Identification and evaluation of business support institutions helping with development of academic entrepreneurship in Poland

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Abstract

The main goal of the publication is to analyze the impact of business environment institutions on development of academic community entrepreneurship in Poland. The research was based on the hypothetical and deductive method. The theoretical basis for solving the research problem were available studies on the given topic of domestic and foreign literature, as well as statistical data. In the last few years there is a significant increase in the number of institutions supporting entrepreneurship and business in Poland such as: academic business incubators, science and technology parks. The development of this type of institution can be directly assessed in the form of successful implementations of business ideas in market structures. The publication indicates the important role of centres supporting academic entrepreneurship in Poland. They are the stimulator of all business activities. The publication makes one aware that centress supporting entrepreneurship play an important role in the development of a country, region, university, providing grounds for raising the level of economic activity in Poland.

Keywords

entrepreneurship, academic business incubators, special-purpose entity, science and technology parks

Introduction

Entrepreneurship is a key condition for the competitiveness of the country's economy. It is considered the main factor of socio-economic development. In Poland, academic entrepreneurship is a relatively new and poorly exploited phenomenon in connection with the development of economic activity. The literature on the subject indicates a number of barriers limiting, and often even preventing the economic activity of the scientific community. This is in particular the imperfection of formal and legal solutions, limited access to financial resources and support from highly qualified managerial staff. The barrier is also the risk related to the specificity of the intellectual property market, problems with estimating the value of the product, a formal description of the market, as well as the clarity of property rights. The development of academic entrepreneurship is conditioned by many factors. It is connected to problems related to the science, research and education sector, which is a source of research and development, a qualified workforce, opportunities for professional development, as well as potential entrepreneurs among employees and students. Also development of the local environment of innovation and entrepreneurship, made up of small and medium enterprises, units offering specialized business services, and potential customers of our products and services plays an important role. Particular importance in this regard is gaining support system, comprising: institutions, organizations and various assistance programs. These are: Academic Business Incubators, special purpose companies of public universities, Science and Technology Parks.

The research problem is the insufficient level of entrepreneurship development of the academic community in Poland, defined as taking initiative and undertaking and run-ning a business.

"The activity of researchers and students in the field of running their own business is very low" [Plawgo, 2011, p. 134]. Students of universities in the Podlasie Voivodeship pay special attention to the barrier related to the lack of appropriate knowledge and / or qualifications. Researchers see the main barriers to the development of economic activity in the group of financial and legal factors. The most important ones include: university underfunding, high social security costs (and other), lack of initial capital, lack of mechanisms regulating university cooperation with institutional investors [Plawgo, 2011, p. 134; Moczydłowska, Szydło and Pejić, 2020].

As research shows on the impact of the characteristics of academic youth on views on the essence of entrepreneurship and factors determining entrepreneurial attitude conducted on a group of full-time students of the Faculty of Economics and

Management at the University of Bialystok in May 2013 by B. Roszkowska-Mądra, A. Parfieniuk and M. Studnicki [2014, pp. 232-233], academic youth perceive entrepreneurship mainly from the perspective of their skills. The surveyed students recognized that the main factors influencing the modeling of their entrepreneurial attitudes in the academic education system are gained practical skills (97.9% of responses), which, according to the resource theory of the company, in addition to theoretical skills, are the necessary resources of the company to create and maintain a competitive advantage market and therefore business development.

The aim of the publication is to analyze the impact of business environment institutions, such as: Academic Business Incubators, special purpose vehicles of public universities, Science and Technology Parks on creating entrepreneurship of the academic environment in Poland. The publication assumes that the condition for creating the economic activity of the academic environment in Poland are Academic Business Incubators, special purpose vehicles of public universities, and Science and Technology Parks.

The main goal of the publication is to analyze the impact of business environment institutions on development of academic community entrepreneurship in Poland.

The research was based on the hypothetical and deductive method. The theoretical basis for solving the research problem were available studies on the given topic of domestic and foreign literature, as well as statistical data.

