Conference on 'Innovation Systems and the New role of Universities' (COSINUS)

Academic Entrepreneurship. Barriers and Fears versus Wishes and Opportunities

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Purpose – to identify researchers’ attitude to entrepreneurialism and to academic-entrepreneurs, to determine the main barriers which hinder researchers’ entrepreneurialism in universities as well as to determine what additional training and knowledge is necessary for researchers making innovations. The purpose of this research is also to identify the main reasons which determine that universities as organised institutions are passive in commercializing research findings.
Theoretical Propositions – The mission of universities as principal knowledge-generating institutions has always been education and science, however, during the last two decades yet another mission of universities has developed, which has adequately emerged as a response to global processes, ever-changing environment, internationalization of studies and science, and increased competition. Universities step into a stage of becoming entrepreneurial universities either through social contacts between the state and universities or through links between the state – industry – science, which are also referred to as Triple Helix (Etzkowitz and Leydesdorff, 1996, 2000) model.
Content

- Lithuania context
- Research design
- Universities’ tendency to entrepreneurialism
- Researcher’s inclination to entrepreneurialism
- Conclusions and limitations
Lithuania context (background)

- 21 years, after independence, universities in Lithuania have functioned as a specific type of state financed institutions enjoying some autonomy; however, their management traditions are still significantly influenced by the Soviet legacy;
- Lithuanian universities of the post-Soviet period are considered rather inflexible closed hierarchical structures (according to Cameron and Quinn (1999) typology);
- In terms of Growth or Maturity phases of universities (according Milner, 2002), all three universities can be classified as experiencing the phase of Late Maturity, or even Old Age.
- University funding and assessment procedure of research production has stressed the number of research papers rather than applied research, business orders for applied research
- Researchers with entrepreneurial skills have often had two possibilities only: 1) to quit university and start a business and become a scientific entrepreneur; 2) to start businesses while working at university (without involvement of university) in order to commercialize research findings, i.e. to become the so-called academic–entrepreneurs.
Lithuania context (challenge)

- Global environment, marked by the increase of students, mass higher education, new information technologies; decreasing public funding; new players in the education and science market
- Lithuanian big backwardness of the innovative activities in the EU context
- Weak interaction of science and business, lack of innovations

- In 2009 a new law on Science and studies was adopted which provided for the shift of universities’ status of budget institutions to public institutions
- EU structural funding – attention to R&D infrastructure, human resources and environment
- Lithuanian Government adopted the decision to establish integrated science-business valleys. Key players - Universities
Lithuania context (wishes and opportunities)

- Strategic objective of the Lithuanian Innovation Strategy for 2010–2020 – **build a creative society, create the conditions for the development of the entrepreneurship and innovation**
- More legal freedom for universities to manage their material assets and intellectual property rights
- Access to EU Structural Funds and exercise the opportunity to renew infrastructure of universities, in order to improve study quality and to bring scientific research into the competitive global environment.

**However, the implementation of the third mission of universities, i.e. entrepreneurialism, which was prompted by global competition and initiated by politicians, is struggling its way through to Lithuanian universities.**
The research into the innovation potential of Lithuanian universities

• The object for research - Kaunas Technological University, Vilnius Gediminas Technical University and Vilnius University

Research design

• I. Analysis of legislative and policy documents (laws, Government decisions, and internal university documents)

• II. In depth interviews with heads of research and innovation departments of the corresponding universities, representatives of the Ministry of Education and Science and the Ministry of Economy (n=8);

• III. Development of questionnaire, consists of a semi-closed and closed questions based on a five-point Likert-type scale, based on the key themes identified in stage I and II.

• IV. Questionnaires were sent to researchers of the most innovative faculties (f=310), governmentall (g=30) and business representatives (120).

• V. Received the questionnaires (n=116, 19,31), Data processing and presentation of findings.

Part of the summarized research data, related to entrepreneurialism in universities, is provided in this paper.
Natural and technology sciences research production, the percentage of per capita (to one relative scientist)
Income generated through R & D projects
Universities’ tendency to entrepreneurialism

Main aspects which define different concepts of universities that face changes:

- **Innovative** university is a broad concept and it does not always have a negative concept of profit-seeking institution.
- **Service** university emphasizes the importance of customers;
- **McUniversity** stresses efficiency, calculations, previsions and control;
- **Corporate** university reflects a university based on a clear purpose to make a profit and mass produced “academic product”;
- **Entrepreneurial** university has a number of definitions, however, it mainly refers to entrepreneurial actions, structures and provisions in a university.

