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Areas and Forms of Operation of Academic Business Incubators alongside Startup Organizations

Abstract

Incubators constitute the institutional and organizational support for companies in the early stages of development. One of the categories of incubators are academic business incubators whose activity is examined in this study. Based on the literature analysis the study presents concepts and problems associated with the operation of startups in the knowledge economy and the characterized organizations constituting institutional support for this type of organization. The research will verify the hypothesis that business incubators operating in the academic environment are important for the development of innovative products and services, created within the framework of the startup organizations supported. This is connected with the business model adopted by incubators. It is based on the combination of infrastructure, technology and know-how with the social capital of the academic environment. The diagnosis of the activity and the impact of academic business incubators is part of the analysis of the ecosystem of Polish startups conducted by the author.

Key words:

startup, academic business incubator, company's environment, institutional support.

Introduction

The formation and development of enterprises in the knowledge-based economy depends largely on the existence of quality instruments to support their competitiveness and innovation. This dependence refers particularly to startups, i.e. companies that are in the early stages of development, implementing innovative products and services, looking for an appropriate business model and operating in turbulent environments. Business incubators are institutions operating alongside startups and offering various forms of support for their development. They are, together with training-advisory centers and loan funds, among the oldest elements of the infrastructure supporting Polish entrepreneurship [Bąkowski, Mażewska 2014].

The aim of this article is to identify and evaluate the scope and forms of operation of academic business incubators, offering various forms of support for startups for which they constitute an essential element of business environment.

Description of selected elements of ecosystem of startups

Innovation and invention

The explanation of the concept of innovation is important from the perspective of the author's research on the ecosystem of startups (the studies described in this paper are part of the research). It is important to note that this research may verify the hypothesis that business incubators operating in the academic environment are of great importance for the development of innovative products and services, created within the startup organizations supported.

According to the US Department of Commerce, innovation stands for invention, modernization and commercialization of new products, processes and services [The U.S. Department of Commerce 2017]. The concept of the so-called Schumpeter's triad distinguishes innovation (as the introduction of new or improvement of existing products, methods and organization of production, sales or purchases, opening of new markets or use of new materials) from invention (i.e. inventions, based on knowledge and new scientific thought, before the stage of implementation) and imitation (i.e. dissemination of innovation through adaptation and diffusion) [Schumpeter 1960]. The relationship between innovation and invention is accentuated by G. Pinchot and R. Pellman [1999]. They identify invention with creativity and treat innovation as its extension – from an idea to implementation, i.e. creation and widespread

use of a new product, service, process or system. P. Drucker [1992] points out that an essential element and also the success factor of innovation on the market is commercialization, understood as all the activities aimed at transforming knowledge into new products, services, technologies and organizational solutions.

Market participants and their interactions in knowledge-based economy

Innovation plays a special role in the knowledge-based economy (KBE) which, according to the OECD definition [1996], is based on creation, dissemination and, above all, effective use of knowledge and information by market participants. According to K. Piech [2009], the KBE elements, leading to the formation or accumulation of knowledge, include: human capital, innovation system, ICTs and institutional-legal environment. L. Leydesdorff [2006a] ascribes the responsibility for shaping innovation to universities and research and development units. According to this concept, companies are responsible for generating value and public authorities for managing key processes.

The organization's environment in the knowledge-based economy has evolved from a simple and stable, low or moderate degree of uncertainty to a complex, dynamically changing, and high degree of uncertainty, referred to as turbulent in the subject literature [Griffin 2010; Adamik, Matejun 2012]. The environment influences the operating conditions of the organization, defining the possibilities of their development, creating opportunities, but also creating barriers and threats [Kozmiński, Piotrowski 2000].

