

## BUSINESS ENVIRONMENT INSTITUTIONS IN CREATING THE WROCLAW STARTUP ECOSYSTEM

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**Purpose:** The article's main aim is to present issues related to the importance of business environment institutions (BEIs) in creating startup ecosystems, particularly in developing the Wrocław startup ecosystem. The specific goal is to identify the most important actors of the Wrocław ecosystem and present the offer of business environment institutions operating in the city, along with their assessment.

**Design/methodology/approach:** To achieve the intended goals, the author based her considerations on analyzing the literature on the subject, using both Polish and foreign sources, including scientific articles and reports prepared by Polish and foreign organizations. The analysis of business environment institutions in Wrocław was based on information available on the official websites of these entities, e.g., araw.pl or startupwroclaw.pl. Additionally, in the last part, the author used the results of empirical research conducted in the form of individual in-depth interviews among startups, BEIs, and experts rooted in the Wrocław startup ecosystem to learn the respondents' opinions on the quality of the institutional environment of the ecosystem in which they operate.

**Findings:** Business environment institutions are a vital element of effective startup ecosystems worldwide. Access and support from these institutions play an important role for startups, and their importance is constantly growing. Wrocław is well-rated as an ecosystem, offering a wide range of diverse business environment institutions that support startups in consulting, incubation, technology transfer, innovation development, and access to capital. The advantages of the city include customer approach, service in English, promotion of startups, and access to infrastructure enabling development and innovation. Despite the rich offer, not all startups use it, mainly due to the lack of information, which is one of the main shortcomings and is an element that requires improvement. The lack of coordination and flow of information between BEIs, and duplication of ideas or initiatives is a problem also indicated by the business environment institutions themselves, which see the solution in greater integration of activities, e.g., under the patronage of ARAW, which is the main animator of the Wrocław ecosystem. Other problems include limited possibilities of financing activities at various stages of development, lack of audit programs, and access to certain experts/advisors.

**Social implications:** The best startup ecosystems in the world can attract and retain the best, brightest innovators who create solutions that can revolutionize various areas of life. Well-functioning business environment institutions are part of this success while constituting an excellent example for other BEIs to follow in the international space. Although Wrocław is not among the best ecosystems in the world, it can be said that it aspires to such a group,

which is reflected in various reports and rankings of the world's best ecosystems. However, in Poland and Europe, mainly Central and Eastern Europe, it is at the forefront and can serve as a benchmark for other cities.

**Originality/value:** Many studies on startup ecosystems and startups are found in the literature. These are often studies of a general nature or relating to the most recognizable ecosystems, such as Silicon Valley, London, or Singapore. The situation is similar regarding business environment institutions, it is possible to find studies on the statistics of their occurrence, tasks performed, and the general role they play in supporting entrepreneurship. The literature lacks studies on specific examples of the functioning and creation of startup ecosystems in Poland by business environment institutions. This article refers to the example of Wrocław, which may constitute a benchmark for other cities. The article's value points out the most important BEIs in the Wrocław startup ecosystem, defining their tasks and their assessment from the point of view of entities operating in it and pointing out the most critical shortcomings requiring improvement.

**Keywords:** business environment institutions, startup, startup ecosystem, Wrocław.

**Category of the paper:** Research paper.

## 1. Introduction

Wrocław is one of the most dynamically developing cities in Poland. It is not only the cultural and historical center of Lower Silesia but is also considered an innovative hub, recognizable and appreciated in Poland, and in the international context, it is often referred to as the Polish Silicon Valley. It is, therefore, not surprising that Wrocław is a good place for startups to develop and grow.

In the era of rapid development of technology and entrepreneurship, as well as changing operating conditions, business environment institutions (BEIs) that co-create startup ecosystems can play an essential role in supporting the development of startups. The term BEI covers various types of entities that influence the economic activity of companies by offering a wide range of entrepreneurship support services. These entities operate, among others, as development agencies, training, and advisory centers, financial and lending institutions, innovation and entrepreneurship centers, chambers of industry and commerce, industry associations.

