

Role of Accelerators in Development of the Entrepreneurial Ecosystem as a Part of the Regional Economic Development Strategy

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Abstract. The Metropolitan Association of Upper Silesia and Dąbrowa Basin, usually referred to in Poland as the Silesian Metropolis, is one of the key urban centres in the country, integrating 14 largest cities in the Silesia and Zagłębie Regions and 2 million inhabitants. It also offers the best investment areas in Poland, an absorptive labour market, unique tourist attraction and many cultural highlights. The Silesian Metropolis began its activity on January 1, 2018. In stimulating and developing the economies of cities and regions, not only the role of an individual entrepreneur, his idea and effort on the way to building new ventures is emphasized, but also the role of the entire business environment, support network which are defined in the literature as an ecosystem. The creation of the Metropolis is pioneer, long-term and complex process, requiring vision and consistent work, therefore there are taken various strategic initiatives including development of accelerators within the entrepreneurial ecosystem. Analysing the ecosystem from the point of view of urban development is important, because trends show that there is a strong urbanization and concentration of start-up entrepreneurship around large cities. The aim of this study is to understand the role of accelerators in building and developing an entrepreneurial ecosystem as a part of regional economic development strategy. Interviews with 61 ecosystem actors, along with a variety of published sources, informed our qualitative research method. We document what accelerator expertise looks like and how it can affect commitment to the regional entrepreneurial ecosystem. We note, that accelerators in the Silesian Metropolis are, in many ways, start-ups themselves, facing the same challenges other start-up face. Our findings suggest that as these accelerators continue to build their own expertise and continue to engage in ecosystem developing process, they will benefit more fully from other expertise that emerge as the ecosystem itself, continues to develop. We describe the process that enable accelerators to enhance expertise, commitment to the regional entrepreneurial ecosystem, which is a part of the regional development economic strategy in the Silesian Metropolis.

1. Introduction

Development as a goal of the activities of various institutions, is now perceived and considered in terms of priority in almost every field. It applies not only to the sphere of individual life, but to the functioning of the community. The basis for the transformation of regions, poviats and communes are their development strategies. They include the change in the structure of their current economic and social activity, employment and environmental management. The scope of changes is diversified in the individual local government units. On the one hand, it results from the entities that influence the shape of the strategy, and on the other, from the subject of the strategy - determined mainly by the productive



potential of the area and its current use. Poland's accession to the European Union (EU) has contributed to the growing importance of strategic planning, as a tool for economic development.

One of the elements of the regional economic development strategy of the Silesian Region was the creation and development The Metropolitan Association of Upper Silesia and Dąbrowa Basin, usually referred to in Poland as the Silesian Metropolis. It also offers the best investment areas in Poland, an absorptive labour market, a unique tourist attraction and many cultural highlights. The Silesian Metropolis began its activity on January 1, 2018.

Entrepreneurial ecosystems generally emerge in locations that have place-specific assets. The creation of the Metropolis in the Silesian and Zagłębie Region is connected with the potential and attractiveness of this area. Almost 200,000 companies and businesses operate within the Silesian Metropolis, generating jointly 8% of the country's GDP. Good business infrastructure, highly-qualified human resources, attractive investment grounds, the Katowice Special Economic Zone as well as a dense road network and the modern Katowice Airport make the Silesian Metropolis the best investment location in Poland.

It is also the second largest science centre in Poland and the best place to invest. The Silesian Metropolis is a treasury of potential, which is contained in people, the most valuable component of this metropolitan organism. Theatres, museums, philharmonic halls, galleries, clubs, numerous festivals, exhibitions and concerts whose renown and prestige reach far beyond the region and attract hundreds of thousands of spectators. Rawa Blues, Mayday, Off Festival, Gorczycki Festival or the Metropolitan Theatre Night are only some of the artistic events which make the Silesian Metropolis full of culture. The higher education institutions based in the Silesian Metropolis, including the University of Silesia, the Silesian University of Technology, University of Economics, Medical University of Silesia, Academy of Music and many private colleges offer educational opportunities in almost any academic programme. Tens of thousands of young people each year decide to study here, choosing from a range of programmes as varied as cosmetology, film directing, design, economics, law, psychology, IT, musicology, medicine or architecture. The creation of Metropolis is pioneer, and complex process and requires many strategic initiatives. One of these strategic initiatives is development of accelerators within the entrepreneurial ecosystem.