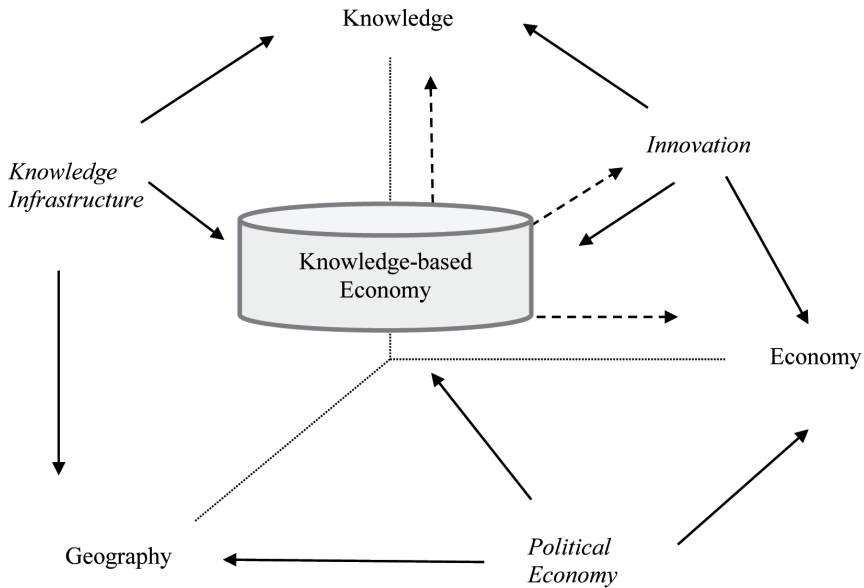
The impact of the business environment on organizations can be analyzed based on the systemic approach and systems theory [Kozuch, Kozuch, Plawgo 2005]. In this approach, it is important to perceive the organization as a system whose development and achievement of goals depend on the relationship with the environment. Attention is also paid to input factors (human, capital, technological, information) that are transformed into the organization results (output), i.e. goods, services, values, profits, losses and others. The interaction between the organization and its environment plays an important role in the transformation of factors [Kozmiński, Piotrowski 2000; Stoner, Freeman, Gibert jr 2001].

In explaining the influence of the environment on organizations, the complexity theory and complex systems theory also apply. This approach draws attention to the characteristics of complexity of organizations and their environment, and manage-

ment activities are determined depending on the degree of orderliness and complexity of conditions [Stacey 1996; Snowden, Boone 2007; Smith, Graetz 2006].

This study adopts the Leydesdorff's Triple Helix [2006] Model as one that allows for regarding the characteristics of the organization as complex and dynamic systems and determinants of relations between organizations and their business environment as part of the systems and complexity theory. This model reflects the relations of individual market entities, such as, startups and business incubators, taking into account the level of complexity and the impact of these interactions on entities operating in a knowledge-based economy.

Figure 1. Interaction of key environments in the knowledge-based economy in the Triple Helix Model



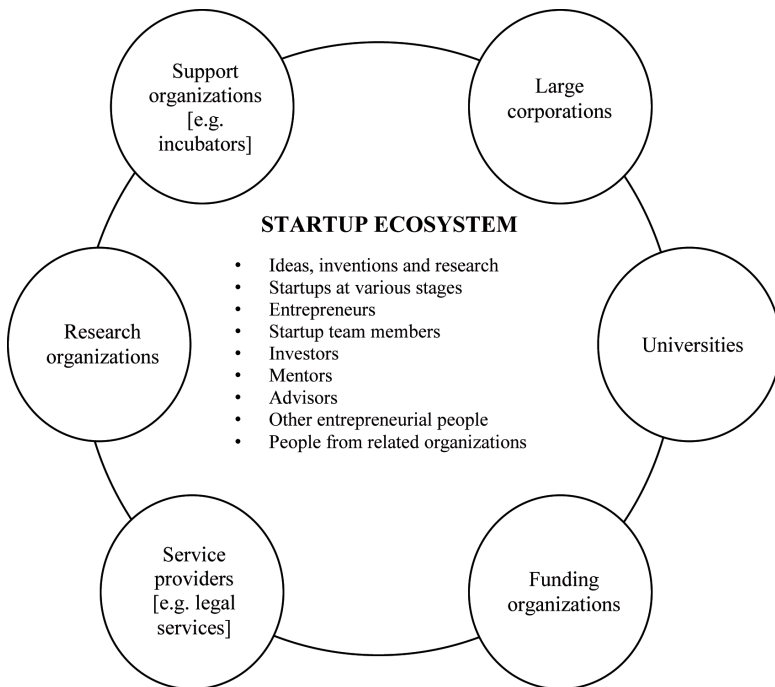
Source: own study based on: Leydesdorff 2006, pp. 42–76.

Figure 1 referring to the Triple Helix Model by L. Leydesdorff shows the network of three environments – key stakeholders of innovation represented by: companies, the world of science together with public authorities and the flow of knowledge among them. Interpenetration of the institutions from these three environments involves performing functions originally ascribed to a different sector. For example, universities are places for creation of companies or institutional forms of their support, such as, business incubators. At the same time companies, sharing knowledge

or participating in trainings or research projects, develop academic functions. What is important for the development of the knowledge-based economy are social relationships between market operators, their learning ability and creation of alliances for common operation in an innovative environment [Leydesdorff 2006b].