Numerous studies in the literature focus on startup ecosystems and startups, often of a general nature or centered on well-known ecosystems. Similarly, research on business environment institutions is prevalent, focusing on their overall role in supporting entrepreneurship. Notably, there is a gap in the literature concerning specific case studies on the role of business environment institutions in the functioning of startup ecosystems in Poland. This article addresses this gap by examining the example of Wrocław, which serves as a potential benchmark for other cities.

The article's main aim is to point to the importance of business environment institutions in forming startup ecosystems, with particular emphasis on creating the Wrocław environment for startups. The article highlights the key business environment institutions within the Wrocław startup ecosystem, elucidating their roles, and evaluating them from the perspective of entities operating within the ecosystem. Furthermore, it identifies crucial shortcomings that require attention and improvement. This approach provides a base for further research and also presents insights that can serve policymakers, and practitioners interested in enhancing startup ecosystems and fostering entrepreneurship in Poland.

## 2. Methodology

In the article, the author based her considerations on Polish and foreign literature on the subject, including books, scientific articles, and reports prepared by various entities, e.g., the Polish Agency for Enterprise Development, the Association of Organizers of Innovation and Entrepreneurship Centers in Poland, StartupBlink or Startup Genome. The author used the Google Scholar and Science Direct databases to collect scientific literature. These sources allowed the author to define concepts related to startups, the startup ecosystem, and business environment institutions. Then, to characterize the selected BEIs and present their offer, the author used the websites of business environment institutions operating in Wrocław, including [araw.pl](http://araw.pl), [startupwroclaw.pl](http://startupwroclaw.pl), [technologpark.pl](http://technologpark.pl) and [wctt.pwr.edu.pl](http://wctt.pwr.edu.pl).

In the last part, to determine the assessment of Wrocław's BEIs in the eyes of the entities operating there, the author presented selected results – regarding only the influence of BEI on startups, of broader qualitative research about the quality of the Wrocław startup ecosystem, which was conducted in April 2022. The broader study aimed to determine the startup's growth and inhibiting factors, assess the importance of the ecosystem in its development, and evaluate its quality. The qualitative research was conducted in the form of individual in-depth interviews (IDI).

Individual in-depth interviews involve a conversation between two people, where the interviewer tries to obtain information about the study's purpose and deepen knowledge on a given topic. This method is chosen when it is necessary to get more in-depth information from one person (Maison, 2007) when it is required, among others, to obtain independent opinions of experts, difficult-to-reach people, when it is crucial to eliminate mutual influence between respondents or difficult topics are discussed (IMAS International, n.d.).

Interviews were conducted among Wrocław startups (15 respondents, including entities from industries such as IT, financial services, creative industry, renewable energy sources, and games), BEI representatives (5), and experts (5) dealing with startups. Respondents commented on the quality of the ecosystem, success factors, challenges and problems,

cooperation between the entities creating it, access to financing and human capital, and gaps in the ecosystem, and indicated recommendations for its improvement. The article presents the most critical conclusions regarding assessing business environment institutions operating in the Wrocław ecosystem.

### **3. The place of business environment institutions in startup ecosystems**

Startup is an ambiguous concept and difficult to define. The term first appeared in 1976 in an article in Forbes magazine, around the same time as the first technology startups, Microsoft (1975) and Apple (1976). The word "startup" was mainly used to describe emerging technology companies. Since then, the concept has expanded to many other sectors (Gulia, 2017).

