

# ACADEMIC ENTREPRENEURSHIP IN POLAND. HOW TO USE THE POTENTIAL OF UNIVERSITIES FOR DEVELOPMENT OF ENTREPRENEURSHIP?

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**Abstract.** The paper analyses selected aspects of academic entrepreneurship in Poland. The concept of academic entrepreneurship is associated with the new model of university, in which, apart from the mission of scientific research and didactics, the need for active cooperation of an university with business practice is included. In the article, methods and forms of transfer of knowledge and technology into business practice are discussed. Barriers to the development of academic entrepreneurship, which are connected, inter alia, with the interest in this matter at the universities, are also delineated.

**Keywords:** academic entrepreneurship

## Introduction

An important mission of a university, apart from conduct of scientific researches, is didactic activity, which is aimed, inter alia, at training specialists for the economy. However, due to the deficit of workplace in relation to supply of graduates, economic conditions in Poland do not guarantee that all educated people may be employed. Because of this situation, there is a necessity of promoting an idea of academic entrepreneurship, which, among other things, can be characterized by undertaking business activity on one's own by the graduates and academic research. It often happens on the basis of innovation and new technologies deriving from scientific research. What is more, scientific achievements should be popularized and used in practice as much as possible. Therefore, one of the manifestations of academic entrepreneurship is transfer of technologies and innovations into the business practice. It is an important process which is based on making common scientific achievements and their use in the field of business practice. The mission of universities is pursued in this way, which consists in popularization of an idea of science development resulting in benefits for the country and its society.

Universities in developed countries have become increasingly entrepreneurial. For example, in United States universities have greatly increased their entrepreneurial activities along many dimensions: patenting and licensing, creating incubators, science parks, and university spin-outs, and investing equity in start-ups, among other indicators (D.S. Siegel, ed., 2006). This kind of attitude is a manifestation of care for practical use of scientific research results and popularization of scientific achievements that have been accomplished at universities.

This article is a review which contains the de-

scription of the notion of academic entrepreneurship and its significance for the university and its employees and graduates. In the article selected forms of academic entrepreneurship and barriers of its popularization are analyzed. The aim of these considerations is the discussion on the ways in which the potential of the university for the development of entrepreneurship can be used. For the purpose of demonstrating the issues being discussed the selected examples have been employed.

## The concept of academic entrepreneurship

The concept of academic entrepreneurship in Poland is a relatively new phenomenon. In the United States and Europe, the literature concerning academic entrepreneurship is rapidly expanding. Frank T. Rothaermel, Shanti D. Agung and Lin Jiang have analyzed 173 articles relating to this subject matter, which were published in the leading scientific journals, and indicated the problems being addressed. Four major research streams emerge in this area of study (F.T. Rothaermel, S.D. Agung, L. Jiang, 2007, p. 691):

- entrepreneurial research university,
- productivity of technology transfer offices,
- new firm creation, and
- environmental context including networks of innovation.

In Poland, the issue of academic entrepreneurship have been popularized, inter alia, thanks to projects financed by EU funds (e.g. Human Capital Operational Programme 2007-2013), that was implemented by universities and non-governmental organizations. The projects took the form of entrepreneurial education.

How can we understand the notion of *academic entrepreneurship*? There is no unambiguous definition. Both in the literature and everyday life we face many interpretational problems concerning the

issue and the range of academic entrepreneurship. In the Anglo-Saxon countries the matter is associated with (G. Banerski, A. Gryzik, K.B. Matusiak, M. Mażewska, E. Stawasz, 2009, p. 7):

- the process of creating so-called *spin-off* (or *spin-out*) enterprises at universities, which are established and run by academic researchers and students;
- entrepreneurship of the university – it concerns the situation during which the university acts as a bidder of a particular type of know-how and wants to sell it on market terms.

In the second perspective academic entrepreneurship is perceived as a new and attractive mechanism of commercialization of the scientific know-how. It facilitates multiplication of benefits of the researcher (discoverer) and other scientific and business partners (university, equity investors).

In Poland and other European countries, the phenomenon of academic entrepreneurship is understood more broadly. Within the debate on academic entrepreneurship the following problems are discussed (G. Banerski, A. Gryzik, K.B. Matusiak, M. Mażewska, E. Stawasz, 2009, p. 7-8):

- The development of educational programmes, promotion and development of entrepreneurial attitudes among students, doctoral students and academic researchers, which include preparation of an educational offer (lectures, courses, meetings, etc.) in terms of the basis of economic and legal knowledge (intellectual property) and organizational knowledge associated with undertaking and running business activity on one's own.
- Organization of institutions and support programmes for people professionally associated with the university (academic researchers and doctoral students) who are interested in undertaking an independent business activity based on professional knowledge and research projects being executed.
- Intellectual property management which is being developed at universities and scientific institutions. Preparation of rules and commercialization regulations of developed solutions.
- Entrepreneurial management of the university which is considered a specific entity of an enormous social value, which may and should be well-organized and managed.