Startups are an example of market participants playing an important role in the knowledge-based economy. According to S. Blank and B. Dorf [2013], they are temporary organizations searching for a scalable, repeatable and profitable business model. E. Ries [2011] defines a startup as any institution established to produce a new product or service under conditions of extreme uncertainty. Many startups are associated with the high-tech sector, which is characterized by a high degree of market and technological uncertainty and competitiveness subject to changes [Mohr, Sengupta, Slater 2009]. Startups operate within the ecosystem which includes key resources such as knowledge, expertise, financial resources and time, and institutions presented in Figure 2 [Grow Advisors 2017].

Figure 2. Elements of startup ecosystem



Source: own study based on: Grow Advisors [2017], The Startup Ecosystem White Paper [online], <http://www.startupcommons.org/>.

In the case of startup organizations, the business ecosystem, when compared to the economy sector, is a better form of analysis of their behaviour in the context of strategy, competition, innovation and network connections [Stańczyk-Hugiet 2015]. The business ecosystem model developed by D. Isenberg [2011] identifies the following six fields: politics, finance, culture, institutional support, human resources and markets. These fields, in a complex and multidirectional way, affect enterprises operating within a given ecosystem. Ecosystems that affect the development of entrepreneurship arise [Isenberg 2011] under certain conditions, such as, favourable culture, well-run economic policy, availability of financial resources, high-quality human capital or institutional support. This approach is compliant with the assumptions of the Triple Helix Model adopted.

Academic business incubators as part of the university and business environment

The requirements of the contemporary market impose on universities the necessity to implement not only the traditional roles, such as, to educate and do research, but also to promote and support entrepreneurship, which is reflected in the establishment of cooperation of research centers with business community [Zajko 2013].

Academic entrepreneurship¹ is mainly associated with the transfer of innovation, knowledge and technology. In a narrow sense it is identified with the formation of technology companies and the representatives of the academic community undertaking business activities. In a broader sense it also includes instruments and intermediaries supporting contacts of academic and business environments, operating under their support [Guliński, Zasiadły 2005].

- Business incubators, which are established in order to select, organize and accelerate the growth and success of new companies by providing them with services and resources [NBIA 2009] and a comprehensive program of business support, are institutions operating both in the academic and business environment. One can talk about the realization of the basic objective of incubators when the companies promoted by them are able to leave the program and survive financially [Guliński, Zasiadły 2005]. According to NBIA (National Business Incubation Association), what is important for the definition of business incubators is the specification of their bu-

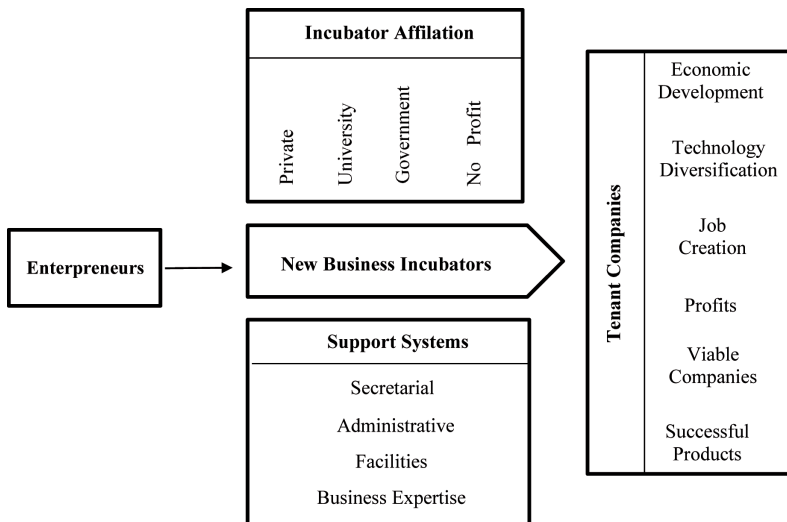
1. The Act of 27 July 2005, the law on higher education [Journal of Laws No. 164, item. 1365], constitutes a legal basis for the development of academic entrepreneurship in Poland – Academic entrepreneurship in Poland is legally regulated mainly by the Parliamentary Act – Law on Higher Education [Act of 27 July 2005, Journal of Laws, No. 164, item.1365].

business services, such as, organizational support, technical assistance, infrastructure, assistance in obtaining financing, consulting tailored to the needs of startups, mainly in the field of business activity management [NBIA 2009]. J. Bruneel et al. [2012] distinguish between three types of incubators, considering the scope of support provided to startups:

- The first generation incubators, providing mainly infrastructure;
- The second generation incubators, which in addition to infrastructure provide individualized business counseling;
- The third generation incubators, which supplemented the offer with the creation of business networks [startups, business angels, mentors, etc.] and thanks to which the companies supported gained access to key resources – information, knowledge and experiences of other participants that are members of the network.