One of the most frequently cited definitions of a startup is the one presented by Ries (2011). He defines a startup as a human institution designed to deliver a new product or service under extreme uncertainty. Startups can be created by anyone who makes a new product or business in complete uncertainty, and it does not matter the economic sector or place of development - a business incubator, a government institution, a university, or a branch of a large company. Čalopa et al. (2014) defined a startup as a newly established venture only in the development and market research phase. According to the authors, such projects most often concern the technology industry, but not only. The places where projects are implemented are most often large cities due to the sizeable receiving market and the functioning of ecosystems that can significantly impact their development. Blank (2013), in turn, defined a startup as a temporary organization that is looking for a profitable, scalable, and repeatable business model. The characteristic feature here is temporariness – when a startup finds its business model, it ceases to be one. The second feature indicated by the author is scalability, which means the possibility of growth and expanding the scale of the venture's operations to increase income (Blank, 2013). Storey (1994) and Birch et al. (1995) consider a startup to be an enterprise that is no more than ten years old and uses innovative technologies and/or a business model. These entities are characterized by high employment and/or sales growth dynamics. The authors pointed out the importance of such entities in creating jobs and innovation.

You can also find definitions of startups in Polish literature. These include the spiral definition of startups proposed by Skala. According to the author, any organization with very limited resources and uncertain or no demand for its products can be considered a startup. The extensiveness of the definition makes it necessary to clarify it with further subsets, which are also subsequent stages of startup development: finding an innovative business model, using modern technologies and introducing a new product to the market; disruption; hyper scalability, i.e., rapid growth in the number of users; creation of automation technologies

that translate the number of users into revenue growth; translating the increase in revenues into a sharp rise in the company's value (Skala, 2017).

Despite the lack of a single definition of a startup, their characteristic features can be pointed out, such as a short period of operation, innovation, scalability, uncertainty of operation, and success on the market. Importantly, startups do not operate in a vacuum. According to Moore (1993), innovative ventures often cooperate and attract partners, suppliers, and customers, creating networks of connections. Companies should be part of a broader business ecosystem that spans various industries. In an ecosystem, companies jointly develop their capabilities around innovation: they cooperate and compete to support new products, meet customer needs, and ultimately implement further innovations. Lipińska (2018) indicates that the concepts of business ecosystems are an extension of the theory of value chain networks, as described by Rong et al. (2015) and Stańczyk-Hugiet (2015). Moore (1993) included not only the elements of the value chain as the leading entities of ecosystems but also other organizations and stakeholders, such as administration, industry institutions, and customers, considering the interactions between them. Håkansson and Ford (2002) pointed out in their research the complex and long-term nature of the connections of ecosystem participants resulting from the experiences of mutual interactions, as well as the dependence of the efficiency of organizations included in the ecosystem not only on their competencies but also on the interactions with other entities and on the general condition of the entire ecosystem.

According to Lipińska (2018), startup ecosystems are a specific category of business ecosystem separated due to the dominant entities in it, i.e., startup organizations in the initial phase of development, looking for a profitable and repeatable business model, introducing innovative products to the market and operating in conditions of high uncertainty. In turn, Baloutsos et. al. (2022) consider ecosystems not as objects but as a process of building successful startups. They believe only such startups create jobs and positively impact the economy. Tomaszewski (2018) defines the startup ecosystem as an economic and social tissue created by many different entities on which innovations are born and developed in the form of startups.

The entities that should be present in a well-functioning startup ecosystem include financing institutions, therein business angels and venture capital funds (VC); universities and research centers; specialized experts, including mentors, advisors, lawyers, and marketing specialists providing advice and support to startups; accelerators, business incubators, coworking spaces; corporations and other entities open to cooperation with innovative enterprises (Tomaszewski, 2018; Deeb, 2019). For the efficient functioning of startups, the crucial factors are relations between entities in the ecosystem, cooperation of individual actors (e.g., cooperation between science and business), appropriate legal regulations, high-quality human capital and conditions for its development, appropriate infrastructure for the development of innovations, as well as efficiently functioning business environmental institutions.

According to North (1990), who studied the impact of institutions on economic development, business environment institutions are a set of institutions and regulations that influence the economic and legal environment in which enterprises operate. These institutions include, among others, government bodies, regulatory agencies, regulators, and other institutions that shape the legal and economic framework for business activities.