1. Academic business incubators

Modern economy, largely based on knowledge combined with practice, forces changes in the functioning of universities in Poland. Focusing on a practical approach, openness to business and raising the ability to unleash entrepreneurship potential among our own researchers, students and PhD students is a very attractive path for the development of universities. An important element is also the fact that a large number of graduates are willing to run their own business after graduation.

The development path of universities depends on capability to rising entrepreneur-ship potential among own researchers, students and doctoral students. The activity of university technology transfer centres and career offices, which play an important role in educating the foundations of entrepreneurship among students and university graduates. However, both career offices and technology transfer centres do not meet all the needs reported by students and graduates regarding support in starting a business. Meanwhile, the potential of students, graduates and university employees is enormous. Poles win global IT competitions and co-create the largest

business and research projects, work in international research teams, and are known for their diligence and creativity. According to Eurobarometer, almost 50% of young Poles intend to create their own company within 5 years, which puts us at the forefront in this respect [http://www przedsiebiorca.pl, 25.01.2020].

One of the entities connecting business with universities are the Academic Business Incubators. They are often a place where enterprises, which are successful internationally, take their first steps. According to the Law on Higher Education [Journal of Laws No. 164, item 1365] establishing these units, the Academic Business Incubator is defined as a unit run by a university "in order to better use the intellectual and technical potential of the university", offering "support for the business activities of the academic community or university employees and students who are entrepreneurs."

Academic Business Incubators focus mainly on the pre-incubation phase. They are created in the vicinity of universities and their purpose is to shape the place for enter-prise development. One of the assumptions of AIP is to provide students with a combination of theoretical and practical knowledge and to try their hand at business. The goal of the incubator is to create opportunities to establish your own business with minimal financial expenses [Siemieniuk, 2007, p. 29].

Academic Business Incubators is a specific type of business incubator, which is treated both as an extension of the didactic process aimed at preparing for the creation of a company and practical operation on the market, as well as the process of verification of acquired knowledge and skills. Incubators created at the university support students and academics in practical market activities. The activities implemented in them are focused on entrepreneurship education and commercialization of new products and technologies resulting from research and development work carried out at the university [Guliński and Zasiadły, 2005, p. 29].

The main goal of the Academic Business Incubators is to spread entrepreneurial attitudes in the academic community. The company's operation in the AIP structure gives the opportunity to explore the market and achieve positive economic results. Incubators significantly help remove barriers related to the creation and development of small and medium enterprises. Newly created companies have access to services that help them avoid excessive employment and purchase of fixed assets, which the entrepreneur often cannot afford. As indicated by K. Matusiak [2001, pp. 187-196], the proper adaptation of the incubator by a university can bring a number of benefits to both universities and entrepreneurs. These benefits include:

- making the educational offer more attractive;
- improving relations with the environment and local business;

- increasing revenues from cooperation and technology transfer to graduate companies;
- increasing orders and sponsoring research activities;
- improving the image of the university;
- obtaining additional funds from technological entrepreneurship support programs;
- additional income opportunities for students, researchers and engineering and technical staff;
- reduction of company founding costs;
- access to advisory and information;
- the effects of demonstrations, in the form of strengthening the belief that the solution is available to everyone;
- concentration of public forms of support for young companies.

Specific benefits that are important from the point of view of students and doctoral students include [Matusiak and Zasiadły, 2005, p. 30]:

- acquiring the necessary knowledge and experience to run your own business;
- reduction of company establishment costs;
- access to advice and information;
- business-friendly environment;
- effects of the demonstration – "I can try too";
- concentration of various public forms of support for small enterprises;
- gaining experience and practical knowledge about the market.

All pre-incubators operating in Poland, taking into account the type of organizers and their organizational specifics, can be divided into three groups [Matusiak, 2009, p. 95-96]:

- pre-incubators operating at the Academic Business Incubators Foundation (AIP);
- Academic Incubators, operating as part of state universities, largely associated with university career offices and technology transfer centres;
- pre-incubators operating as part of technology parks and incubators as well as student organizations.

An important goal of the Academic Business Incubators Foundation is to promote entrepreneurial attitudes in the academic community. The company, called a startup, in the structure of Academic Business Incubators allows you to explore the market and achieve positive economic results. Companies in the AIP structure receive access to services thanks to which they can avoid many failures in the initial

stage of development. In addition, beneficiaries receive substantive support from experts cooperating with the AIP.

