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POLISH UNIVERSITIES CONTRIBUTION TO ACADEMIC ENTREPRENEURSHIP DEVELOPMENT*

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Abstract

In the recent years there has taken place a kind of evolution of the role of universities in their local environment, the shift has been from teaching and research activities towards more involvement in the regional social and economic development. A relatively new form of university activity aimed at strengthening regional economy processes are academic business incubators. They are to offer their support to those students and academics that are planning to set up their own businesses and face the marketplace. The purpose of the article is to present how Polish Universities encourage students to realize their own business concepts and assist them in overcoming barriers that appear on this way. The role of universities is to offer help at the stage of initiating the business that is the most difficult for young entrepreneurs. This cooperation contributes to building the regional connections and relations network that leads to the creation of the business environment.

Keywords:

Universities; Entrepreneurship; Incubators.

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Introduction

In a modern economy the process of creating knowledge is considered as one of the determinants of economic development. The capital of knowledge held by the company is not only an important factor in the production, it is also a basis for implementing internal innovations which determine the achievement of competitive advantages. Universities, being research and service centres for supporting innovations in companies and places of gaining unique skills by the students, are the source of knowledge capital at the local level. Furthermore, higher education facilities are perceived today as institutions which should support the initiation and development of economic life. In this way they are participating in the creation of territorial resources which constitute an indispensable base for the growth processes.

This paper will focus on the university activity in the area of entrepreneurship promotion and developing beginner forms of business activity in Poland. The article will use examples of academic business incubators to show growing role of universities in the regional development.

Academic entrepreneurship and institutional forms of its support

Over the last dozen or so years we could observe the evolution of the universities' role in the local environment from education and research activities towards a stronger engagement in the regional, social and economic development. The institutions of higher learning changed their nature. In the past, they provided knowledge and mainly conducted basic research which had only an indirect connection with the industry. As the time passed they started to engage more and more in various economic projects in the cooperation with companies, such as providing research or training on order. This way universities managed to combine the theoretical aspect of their activity with practice. At the same time, spreading the idea of entrepreneurship in the academic society became an important part of their activity. The main aim of such activities is the increase of consciousness

in the scope of initiating and developing their own economic enterprises. Undoubtedly for students and scientific personnel the very idea of being enterprising is not a sufficient condition for establishing one's own business. They often lack essential experience and knowledge necessary to establish their own company. It is often the case that outstanding scientists are unable to move around in the world of business and students with interesting ideas are lost in the tangle of bureaucracy and incomprehensible legal regulations. Access to a wide financial, legal and consulting assistance creates a chance for such people and it is offered by the academic entrepreneurship support infrastructure.

In the beginning it is worth presenting the notion of an academic entrepreneurship, for it is appearing more and more often in the literature connected with the regional development, transfer of technology and innovations. In a general view the academic entrepreneurship is the engagement of scientific facilities, auxiliary and administration personnel, PhD students and students in the economic activity. And in a narrower sense it refers to the engagement of a scientific personnel in establishing new companies – so called *spin-out* (Innowacje i transfer technologii, 2005). In Europe the notion of an academic entrepreneurship refers to any activity supporting the relations between science and industry, as well as the pre-incubation and incubation processes for newly established companies. In the United States, as a result of a higher level of entrepreneurship within the society, this concept is mainly connected with companies created by scientific personnel using new technological solutions. The United States are at the same time an unchallenged leader in granting support to business initiatives originating at universities. The substantial influence that American universities have on promoting entrepreneurship and the transfer of knowledge to economic practice is to a large degree the result of the *Bayh - Dole* Act implemented in 1980. Regulations of this Act enabled universities to retain patents for solutions invented at their laboratories using federal means. Universities may license the inventions to companies and gain fees for them, which are divided also for the creators of new solutions. The Act encouraged universities to engage in research and technology transfer. Companies have become more eager to purchase technologies developed by scientists, to develop them and implement into production processes, thanks to which new products are becoming more competitive on the international market. Legal regulations favouring innovations caused a real boom for establishing companies using the results of scientific research held at universities, especially in the 1990's. Many new companies were established, some of which were the initiatives taken up by the employees of universities and students. In the years 2001 – 2002 licences granted to newly established companies made up 12% of the total number of licences granted by American and Canadian universities, and other research institutions (Nielsen, 2004). Large demand from the industry led to the creation of entrepreneurship incubators and technology transfer offices at the universities for servicing companies interested in the cooperation. This received support of the state authorities, which actively participated in the promotion of creation of transfer offices and incubators. The result of these activities was the development of model solutions for the interaction of universities with the industry. Thanks to them many new companies were established which substantially influenced the increase of the level of innovativeness of American economy.