In Polish literature, references to BEI can be found, among others, in Lisowska and Stanisławski (2015), Kubiński and Ropuszyńska-Surma (2017), Filipiak and Ruszała (2009), as well as in the studies of various support institutions, which serve as a source of reference for many authors. According to the Masovian accreditation system definition, BEI fills the gap between market mechanisms and public administration activities. These entities constitute infrastructure that accelerates development processes, and their activities focus primarily on broadly understood support services for small and medium-sized enterprises, based on consulting, infrastructure, laboratory, and prototyping support, as well as financial support enabling acceleration of the development of business entities (Mazowsze, n.d.). According to Burdecka (2004), business environment institutions are non-profit institutions that do not operate for profit or allocate profit for statutory purposes in accordance with the provisions of the statute or another similar document. These entities have the material and technical base, human resources, and competencies necessary to provide services to the small and medium-sized enterprise sector. Kamińska (2011) also includes commercial entities, such as banks and private consulting and training companies, in the group of business environment institutions. This approach is reflected in the research report on innovation and entrepreneurship centers in Poland issued in 2021 by the Association of Organizers of Innovation and Entrepreneurship Centers in Poland, where BEIs were divided into two groups due to the goal set for business environment institutions: commercial institutions (e.g., VC and seed funds, commercial advisory and training centers, commercial laboratories) and non-commercial institutions whose primary goal is to support entrepreneurship and innovation (Mażewska et al., 2021). According to Kamińska (2011), due to the increasingly complex and demanding institutional and legal environment, BEIs play a significant supporting role, in particular for small and medium-sized enterprises.

The activities of business environment institutions in Poland focus on three main types of activity (Bąkowski, Mażewska, 2015; Kubiński, Ropuszyńska-Surma, 2017):

1. Entrepreneurship centers that deal with promoting and incubating entrepreneurship aimed at creating business entities and jobs, providing infrastructure support and formal conditions for running a business. The entities implementing these activities include training and consulting centers, pre-incubators, and business incubators.
2. Innovation centers that offer soft services, supporting startups in creating innovations, including providing information, consulting, training, technology transfer, commercialization of new business solutions, and facilitating cooperation between the science and economy sectors. This group includes entities such as, among others,

technology transfer centers, technology, industrial and scientific parks, academic business incubators, and innovation centers.

3. Non-bank financial instruments, including institutions dealing in the distribution of repayable and non-refundable financial instruments from public sources, European Union funds, and funds from private sources, including loan funds, loan guarantee funds, seed capital funds, and business angel networks.

Support from business environment institutions is related to the activation of academic entrepreneurship and cooperation between science and business, improvement of company management and better use of resources, establishing cooperation with large companies and corporations, providing assistance in obtaining financial support, increasing competitiveness through the absorption and implementation of new technologies, transfer of knowledge and technology, providing pro-innovation services (Lisowska, Stanisławski, 2015; Filipiak, Ruszała, 2009).

The best startup ecosystems in the world include Silicon Valley, London, New York, Los Angeles, Tel Aviv, Boston, Beijing, Singapore, Berlin, Amsterdam, and Bangalore (Startup Genome, 2023; StartupBlink, 2023). The most crucial success factors of these locations include proximity to good universities, quality of life in a given city, access to financial support, availability of accelerators, availability of mentors and experienced entrepreneurs, entrepreneurial culture, appropriate infrastructure for the development of innovations, access to talents and support from business environment institutions.

#### **4. Wrocław as an innovation hub**

Wrocław is one of the most dynamically developing cities in Poland. The potential and sound investment and economic climate, as well as the availability of business environment institutions, make the capital of Lower Silesia an attractive city for domestic and foreign investors. The city is very well developed economically, is a leader in innovation, is dynamic, has a rich cultural and entertainment offer, provides many amenities for residents, and creates opportunities for professional and personal development. The quality of life is rated high. Moreover, the city aspires to be multicultural due to its geopolitical location and the great interest of international students, business people, employees, and tourists.