Business incubators, through services provided to startups, affect their development, leading to business maturity. According to R.W. Smilor [1987], they are intermediaries in technology transfer and financing of innovative products marketed by startups. They also favorably affect the communities in which they operate. Figure 3 presents the impact areas of business incubators in the competitive business environment.

Figure 3. The impact of business incubators by R.W. Smilor [1987]



Source: own study based on: Smilor 1987, pp. 146–156.

Academic incubators created alongside universities or under their support are a special kind of business incubators, in which, in addition to standard functions performed in this type of entities, actions are focused on education and training, technology, patent and business consulting, access to knowledge, skills and experience of researchers and students [Zasiadły 2005]. Academic business incubators are established primarily to provide support in the development of new projects in the knowledge-based economy as well as the production, transfer and commercialization of scientific and technological knowledge [Grimaldi, Grandi 2005].

Zasiadły [2005] divides academic incubators based on the data about initiators and organizational specifics:

- Academic Business Incubators (AIP) created by the foundation of the same name, operating at selected universities in Poland, operating in a centralized structure and providing a wide variety of forms of support for startups;
- Technological academic incubators connected with technology transfer centers operating at universities, functioning generally in the form of a stand-alone project as part of the program supporting innovation and technology development.
- Academic business incubators created on the initiative of student organizations, such as, scientific circles and academic career offices, formed to support the entrepreneurship of students and university staff.

The detailed description of the areas of operation of academic incubators has been presented based on the results of own study in the next section of this article.

Research methods

The main objective of the study was to gain knowledge about the scope and forms of support that academic incubators offer to companies that are in the early stages of development, i.e. startups. In accordance with the Triple Helix Model adopted, the identification and evaluation of interactions between entities, such as, startups and business incubators, operating within business ecosystems, will allow for drawing conclusions about the impact of these relationships on the development and innovation of startup organizations. These conclusions will become the basis for the development of hypotheses in the further stages of research on the startup ecosystem.

Therefore, business incubators that are organizationally connected with the academic world (operating in the immediate vicinity or within universities) were evaluated. The analysis excluded university business schools whose offer is usually limited to sharing office space with infrastructure (coworking) and counselling in a narrow range.

The evaluation of academic business incubators has been carried out mainly through the analysis of the existing data (desk research). The analysis included:

- The information available on the websites of the entities analyzed;
- Materials available on other websites dedicated to e-business, institutions, business support institutions, startup environment (e.g. mamstartup.pl, startupcommons.org, parp.gov.pl/);
- Public statistics;
- Conference materials, research reports, legal acts and materials in a different form, which are connected with the subject and purpose of evaluation.

The analysis was supplemented with in-depth interviews (IDI) with deliberately chosen representatives of academic business incubators. Three interviews were conducted and the fragments of one of them were subject to analysis. The remaining data coming from interviews were used to plan further detailed qualitative research.

The research was conducted in the period from 10/25/2016 to 01/05/2017 and included academic business incubators operating in Poland.²

Characteristics of the study group of academic business incubators

24 academic business incubators were evaluated. 14 belonged to the AIP network of incubators, and the remaining 10 operated outside of this network. Individual units were randomly chosen from databases created based on statistics provided by institutions, such as, PARP and AIP incubators.³

Academic business incubators included in the study came from the following cities:

- Białystok, Bielsko-Biała, Kielce, Rzeszów, Szczecin, Łódź, Lublin, Opole and Gliwice (one from each city);
- Gdańsk and Poznań (two from each city);
- Wrocław (three from this city);
- Warsaw and Kraków (four from each city).

The incubators examined were most often universities (42%) and technical universities (29%); 8% functioned in conjunction with economic universities, and the re-

2. The source of information about these institutions were databases maintained by the AIP incubators [<http://www.inkubatory.pl>] and the Polish Agency for Enterprise Development [<http://www.parp.gov.pl>], websites of universities and other Internet sources reviewed before the beginning of the research.