First concepts of entrepreneurship incubators in Western Europe appeared in mid 1970's. They were treated as a tool for the creation of alternative workplaces and development of post-industrial facilities in the regions suffering from a structural crisis (Matusiak, Stawasz, 1998). Over time they started to change their designation in the direction of supporting the companies created by young people. Also, the changing trends in economy and transfer to the more technically advanced production, caused that some of the incubators started to offer their support to innovative companies, using the results of research in such branches as teleinformatics, microelectronics or biomedical engineering. The result of a quick development of entrepreneurship in various economic branches was the extension of infrastructure supporting this process. Technological centres, scientific, training and consulting, and other centres were established beside entrepreneurship incubators and technology transfer offices. In the developed countries the technology transfer and support of business creation process is characterised by a variety of organisational forms. In Great Britain such institutions as industrial liaison offices in academic centres, academic personnel consortiums or teaching groups, in which graduates work on specific research projects (Sosnowska, Poznańska, 2003), have developed. And in France the organisations mediating between laboratories and entrepreneurs, and creating and coordinating networks are innovation and technological transfer centres (*Centres Regionaux et de Transfer de Technologie* – CRITT) (Sosnowska, Poznańska, 2003). In addition to the mentioned organisational forms, in practice one might encounter career offices and science and technology parks. Career offices are helping students and graduates in moving around on the employment market and promote entrepreneurship through training, conferences and workshops on business-plan creation and establishing their own businesses. The activity of

science and technology parks is more complex then the previously mentioned centres. They are a cooperation platform for innovative companies, science and research institutions (including universities) and business training, consulting and financial institutions. Technological parks often combine the function of a technology transfer centre and technological incubator. A specific characteristic of the park is the fact that its full offer is aimed only at enterprises characterised with innovativeness and using the latest scientific achievements.

Academic entrepreneurship incubators in Poland

Entrepreneurship incubators started to appear in Poland at the beginning of 1990's, and although they were created at universities, they were not aimed directly at the academic society. The increase in the number of incubators in the following years was the result of the realisation of „TOR #10 Small Business Development Project''. The main goal of this project, co-financed by the World Bank, was to propagate the development of entrepreneurship and actively counteract the unemployment (Matusiak, Mażewska, Zasiadły, 2005). Even though, in 1998 there were 45 entrepreneurship incubators active in Poland, most of them were not academic entrepreneurship incubators (AEI). Academic entrepreneurship incubators are a specific type of traditional incubators, however their offer is directed to students and scientific personnel who want to set up their own businesses and try their hand at the market activities. Academic incubators differ from the traditional ones in that they are treated as a prolongation of the didactic process by the possibility of establishing a company and its practical operation on the market as well as verification of the knowledge and skills gained (Guliński, Zasiadły, 2005). What is more, AEI conduct entrepreneurship education, allow to commercialize products and technologies developed at the universities, they provide access to university laboratories and research equipment and facilitate the direct usage of the knowledge of scientific personnel and students.