The city's economy is based on knowledge-based enterprises. A significant intensification of activity is also visible in the automotive, machine construction, pharmacy, modern business services, and IT&ICT industries. Many global players have invested in Wrocław, including 3M, Google, IBM, US Pharmacia, Nokia, Opera Software, BNY Mellon, etc. Wrocław is Poland's leading research, development, and IT center. The city's advantages include its academic character (28 public and private universities), many highly qualified employees, and industrial

and technological traditions. Wrocław is also one of the largest startup hubs in Poland, where over 250 startups operate, which makes Wrocław the city with the highest concentration of such companies in Poland.

Wrocław has often been appreciated in various international rankings assessing the level of innovation, competitiveness, residents' quality of life, and investment climate. In 2022, Wrocław was among the hundred smartest cities in the world in the IESE Cities in Motion Index ranking (IESE, 2022). In 2022, it was appreciated and was placed in a very high position (15th) in the overall Global Cities of the Future 2021/22 ranking prepared by fDi Magazine, ahead of cities such as Zurich, Warsaw, Seoul, and Toronto (fDi Magazine, 2021). Additionally, Wrocław won in the small/medium-sized cities category, taking first place in the Business Friendliness subcategory, second place in the Cost Effectiveness category, and sixth, ninth, and tenth place, respectively, in the Economic Potential, Human Capital, and Lifestyle and Connectivity categories (Wrocław, 2021).

The capital of Lower Silesia has also been noticed in the rankings of startup ecosystems in Poland and around the world. Wrocław was at the top of the "Polish Startups 2022" ranking prepared by the Startup Poland Foundation (Startup Wrocław, 2022) – the authors indicated that the city has the most significant number of technology companies registered in Poland. According to the international organization "Mind the Bridge", which in 2018 prepared a report titled: "StartupCity Hubs in Europe", Wrocław's future growth indicator in terms of startup development is the highest in Poland and the second in Europe, after Berlin (StartupCity, 2018).

Wrocław's high position and good development prospects were also confirmed by the ranking published in the report "The Next Generation of Tech Ecosystems" prepared by Dealroom.co. Wrocław was ranked first among Polish cities in the category of rising stars of technology hubs. Moreover, the city was ranked second in Europe and eighth in the world in this category (Dealroom, 2022). Wrocław was also included in "The Global Startup Ecosystem Index 2023", where it was ranked 164th, an increase of 23 places compared to the previous report. Wrocław has overtaken Kraków in the ranking and is placed behind Warsaw in the ranking of Polish cities (StartupBlink, 2023).

## **5. Institutional environment of the Wrocław ecosystem**

The Wrocław startup ecosystem is rich in various types of institutions providing a wide range of services to the entities operating in it. On the website [startupwroclaw.pl](http://startupwroclaw.pl), which is a kind of compendium of knowledge regarding the Wrocław ecosystem, it is possible to find links to the most essential supporting entities, divided into three categories: financing (accelerators, venture capital funds, public financing – a total of 54 entities, operating locally in Wrocław – 14 in Wrocław), research institutions (24 entities, including universities,



laboratories, research and development institutes; the main research areas include computer science, engineering, chemistry and pharmaceuticals, biotechnology and nanotechnology), spaces (53 entities, including business incubators – 12, co-working spaces – 37, virtual offices 35; some entities offer various forms of support).

The Wrocław Agglomeration Development Agency S.A. (pol. Agencja Rozwoju Aglomeracji Wrocławskiej – ARAW) occupies a central place in the Wrocław ecosystem. ARAW, as its employees say, is the animator of the entire support system. Other crucial institutions in the Wrocław business environment include Wrocław Technology Park S.A. (pol. Wrocławski Park Technologiczny – WPT), Wrocław Center for Technology Transfer (po. Wrocławskie Centrum Transferu Technologii – WCTT), Łukasiewicz Research Network – Electrical Engineering Institute, PORT Polish Center for Technology Development, Concordia Design Wrocław, several business incubators (e.g., Academic Business Incubator at the Wrocław University of Science and Technology, inQUBE at the Wrocław University of Economics and Business, Lower Silesia Academic Business Incubator – pol. Dolnośląski Akademicki Inkubator Przedsiębiorczości – DAIP), Lower Silesian Development Fund (pol. Dolnośląski Fundusz Rozwoju – DFR), Wrocław Concordia Design Accelerator and many others. Due to space limitations, only selected entities will be discussed below.

