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# How can “Katowice as European City of Science” change Silesia region: Recognising perspectives of private companies

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The study analyses, the perception of the European City of Science (ECS) initiative planned event in Katowice in the context of the city and region's development in the eyes of private companies. It has been argued that this honour may change the city's prestige and become the source of the city and the region's development, not only through building the city's recognisable brand but also its social capital. Using focus research as a method enables not only to collect empirical data but can also be treated as a form of public participation. The study results contribute to the growing body of literature on public engagement and co-creation as well as place branding. The study's findings show the companies' expectations concerning the role of universities and their participation in the region's development. They were the foundation for preparing a set of suggestions for local governments to successfully implement the ECS initiative. This paper is the first to examine the process of preparing a city to become an ECS, as demonstrated through the case study of Katowice.

## KEYWORDS

city management, place branding, public engagement, science events, the European City of Science

## 1 | INTRODUCTION

A “City of Science” is a term coined to describe urban areas where scientific research, technological innovation and a skilled workforce intermingle, fostering economic growth and social progress (Barry, 1995; Zhang & Fu, 2013). These cities are typically defined by a concentration of robust research institutions such as universities and research institutes. These establishments act as catalysts for scientific discovery and innovation, promoting knowledge exchange and the development of new technologies (Breschi & Malerba, 2001; Cooke, 2002).

In addition to educational and research institutions, a City of Science is bolstered by an environment that nurtures science and technology-based businesses. A supportive ecosystem provides access to funding, mentorship, and other resources, critical for business growth (Hayter, 2016; Koh et al., 2005; Mian et al., 2012). Moreover, local policies and initiatives encourage knowledge and

technology transfer from academia to the broader community, contributing to social progress and economic development (Breznitz & Feldman, 2012; Etkowitz, 2003; Gertler & Wolfe, 2004).

Investing in science and technology sectors provides an economic boon for these cities. Job creation and business attraction are often substantial (Carree & Thurik, 2010; Frenken et al., 2007; Leitner, 1990). Additionally, the continuous development of new technologies enhances the quality of life for its citizens through job creation and opportunities (Alawadhi et al., 2012; Macke et al., 2018; Mishra & Chakraborty, 2020; Yigitcanlar et al., 2008).

For a city to transform into a City of Science, it requires a well-defined vision and strategy for its scientific and technological sectors (Angelidou, 2014; Haarstad, 2017). This encompasses investing in research and development, facilitating collaborations among institutions and publicly promoting scientific achievements (Angelidou, 2015; Ergazakis et al., 2004). It is also important to support entrepreneurs, invest in infrastructure and ensure that the city

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has the necessary resources to sustain its scientific and technological sector (Lalkaka, 2002; Miles & Morrison, 2020).

On the European front, the European City of Science (ECS) initiative aims to enhance public engagement in science and innovation. The programme organises scientific festivals and events, supported by the European Union, in various European cities to foster curiosity and critical thinking among its citizens (Anguelov et al., 2005; Norlin, 2005). Biennially, the ECS designates a city to host the EuroScience Open Forum (ESOF), organised by EuroScience, to promote scientific and technological advancements (Wünning Tschol, 2012). Cities are selected based on their capacity to host this large-scale conference and engage their community in scientific activities (Lombardi, 2018). The initiative aims to highlight the significant role science plays in the cultural and economic development of European cities and improve public understanding of science (Nilsson, 2005). Previous host cities for the ESOF include Stockholm in 2004, Munich in 2006, Barcelona in 2008, Torino in 2010, Dublin in 2012, Copenhagen in 2014, Manchester in 2016, Toulouse in 2018, Trieste in 2020 and Leiden in 2022. Apart from hosting the ESOF, these cities also organise science-related events throughout the year, serving as hubs for scientific exchange and collaboration (Cunningham, 2012; Pinholster & O'Malley, 2006; Winter, 2004).

The ECS event in Katowice, a city in southern Poland, is the first of its kind in Central Europe, particularly in a country with a shorter membership in the European Union. It aims to promote various scientific fields and stimulate the local economy through research and innovation. For awarding the title of ECS 2024 to Katowice seven universities operating in the Silesia established a consortium and prepared the application together. The title is granted by the EuroScience organisation to cities, which show an outstanding performance in integrating science and higher education in their urban ecosystem. The consortium consists of the University of Silesia in Katowice, the University of Economics in Katowice, the Medical University of Silesia in Katowice, the Silesian University of Technology, the Jerzy Kukuczka Academy of Physical Education in Katowice, the Academy of Fine Arts in Katowice, the Karol Szymanowski Academy of Music in Katowice and the City of Katowice. This strategic partnership plans to implement scientific, science communication and educational projects related to topics such as the role of science in addressing climate change and other global issues, the role of science in the energy, social and digital transformation of the region and the role of science in the development of new technologies and artificial intelligence. The partnership also intends to increase interdisciplinarity in addressing social, technological and regulatory issues and enhance international and intercultural cooperation and the relationships between the academic communities of the partner institutions and their foreign partners.