The championship in the development of accelerators, incubators, technology parks and all business support networks has been achieved by the United States. In recent decades, within the ecosystems (from Silicon Valley, Boston), the power of enterprises such as Apple, Google, Yahoo, Facebook, Tesla and others has grown. Therefore, it is worth to analyse the importance of accelerators in the development of an entrepreneurial ecosystem, which is an important factor driving an economic growth. Accelerators are an important element of stimulating of an entrepreneurial process as a part of the regional economic development strategy.

Accelerators are a nascent phenomenon in entrepreneurship [1] and much of the recent research has sought to understand what they are, what they do, and whether they deliver on the promise to accelerate ventures [2]. Entrepreneurial ecosystems are a new buzzword within research and managerial circles. They represent the types of cultural, social, economic, and political environments within a region that support high-growth entrepreneurship. Accelerators are a new form of an entrepreneurial support organization, but there is limited research regarding how accelerators can help in developing entrepreneurial ecosystems as a part of the regional economic development strategy.

The aim of this study is to understand and identify the role of accelerators in building and developing an entrepreneurial ecosystem as a part of regional economic development strategy.

2. Theoretical backgrounds

The essence of strategic planning of a given area (region, province, poviát and commune) is the optimization of its operation and development processes [3], [4]. The subject of the strategy is, first of all, self-government authorities, but also co-operating partners, institutions and residents, including entrepreneurs. The task of self-government authorities is, inter alia, to prepare objectives and tasks and to ensure their implementation in consultation with stakeholders [5], [6]. The subject of the strategy are

all tangible and intangible elements of a given area and processes between them [5]. The strategy should also take into account external factors that affect or may affect a given area [7]. The way in which entrepreneurial ecosystems develop and function is particularly important in the context of seeking the path of economic development, reflected in the regional development strategies. Strengthening the innovation of existing enterprises, creating dynamic, native businesses and supporting startups are an important element of regional planning and regional development.

In the context of the conducted research, it is important to define basic concepts such as: start-up, incubator, accelerator, technology park and entrepreneurial ecosystem.

The start-up phenomenon is underpinned by a conceptual framework grounded in different areas [8], which is why it must be analyzed from different standpoints: technological, social, psychological, legal, and so on. Accepting the authority of Eric Ries, creator of the concept of start-ups and the author of the "Lean Start-up method", widely recognized as a "bible for start-up alumni", "a start-up is a human institution designed to deliver a new product or service under conditions of extreme uncertainty" [9].

Start-up is a venture carried out for the purpose of creating a new product and service under conditions of high uncertainty, the area of which is in particular: IT solutions and support of a digital economy, multimedia and telecommunications technologies, technologies for energy optimization and renewable energy sources, biotechnology and medical technologies, nanotechnologies and material technologies, industrial technologies. Furthermore, start-ups are characterized (in addition to a high risk of a venture) striving for rapid growth based on business scaling [10].

Incubator is a premises connected to a center of knowledge (university, research institute, business school, etc.) whose facilities help sell their spinouts and business ideas, in exchange for monthly rent. The main characteristics are providing office space, mentor networks, informal events programs, consulting services, exposure to investors, and access to government funding [11].

The technology park is also known under the names of technopark as well as science and technology park. The concept of a technology park is a common term for organized economic complexes that aim to support, promote science, improve the flow of knowledge, help young, innovative enterprises focused on the development of products and production methods in technologically advanced industries.

The main characteristic of accelerators is an application process open to everyone, usually providing seed capital in exchange for minority stakes in start-ups within a specific timeframe. Support activities include events and intensive tutoring, and the program tends to cluster start-ups beginning at around the same time [11].

Accelerators provide the soft infrastructure, the "know how" of doing a start-up, enable interactions between entrepreneurs and mentors, angel investors and venture capital partners, universities, service providers, government, and other parties. The role of an accelerator for start-ups is [12]: fosters and selects start-ups in competitive process; stages a limited duration program: a "boot camp" for start-ups, typically 3 to 6 months; brings together cohorts of start-ups to develop teams and products; coaches, trains, and supports these teams; supplies access to needed resources and initial seed funding; provides guidance, metrics, milestones based on Lean models of innovation; connect networks of mentors and investors with founders; culminates with a "Demo Day" to present start-ups to investors.