ARAW was established in 2005 and is owned by the Wrocław Commune and 32 municipal governments from the agglomeration. Its goal is to attract foreign investors, cooperate with the agglomeration's business as part of post-investment care, create conditions for the development of startups, and thus create new jobs and economic growth in the region. Activities related to the functioning of startups and shaping the business environment are primary responsibilities of the Business Support Center; support and information are also offered as part of the Invest in Wrocław, Startup Wrocław, and Made in Wrocław projects (ARAWa, n.d.).

The Invest in Wrocław team provides active support for companies located in the agglomeration, networks Polish and foreign businesses, implements a Wrocław support platform for the startup ecosystem and technology companies, focusing on technologically advanced projects – research and development centers, Industry 4.0 and intelligent production. The team provides information about the market and economic potential of Wrocław and legal and tax advice on how to start a business in Wrocław (ARAWb, n.d.). Invest in Wrocław has published numerous industry and sector publications, e.g., “Wrocław IT Sector” 2019, “The AI Sector in the Wrocław Agglomeration” 2021, “Driven by Knowledge, people & innovation” 2021, “The AI Sector in the Wrocław Agglomeration” 2021, “GAMEDEV in Wrocław Agglomeration” 2022 and a report entirely devoted to the Wrocław startup ecosystem entitled “Wrocław. Startup Your Life” 2018. The Made in Wrocław project presents the successes of local entities, technological leaders, dynamically developing startups, and innovators. The annual conference carried out as part of the project is a place for the promotion of Wrocław companies and the exchange of knowledge and experiences of business practitioners.

From the point of view of the development of startups, a significant ARAW project is Startup Wrocław – a website that presents the Wrocław startup ecosystem in a nutshell. The portal aims to connect ecosystem entities to promote and support the growth of innovation, entrepreneurship, and cooperation, together with local technology companies, startups, entrepreneurs, academia, research and development and business institutions as well as city authorities. The website includes several analytical studies, information on startup financing opportunities, access to office space, research and laboratory space (equipment and qualified staff), current industry events, conferences, symposia, and promotional initiatives. Additionally, there is a database of startups registered and developed in Wrocław (Startup Wrocław, n.d.).

Another entity forming the core of Wrocław's institutional environment is the Wrocław Technology Park, which deals with business incubation, providing infrastructure, laboratory, research and development support and networking opportunities, information support, and promoting startups operating there. WPT activities are addressed to startups, companies from the SME sector, and extensive international entities. The scope of assistance offered is best defined by the STELLAR HUB program, where the star metaphor refers to individual areas of the offer and companies cooperating with WPT. STELLAR HUB creates nine support areas that cooperating entities can combine and use in parallel to create their own constellation of products and services: business infrastructure (office and laboratory space); industrial hall with production and warehouse facilities; business incubators; consulting and networking (training, assistance in obtaining financial support); Technoludek Kindergarten and Educational Center; laboratories and prototypes; research and development (technological base, creation of R&D consortiums); experimental plant (possibility of conducting tests, up-scaling and optimization related to the life-science industry); innovation sector BIG SCIENCE HUB (platform integrating business and science, mediating cooperation between Polish business and Big Science) (WPT, n.d.).

Apart from WPT, business incubation is widely implemented, among others, at Wrocław universities. An example is the Academic Entrepreneurship Incubator at the Wrocław University of Science and Technology or inQUBE at the Wrocław University of Economics and Business. Academic incubators offer space for running a business, advisory, information, training, and networking support.