3. The PARP studies diagnosed 24 academic business incubators operating in Poland in 2014 [Bąkowski, Mażewska 2014, p. 13]. As part of the AIP network of organizations there were 56 incubators in 24 Polish cities in 2015 [AIP Incubators, 2015: html].

maintaining 21% with other universities, such as: AGH University of Science and Technology, Warsaw University of Life Sciences, Warsaw School of Economics, University of Information Technology and Management in Rzeszów or University of Bielsko-Biała.

Only 8 (33%) of 24 entities analyzed provided data about the number of incubated companies. It amounts from 5 to 36 companies, which is an average of 18 companies per one incubator.⁴

Among the analyzed incubators one can identify their distinctive achievements or forms of operation:

- The Lower Silesian Incubator of Entrepreneurship, functioning, among others, alongside the University of Wrocław is the winner of the international competition for the best scientific incubator in 2013, in the category of "Return on public investment" [<http://uni.wroc.pl/aip-uwr>, 2017: html];
- Academic Business Incubator at the University of Opole on 06/23/2016 gained the status of an accredited center for innovation, allowing for the provision of consultancy services in the field of innovation [<http://inkubator.uni.opole.pl/?portfolio=akredytowany-osrodek-innowacji>: html];
- The Incubator of the University of Łódź offers a capital investment of several hundred thousand zlotys [per business] from the university's seed fund StartMoney managed by the Accelerator of the University of Łódź [www.startmoney.pl: html].

Half of the entities examined belong to the network of organizations called AIP Incubators, which is one of the essential elements of the institutional environment of startups in Poland. This institution, existing on the market since 2004, in 2015 consisted of a network of 56 incubators operating in 24 cities, under which 2,300 startups functioned. The number of companies that appeared on the market with the participation of AIP since its inception is estimated at over 12 000 companies. These were brands such as: PhotoBlog.pl, Chomikuj.pl or Key2Print. What also seems noteworthy is the pre-incubation model implemented by the AIP organization (Business without social insurance). This model involves letting startups use the legal personality of the AIP foundation, providing legal, accounting and administrative support [<https://inkubatory.pl/podsumowanie-2015>, 2017: html, <https://inkubatory.pl/o-aip/>, 2017].

4. Data on the number of the companies incubated in the incubators analyzed are as of 12/31/2016.

Analysis of areas of operation of Academic Business Incubators alongside startups

Scope of operation of academic business incubators. Access to infrastructure

The most widespread service offered to startups by academic business incubators is access to infrastructure, such as, offices, conference rooms, computer equipment, coworking space, etc. These services are offered by all the surveyed incubators. They allow startups primarily to lower the costs of current activities.

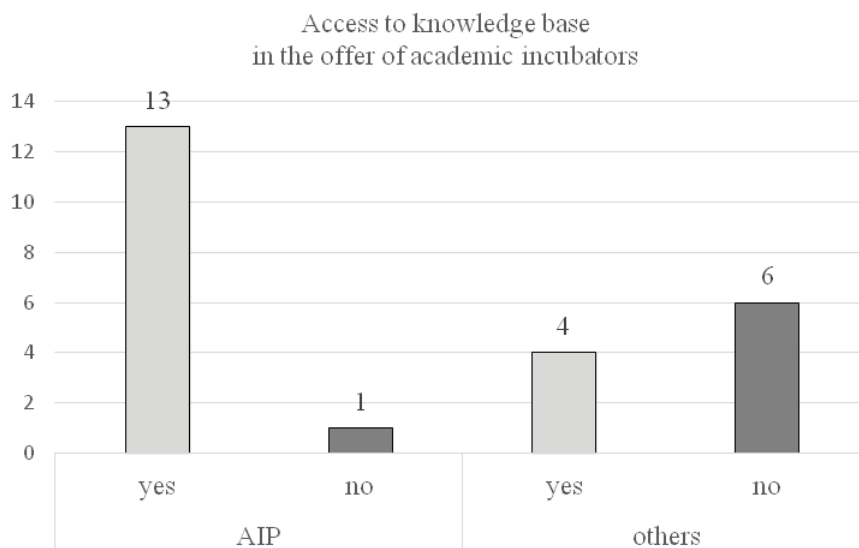
Consulting, training and mentoring

All the incubators examined offer expert advice - accounting, legal-administrative and business consulting and trainings [workshops, lectures] for the representatives of the incubated companies. In addition, 75% of incubators also have the mentoring program (in the AIP incubators known as StartUp Mentoring) which usually takes the form of individual meetings and consultations conducted by experienced practitioners. Thanks to mentoring, the representatives of startups have the opportunity to receive feedback on the idea or business model, expand knowledge, avoid mistakes associated with starting a business, etc.