### **Methods and entities associated with transfer of knowledge and technology**

One of the main problems of *academic entrepreneurship* are activation of academic communities for entrepreneurship and finding the ways in which

their scientific achievements and inventions could be made use of. As far as methods of transfer of knowledge and technology are concerned, the literature provides a division of vertical and horizontal ones. The horizontal transfer of technology is characterized by relations between enterprises. It may include: sale of patents, licenses and know-how, industrial cooperation, joint ventures and technological services. The second kind – vertical transfer is present between public research institutions and enterprises. It is the most commonly associated with: licenses for inventions, utility models, projects ordered by enterprises or contract researches, spin-off companies, information included in scientific articles, information shared during scientific conferences, seminars and training courses (B. Plawgo, 2011, p. 22). In many cases, an indication of transfer of technologies from universities to business practice is creation of independent enterprises on this basis by academic researchers or graduates. In general, three factors are of considerable significance for a spin-off company success (P. Tamowicz, 2006, p. 18):

- a strong scientific foundation (institutional scientific base);
- availability of financial resources;
- resources of technological and business knowledge.

In general, transfer of technology is treated as a process in which entities from outside the enterprise take part. Such intermediaries are, inter alia, technology transfer centres, the mission of which is, for example, to encourage scientists to use research results in a commercialized way by establishing their own companies. The next group of entities supporting development of entrepreneurship are support institutions also known as institutions from the business environment, or subject business environment. They provide assistance in a broad perspective, both substantive and capital, simultaneously, by its activity, initiating establishment of new companies. There are many support institutions, the most important are as follows: regional and local development agencies, training and consulting facilities, loan or guarantee funds, business incubators, technology and innovation transfer centres, investor support centres and organisations gathering entrepreneurs. There are institutions among them, the activity of which is aimed at supporting transfer of technology and knowledge. Any entities which pursue research and development activities are of the utmost importance. In Poland, the following institutions are particularly significant (B. Plawgo, 2011, pp. 22-23):

- scientific entities of the Polish Academy of Sciences (PAN);
- research and development units, science and research institutes, research and development centres, central laboratories;

- universities;
- science service entities: research libraries, archives, associations, foundations;
- developmental units - business entities which deal, apart from their basic activity, with research and development activity.

### **The role of universities in entrepreneurship stimulation in the era of economy based on knowledge**

In the traditional model, the role of the university is limited to conduct scientific research and teach students. However, the 21st century is referred to as the century of economy based knowledge, in which knowledge is seen as a leading resource (in comparison to physical and capital resources), which brings higher and new challenges to universities. Foregoing model of the university, based on education and scientific research, is broadened by preparation for the entrepreneurship (not only for students, but also for academic researchers). It is understood as shaping active behaviors which enable independent operating on the market. It is a new the so-called third mission of the university (K.B. Matusiak, 2010, pp. 162-167).

Intensive innovative activeness of enterprises and effective utilization of knowledge and scientific research results by them are the key elements of competitiveness of the Polish economy. Significant elements of an effective innovation system are business environment institutions such as parks, technology incubators or technology transfer centers, which provide assistance to companies and support the flow of knowledge and technology between scientific units and entrepreneurs. Thus, they make it easier for new solutions to be implemented to business practice. In addition, due to its pro-innovative activity, they are consistent with contemporary logic of socio-economic development, constituting infrastructure of economy based on knowledge and innovation (J. Cieřlik, J. Guliński, K.B. Matusiak, A. Skala-Poźniak, 2011, p. 5). Solutions which were made use of, in this domain, in Western countries may be good example for Polish universities.

To provide an example, the authors C. O’Gorman, O. Byrne and D. Pandya describe in their work a case of establishment of technology transfer Centre at UCD Dublin (C. O’Gorman, O. Byrne, D. Pandya, 2006, p. 27.). The technology transfer office is called NovaUCD. It is a university-based ‘Innovation and Technology Transfer Centre’, located on the site of the university. The centre lists the following objectives:

- identifying, protecting and exploiting intellectual property arising from university research;
- supporting entrepreneurs, campus companies and other knowledge-based ventures;

- promoting a culture of innovation and entrepreneurship; and
- promoting contract research and other forms of university-industry co-operation.