The main aim of this study was to investigate the needs and preferences of private companies operating in Katowice and the Metropolis GZM (Metropolis GZM expanded the previously existing Upper Silesian Metropolitan Union) concerning the ECS Katowice 2024 programme in economic sciences. Understanding these crucial stakeholders' expectations and preferred areas of focus is essential for this event's successful planning and organisation. The research results can

aid organisers in tailoring the programme to the interests and needs of the local community and in maximising the impact and benefits of the event. To achieve these goals, the study employed qualitative research methods, specifically group interviews with private companies operating in Katowice and Metropolis GZM. The details of the interview process and the focus study group can be found in the Methodology section.

The study results offer insights into the expectations and preferences of private companies for the ECS Katowice 2024 programme in economic sciences. The findings are discussed in relation to the ECS Katowice 2024 event and the broader goals of the ECS initiative. Based on the research findings, the implications and recommendations for the organisation and content of the programme are presented, as well as for future research in this area. To our knowledge, this paper is the first to examine the process of preparing a city to become a ECS, as demonstrated through the case study of Katowice.

## 2 | STAKEHOLDERS' ENGAGEMENT IN THE CONTEXT OF CITY MANAGEMENT

To build a prosperous and sustainable economy, local governments must take actions aimed at economic growth and development. Among possible policies, they can adopt those oriented towards entrepreneurship, which is a key factor in economic development. On the other hand, the success of entrepreneurs depends on the economic and political conditions of the region in which they operate. Evidence suggests that the relationship between economic development and entrepreneurship is conditional upon the level of regional development (Kasseeah, 2016). For these reasons, local government should take such actions as, that is, shaping the local business climate and providing an environment conducive to companies' establishment. Additionally, local governments can contribute to local economies by developing institutional arrangements to boost entrepreneurial activity. Furthermore, they should pay attention to local and micro-environment conditions for enterprises, "job training to provide workers to businesses, advice and support services for potential entrepreneurs and extension services to help businesses develop and grow" (Bartik, 1995; Masuda et al., 2022; Rodríguez-Pose, 2013).

What also counts for the region's development is the different stakeholders' perceptions of how local government authorities manage the city. The way and the extent to which diverse scientific and cultural activities are undertaken, as well as developing a clear vision of the city, influence its perceived prestige. Cities with a high level of prestige are believed to be good to live and operate in, which would create jobs, attract new businesses and generate new sources of revenue for the local economy. It has been argued that the perception of inventors, scientists and experts available in the area is also important for prestige (Udir Mišič & Podnar, 2019). For this reason, an interest in the concept of place branding, which concerns geographical locations, such as cities or regions, has been growing. Brand management adopts a stakeholder view, with its co-creation by a wide variety of actors, such as public and private parties, at its core. As residents

of the region or the city play a specific role in the process of place branding, actions oriented towards building the strong brand and prestige of the city should be oriented first and foremost towards its internal stakeholders (Klijn et al., 2012).

Co-creation, in reference to creating a strong brand of the city and making decisions in the area that influences public value, has become a popular concept. Services and values provided by the local government may be co-created through engaging multiple stakeholders from sectors of the private, public, non-profit, news media and civil society (Bryson et al., 2017). For this reason, it may be argued that managing a city is relational as it involves relations between government and non-governmental actors. It is pointed out by the regime theory, (neo)corporativism and inter-organisational theory (Blanco, 2015). In recent decades, the importance of public engagement has been growing. Public engagement involves the active solicitation of the public's input in the development of plans and programmes related to the environment. The modern shift in public administration is seeing more stakeholder participation, a consequence of administrative reforms that have decentralised power to local governments (Vitálišová et al., 2021). This participation has become integral in driving sustainable development, a key goal of Agenda 2030, offering potential solutions to social and environmental injustices.

Local municipalities are now expected to operate with greater transparency, efficiency and an active interest in understanding the unique needs of their community (Vitálišová et al., 2021). Stakeholder participation is more than just a passive policy, it is a vital mechanism for conflict resolution, ensuring compliance with decisions, enhancing public satisfaction and, importantly, enabling the public's views to be considered in policy and planning.

This approach to public engagement not only bolsters social justice by ensuring diverse societal voices are heard but also improves the quality and effectiveness of decision-making. Policymakers can create and implement decisions that are more broadly accepted by considering public perspectives. In summary, public engagement is a cornerstone of good governance and is pivotal in realising a just and equitable society. Recognising this, local government authorities are urged to involve regional businesses in their developmental strategies (Schafer, 2019), promoting a more collaborative, inclusive and sustainable development process.