Academic Incubators, operating as part of state universities, are largely linked to university technology transfer centres or career offices. This type of AIP operates in the form of an independent project and complements the activities of the innovation support program and technology transfer. The projects, selected in terms of the innovation requirement of the undertaking, receive assistance with a wide range of support for the founding process, such as assistance in technology transfer, consulting and training, access to databases and international contacts as well as information and assistance in access to domestic and foreign grants and funds risk (venture capital).University pre-incubators are free to develop cooperation with other educational and scientific research units. They also have better access to university infrastructure and human resources. The university itself authenticates their activities, among others by regulating financial flows related to the implementation of external projects. The disadvantage of these incubators is quite common university bureaucracy and misunderstanding of the idea of the implemented activity [Matusiak and Zasiadły, 2005, p. 32].

Academic Business Incubators make it easier for young people to start in business through an innovative, on a European scale, way of running a company on the basis of AIP divisions (in the pre-incubation program). Thanks to this solution, there is no need to start your own business, which reduces the cost of bureaucracy, as well as the risk of young entrepreneurs, allowing them to focus on developing their business. By establishing a company in AIP, one can receive full support in running his company's accounting, but at the same time he is not listed in the registry as a person conducting individual business activity, therefore he is not obliged to pay ZUS contributions and does not block the possibility of using programs aid, intended for people who do not run a business. AIP program participant simultaneously receives legal assistance and their individual bank account.

One of the basic elements of every company at the beginning of its activity is its promotion. Only a few companies, founded by young businessmen, have an appropriate promotional budget. Academic Business Incubators thanks to its activity and financial independence is able to promote its students through local and national media.

2. Special purpose vehicles of public universities

A special purpose company of a public university is a special type of capital company. Its main task is to conduct the process of indirect commercialization of

scientific research results. The operation of a special purpose vehicle is regulated by Article 86a of the "Law on Higher Education". The university also occasionally entrusts a special purpose vehicle with tasks related to direct commercialization [Ciesiński, 2016]. Direct commercialization is the sale of results of development works, scientific research or commissioning of these results for use on the basis of a license agreement, lease and rent. Indirect commercialization refers to the acquisition of shares in companies to implement or prepare for the implementation of the results of development work or scientific research. The main difference between these types of commercialization is the organizational form in which the type of commercialization is carried out. In the first case, it is the Technology Transfer Centre, which is an organizational unit of the university or a special purpose company established by the university. Indirect commercialization is carried out by means of spin-off companies, i.e. entities created by students, graduates or research employees. Two types of commercialization differ in the ownership structure of the company that carries out the tasks. It is not an obstacle to commercialize research results using both types of commercialization [Ciesiński, 2016].

The company is simply to be an intermediary between the university and the spin-off company. The characteristics of such a company are [Ciesiński, 2016]:

- a limited number of entities that can create it, in this case only universities or colleges;
- the special purpose vehicle is to be a sole proprietorship and the only shareholder holding all the shares is the university;
- the scope of its activities is limited, the company is to perform only tasks related to direct or indirect commercialization;
- the company is formed by the rector with the consent of the senate;
- indirect commercialization of research and development results without a special purpose vehicle is impossible.

The most important task of a special purpose vehicle of a public university is taking up shares in capital companies or creating further capital companies that implement the results of research or development work at the university. Thanks to this, a university commercializing research results can take care of what it was created for, i.e. conducting work and research. The university does not have to deal with formalities related to the commercialization process of development works and scientific research. A special purpose vehicle performs all organizational, legal and economic activities for the university. The university may also entrust the special purpose vehicle with the obligation to manage the industrial property right of the university as part of its commercialization. The transfer of such tasks must be made in the form of a contract between the special purpose vehicle and the rector. In this

