

THE ACTIVITY OF BUSINESS ENVIRONMENT INSTITUTIONS IN TERMS OF SUPPORTING THE INNOVATIVENESS

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Purpose: The purpose of this article is to characterize the activity and establish the potential of business environment institutions (BEIs) in terms of supporting the innovativeness of enterprises in Poland. The business environment institutions are a group of entities offering consultancy, training, information and financial aid to businesses, particularly small and medium-sized enterprises (SMEs). This aid is necessary for the implementation of innovative processes and the development of enterprises.

Design/methodology/approach: This paper utilizes subject literature studies, statistical data analysis, results of own research and observation of the economic practice.

Findings: Based on the results of primary and secondary research, one can claim that cooperation between enterprises and business environment institutions leads to increased innovativeness of the former. The shrinking number of business environment institutions, reduction of their activity and clustering in more developed regions and cities, all of which have been happening in recent years, pose a great threat to the support small and medium-sized enterprises are able to receive for the implementation of innovative processes.

Research limitations/implications: It would be worthwhile to learn the up-to-date opinions of entrepreneurs concerning pro-innovation support provided by business environment institutions.

Practical implications: There is a need for wider cooperation between entrepreneurs, local authorities and business environment institutions for sake of building appropriate ecosystems to support the innovativeness of enterprises. The business environment institutions are a key part of such ecosystems, yet their presence in the implementation of innovative processes within small and medium-sized enterprises is insufficient.

Originality/value: Study expands the knowledge about activities supporting the innovativeness of enterprises being carried out in Poland by business environment institutions.

Keywords: business environment institutions, innovativeness, small and medium-sized enterprises

Category of the paper: Research paper.

1. Introduction

For many years, Poland has been ranking low in global and European rankings of innovativeness. In the Global Innovation Index (GII), Poland had placed 38th out of 132 countries (Global Innovation Index, 2022), while the European Innovation Index (EIS) rated it as an emerging innovator, at the fourth last position among the EU member states (European Commission, 2021). Thus, one of the key tasks of Poland's economy is increasing the innovativeness of enterprises. The innovativeness of the country is a result, among others, of innovativeness of enterprises. Currently, according to the new version of the Oslo Manual (2018), an innovation is a new or improved product or process (or their combination), which differs significantly from previous products or processes of the company and which has been made available to potential users (product) or implemented into operations (process).

These innovations are oftentimes the results of companies working with various external partners (Bell, 2005), including other businesses, R&D centers or innovation centers committed to the implementation of innovative processes. The cooperation and help of specialized agencies are particularly necessary for small and medium-sized enterprises (SMEs), which lack sufficient human, non-material and financial resources to implement innovations on their own. The results of author's primary research also indicate the existence and correlation between the closeness of partnership between small and medium-sized enterprises and business environment institutions and their innovativeness and development levels (Kamińska, 2011, 2017).

The goal of this paper is to characterize the operations and establish the potential of business environment institutions (BEIs) within the scope of supporting the innovativeness of enterprises in Poland. For purposes of these deliberations, we have adopted the following definition of the business environment: the term BEI encompasses entities offering consultancy, training, information and financial aid to businesses, particularly small and medium-sized enterprises (SMEs), concerning the implementation of innovations and modern technologies.

2. The essence and categorization of business environment institutions

The definition of business environment institutions is somewhat fluid and very broad. The term itself has different names, e.g. institutions supporting entrepreneurs, business support institutions, business backup institutions, business environment institutions (Matusiak, 2010; Dorożyński, 2013). The term business environment institution encompasses entrepreneurship and innovation centers (technology parks, technology incubators, business incubators, technology transfer centers, innovation centers, training and advisory centers) as well as

financial institutions, including loan and credit guarantee funds. The business environment institutions include non-commercial entities - so-called non-profit institutions, which are not motivated by profits or which commit their income towards statutory goals (Burdecka, 2004) and commercial subjects created in the first decade of the 21st century (seed and venture capital funds financed by the EU).