An important project from the point of view of the development of Wrocław startups is the Wrocław Technology Transfer Center operating at the Wrocław University of Science and Technology. The task of WTTC is to commercialize the results of research work carried out at Wrocław University of Science and Technology, ensuring the effective transfer of knowledge and technology to the innovative economy, animating research and technological cooperation, and supporting the innovative activities of enterprises. The services offered by WCTT, in addition to assistance in technology transfer (e.g., advisory assistance, promotion of technological solutions), include assistance in the foreign expansion (e.g., research and analysis

of foreign markets, audits, foreign industry trips), implementation of international research projects (e.g., support in the preparation of EU applications), expert assistance (e.g., preparation of analyses, development of applications, implementation of research). The center organizes various types of training, meetings, webinars, and several other events (WCTT, n.d.).

The last entity discussed is Concordia Design, a creative space focused primarily on the IT industry and media, advertising, art, and design. The offer includes modern office and coworking space, adapted to various needs (for individuals and larger teams, conference rooms, so-called hot desks), business consulting (guiding the organization through the entire design process), organization of various types of events, in which Concordia Design residents can participate (Concordia Design, n.d.). Concordia Design has an accelerator (Concordia Design Accelerator), which is the operator of the Poland Prize program, intended for foreign entities wishing to expand their startup activities to the Polish market. The funding is aimed primarily at entities operating in artificial intelligence, cybersecurity, and smart cities.

The entities mentioned above constitute only a tiny part of the business environment institutions and do not exhaust the entire set of entities creating the Wrocław startup ecosystem. Referring to the previously proposed division of BEIs in Poland, it should be noted that Wrocław entities combine various elements of the scope of activity, e.g., laboratory space with networking, training, consulting, office space with financial support, and many others.

## **6. BEI in the light of the results of empirical research**

Analyzes regarding BEIs operating in the Wrocław startup ecosystem are worth enriching with the opinions of the entities that create this system.

The respondents' opinions indicate the importance of business environment institutions in creating and developing startups. The support from these entities greatly impacts the development of new ventures and is often invaluable. The critical areas of assistance mentioned by respondents included the following forms of support:

- financial support – necessary for startups to cover costs related to development, research, production and marketing;
- infrastructure support – access to specialized infrastructure, such as laboratories, which may be crucial for companies operating in fields requiring specialized equipment or premises;
- access to premises – assistance in obtaining appropriate places to work or run a business;
- training – organization of training that helps entrepreneurs acquire new skills and knowledge necessary for effective company management, e.g., in the field of marketing, acquiring customers, and raising financial resources;
- advisory support – covers business, legal, and marketing issues.

Among the most important BEI entities, respondents mentioned business incubators, accelerators, the National Center for Research and Development (NCBiR), development agencies, technology parks, technology transfer centers, foundations, and entities providing financial support. Respondents unanimously emphasized that their growing importance also results from the increasing complexity of the legal and business environment. Therefore, the help of business environment institutions becomes a key factor in facilitating the start and development of new companies, especially in the face of difficulties related to legal regulations.

Referring to BEIs in Wrocław, it should be noted that most respondents representing Wrocław startups used the assistance offered by local BEIs and were satisfied with it. The scope of support offered by these institutions was very diverse, including office rental, access to laboratory space, participation in training, workshops, webinars, legal and accounting advice, and access to financing. The most important institutions mentioned were ARAW, WPT, business incubators such as AIP at the Wrocław University of Science and Technology, inQUBE at the Wrocław University of Economics, DAIP, WCTT, and DFR. Some respondents emphasized the huge importance of the academic community and the possibility of using entities operating there, such as WCTT. Others drew attention to cooperation agreements with universities, enabling the use of laboratories and promotion on their premises.

Respondents also expressed their expectations regarding expanding the offer of business environment institutions. The suggestions included creating a database of programmers (facilitating access to programming specialists, which may be particularly useful for technology startups); financial support for new projects (more significant opportunities to obtain funds); meetings with practitioners (meetings with experienced entrepreneurs who can share their experiences and tips so that new companies can avoid making the same mistakes); greater promotion of local startups; organizing competitions or competitive events; selection of the best startup of the year, which may be an incentive for companies to develop further; workshops for startups with experienced business people who will help them understand key aspects of business and avoid common mistakes.