case, for the commercialization of the results of development works and scientific research, and for the purpose of managing industrial property rights, the university transfers to the special purpose vehicle all research results as well as the obtained industrial property rights. By entrusting the management of industrial property rights to a special purpose vehicle, the university is not obliged to apply the provisions on public procurement. However, the issue is the application of public procurement rules by the company during its operations. If the contracts concluded by the company concern the sale of intellectual property rights or their licensing, then neither the university nor the special purpose vehicle is obliged to organize a tender, because in this case these units are not the contracting authority but the seller, and in public procurement law obliged to apply the rules in it is not the sellers of goods or services but the buyers. A separate issue is the services acquired by a special purpose vehicle during its activities. In this case, even the fact that a public university holds all the shares in a special purpose vehicle does not result in the obligation to apply public procurement rules. This is because commercialization activity is an economic activity focused on maximizing benefits and profits. However, each time before deciding to withdraw from the tender, the objectives and nature of goods commercialized by the company should be taken into account [http://www.bridge.gov.pl, 2.06.2020].

3. Science and technology parks

According to the "Act on financial support for investments" [Journal of Laws of 2002 No. 41 item 363, s. 3], a technology park is understood as a real estate complex together with all technical infrastructure that was created to make the flow of knowledge and technology between entrepreneurs and scientific units. Entrepreneurs using modern technologies are offered services in the field of enterprise creation and development, transforming the results of development works and scientific research into technological innovations. The technology park creates the possibility of using technical infrastructure and real estate on a contractual basis.

An industrial park is the second type of place for research and scientific development. Both technology parks and industrial parks are places where companies from one industry gathered together with research and scientific institutions supporting them. Such places are increasingly used in our country as developmental solutions. The offer of such parks is addressed to both Polish and foreign entrepreneurs. However, despite the similarities of industrial and technology parks, these units are quite diverse. Each of them has an individual character that results from regional economic, cultural and social conditions. However, there is no universal park model that guarantees success. The initiatives taken by the unit are related to the specificity

of the local scientific community, type of economy and industrial traditions. The industrial and technology park, on the other hand, is a set of separated properties with infrastructure that remained after the liquidation or restructuring of enterprises. These types of parks are created with the participation of local authorities to provide preferential conditions for conducting business, mainly for startup enterprises [http://www.paih.gov.pl, 2.06.2020].

Science and Technology Parks offer support for innovative startups from the moment of a business idea, through establishing a company, to the enterprise development process. Such support is most visible in terms of infrastructure, so that new projects can develop using modern equipment, laboratories and rooms. The park also offers research and development services, which have the character of consultancy aimed at maintaining the company's position and advantage on the market. Parks operate on the border of business and technology, contributing to the development of companies and the creation of new jobs. The effects of such activities may be visible in the local or regional dimension depending on the scale of conducted activity. These institutions are a relatively new phenomenon on the Polish market. The first Polish park was the Poznań Science and Technology Park created in 1995. For comparison in the world, the first park that made a career was the park established at Stanford University in 1951, which initiated the well-known Silicon Valley in the USA [Mackiewicz, 2008, p. 7].

It is worth noting that the term technology park is used to describe entities of various types, among others: science parks, research parks, science and research centres, industrial and technological fields, and techno fields. The difference is the park's industry profile. One of the important factors is the place where the park was created. Depending on whether it was created on the initiative of the local government, business environment institutions or in the vicinity of a university, its closer or further relations with science or business result. In this case, it can be divided into two basic categories [Mackiewicz, 2008, pp. 7-8]:

- science parks - related to a specific university, created on the initiative of scientific communities, aimed at supporting the commercialization process of research carried out at a given university;
- technopole - created on the initiative of public authorities, focused on attracting external investors and then focusing research potential in a given region.

The aim of the Science and Technology Park is to create a convenient infrastructure that will increase the innovation of local and regional enterprises. The scope of services they provide includes, among others (bpnt.bialystok.pl, 2020):

- rental of office, laboratory and service space for scientific and research units and startups;
- incubation of startups and providing support services to innovative companies;
- activation of cooperation between the scientific and research community and enterprises;
- attracting investors;
- investment area management;
- improving the situation on the local market by creating new jobs;
- retaining educated staff on the local market;
- improving technology transfer;
- initiating international cooperation;
- supporting commercialization of scientific research and development works.