Access to knowledge base

Academic business incubators, acting as entities affiliated with universities have a high potential in gathering and sharing information and knowledge necessary for conducting business, as well as in activities promoting entrepreneurship. They may, at the same time, take advantage of the resources of the university, using the knowledge of teachers and students, databases [e.g. theses, areas of interest of researchers and organizational units of the university, including possible forms of cooperation, students looking for apprenticeship and internships], etc.

Figure 4. Access to knowledge base in the offer of academic incubators



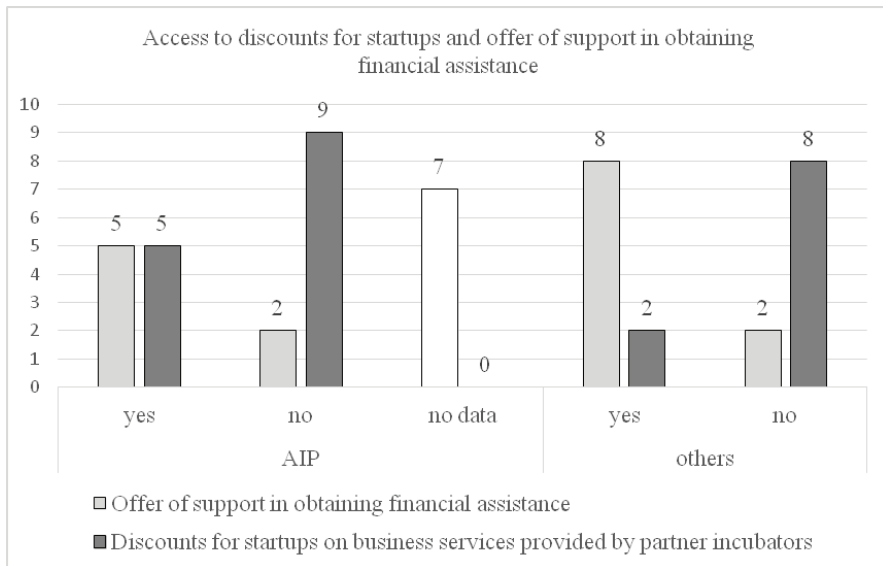
Source: own elaboration.

Providing startups with knowledge base lies within the scope of operation of 71% (17) of the surveyed incubators. Most entities that meet this criterion are part of the AIP network. In 10 analyzed incubators operating outside of the above-mentioned network, 4 provide access to knowledge base, and 6 did not create and never gave access to such resources (Fig. 4).

Access to discounts and sources of funding

Figure 5 presents the distribution of the number of academic business incubators offering various forms of support in financing startups. More than half (54%) of the surveyed incubators offer support for startups in obtaining financial assistance; 17% do not offer such services, and in the case of 29% of the entities information about the services of financial support or access to various sources of financing was not available. The percentage of the surveyed incubators offering discounts to startups from business partners is 29%, while 71% of entities do not offer such services.

Figure 5. Access to discounts for startups and offer of support in obtaining financial assistance



Source: own elaboration.

This data can be compared with the results of the evaluation of the need for instruments to support e-business, conducted among representatives of ICTs.⁵ The analysis of forms and instruments of support was connected with the degree of development of the company – support during the formation of startups, development of startups and support for mature companies [market leaders]. Four types of support were analyzed: financial, professional, networking and cooperation promoting (stimulating). The analysis of the forms of support preferred by ICT companies at different stages of life of the company shows that support [both in the opinion of leaders and other ICT companies] is needed the most at the stage of the formation of start-ups and the least in the case of mature companies. According to respondents, financial support is needed the most at the stage of formation of startups according to 71% of ICT leaders and 81% of other companies in this industry. The second most important form of support is factual support, and the third – networking support [Klimczak, Leszczyńska, PSDB 2014].