A shared trait of these entities is the functions for which they have been created. It consists of providing various services, primarily for micro, small and medium-sized enterprises, including advisory, training and informational services, as well as providing the technical infrastructure necessary for carrying out economic activities and financing said economic activities (Bąkowski et al., 2021; PARP, 2019). These institutions aim to remove barriers and obstacles hindering the cooperation between businesses, the scientific community and administrative authorities, supporting innovativeness and growth of businesses. The support in implementation of innovations involves offering ideas, providing contacts and helping coordinate, taking into account the known needs of a given environment. BEIs have the necessary material, technical and human resources, as well as competencies to provide services to the SME sector.

Subject literature categorizes the business environment into three subgroups: innovation centers, entrepreneurship centers and non-bank financial institutions (Bąkowski et al., 2021). Aside from terms such as “innovation centers” and “innovation support institutions”, other names are also utilized, such as “business environment institutions”, “pro-innovation structures”, etc. The innovation centers also include technology and scientific parks, technology incubators, academic business incubators and e-incubators.

Aside from the innovation centers, supporting the development of innovative enterprises, we also distinguish entrepreneurship centers (including advisory and training centers, entrepreneurship centers, business centers, pre-incubators, business incubators) supporting the establishment of and development of companies, as well as non-bank financial institutions (regional and local loan funds, credit guarantee funds, seed investment funds and angel investor networks) providing financial help. The above-mentioned groups of entities are collectively called innovation and business centers.

In practice, the list of institutions impacting the innovativeness of enterprises is much longer. One should also take note of chambers of trade and commerce, chambers of commerce, trade and industry associations, organizations offering commercial training and advisory services, numerous entities created by local authorities and, last but certainly not least, the banks, which help entrepreneurs obtain funds necessary for implementing innovations.

3. Characteristics of activity of business environment institutions in terms of supporting the innovativeness of enterprises in Poland

As of writing, there are 280 non-commercial entities implementing tasks characteristic for BEIs, 164 of which are innovation centers and 116 are business centers (Bąkowski et al., 2021). Among the business environment institutions, the innovation centers have a key role in integrating and increasing the dynamism of the regional innovative environments by creating cooperation networks and clusters. They provide professional expertise, shape competencies and answer key questions troubling entrepreneurs concerning new developments and appropriate means and timing of placing them on the market. They also initiate supra-regional cooperation between entrepreneurs and assist in obtaining scarce resources. One of the key activity types of innovation centers - aside from advising, training and instructing - is supporting transfers of modern technologies from the scientific to business worlds and their commercialization.

Technology parks are of particular significance among the innovation centers, as they create an innovation-fostering environment collecting R&D institutions, innovative enterprises and other institutions supporting innovation (primarily through financing and training) in a single place (Matusiak, 2011). Technology parks create conditions conducive to establishing and growing innovative enterprises, offer the most advanced and comprehensive help (as compared to other support centers) and facilitate easier cooperation between business and scientific communities. The parks allow entrepreneurs to utilize the research resources of a university, while the scientific institutions gain easier access to businesses interested in the development of their scientific achievements. The geographical closeness of entities cooperating within the parks facilitates the exchange of knowledge, helps lower costs and benefit from the synergy effect, ultimately supporting the creation of an innovative environment. Research confirms the positive effect technology parks have on the innovativeness of enterprises operating within their territory (Leyden et. al., 2008).

The local authorities are involved in the creation and operation of such parks, especially in the earliest stages of their functioning, when the support is of particular importance. There are 43 science and technology parks in Poland (PARP, 2021) and the majority of them has been created after 2007, thanks to EU funding.

Other entities offering support to newly established innovative enterprises in their first, hardest years of operation are technology incubators and academic business incubators. Technology incubators are usually created within the territory of a technology park and their offer is targeted primarily at small and medium-sized enterprises, encompassing a wide scope of advisory services in the spheres of management, marketing, law, implementation of new technologies and utilizing labs and the entire infrastructure. The space is leased on preferential terms and the ease of contact with the research and development sphere and other businesses

active within the incubator is a major draw. These unique conditions allow the owners and employees of businesses to gain competencies quicker, have an easier business launch and develop the company with greater ease, resulting in the creation of new workplaces in the region, the development of new economic structures and cooperation networks, promotion of entrepreneurship and entrepreneurial behavior. All of the above will have a positive impact on the socioeconomic development of the region and the country at large.