Science and Technology Parks operate in all voivodships. However, there are large disproportions in their distribution. They occur most frequently in the Wielkopolskie, Dolnośląskie and Śląskie regions. Irrespective of their size and scope of activity, they affect the same target groups. Statistically, there are 39231 students, 42738 business entities and 917460 inhabitants per one park in Poland. The largest group of students, business entities and residents per one park occurs in the Pomeranian, Podkarpackie and Mazowieckie voivodships. Only one park operates in the Łódź, Podkarpackie, Mazowieckie and Opolskie voivodships [Bąkowski and Mażewska, 2012, p. 28].

Over the time, the infrastructure at the disposal of Science and Technology Parks, both laboratory-research and office, increases. The largest park in Poland has an area of 60,000 sq. m. [Bąkowski and Mażewska, 2012, p. 31]. About 6% of the park area is intended for own needs. The parks have laboratories that provide services to external entities and are intended for rent. However, 48% of parks are still not equipped with them. In this case, infrastructure resources are complemented by mills, prototyping and workshops. Modern laboratories and specialized equipment are financed from the financial support of regional and national funds. In terms of IT infrastructure, parks provide clients with specialized software, Internet access, databases and teleconferencing equipment. The offer also includes offices and facilities for business meetings equipped with multimedia equipment.

Statistically, each Science and Technology Park allocates over PLN 7 million annually to cover operating costs [Bąkowski and Mażewska, 2012, p. 32]. About 58% of parks have a formally separated budget, while 39% operate within the leading institution. The financial independence of parks has been weakening over the

years due to a decrease in revenues from soft services. There is income from laboratory services, but at the moment they do not exceed 3% of expenses. The level of financing from own revenues does not cover even half of the current financing needs. The remaining funds must therefore come from grants, national projects and other sources of external funding.

The services provided by the parks relate mainly to innovation and commercialization. However, they also offer assistance in obtaining financial support for new projects. The parks cooperate with funds investing in innovative projects as well as guarantee and loan funds. Startup companies constitute only 45% of entities operating within parks [Bąkowski and Mażewska, 2012, pp. 35-36]. Most companies are companies that have been on the market for more than 4 years. This is due to greater credit rating of companies operating on the market for longer.

Parks most often cooperate at the regional level with universities, enterprises in the region, local government units and consulting companies. 42% of parks at the regional level and 36% at the national level cooperate with high-risk financial institutions [Bąkowski and Mażewska, 2012, p. 39]. This level of cooperation with external partners is not satisfactory, however, park development forecasts assume an improvement in these relations.

Science and Technology Parks in Poland are becoming an increasingly popular tool used to support the development of areas where they are located. Parks support innovation and create a framework for cooperation between public administration and companies and research centres [Mackiewicz, 2008, p. 11]. The park's development plans envisage their further expansion based on European funds and the capital of regional markets. Considering the infrastructural potential of Polish parks and the regional network of contacts, it can be stated that they occupy a strong regional position among innovation and entrepreneurship centres.

It can be stated that science and technology parks are scale-reduced, but very functional and necessary for modern economy innovation systems. They are a place to create and improve innovative solutions, and also enable real cooperation between science and business. Business incubators are in turn organized economic complexes with technical and technological facilities and intellectual capital necessary for the development of innovation. Their activity is focused on supporting newly established companies and concerns two main areas - housing assistance and business-related services. Recently, business incubators have become the domain of research centres in Poland - they are established as entrepreneurship centres at both public and private universities. Academic Business Incubators (AIP), created thanks to the involvement of university and EU funds, have already created a nationwide network

of entrepreneurship support and development among students, graduates and academic staff [Wierżyński, 2015].

Conclusions

In Poland, at the turn of the last few years there is a significant increase in the number of institutions and the promotion of entrepreneurship and business. These institutions include: Academic Business Incubators, Science and Technology Parks. The development of this type of institution can be directly assessed in the form of successful implementations of business ideas in market structures. The main focus is on creating the right conditions for cooperation between the business and science sectors and ensuring a rapid flow of knowledge or technology from universities to business.