The term "ecosystem" was introduced for the first time by James Moore [13], who put forward the thesis that business success requires a set of resources such as: capital, partners, suppliers and clients within a cooperation network in which companies can compete and cooperate in the process of creating innovative products and services, and providing value to clients. Ron Adner in 2006 defines the ecosystem in the context of implementing breakthrough innovations within the entire industry. In this sense, the ecosystem means taking into account the level of maturity all players: suppliers, recipients, clients, competitors, in the process of creating value for the client and determines the industry's maturity to the spread of innovation [14]. The ecosystem consists of a set of actors linked together in a specific location, including universities, research institutions, investors, professional service providers and cultural in an open and dynamic environment in which of these elements are connected.

An entrepreneurial ecosystem is an environment within which a new start-up or initiative develops, which provides backing for the entrepreneurship phenomenon in general. According to Feld [15], this ecosystem consists of three elements: a tightly clustered community of entrepreneurs; leaders heading up this community for its different interest groups; and facilitators that support the community, including universities, governments, investors, corporations, and other players.

Mason and Brown [16] defined an entrepreneurial ecosystem as „a set of interconnected entrepreneurial actors (both potential and existing), entrepreneurial organisations (e.g. firms, venture capitalists, business angels, banks), institutions (universities, public sector agencies, financial bodies) and entrepreneurial processes (e.g. the business birth rate, numbers of high growth firms, levels of ‘blockbuster entrepreneurship’, number of serial entrepreneurs, degree of sellout mentality within firms and levels of entrepreneurial ambition) which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment.

Often cited definition of the entrepreneurial ecosystem is the definition of Daniel Isenberg [17], [18] according to which the entrepreneurial ecosystem is “a set of networked institutions (...) with the objective of aiding the entrepreneur to go through all stages of the process of new venture development. It can be understood as a service network, where the entrepreneur is the focus of action and the measure of success”.

The entrepreneurial ecosystem consists of specific elements which are grouped in six general domains: (1) policy, (2) finance, (3) culture, (4) supports, (5) human capital, (6) markets, as shown on Figure 1. Although an entrepreneurial ecosystem can be described using these six domains, each ecosystem is the result of the hundreds of elements interacting in highly complex ways.

Entrepreneurial ecosystem is made up of three key factors: (1) there is a critical mass of entrepreneurs, companies and institutions specialized in a particular location; (2) developed a dense network of relationships between the actors; (3) a culture where all it brings together elements [18].