Research into innovation centers in Poland also distinguishes pre-incubators and academic business incubators. The idea behind these is similar to that of technology incubators, but they are focused on the academic community and supporting students, graduates and research workers at the seed stage of establishing an enterprise (pre-incubation) or in its first period of operation (usually approx. 3 years). The academic incubators allow for wider use of research and scientific resources of a university with the purpose of commercializing the findings and increasing the innovativeness of enterprises.

Aside from academic business incubators (ABI) and technology incubators, the subject literature also identifies business incubators (BI), whose activity isn't strictly focused on supporting innovation, but rather helping establish a company and reach self-sustainability within 3-5 years. A business incubator centers are an effective method of stimulating economic growth and have a positive effect on social, technical, and financial indicators (Olkiewicz et al., 2019).

The development of information and communication technologies (ICT) supports the creation of e-incubators, which assist businesses (including the ICT sector) through new technologies rather than material means, helping obtain knowledge, new technologies and capital. There are 64 technology and business incubators in Poland (including academic incubators), located primarily in southwestern Poland (PARP, 2021).

Aside from the academic business incubators, another structural element of an enterprising university is the technology transfer centers (TTCs) appointed by universities and academies of the Polish Academy of Sciences. The goal of their activities is selling, or providing free of charge, the results of research and development work (Higher Education Act, 2018) to the economy, with the ultimate objective being the adaptation of modern technologies to the needs of businesses, increasing innovativeness and competitiveness of both businesses and regional economic structures. The origins of technology transfer centers reach as far back as the 60s of the 20th century, when the first technology transfer departments have been created in American and British universities to help commercialize their scientific achievements. The first technology transfer center in Poland had been created in 1995 at the Wrocław University of Science and Technology and, as of writing, 82 technology transfer centers (Porozumienie, 2022) are operating at varying activity levels. Some of them actively participate in their region's life, cooperating with small and medium-sized enterprises, advising them and assisting in acquiring knowledge and implementing new technologies.

Nowadays, in compliance with the legal definition (Ustawa Prawo o szkolnictwie wyższym i nauce, 2018), the term TTC has been narrowed to centers affiliated with scientific institutions. The innovation centers, on the other hand, are providing a wide assortment of informational and advisory services focused on bringing business and science closer together and gathering partners to establish contact networks necessary for the implementation of innovative processes. From among the 25 innovation centers, the majority are located in Masovia, Silesia and Greater Poland voivodships (Bąkowski et al., 2021).

Intensification of innovative activities is made possible by creating a network of interrelations between entities. A network is understood here as long-term cooperative relations between equal partners, who trust and understand each other (Koschatzky, 2001). Innovation networks group together entities bringing their knowledge, competencies, material and financial resources (including research equipment) to effectively and efficiently implement innovations. Thanks to the cooperation within the network, each entity gains economic benefits, lowering the prices of purchasing resources, services, technologies and carrying out processes, learning from each other, utilizing shared knowledge, information and databases. An incredibly important matter is shortening the processes of innovation and implementation. Thanks to the synergy effect, network organizations are able to offer their clients a comprehensive, innovative offer and professional service at an oftentimes more attractive price. All these elements contribute to obtaining a competitive advantage and easier adaptation of cooperating entities to the needs of the market.

Numerous authors prove, based on empirical research, that cooperation within the networks results in increased innovativeness of enterprises (Powell, Grodal, 2006).

Examples of such special, innovative networks include the above-mentioned technology parks and clusters, which we will describe shortly. Clusters, also known in the subject literature as local production systems, industrial complexes or groupings, are geographical concentrations of interrelated businesses, specialized suppliers, service providers, companies from related sectors and business environment institutions, both competing and cooperating with each other (Porter, 1990).