In general, the assessment of BEI by startup representatives is positive, but it should be noted that not all respondents used the help of business environment institutions. They pointed out the need for more access to appropriate information or ignorance about the scope of support offered by these institutions, which was an obstacle to using their services. These voices indicate the need to increase the availability of information about the offer of business environment institutions and to adapt their offer to the real needs of local entrepreneurs.

The experts' assessment was less positive – they mainly noted shortcomings in the offer, expressing the need to introduce clear communication and an audit program that would help assess support at the strategic level. They suggested that sharing experiences between institutions and startups can improve the effectiveness of ventures. Additionally, attention was drawn to the need for greater availability of funds and easier access to business angels.

BEI representatives pointed to the large number of supporting institutions in Wrocław – a unique situation in Poland. They emphasized the positive approach to customers and the important issue of customer service in English, which is particularly attractive to foreigners. According to BEI representatives, the institutions operate well, but there is room for improvement. The suggestions included better cooperation between these entities and better organization of activities to avoid duplication of ideas, e.g., by introducing a system for monitoring initiatives and creating a shared calendar of events, the management of which could be entrusted to, e.g. ARAW. Thanks to such a system, BEI could promote each other's initiatives, and reaching a wider audience with information would become more effective.

To sum up, in general, business environment institutions in the Wrocław startup ecosystem are assessed positively; there are many of them, and they fulfill their functions. Many companies use their assistance, i.e. financial support, access to laboratory space and specialized equipment, or advisory in such crucial things as taxes, forms of operation, or marketing. The support in many cases is crucial for startups' existence.

Nevertheless, BEI's actions should be verified and improved. This applies primarily to the flow of information between themselves and between them and the recipients of their support – startups. Moreover, the BEI offer should be enriched with opportunities to finance operations, as well as access to some experts and experienced entrepreneurs.

## **7. Summary**

Startups have become a permanent part of the economic landscape of most countries in the world. They are characterized by a short period of operation, innovation, scalability, and operational uncertainty, which, combined with the changing and turbulent environment, makes support from entities filling the gap between market mechanisms and public administration activities – business environment institutions – helpful. The role of these entities is to assist in incubating and promoting entrepreneurship, infrastructure support, technology transfer and implementation of new technologies, creation of innovations, consulting, training, financial support, and assistance in establishing contacts. As peer-reviewed studies and rankings indicate, BEIs are integral to well-functioning startup ecosystems worldwide. Access and support from business environment institutions play a key role for startups, and their importance is constantly growing.

Wrocław is highly rated as a business-friendly place, including the development of startups, which is confirmed by the rankings of startup ecosystems, investment climate, innovation, and quality of life. The city offers many unique benefits that encourage entrepreneurs to develop their businesses. Wrocław is an open, innovative place with an excellent investment climate. A significant advantage is access to various business environment institutions, such as business

incubators, access to laboratory and office spaces, as well as support in the form of consulting, training, mentoring, and networking, various sources of financing for startups are available.

Despite numerous advantages, some areas require improvement. This concerns limited access to experienced expert practitioners or some forms of financing, insufficient communication, which translates into a need for more information about the offers available to startups. A good solution could be a knowledge base concentrated in one place to prevent the dispersion of information (e.g., within the already existing [startupwroclaw.pl](http://startupwroclaw.pl) website, a subpage available only to BEIs, where information about various events carried out by individual entities would be collected). Such a solution would benefit startups and business environment institutions, enabling them to coordinate better and promote their activities.

Greater integration of the startup environment is also a good idea. One way to achieve this goal may be for BEIs to create a shared space dedicated exclusively to startups. Such a space should enable the exchange of experiences, including negative ones, verification of ideas, organizing meetings with potential investors, and favor networking between entrepreneurs and BEI representatives.

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