

Technology Based Entrepreneurship and the Role of University: The Case of Serbia

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Structure of presentation

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The purpose of the study

- To analyze technology-based entrepreneurship and provide research evidence about characteristics of NTBFs and their founders in Serbia.
- To discuss how they are related to European practice.
- The findings presented in this paper are based on the early stage of a longitudinal qualitative research study that involves grounded theory based case studies of NTBFs established since 2000 around University of Novi Sad, Serbia.

Introduction

- Economic development and growth are highly dependent on technological development
- Technological innovation plays the central role in the process of long-run economic growth
- Research commercialization, entrepreneurship, and technological innovation are closely linked phenomena and crucial to the creation and maintenance of national wealth

Challenge

- One of the greatest challenges the European economy is facing is to overcome “innovation paradox” and, as described in Lisbon Strategy, and to develop capacities to convert scientific breakthroughs and technological achievements into industrial and commercial successes in order to become the most competitive and dynamic, knowledge-based economy in the world

Technology-based entrepreneurship

- Combination of two concepts: “technology-based” and “entrepreneurship”. None of these have a widespread and accepted definition.
- The entrepreneurship literature has offered an emerging consensus about at least the components that any comprehensive and useful definition of entrepreneurship should encompass
- Most common is to define a technology-based firm as a firm that is depending on technology for its development and survival.
- Technology-based entrepreneurship is a highly regional phenomenon

NTBFs

- relatively often have a growth potential;
- have a need for external financing when product development takes time;
- often focus on niche markets with a high need of internationalization;
- tend to cluster in specific regions;
- tend to be spin-offs from existing organisations (universities as well as established firms);
- tend to benefit from an establishment in an incubator or science park;
- tend to contribute to technology transfer within a region;
- tend to be founded by teams of founders; and
- tend to be established by entrepreneurs with higher education.

Entrepreneurial University

- Universities can make a substantial contribution, particularly on a regional level by linking industry and academic institutions and generating flows of knowledge between the two partners.
- University which is ready to develop entrepreneurial spirit, promote innovations, creativity and open the door to the sector of small and medium sized enterprises is the key element in the creation of knowledge regions;

Research Methodology

- Empirical data are collected through semi-structured, in-person interviews with founders of start-up companies.
- The sample included a mix of large and small companies and faculty members, mostly in engineering disciplines.
- At this stage of research, the data are used to illustrate some characteristics of the Serbian case.
- Since, technology-based entrepreneurship is a strongly regional phenomena special attention is paid to one of Serbia's major regions, the Novi Sad region.

The characteristics of NTBFs (1)

- In the university regions of Novi Sad, Nis, and Belgrade, an entire series of NTBFs has already been founded.
- Our findings suggest that NTBFs in Serbia are mostly created to exploit commercially technical know-how, technology-based ideas or research results developed within an academic institution.
- It is rare that a new technology commercialized by NTBF is patent protected in Serbia.
- This can be a crucial problem for attracting venture capital

The characteristics of NTBFs (2)

- NTBFs are focused on technology and development of state-of-the art solutions.
- The companies lack skills, know-how and experience in the fields of
 - marketing its solutions,
 - building up professional sales operations and
 - establishing long lasting profitable client relations with key accounts.
- This lack of focus on few commercially fit products/solutions and pushing sales into that direction lead to the development of diversified product portfolios, which are in different stages of development at the moment.
- Also, there is a lack of clear minded long-term development strategies for the company with defined targets and plans. This is particularly true for the businesses internationalisation.

The characteristics of NTBFs (3)

- The number of NTBFs depend on the definition of NTBF used
- Less than 10 per cent of the new firms in Europe can be classified as “Science, Technology and High Potential” (GEM)
- This percent is lower in Serbia. A rough estimation would suggest that the Serbian technology – based entrepreneurship is likely to represent not more than 3 percent of the general entrepreneurial activities.
- In Serbia there is an absence of extremely fast growing firms

The founder's profile

- European case studies indicate that industry spin-outs are more common than spin-outs from public research laboratories.
- On the contrary, this research tends to identify the key importance of either universities or research laboratories for technology based entrepreneurship in Serbia.
- Level of education amongst founders of NTBFs is significantly higher than that of the working population as a whole, or of founders of other types of new businesses.
- The most of NTBF founders have an engineering degree
- Founders of NTBFs are very unlikely to be young, the age spectrum of NTBF founders is between 30 and 50 years of age.
- Founders of NTBFs in Serbia tend to be primarily male.

Location and the importance of networking

- It is well known that NTBFs tend to cluster (Silicon Valley and Route 128 in USA, Cambridge in the UK; Munich in Germany...)
- In the most European countries, the distribution of NTBFs is similar to the distribution of population and/or enterprises as a whole (in and around the major urban areas)
- Our findings suggest that location of universities influence the location of NTBFs similarly like in cases of Austria, Sweden and Denmark. Nevertheless, universities in Serbia tend to be located in larger urban areas.

Novi Sad region of knowledge

- More than 35 successful NTBFs, most of them from Faculty of Technical Sciences
- New companies are created based on knowledge and know-how developed at the University through research projects.
- Existing companies employ more than 850 young well educated people;
- Turnover higher than 18 million € in 2007 and export more than 50% of their results

Efforts needed

- Transform research results and ideas more effectively into businesses and enterprises;
- Make venture capital available and increase financing at early stages of business and company development;
- Improve legislation and design workable ground rules and promote the use of intellectual property protection rights;
- Create sound conditions for competition that favour the growth of new enterprises.

Conclusion

- In transitional countries like Serbia, academic institutions are seen as a primary source of new knowledge production and innovation as well as the corner stone for technological change in vital segments of economy.
- Efforts should be made to combine the empirical skills of scientists and engineers with the managerial skills of others who have experience in the private sector. Therefore policy makers are urged to support science parks and technology support organizations.

Thank you

Questions?