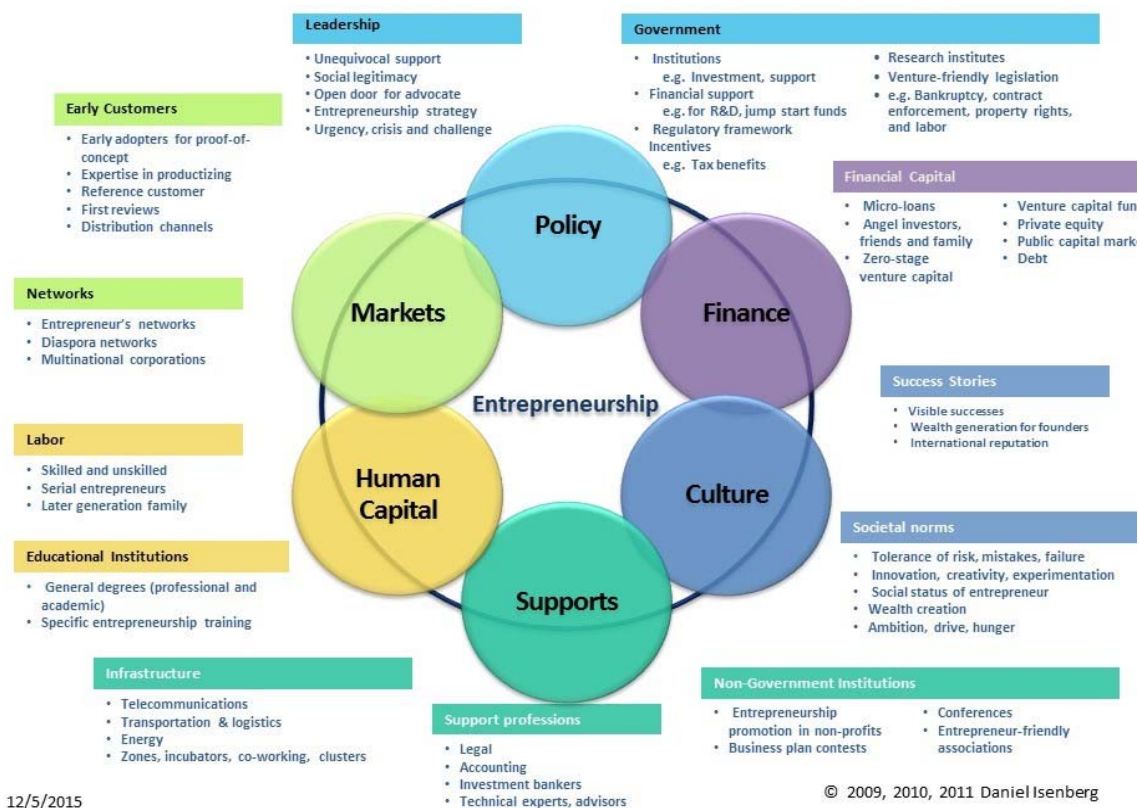


Figure 1. Domains of entrepreneurship ecosystem [18]

3. Research and methods

Development planning is one of the key tasks that were statutorily assigned to the voivodship self-government. It develops a strategy that is a record of conscious choices of the region's community, oriented on solving the main problems and maintaining the voivodship on the path of sustainable development and raising the region's competitiveness. One of the elements of regional planning is to create, build and develop of the Silesian Metropolis, where an entrepreneurial ecosystem will be built and developed.

Very young entrepreneurial ecosystem of the Silesian Metropolis includes:

- Five accelerators: Technological Accelerator “Euro-Centrum” in Katowice; Technological Accelerator Gliwice Ltd. in Gliwice; Global Innovation Support in Będzin; Startopera.pl in Będzin; Technobit Venture Ltd. w Bielsku Białej.
- Two incubators: Silesian Incubator of Entrepreneurship Ltd. in Ruda Śląska; BrainHub Ltd. in Gliwice.
- Seven technology parks: Auro Business Park in Gliwice; Bytom Industrial Park in Bytom; Częstochowa Industrial and Technology Park in Częstowchowa; IT Loft Park in Tychy; Science and Technology “Park – Technopark Gliwice” w Gliwicach; Science and Technology Park “Euro- Centrum” in Katowice; Sosnowiec Science and Technology Park in Sosnowiec;
- Two coworking centers: Hello Office Katowice in Katowice; Cluster Cowork Katowice in Katowice;
- Five ecosystem’s community: Aleje.it - IT conferences; DevDuck – programmers community; Software Craftmanship Silesia Group- programmers community; Startup Podbeskidzie – startups community; Techmine Startups – innovation community, and others ecosystem’s actors, e.g.: firms, venture capitals, universities, business angels, banks.

Given the newness of the accelerators concept and the emerging theory referring to accelerators in connection with an entrepreneurial ecosystem, we applied a qualitative approach as a research method. The aim of our research is to understand and identify the role of accelerators in building and developing an entrepreneurial ecosystem as a part of regional economic development strategy We analyze data from 61 unstructured interviews with entrepreneurial ecosystem’s actors: accelerator’s, park’s and incubator’s managers, accelerator/incubator mentors, start-up founders, entrepreneurship educators/university representatives and policy representatives. The preliminary list of questions was developed on the basis of the literature studies related to the research topic [1], [2], [9], [11], [12], [13], [14], [15], [16], [17], [18], [19], [20]. Data collection began in October 2017. We contacted entrepreneurial ecosystem's actors with a request to speak with a manager/founder. In our study, we tried to identify and understand what is the role of accelerators in building and developing regional entrepreneurial ecosystem as a part of regional economic development strategy of the Silesian Metropolis.