A broader interest in the subject of AEI surfaced in 2004 at dozen or so universities and among the activists of a Student Business Centre Club Forum. Then a problem has arisen connected with the possibilities of creating academic entrepreneurship support structures by the universities. At that time Polish legislation did not define academic entrepreneurship incubators or technology transfer centres, thus the modes of establishing them by the universities and rules of their operation were not specified. It was only the Act of 27 July 2005 on Higher Learning Facilities that filled the existing gap. Article 4 item 4 of the Act specifies the possibility of cooperation of a university with the economic environment through the sale or free transfer of research results to the entrepreneurs, as well as spreading the idea of entrepreneurship within the academic society in the form of a separate business. The form and scope of such a business should reflect the regulations included in the university statute (Article 7). This way the Act extends the meaning of regulations included in the statutes of higher learning facilities. This means that through internal regulations the universities may shape their own character and the pro-innovative attitude. One of possibilities of supporting entrepreneurship is included in Article 86 of the Act which states that universities may run academic entrepreneurship incubators "for the purpose of supporting economic activity within the academic society and students who are entrepreneurs", as well as technology transfer centres for "the sale or free transfer of research and development work results for business". The facilities mentioned may be created in the form of a trade company, fund or a general university unit. In this last case it is subject to the regulations approved by the university senate.

At the turn of 2004 and 2005 universities showed a great deal of activity creating 30 AEI. Almost half of them was established through the Student Business Centre Club Forum and Academic Entrepreneurship Incubators Foundation (Matusiak, 2005). The Foundation is the headquarters for a dozen or so incubators which were created at universities all over Poland. Students with an idea for an economic activity have a possibility of presenting them through special competitions and meetings organized by the incubators. The Foundation concludes a contract with selected persons specifying the terms and conditions of entering and leaving the centre. Young entrepreneurs do not need to gain their individual legal status as they are acting in the incubator as part of the Foundation. Thanks to this they avoid costs connected with the company registration and paying taxes. Any fees connected with the operation of the incubator are covered by the Foundation. The companies are obliged to cover the costs of staying in the incubator only after a few months, however the level of payments increases with the length of stay. The company may function in the incubator for a maximum of 3 years. After gaining independence and leaving the incubator economic units share a part of their profits with the incubator for a period equal to the length of stay in the incubator. The most buoyant incubators operating within the Foundation are centres at the Economic University in Wrocław and Universities in Gdańsk and Warsaw (Guliński, Zasiadły, 2005).

The role of academic incubators is the aid in business initiation. To fulfil this task they are using a wide range of instruments, which include among

others technical and patent consulting services, financing, access to university laboratories and research equipment, scientific research and to databases on inventors, patents and technologies. The scope of the offered support is very differentiated (table 1) and determined by the means at hand. It is worth noting that one of the most important is the human capital. It is the experience and qualifications of the personnel that usually decide on the success of an incubator.

Table 1. Types of support granted by 16 chosen Polish incubators

Type of support	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Consulting, information, courses training:																
Entrepreneurship, company establishment	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Business plan creation	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X
Technology and patents	X	X	X			X				X		X				
Cooperation mediation	X		X		X		X		X		X		X			
Finances, taxes	X		X	X				X	X		X		X		X	
Bookkeeping, accounting	X		X	X	X			X	X		X		X	X	X	
Legal issues	X	X	X	X		X		X	X	X	X	X	X	X	X	
Market analysis and marketing	X		X	X		X					X		X		X	
Informatics and computers	X		X	X		X		X			X		X	X	X	
HR management	X		X	X					X				X			
Access to EU funds			X	X	X	X	X		X		X		X	X	X	
International trade and cooperation			X										X			
Implementation of new services and products		X	X			X							X			
Business management	X		X								X		X		X	
Quality management	X		X										X			
Technical and service infrastructure:																
Reception, secretariat			X	X	X	X					X		X			X
Telephone exchange	X		X	X	X	X		X		X	X	X	X			
Copying machine, fax		X	X		X	X		X	X	X	X	X	X	X		
Computer network	X	X	X	X	X	X		X	X	X	X	X	X	X		X
Workshops / laboratories			X			X				X			X	X		
Access to databases	X		X			X		X		X			X	X		
Conference room	X	X	X			X				X	X	X	X	X		X
Financial support:																
Lending and guarantee funds															X	
Loans and loan mediation			X												X	
Cooperation with „business angels”			X								X			X		
Subsidies, grants, subventions			X		X	X			X	X	X	X	X			
Venture capital			X													