The structure of clusters varies greatly and encompasses both enterprises specialized in a given industry and those from related sectors, supporting the effectiveness of the cluster's key members, research and scientific institutions, incubators, financing institutions, economic associations, etc. The geographical closeness of the above-mentioned entities supports their cooperation, frequent contacts and positive relations, while the need to compete stimulates innovation and development processes. The competition between discrete entities distinguishes clusters from networks, in which cooperation is dominant.

Belonging to a cluster offers a wide selection of advantages - enterprises have an easier time accessing knowledge and technologies, specialized services, unique resources, purchasing resources at lowered prices and acquiring funding. This results in increased effectiveness of

operations, increased competitiveness and faster growth. Enterprises associated in clusters tend to be more innovative and effective (Martin, Sunley, 2014).

The clusters are oftentimes considered to be stimulating growth, attracting domestic and foreign investors, supporting the creation of new companies and lowering unemployment. The geographical scope of clusters can vary greatly, ranging from a city, a region, or several regions to even a global scope.

Appreciating the role of clusters in stimulating innovation, it bears taking note of the possible occurrence of negative effects of cluster's operation. These might include cartel collusion to inflate prices, investment difficulties for enterprises from industries outside the cluster's main focus, creating unemployment in the event of cluster's closure.

Innovative activities are usually quite expensive and require access to financial centers. Loan and credit guarantee funds extend the ability to finance innovative projects, primarily those of micro, small and medium-sized enterprises. Loan funds provide access to loans for newly established, developing economic subjects, by utilizing simplified creditworthiness appraisal and loan granting methods. Over the past 22 years, the number of loan funds has increased from 36 in 1999 to 64 in 2021. Their scope of operations is usually that of a single voivodship (Bąkowski et al., 2021).

Local authorities have also created credit guarantee funds, whose activity is focused on providing credit guarantees to enterprises applying for bank credit or loans yet lacking the required credit history or guarantees. According to the National Association of Credit Guarantees (Krajowe Stowarzyszenie Funduszy Poręczeńiowych), there are currently 33 credit guarantee funds. By the end of 2021, they had a collective capital of PLN 782 mln. Over 2021, the funds have granted 13,894 guarantees with a combined worth of PLN 1.63 bln, indicating an 11% increase as compared to the year before (Gajewski et al., 2022).

So-called angel investors, or business angels, are also involved in financing innovations. They invest in risky projects in their earliest stages. Seed capital funds, owned by venture capital companies, can provide larger funds than angel investors in exchange for shares in the company. They focus on funding innovative enterprises at seed and start-up stages.

The largest group among the business environment institutions is comprised of training and advisory centers (including Entrepreneurship Support Centers, Business Support Centers and Consultancy and Advisory Centers), offering a wide selection of services adapted to the needs of the local community and the current economic situation. Advisory and training services concerning the establishment of a company, preparing a business plan, obtaining EU funds and implementing innovations are among the most popular. Following years of successive growth, the number of advisory and training centers decreased to 103 in 2021 (Bąkowski et al., 2021).

4. The potential of business environment institutions supporting the innovativeness of enterprises in Poland

Since the 90s of 20th century, the number of various innovation and entrepreneurship centers has steadily increased in Poland, largely due to their operations being supported by regional and national programs financed by the European Union. 2014 proved a breakthrough year, as the number of these institutions began decreasing. This was largely due to closings of training and advisory centers and the fact that the research only took active centers into account. In the following years, the number of business environment institutions has been steadily decreasing. In 2021, the total number of active BEIs has decreased by 162 as compared to the previous year. At the same time, one can notice a large disproportion in BEI spread across voivodships. Most of them are located in voivodship with a high economic potential (Silesia, Lesser Poland, Masovia), primarily in the provincial capitals.

Since some of the entities carry out varied activities, simultaneously fulfilling the roles of BI and TTC, it bears extending the analysis by a number of components (activity types) implemented by these entities, as presented in Table 1.

Table 1.