The first point is that entrepreneurial ecosystems do not emerge just anywhere. They need fertile soil. Entrepreneurial ecosystems have typically emerged in places that already have an established and highly regarded knowledge base which employs significant numbers of scientists and engineers. These organisations are the source of the skilled personnel who start businesses. These knowledge institutions – research universities, public research laboratories and corporate R&D labs – perform several roles in building and developing entrepreneurial ecosystem. First, their research generates the scientific discoveries, technological advances, and advancement of knowledge that form the basis for the creation of new businesses. Second they are ‘talent magnets’, attracting talented individuals in the form of eminent scholars, gifted students and ambitious scientists and engineers, further boosting the technological capacity of the region and increasing the pool of individuals who might become future entrepreneurs and employees.

4. Results and discussion

Our research allowed us to identify the following, leading roles of accelerators in building and developing entrepreneurial ecosystems:

- establishing the connections between the entrepreneurial ecosystem's actors,
- developing the specialist knowledge especially by: providing official training in the "basics" of starting business, matching the needs of the founders with the competences of mentors/advisers, evaluation of the new projects, transfer of a good practices and experiences from the mistakes,
- causing and facilitating the "entrepreneurial recycling",
- mediation and communication with an external unit, that are not in the ecosystem.

An important issue is the ability of accelerators to foster relationships between founders and the regional entrepreneurial ecosystem. Establishing these connections is usually seen as an essential aspect of operation of accelerators. Through these connections, the founders of start-ups have the possibility of frequent interaction with other participants. These interactions relate to joint training, seminars, events, space sharing, sharing ideas, and cause that accelerators are characterized as being 'information rich'. In such an environment founders can access information and knowledge on e.g. new buyer needs, new and evolving technologies, and service and marketing concepts, and thereby can more easily perceive and use gaps in products, services or suppliers to fill. Organized or accidental meetings are the main channels by which such information is shared. Accelerators by sharing their expertise, information and resources and providing connections to appropriate individuals and organizations are able to help such companies realize their growth. Accelerators, which promote frequent and intense interactions, give the opportunity to broaden by founders the experience and knowledge, thus connecting the founders with the regional ecosystem.

Accelerators by providing official training in the "basics" of starting business, help to fill in the shortages of founders in the field of elementary specialist knowledge. Accelerator's expertise and exchange of experiences available within accelerators is an indispensable mechanism to complement and increase the knowledge of the founders in order to develop their ventures and thus the entrepreneurial ecosystem.

Accelerators, through the possibilities and the abilities to coordinate, they match the needs of the founders with the competencies of mentors/advisers and with an appropriate forms of support. In order to obtain the necessary knowledge and the appropriate support, it is important to establish a dialogue and clearly define the needs and the expectations of the business founders. From the point of view of competences and accelerator's expertise, the main responsibility for proper matching lies not with the founders, but with the accelerators. Respondents pointed out that finding mentors/specialists/advisors in a given field can be difficult, especially in the emerging and developing entrepreneurial ecosystem. Therefore, the experience of the accelerators and their expertise in the recruitment and motivating of mentors / advisers with relevant experience and knowledge in the field of entrepreneurship is of great importance for the success of ventures. Lack of competent mentors / advisers will not only result in the lack of appropriate specialist knowledge of the founders, but may also affect the loss of the appropriate motivation. Accelerator's expertise and coordination possibilities are an essential element of gaining specialist knowledge and obtaining appropriate support tailored to the needs and requirements of the entrepreneurs.

Another task of the accelerators is an evaluation and approval or rejection of new projects. Feedback from accelerators often has an effect on changing the idea or direction of the activity. Feedback also leads to improvements by the founders, which contribute to achieving success. The development of entrepreneurial knowledge of the founders can be supported by the exchange of experiences between participants of accelerators from previous successes or failures. As indicated by the respondents, it is very valuable to transfer of good practices and experiences from the mistakes. The intermediary role of the accelerator consists in combining knowledge and experience regarding the success or failure of various venture within the entrepreneurial ecosystem, which translates into a faster assessment and

decision on approving or rejecting projects. Conclusions from successes and failures bring benefits to the enterprise. The benefit lies in learning from experiences (successes or failures) of others, which contributes to the growth of entrepreneurial activity within regional entrepreneurial ecosystem and its development.