1- Academic Economic Incubator at the University in Białystok
2- Academic Economic Incubator at the Technology Transfer Office at Gdańsk University of Technology
3- Academic Entrepreneurship Incubator at the Technology Incubator of Łódź University
4- „Innowatik” Academic Entrepreneurship Incubator, Kraków
5- Academic Entrepreneurship Incubator, Kraków
6- Academic Entrepreneurship Incubator at Opole University of Technology
7- Poznań Academic Entrepreneurship Incubator, Poznań
8- Academic Entrepreneurship Incubator at University of Information Technology and Management, Rzeszów
9- Academic Entrepreneurship Incubator at Gdańsk University, Sopot
10- Academic Entrepreneurship Bio-Incubator at the Agricultural University in Szczecin
11- Academic Entrepreneurship Incubator, Management and Services Economics Branch at Szczecin University
12- Academic Technology Incubator at the University Technology Transfer Centre, Warszawa
13- Academic Entrepreneurship Incubator at Warsaw Agricultural University
14- Academic Entrepreneurship Incubator at Warsaw School of Information Technology
15- Academic Entrepreneurship Incubator at O. Lange Economic University, Wrocław
16- Academic Entrepreneurship Incubator at Wrocław University

Source: Own study on the basis of: Matusiak K.B., Zasiadły K., Koprowska-Skalska E., Początkiakademickich inkubatorów przedsiębiorczości [in:] Matusiak K.B. (ed.), Ośrodki Innowacji w Polsce, PARP, SOOIPP, Poznań, Warszawa 2005, pp. 128-145.

As it turns out from the presented data most of the incubators support potential entrepreneurs at the stage of pre-incubation including the shaping of business-like attitudes, gaining knowledge on company establishment and support in business plan creation. Academic lecturers play a major part in instilling the spirit of entrepreneurship among young people. They transfer the basic knowledge concerning company functioning mechanisms. Students learn how the market works, how to move around it and what to do to be competitive. Basic information gained in this scope help them realise their own business ideas. Further aid offered in the incubator is of a practical character. Most of the analysed incubators provide consulting as well as accounting and legal services, which is very desired by young people because of the level of complication of regulations and difficulties connected with it. Another advantage of such a solution is the fact that the entrepreneurs, being relieved from the need to keep their accounting, may spend more time on the development of their products and services and on searching for new outlets. The most widespread form of support taken up by the analysed incubators is the help in access to the EU funds. EU funds offer support which should be supplemented with one's own means. It should be noted here that establishing innovative business by persons who do not have market experience is connected with a big risk. This fact is the main obstacle in obtaining a bank loan for business development. Lack of financial means is the most frequent problem of entrepreneurs developing their business. In this scope, an underdeveloped financial support system is a weakness of the incubators. Lack of cooperation with *venture capital* or *business angels* funds causes that young businessmen suffer from the lack of means, especially in the early development stages of the business. Furthermore, another frequent comments made about incubators refer to the quality of the offered training and courses (Preparation and Carrying Out Research..., Research Report, 2005). The complaints of entrepreneurs concern situations when not all the training courses promised while the company was entering the incubator are actually carried out and if they are, it is often by trainers of inadequate competence whose approach to the training is far too theoretical, the information they present is also easily found in available publications. There is no analysis of specific situations and problems and case studies that might bring more insight into the activities of young entrepreneurs.