Rinne and Koivula (2005)
Universities’ tendency to entrepreneurialism

- Schumpeter as early as in 1934 described innovative entrepreneurialism as “creative destruction” (Heilbroner, 1995)
- EU Green Paper refers to entrepreneurship as a successful implementation of a business idea by combination of creativity or innovations and rational management (Shattock, 2005)
- Entrepreneurship is a process of exploiting opportunities that exist in the environment or that are created through innovation in an attempt to create value (Brown & Ulijn, 2004)
- Features of an entrepreneurial university identified by B. Clark, 1998
  - 1) strengthening management;
  - 2) development of peripheral units, which operate beyond the walls of traditional university or integration of interdisciplinary research centres into a flexible organizational system;
  - 3) diversification of funding sources and flows;
  - 4) stimulation of research (academic) basis;
  - 5) integration of entrepreneurial culture.
Universities’ tendency to entrepreneurialism

Main dimensions of innovative culture:
• intentions to be innovative;
• infrastructure that helps to generate innovations;
• knowledge and skills of the faculty that support actions and ideas necessary for innovations;
• environment that supports implementation and that features natural risk and encourages compromises (Dobni, 2008)

Main dimensions necessary for a successful university:
• a tendency to compete,
• ambitions,
• preparedness to adopt new models of action
• encouraging reputation (Shattock, 2005)
What problems your university confronts in implementation of innovations?

<table>
<thead>
<tr>
<th># questionnaires respond</th>
<th>Not a problem in our university</th>
<th>Minor problem</th>
<th>Moderately important problem</th>
<th>Big problem</th>
<th>Essential problem</th>
<th>% received but not answered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Providing a creative and supportive environment at the university.</td>
<td>114</td>
<td>11%</td>
<td>17%</td>
<td>45%</td>
<td>22%</td>
<td>6%</td>
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<tr>
<td>Finding topics for research on innovations.</td>
<td>114</td>
<td>11%</td>
<td>28%</td>
<td>25%</td>
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<td>Ensuring support from university management for innovations.</td>
<td>114</td>
<td>7%</td>
<td>11%</td>
<td>43%</td>
<td>30%</td>
<td>9%</td>
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<td>Establishing partnerships with business companies.</td>
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<td>6%</td>
<td>15%</td>
<td>40%</td>
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<tr>
<td>Identifying potential commercial application of research results.</td>
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<td>4%</td>
<td>13%</td>
<td>42%</td>
<td>32%</td>
<td>10%</td>
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<tr>
<td>Attracting young gifted scientists.</td>
<td>111</td>
<td>4%</td>
<td>15%</td>
<td>23%</td>
<td>40%</td>
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<tr>
<td>Acquiring research devices and equipment.</td>
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Reasons which determine low involvement of universities in the commercialization of research

Commercialization is a kind of financial risk that no one in university wants to take.
- Has essential influence: 22.1%
- Has influence: 45.4%
- Has certain influence: 23.3%
- Has almost no influence: 8.1%

Too poor material and technical facilities for commercialization.
- Has essential influence: 26.7%
- Has influence: 40.7%
- Has certain influence: 25.6%
- Has almost no influence: 7.0%

The university does not have specialists educated for this purpose.
- Has essential influence: 12.8%
- Has influence: 40.7%
- Has certain influence: 29.1%
- Has almost no influence: 11.6%

The thinking that research commercialization is not a university mission prevails.
- Has essential influence: 23.4%
- Has influence: 29.1%
- Has certain influence: 32.5%
- Has almost no influence: 8.1%

A huge influence of researchers-entrepreneurs on university management not to do it via the university.
- Has essential influence: 27.9%
- Has influence: 36.1%
- Has certain influence: 17.4%
- Has almost no influence: 18.6%
Researcher’s inclination to entrepreneurialism

The reasons why some researchers in Lithuania quitted universities and went to business:

1) economic reasons;
2) a certain inexplicable driving force = Schumpeter’s idea of businessperson innovator;
3) Seeking for challenges.

“Researcher’s work in the university is very similar to that of a businessperson – fierce competition, huge attention to external environment and focus on logistics of internal tasks of a company or research team. What makes a difference is just the final goal”

This final goal for a researcher is to get acknowledgement for his or her research in the academic community, whereas for a businessperson the primary driving force is profit and financial benefit (Siegel et al., 2003).
Universities and Researcher’s Barriers and Fears

1. Different final goals
2. “Academic or scientific capitalism” is wrong per se
3. Commercial attitude will pose obstacles to publish research
4. Create conditions for corruption while using university resources
5. Entrepreneurialism is a completely new activity which is not perceived well
6. Academic values, i.e. freedom and ethic, will lose their significance
7. Day-to-day envy of some researchers when others are encouraged and financially awarded for commercialization rather than their research achievements
8. Communication and information exchange between different university units is undermined
9. Teaching functions are undermined, when more time is devoted to commercialization, thus also reducing confidence climate
10. Tougher work morale, greater social distance

Researcher’s inclination to entrepreneurialism

How do you evaluate academic-entrepreneurs?