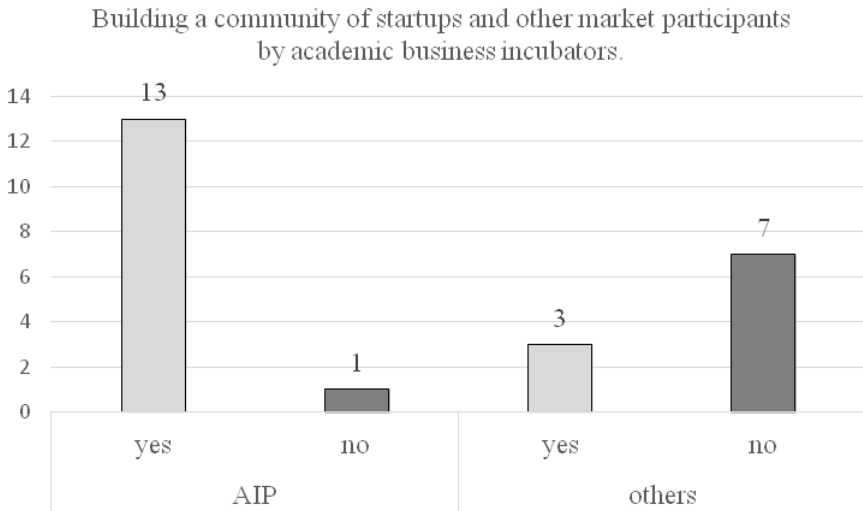
5. Study *Evaluation of the need for instruments to support e-business* was carried out world-wide and in Poland using research methodology taking into account both qualitative [75 IDs, 4 FGIs] and quantitative research techniques [a total of 503 CAWI/CAPI companies in the ICT market].

On the basis of the combination of the above research results it can be concluded that the lack of the offer of support to startups in obtaining financial support for about 50% of academic business incubators does not meet the expectations of entrepreneurs and is contrary to their strong belief in the great importance of this support instrument.

Building a community composed of startups and other market operators by academic business incubators

One of the roles of academic business incubators is to create conditions for cooperation and to promote startups in a broader business environment. This activity, referred to as networking, is the domain of the analyzed companies focused in the AIP network of incubators. 13 in 14 entities from this group have in their offer networking activities (the program is called Startup Mixer). On the whole, networking is offered by 65% of the analyzed academic business incubators (Fig. 6).

Figure 6. Building a community of startups and other market participants by academic business incubators



Source: own elaboration.

Using legal personality of academic business incubators

The last of the analyzed forms of support given by academic business incubators is to enable startups to use the legal personality of academic incubators (e.g. a program called *Test business without social insurance*, conducted by AIP incubators). This formula is offered in the study group mainly by the entities from the network of AIP Incubators (13 in 14 surveyed entities). In total, it is offered by 67% of incubators.

Providing startups with its legal personality, an incubator allows them to operate without business registration. When signing contracts and issuing invoices, the registration data of the incubator are used (NIP [Tax Identification Number], REGON [Statistical Identification Number], KRS [National Court Register Number]). Startups using this formula do not pay social insurance or income tax on income earned in a given month. Profits generated by startups go to the subaccount managed as part of the account of the incubator. Accounting and legal departments of incubators validate the documents issued. This solution allows for minimizing risks and costs associated with starting a business.

Conclusion

Based on the overall analysis of the actions and potential of academic business incubators, one can draw conclusions about their impact on the development of companies in the initial period of operation.

- 1) The most common services offered by academic business incubators include: providing startups with infrastructure, conducting trainings or counselling.
- 2) Academic business incubators do not fully use the potential of universities in creating and sharing knowledge base with startups.
- 3) The AIP Network of Incubators offers a wider range of support instruments compared with other organizations of this type operating in their ecosystem.
- 4) The limited offer of financial support for startups by business incubators does not meet the expectations of entrepreneurs in this field.

It is necessary to carry out further research analyzing in detail the mechanisms of the functioning of academic business incubators to identify key success factors in the commercialization of knowledge and implementation of various forms of support for innovative businesses. In-depth research indicates the use of different data sources, methods and research perspectives, in accordance with the principle of triangulation. What is necessary is a critical approach to the evaluation of academic business incubators, due to the possible dissonance between the potential and actual impact on the innovation and competitiveness of startups.

References

Bąkowski A., Mażewska M. (ed.), (2014), *Ośrodki innowacji w Polsce (z uwzględnieniem inkubatorów przedsiębiorczości). Raport z badania 2014*, Polska Agencja Rozwoju Przedsiębiorczości, Warszawa.

Blank S., Dorf B. (2013), *Podręcznik startupu. Budowa wielkiej firmy krok po kroku*, Helion, Gliwice.

Bruneel J., Ratinho T., Clarysse B., Groen A. (2012), *The evolution of business incubators: Comparing demand and supply of business incubation services across different incubator generations*, "Technovation", vol. 32, no. 2, pp. 110–121.

Drucker P.F. (1992), *Innowacje i przedsiębiorczość. Praktyka i zasady*, PWE, Warszawa.