In Poland, there are also many examples of active implementation of the idea of academic entrepreneurship. Innovation and Technology Centres are established the most commonly at technical universities, whereas at universities Academic Enterprise Incubators are introduced on the basis of which students, most commonly, run their business activities (T. Szot-Gabryś, M.W. Sienkiewicz, ed., 2011, p. 37). However, as research results indicate, many academic researchers are characterized by traditional thinking about the model of university and its mission. They treat academic entrepreneurship as a rather marginal issue (J. Cieřlik, J. Guliński, K.B. Matusiak, A. Skala-Poźniak, 2011, pp. 10-11). As the main barrier of the development of academic entrepreneurship, both university authorities and employees indicate the fear of undertaking business activity on one’s own, apprehension about the risks related to running business activity on one’s own and perception of a full-time job as more stable/ favourable solution (B. Plawgo, 2011, p. 86).

### **Conclusions**

1. Conception of academic entrepreneurship in Poland has been popularized on a larger scale thanks to the projects funded by EU. Among the methods of transfer of knowledge and technology, being applied in Poland, these are as follows: an independent implementation by employees and students in the form of their own companies creation (spin-off /spin-out); sale of licenses for inventions, utility models; joint venture; strategic alliances; sale of proprietary rights; contractual examinations ordered by companies; scientific/ technical advice; the outflow of academic staff to economy; trainings, seminars, scientific conferences; providing databases and library stocks; technological audits; information in scientific/ technical publications; the search for market application of knowledge created at universities; knowledge transferred for free, studies, placements; participation of academic researchers in professional associations (B. Plawgo, 2011, p. 22.).
2. Thus, there are proven methods of transferring knowledge and technology to business practice. The biggest barrier is insufficient interest in academic entrepreneurship among academic environments themselves. Hence, in order to improve the situation in the field of academic entrepreneurship, it is necessary, on the one hand, to improve methods of transfer of knowledge and innovation to the economy and mechanisms of cooperation between university and economic

environment. On the other hand, it is important to raise interest and motivation for activities in the field of academic entrepreneurship.

## References

1. Banerski G., Gryzik A., Matusiak K.B., Mażewska M., Stawasz E., Przedsiębiorczość akademicka (rozwój firm spin-off, spin-out) – zapotrzebowanie na szkolenia służące jej rozwojowi. Raport z badania, Polska Agencja Rozwoju Przedsiębiorczości, Warszawa 2009.
2. Cieślak J., Guliński J., Matusiak K.B., Skala-Poźniak A., Edukacja dla przedsiębiorczości akademickiej, Polska Agencja Rozwoju Przedsiębiorczości, Warszawa 2011.
3. Matusiak K.B., Budowa powiązań nauki z biznesem w gospodarce opartej na wiedzy. Rola i miejsce uniwersytetu w procesach innowacyjnych, SGH, Warszawa 2010.
4. O’Gorman C., Byrne O., Pandya D., How scientists commercialise new knowledge via entrepreneurship, “Journal Technologic Transfer”, No 12/2006
5. Plawgo B., Przedsiębiorczość akademicka - stan, bariery i przesłanki rozwoju, Państwowa Wyższa Szkoła Informatyki i Przedsiębiorczości w Łomży, Łomża 2011.
6. Rothaermel F.T., Agung S.D., Jiang L., University entrepreneurship: a taxonomy of the literature, “Industrial and Corporate Change”, Volume 16, Number 4/2007.
7. Siegel D.S., (ed.), Technology Entrepreneurship: Institutions and Agents Involved in University Technology Transfer, Vol.1, Edgar Elgar, London 2006.
8. Szot-Gabryś T., Sienkiewicz M.W., (ed.), Przedsiębiorczość akademicka. Koncepcje, formy, warunki rozwoju, Wydawnictwo Fundacji Centrum Rozwoju Lokalnego, Lublin 2011.
9. Tamowicz P., Przedsiębiorczość akademicka. Spółki spin-off w Polsce, Polska Agencja Rozwoju Przedsiębiorczości, Warszawa 2006.

## AKADEMINIS VERSLUMAS LENKIJOSJE. KAIP PANAUDOTI UNIVERSITETŲ POTENCIALĄ VERSLUMO UGDYMU?

### Santrauka

Straipsnis nagrinėja akademinės antreprenerystės aspektus Lenkijoje. Akademinė enterprenerystė yra susijusi su nauju universiteto modeliu, kuris be mokslinių tyrimų ir didaktinės misijos taip pat apima poreikį universitetui aktyviai bendradarbiauti su verslo praktika. Straipsnyje aptariami metodai ir formos perduodant žinias ir technologijas verslo praktikai. Taip pat apibrėžiamos kliūtys plėtoti akademinę antreprenerystę, kurios susijusios su universitetų susidomėjimu šiuo klausimu.

Raktiniai žodžiai: akademinis verslumas.

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