Number of support components implemented by BEI in Poland in the 1995-2021 period

Listing	1995	1997	1999	2000	2004	2007	2009	2010	2012	2014	2017	2021
Technology parks	1	1	3	3	12	15	23	24	40	42	37	34
Park initiatives							23	21	14	0	0	0
Technology incubators	4	5	49	44	53	16	17	20	29	24	23	16
Business incubators	29	49				46	46	45	58	46	37	41
Academic business incubators	*	*	*	*	*	49	51	62	73	24	20	16
Technology transfer centers	1	5	23	20	39	87	87	90	69	42	55	52
Innovation centers	*	*	*	*	*	*	*	*	*	47	39	25
Loan funds		48	51	33	76	84	82	82	86	81	58	64
Credit guarantee funds				24	57	64	54	54	55	58	52	31
Training and consulting centers		153	147	142	280	326	318	317	319	207	151	103
Total	174	261	273	266	507	688	695	715	743	571	472	382

* The category was not analyzed during the given year.

Source: Compiled by the author based on: Bąkowski et al., 2021; Bąkowski, Mażewska, 2015.

In the 1995-2012 period, business environment institutions have greatly developed their operations in Poland and the number of implemented components has increased. Since 2014, we have seen a steady decrease in the number of implemented components, related to shrinking funding of the institutions promoting entrepreneurship and the overall socioeconomic situation in Poland and the world at large. It also bears mentioning that the entrepreneurs who utilize these services in order to obtain current, professional knowledge from the sphere of management are continually increasing their expectations towards these service providers. Some of the business environment institutions have proven rather inflexible and failed to adjust their offers to the needs of the market - ultimately leading to their downfall. The analysis of previously quoted documents also indicates a lack of systemic action - the goals of these centers remain undefined, no monitoring of their effectiveness is being conducted and there is a lack of a coherent strategy defining a precise role for the business environment institutions in national and regional pro-innovation policies.

The shrinking number of business environment institutions and reducing their activities (expressed as a decreasing number of implemented support components) poses a threat to the innovation activities of small and medium-sized enterprises, which are unable to implement innovations on their own. Another negative factor is the uneven distribution of BEIs across Poland, resulting in reduced access to support for enterprises operating in less developed voivodships.

5. Summary and conclusions

The innovativeness of enterprises is determined by the operations and activities of the numerous innovation centers, including technology parks, innovation centers, technology transfer centers, academic business incubators, as well as loan funds, credit guarantee funds and other organizations whose goal is broadly defined support of innovation. The above-mentioned subjects help entrepreneurs receive support in obtaining knowledge, technologies and scarce resources necessary to implement innovative projects.

Subject literature studies and an analysis of research results lead us to claim that the innovativeness of enterprises depends on the potential and capacity for innovation of the external entities, mutual relations and cooperation between particular actors of the regional innovation scene. The innovativeness of enterprises is bolstered by good cooperation with local authorities and the scientific community, as well as the above-mentioned business environment entities. They all constitute a prerequisite to obtaining and creating new knowledge, skills and technologies. Cooperation between enterprises and external entities allows receiving the synergy effect, increasing the competitive position, effectiveness and efficiency of operations.

The shrinking number of business environment institutions in Poland, their limited activity and concentration in highly developed cities and regions pose a significant threat to effectively supporting small and medium-sized enterprises in implementing innovative processes. Analysis of the potential of business environment institutions over the years 1995-2021 has indicated a successive reduction in the number of these entities since 2014. The number of types of services they offer to enterprises has also decreased. Activity of training and advisory centers related to involvement in innovative projects carried out by enterprises has been considerably reduced. At the same time, it should be noted that business environment institutions are located mainly in large urban centres, which is also an unfavorable phenomenon.

Meanwhile, the dynamics of changes taking place in the environment implies the need for constant supplementing of knowledge, gathering current information, as well as obtaining new resources by entrepreneurs.

It would be beneficial to establish a consistent strategy for the development of business environment institutions, systematizing the action needed for supporting enterprises in implementing innovative processes.

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