Grimaldi R., Grandi A. (2005), *Business incubators and new venture creation: an assessment of incubating models*, "Technovation", vol. 25, no. 2, pp. 111-121.

Grow Advisors (2017), *The Startup Ecosystem White Paper* [online], <http://www.startupcommons.org/>, access: 12.02.2017.

Guliński J., Zasiadły K. (ed.) (2005), *Innowacyjna przedsiębiorczość akademicka – światowe doświadczenia*, Polska Agencja Rozwoju Przedsiębiorczości, Warszawa.

Inkubatory AIP, (2015), *Podsumowanie roku 2015 w Inkubatorach AIP* [online], <https://inkubatory.pl/podsumowanie-2015/>, access: 5.01.2017.

Isenberg D. (2011), *The entrepreneurship ecosystem strategy as a new paradigm for economy policy: principles for cultivating entrepreneurship*, Babson Entrepreneurship Ecosystem Project, Babson College, Babson Park [online], <http://entrepreneurial-revolution.com/>, access: 31.08.2016.

Klimczak T., Leszczyńska B., PSDB (2014) *Ewaluacja zapotrzebowania na instrumenty wsparcia e-biznesu. Raport końcowy*, Polska Agencja Rozwoju Przedsiębiorczości, Warszawa.

Leydesdorff L. (2006a), *The Knowledge-based Economy: Modeled, Measured, Stimulated*, Universal Publishers, Florida.

Leydesdorff L. (2006b), *The Knowledge-Based Economy and the Triple Helix Model* [in:] W. Dolfsma, L. Soete (ed.), *Reading the Dynamics of a Knowledge Economy*, Edward Elgar, Cheltenham, pp. 42–76.

Mohr J., Sengupta S., Slater S. (2009), *Marketing of High-Technology Products and Innovations*, 3rd ed, Prentice Hall, Upper Saddle River.

NBIA (2009), *What is business incubation?* [online], http://www2.nbia.org/resource_library/what_is/index.php, access: 27.12.2016.

OECD (1996), *The Knowledge-Based Economy*, OECD, Paris.

Piech K. (2009), *Wiedza i innowacje w rozwoju gospodarczym. W kierunku pomiaru i współczesnej roli państwa*, Instytut Wiedzy i Innowacji, Warszawa.

Pinchot G., Pellman R. (1999), *Intrapreneuring in Action. A handbook for Business Innovation*, Berrett-Koehler Publishers, San Francisco.

Ries E. (2011), *The Lean Startup. How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses*, Crown Business, New York.

Schumpeter J. (1960), *Teoria rozwoju gospodarczego*, PWN, Warszawa.

Smilor R.W. (1987), *Managing the incubator system: Critical success factors to accelerate new company development*, "IEEE transactions on Engineering Management", vol. 34, no. 4, pp. 146–156.

Smith A.C.T., Graetz F. (2006), *Complexity theory and organizing form dualities*, "Management Decision", no. 44, no. 7, pp. 851–870.

Snowden D.J., Boone M.E. (2007), *A Leader's Framework for Decision Making*, "Harvard Business Review", no. 11, <https://hbr.org/archive-toc/BR0711>, access: 12.08.2017.

Stacey R.D. (1996), *Complexity and Creativity in Organizations*, Berrett-Koehler, San Francisco.

Stańczyk-Hugiet E. (2015), *Strategicznie o ekosystemie biznesu*, "Prace Naukowe Wałbrzyskiej Wyższej Szkoły Zarządzania i Przedsiębiorczości", vol. 32, no. 2, pp. 395–409.

The U.S. Department of Commerce (2017), *About Commerce* [online], <https://www.commerce.gov/page/innovation>, access:12.01.2017.

Zajko K. (2013), *Korzyści wynikające ze współpracy przedsiębiorców prowadzących działalność innowacyjną z innymi podmiotami* [in:] K. Bromski (ed.) *Współpraca nauki i biznesu. Doświadczenia i dobre praktyki wybranych projektów w ramach Programu Operacyjnego Innowacyjna Gospodarka na lata 2007–2013*, Polska Agencja Rozwoju Przedsiębiorczości, Warszawa, pp. 13–26.

Zasiadły K. (2005), *Akademicki inkubator przedsiębiorczości (AIP)* [in:] K.B. Matusiak (ed.) *Innowacje i transfer technologii. Słownik pojęć*, Polska Agencja Rozwoju Przedsiębiorczości, Warszawa, pp. 13–15.