most closely approximates the target of 5. The second condition, exceeding the rating of 4 is cooperation with other universities (4.1) but also with businesses, allowing the transfer and sharing of information.

Specialization is a condition with the lowest average value (2), but at university with such a broad scope is specialization on specific research or focus on a particular advantage impossible due to its multidisciplinary. The same number of points (2) has been assigned to the formation of spin-off companies, which involves the establishment of enterprises with the participation of the university.

Campus infrastructure was reviewed at 2.4 points. The reason is the distribution of university buildings in many places all around Bratislava and Jessenius Faculty of Medicine is in Martin. We can not therefore speak of a university campus, but only of the faculty. Respondents highlighted the need for further connections of studies and practice (condition students / PhD students - 2.9 points), which would promote the attractiveness of study, as well as the continuation of high quality graduates for PhD. studies, respectively the continuation of their activities in the business units of the university.

For better illustration, see the following chart of scoring at the Comenius University in Bratislava.

Complete transformation of traditional universities to entrepreneurial will require both further analysis as well as project management of such extensive changes. An important part will be to identify individuals and universities with business activities and focus. It will be a difficult process in terms of resources and time.

An important finding is that in many areas, the Comenius University in Bratislava follows the state universities abroad. It can therefore be considered to be on track to achieve an optimal level of implementation of the concept and is competitive in terms of market position.
4.6 Comenius University in Bratislava comparison with other universities abroad

We decided to compare the results of the examination of the four universities and the state of implementation of the entrepreneurial university at the Comenius University in Bratislava. In the next chart you can see five universities, each is displayed with a different color. By comparison, we found that at Comenius University in Bratislava, the activities of graduates are considered sufficient, even deliver outstanding value. At the four examined universities, these activities are not sufficiently valuable (University B gained only 1.3 points). It is a major positive for our university.
Another important finding is that the employees quality management is considered appropriate in Slovakia, but other universities were left behind. The disadvantage of Comenius University is just a spin-off creation, which we consider as one possible direction of evolution of the concept of Entrepreneurial University. While we are at 2 points, other universities' score stands at four points. It really is an area where university needs to work.

**Conclusion**

Entrepreneurial University is a new, untouched concept of university governance, which is capturing the attention of professional public in recent years. It comes out that the involvement of universities in entrepreneurship brings benefits over the traditional approach. The most important is the application of knowledge, knowledge into practice, technology transfer, international cooperation, employability of graduates, increasing employment, contribution to the development of the region as well as the whole society.

Dedication to this phenomenon we consider as a professional success, as in Slovakia there is no study, survey or mapping project of theoretical, methodological or empirical aspect of the Entrepreneurial University. Therefore, we tried to systematically take into account all aspects of operating the transformation, the existence and functioning of this type of universities.

Our work is focused on the Comenius University in Bratislava, but the approach can be applied to any university. We found that the University meets the conditions for entrepreneurship by 65.2%, which is above average, but requires further development.

**References**