Besides the support types listed in table 1 offered by Polish incubators in practice one might also encounter such actions as: organization of competitions and programmes aimed at enterprising students and scientific personnel, entrepreneurship clubs or trainings for students at companies cooperating with the incubator.

Advantages resulting from the activity of universities for the benefit of academic entrepreneurship

The engagement of universities in the creation and functioning of entrepreneurship incubators is a process giving benefit not only to the academic society but also in the wider regional scope. Their influence on the activation of the local population, who often find employment thanks to the newly established companies, is unquestioned. The main advantage of such type of activities is the stimulation of the innovative society. The existence of a local society with enterprising and innovative characteristics is conditioning the establishment of companies. The key elements in this process are the relations and various cooperation ties between the scientific and economic societies which, if consistently developed, cause the creation of specific competences, knowledge and behaviour. The universities fill a new role consisting in shaping the enterprising consciousness and providing conditions for its development. Some of the aspects of this activity are combined projects of universities and companies which include training and research projects with the participation of students and scientific personnel. While conducting research for industry the process of learning is conducted as well. This means that if one company orders a specific service then the university creates a pattern of proceedings, it organizes an appropriate set of instruments (organizational, consulting, research), essential for the realisation of the service. This way a certain kind of *know-how* is developed which will be used while solving technical problems for other companies. The result of this process is the increase of the level of services rendered and their greater comprehensiveness. Moreover the cooperation with companies gives the universities access to practice. Thanks to this it is possible to transfer this experience to their own benefit and improve the incubator's operation by implementation of new instruments and services.

Scientific employees, graduates and students with innovative ideas for their own business may make them come true through the establishment of companies and using incubator support offered by the universities. The scale of popularity of such activities is the fact that by the end of 2005 in the 15 incubators gathered in the Academic Entrepreneurship Incubators Foundation there were 150 new companies established, 800 young people applied for cooperation, and the companies already operating generated PLN 2 million of income (in 2005) (Żuk, 2005). One should also ask what kind of benefit is

there for the universities from the activity of incubators. Well, besides making their educational offer more attractive, they are also receiving financial means by way of renting their rooms and laboratories. Other benefits include (Guliński, Zasiadły, 2005):

- the improvement of relations with the local population and business;
- increase of income from the cooperation and technology transfer to graduate companies;
- increase of orders for research and winning sponsors for research activity;
- the improvement of the image of the university;
- gaining additional means from entrepreneurship support programmes;
- the demonstration effect – this solution is accessible for everyone;

A resilient university with numerous economic ties has what it takes to attract skilled students and experienced scientists. Then it becomes one of the key factors deciding on the attractiveness of a specific region.

Conclusions

Thanks to the engagement of universities in the promotion and support of entrepreneurship they are considered as the driving force behind economic and social development of the region[1]. Universities encourage students to realise their own business concepts, assisting them in overcoming obstacles connected with them. The cooperation between science and industry enables to create a network of relations in the region leading to the creation of an enterprising society and increasing its competitiveness at the same time. Polish incubators are young organisations which have not yet developed all services (e.g. cooperation with *venture capital* funds). It is expected that the legislative changes introduced will evoke yet greater engagement of universities in the creation and development of infrastructure supporting the academic entrepreneurship and students, scientific employees and graduates will make use of the offered facilities and more willingly engage themselves in the business activity.

[1]To stress the role played by higher schools in the economy it is worth citing the comment put in the American report of the Boston bank from 1997 r. All companies established by employees and graduates of the *Massachusetts Institute of Technology*, which operated in 1997, employed in total 1,1 million people and had an annual sale ca. 232 billion USD. This amount was close to gross national product of the Republic of South Africa and Thailand from 1996!, after: J. G. Wissema, *Technostarters and the Third Generation University*, Materials of the National Conference ,,Academic Entrepreneurship in Poland – Perspective of Development'', Warsaw 19 May 2006.

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