Another role of the accelerators in the development of the entrepreneurial ecosystem is causing of “entrepreneurial recycling”. “Entrepreneurial recycling” means that for example entrepreneurs who have built successful companies which they have gone on to sell, typically leave the company soon after it is sold and they remain involved in the accelerator, reinvesting their wealth and experience to create more entrepreneurial activity [19]. As the respondents emphasized, the process of entrepreneurial recycling in which entrepreneurs who have exited from their businesses and accelerators (through sale or failure), put their expertise and capital to work as a serial entrepreneur, business angels and venture capitalists, mentors and advisers, is significant. Entrepreneurs who quickly end their ventures, support the process of entrepreneurial recycling within the ecosystem - sharing experience with mistakes and failures.

Accelerators also have the ability to build and share communication channels with various external partners, who are not in the ecosystem, to obtain and enable access to more specialized knowledge and resources unavailable locally. Cooperation with other units and between accelerators, e.g. mutual support in the field of innovation development, contributes to the development of entrepreneurial ecosystems as a part of the regional economic development strategy.

We noticed that the accelerators support building and developing an entrepreneurial ecosystem by developing the ecosystem’s managerial talent pool within a given ecosystem, and by influencing the growth the entire support network, they provide commercial opportunities for local businesses. As Isenberg states “you simply cannot have a flourishing entrepreneurship ecosystem without large companies to cultivate it, intentionally or otherwise” [20]. But for these benefits to occur requires the businesses to be open and collaborative. As the respondents pointed out, the companies most involved in building and developing, and thus the most effective in stimulating an entrepreneurial ecosystem, are those that are in or have left the local accelerator, and do not form part of multinational companies.

Accelerators have a dual role in development, because they support the development of individual projects and take part in the development of the entire entrepreneurial ecosystem. They act as an intermediary in the development of an entrepreneurial ecosystem by combining material and non-material elements of infrastructure.

5. Conclusions and recommendations

A thorough analysis of the current situation both in the economic and social spheres undoubtedly contributes to the understanding of the expectations of the regional community and the entities responsible for creating the strategy. The emphasis should be on the local and regional environments and the conditions required to generate and support entrepreneurial initiatives. The exchange of various experiences and the use of good practices give an opportunity for harmonious development of the entire metropolitan area as a part of the regional economic development strategy. This allows defining the strategic objectives of the voivodship development policy, which should take into account development of the entrepreneurial ecosystem.

Interviews with 61 actors have helped to outline the role of the accelerators in building and developing the entrepreneurial ecosystem of Silesian Metropolis as part of the regional economic development strategy. Analyzing the ecosystem from the point of view of urban development is important, because trends show that there is a strong urbanization and concentration of start-up entrepreneurship around large cities. Accelerators play different roles, and in the studied area, the leading roles in building and developing the entrepreneurial ecosystem are: (1) establishing the connections between the entrepreneurial ecosystem’s actors, (2) developing the specialist knowledge especially by: providing official training in the “basics” of starting business, matching the needs of the founders with the competences of mentors/advisers, evaluation of the new projects, transfer of the good

practices and experiences from the mistakes, (3) causing and facilitating the “entrepreneurial recycling”, (4) mediation and communication with the external units, that are not in the ecosystem.

Strategies, regional planning and regional economic development strategy must evolve over the time. Ecosystems are dynamic and complex organisms. Appropriate forms of government support will therefore be linked to the maturity of the entrepreneurial ecosystem. Every ecosystem is unique. Many components will distinguish one ecosystem from another. Local cultural attitudes, the structure of local banking systems and educational policies will influence the nature of these local entrepreneurial ecosystems, which should be reflected in the regional planning.

As conclusions, we are aware that our study is not without limitations. The development of the entrepreneurial ecosystem as a part of the Silesian Metropolis is in the initial phase and there is still a lot to do. We note, that the accelerators in the Silesian Metropolis are, in many ways, start-ups themselves, facing the same challenges other start-up face. However, actors of the entrepreneurial ecosystem have a solid IT and technology base, as well as a scientific and research facilities, which will certainly support the development process. Accelerators already fulfill the identified roles in the development of the entrepreneurial ecosystem. Our research and conclusions come from one region and cannot be generalized to the all population of entrepreneurial ecosystems, because they require confirmation in other regions.

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