- Positively: 32.9%
- Rather positively: 17.6%
- Neutrally: 4.7%
- Rather negatively: 22.4%
- Negatively: 2.4%

Researchers ‘and lecturers’ approach

Representatives of government and business approach
Reasons which constrain researchers’ involvement in business.

<table>
<thead>
<tr>
<th># questionnaires respond</th>
<th>essential reason, % received</th>
<th>serious reason, % received</th>
<th>moderate reason, % received</th>
<th>minor reason, % received</th>
<th>negligible reason, % received</th>
<th>% received but not answered</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Receiving startup capital</td>
<td>116</td>
<td>41%</td>
<td>37%</td>
<td>16%</td>
<td>4%</td>
<td>2%</td>
</tr>
<tr>
<td>2-3. The fear that the company will have no commercial success</td>
<td>115</td>
<td>27%</td>
<td>33%</td>
<td>34%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>2-3. The fear that organizational activity in the company will leave no time for research</td>
<td>115</td>
<td>19%</td>
<td>39%</td>
<td>30%</td>
<td>9%</td>
<td>3%</td>
</tr>
<tr>
<td>4. Lack of business knowledge</td>
<td>116</td>
<td>20%</td>
<td>34%</td>
<td>32%</td>
<td>12%</td>
<td>2%</td>
</tr>
<tr>
<td>5. Gathering a reliable team</td>
<td>116</td>
<td>15%</td>
<td>41%</td>
<td>22%</td>
<td>17%</td>
<td>5%</td>
</tr>
<tr>
<td>6. Absence of supporting structures (e.g. consultants)</td>
<td>115</td>
<td>12%</td>
<td>34%</td>
<td>32%</td>
<td>17%</td>
<td>5%</td>
</tr>
<tr>
<td>7. Weak links with business partners</td>
<td>116</td>
<td>9%</td>
<td>33%</td>
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</tr>
<tr>
<td>8. Unclear university policy regarding relationship with business</td>
<td>116</td>
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Reasons which constrain researcher's involvement in business

1. Receiving startup capital

2-3. The fear that the company will have no commercial success

2-3. The fear that organizational activity in the company will leave no time for research

4. Lack of business knowledge

5. Gathering a reliable team

6. Absence of supporting structures (e.g. consultants)

7. Weak links with business partners

8. Unclear university policy regarding relationship with business

- essential reason,
- serious reason
- moderate reason
- minor reason,
- negligible reason
What additional training and knowledge is necessary for researchers making innovations

- **Legal knowledge**
  - Certainly necessary: 27%
  - Necessary: 44.3%
  - Slightly: 20%
  - Almost no: 5.2%
  - Completely no need: 3.5%

- **Financial management**
  - Certainly necessary: 19.8%
  - Necessary: 47.4%
  - Slightly: 23.3%
  - Almost no: 6.9%
  - Completely no need: 2.6%

- **Administrative knowledge**
  - Certainly necessary: 12.2%
  - Necessary: 30.4%
  - Slightly: 38.3%
  - Almost no: 15.6%
  - Completely no need: 3.5%

- **Knowledge of staff management**
  - Certainly necessary: 8.6%
  - Necessary: 35.3%
  - Slightly: 25%
  - Almost no: 15.6%
  - Completely no need: 15.5%

- **Additional training in foreign languages**
  - Certainly necessary: 18.1%
  - Necessary: 16.4%
  - Slightly: 20.7%
  - Almost no: 27.6%
  - Completely no need: 17.2%
Conclusions

1. Fear to risk, and the thinking so that universities can not also commercialize research are the two main obstacles on universities’ way to become entrepreneurial;

2. As the political environment changes to give universities more rights to dispose their own property, to give them more rights to healthy risk and to tolerating minor mistakes, and with the change in thinking as well as by encouraging researchers to participate in establishing enterprises taking advantage of academic-entrepreneurs’ experience and filling the gaps of their legal and financial knowledge, there is hope that fears will be overcome and the third mission, i.e. that of entrepreneurial universities, will be implemented.
Limitations

• The study presented here is limited in the sense that it was carried out during the time of huge political and organisational reforms in Lithuania. Changes that were initiated as a response to the pressure from global competition did not originate in the universities themselves; i.e., the reforms were initiated by politicians, while universities either had to adapt or cease to exist. We can only guess what would be the results of our study, if the universities would have been initiators of organisational reforms and would have implemented the innovations themselves.

• This article was based on the principal approach that an innovative university and an entrepreneurial university are similar, if not identical. Therefore, both the survey and the theoretical part of this article were related to the processes of innovations in universities and their generalizations, which often included organizational innovations of universities’ managerial activity or product and service innovations that develop from research. A separate survey, for example, of university entrepreneurialism in terms of competition for students in a global mass education market, was not conducted.
Discussion Question:

- University entrepreneurialism in terms of competition for students in a global mass education market
• Thank you for your attention!