Entrepreneurship Incubators are units created at academic centres in Poland. The idea of AIP is to create ideal conditions for the development of business ideas. Academic Business Incubators is a combination of knowledge represented by the academic staff of the university and practical knowledge about the functioning of companies in Poland. AIP's mission is to create conditions for the development of innovation and commercialization of ideas based on knowledge and new technologies, strengthening the potential of entrepreneurs and its use. The incubators' assumption is to provide comprehensive practical knowledge to students who, after graduation, have enormous theoretical knowledge, but which they hardly transfer to practice. The incubator's goal is to enable them to set up their own business with minimal financial outlays. Operating in an incubator is a way for students to gain experience in the field of business practice, exchange of views and establishing business contacts. Academic Business Incubators is one of the projects supporting young entrepreneurs in activities aimed at developing their interests and aspirations to become independent in financial terms. The business incubator is one of the new ways to develop entrepreneurship and makes it easier for a company to overcome crises in its path. The idea of incubation refers to the development phases that each newly created company undergoes.

Special purpose vehicles of Polish public universities are a convenient instrument for commercializing the results of development works and scientific research and affect the development of entrepreneurship of the academic community in Poland. However, the effectiveness of this form of commercialization depends on the efficiency of the organs of the special purpose vehicle established and the determination of the university in the pursuit of introducing the developed research.

International experience confirms that one of the success factors of the technology park is the proximity of a university, active in the field of academic entrepreneurship, and effective, multifaceted network contacts with the scientific community. First of all, they enable the development of cooperation between the world of science and business, which helps to connect the market-oriented offer of science representatives and the expectations of entrepreneurs. Parks should therefore support the commercialization of research results.

The literature present the transfer of knowledge from universities as one of the functions of science and technology parks. Science and technology parks are especially established by universities or have other strong links with them - some operate laboratories or even entire university units in their area. Nowadays, typical services of this type of park include: providing infrastructure for development projects and testing technology based on research results from universities ("technology incubation" function), brokerage and organizational support for R&D projects on request or in cooperation with enterprises, cooperation with the university's technology transfer centre or even fulfilling its role, incubation of spin-out enterprises originating from the university and supporting their development. According to experts in the field of entrepreneurship, in the future the integration of the park with the university will be even stronger. Science and technology parks can support universities in their educational functions by: conducting entrepreneurship classes, providing practitioners working in the park as lecturers, transferring knowledge related to the practical aspects of the functioning of a given field that develops in the park, providing research infrastructure for educational purposes, conducting practical classes and arranging the exchange of internships and apprenticeships with park tenants and clients, as well as influencing the curricula [Matusiak, 2011, p. 40].

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Identyfikacja i ewaluacja instytucji otoczenia biznesu wspomagających rozwój przedsiębiorczości akademickiej w Polsce

Streszczenie

Głównym celem publikacji jest analiza wpływu instytucji otoczenia biznesu na rozwój przedsiębiorczości środowiska akademickiego w Polsce. Badania oparto na metodzie hipotetycznej i dedukcyjnej. Podstawą teoretyczną rozwiązania problemu badawczego były dostępne opracowania na zadany temat z literatury krajowej i zagranicznej oraz dane statystyczne. Wnioski: w ostatnich latach następuje znaczący wzrost liczby instytucji wspierających przedsiębiorczość i biznes w Polsce, takich jak: Akademickie Inkubatory Przedsiębiorczości, Parki Naukowo-Technologiczne. Rozwój tego typu instytucji można bezpośrednio ocenić w postaci udanych wdrożeń pomysłów biznesowych w struktury rynkowe. Publikacja wskazuje na ważną rolę ośrodków wspierających przedsiębiorczość akademicką w Polsce. Są one stymulatorem wszelkich działań biznesowych. Publikacja uświadamia, że ośrodki wspierające przedsiębiorczość odgrywają istotną rolę w rozwoju kraju, regionu, uczelni, stwarzając podstawy do podnoszenia poziomu aktywności gospodarczej w Polsce.

Słowa kluczowe

przedsiębiorczość, akademickie inkubatory przedsiębiorczości, spółki celowe, parki naukowo-technologiczne