Engaging companies in developing their regions requires financial and human capital resources, which can be a challenge for many local authorities (Vitálišová et al., 2021). To this end, local governments can use, for example, focus group method to collect data from entrepreneurs and business representatives. "Focus group participants may engage in such modes of interaction as listening as spectators, expressing preferences, developing preferences and aggregation and bargaining" (Jo & Nabatchi, 2021). As a result, they may experience "significant and positive increases in their awareness about the issue being addressed, their sense of competence and empowerment" (Jo & Nabatchi, 2021). The other result is increased trust in city authorities and their assessment of local government management (Jo & Nabatchi, 2021). Such an approach was successfully applied in other

cities, that is, Atlanta (Bernstein & Isaac, 2021) or Indiana (Pyrialakou et al., 2019).

### 3 | METHODOLOGY

The research aimed to identify the private companies' needs regarding the ECS Katowice 2024 programme in the field of economic sciences. To achieve this goal, the research set detailed objectives, including understanding the perception of knowledge by entrepreneurs, determining the associations with the city of Katowice among the respondents, analysing the level of awareness of ECS Katowice 2024, identifying the benefits of ECS Katowice 2024, recognising the needs and preferences of entrepreneurs regarding the ECS Katowice 2024 programme and determining the most effective ways to communicate the ECS Katowice 2024 initiative.

Katowice is a southern Poland city located in the Silesian Voivodeship (Leitmann, 1994). It is the capital of the Silesian Voivodeship and the centre of the Katowice metropolitan area (the Metropolis GZM), situated on the banks of the Rawa River in the heart of the Silesian Basin. Located in a region once dominated by the coal and steel industry, Katowice has witnessed its fair share of environmental consequences (Pastuszka et al., 1993). Despite its industrial past, the city offers a rich cultural and recreational landscape, replete with theatres, museums and parks. From its humble beginnings in the early 19th century, Katowice transformed into an industrial hub, making considerable strides in housing and transportation throughout the 20th century (Cybulski et al., 2020).

Currently, Katowice is home to roughly 284,400 individuals of various ethnic backgrounds (GUS, 2022), boasting a low unemployment rate of 1.4% (GUS, 2022). Even though the city's economy was historically underpinned by industries such as coal and steel production, services and tourism, it has faced an industrial decline and is now focusing on diversifying its economy and fostering innovation. Consequences of its industrialisation include air pollution and traffic congestion (Krzysztofik et al., 2019; Osman et al., 1998), issues which the city is actively addressing through sustainable development and improving public transportation (Lamparska, 2013).

Urban design in Katowice is a captivating blend of modern and historical architecture. Despite housing estates and industrial zones dominating the outskirts, the city centre showcases an intriguing mix of 19th and 20th-century buildings (Murzyn-Kupisz & Gwosdz, 2011). The city's governance involves a mayor, city council, and a robust system of planning and management structures, which are continually being (Sobala-Gwosdz & Gwosdz, 2018).

Recent endeavours in Katowice include revamping the city centre, redeveloping industrial areas and reinforcing sustainable development (Krzysztofik et al., 2017). Looking ahead, the city's focus is on further economic diversification, promoting innovation and addressing environmental and social issues sustainably (Krzysztofik et al., 2016).

Our research targeted private companies, crucial stakeholders in Katowice, specifically focusing on managerial staff. The study engaged companies of varying sizes, ranging from micro- to large-scale

businesses. We employed qualitative research methods, primarily focus study groups, which offer an in-depth understanding of the experiences and perspectives of participants (Morgan & Spanish, 1984). Originally utilised by market researchers and later developed within sociology, focus groups are now increasingly employed as a research method in social sciences. There is a growing corpus of literature discussing the formation and management of focus groups for social scientists, along with their benefits and drawbacks. Key contributions in this field include works by Smithson (2000), Acocella (2012) and Massey (2011).

Focus study research, as a qualitative approach, concentrates on understanding the behaviours and attitudes of specific groups within certain contexts (Gill et al., 2008). It delves into the deeper aspects of how individuals think, feel and act in given environments. This method is particularly insightful as it reveals that people's responses to direct questions do not always fully convey their expectations and attitudes (Hydén & Bülow, 2003; Kitzinger, 1994). Broadly, focus groups provide insights into the needs and viewpoints of participants, allowing for the discovery of important yet unforeseen issues (Carlucci, 2018). This research approach allowed us to explore complex topics and identify common patterns in the data.

Using this method, we conducted group interviews with businesses operating in Katowice and Metropolis GZM. The interviews followed a focus group format, with 6–8 participants in each group reflecting the business size: micro, small, medium and large.

Altogether, 24 representatives of companies participated in group interviews, including 14 women and 10 men. Fourteen participants managed companies as owners or managers. The rest of the focus group held specialist positions in various areas of the company's operations. The average age of participants was 33.5 years, similar in all groups. The average length of time with the company was 5.41 years. The vast majority of companies participating in the research represented service companies. The shortest period of operation on the market was for small companies (an average of 8.3 years), and the longest was for large companies (an average of 39.7 years). The headquarters of 14 companies are located in Katowice and 10 are in neighbouring cities.

The group interviews were moderated by trained interviewers. They were conducted in Polish, the native language of the participants, and consisted of a set of open-ended questions that were asked in a semi-structured manner provided to guide the discussion. These questions aimed to gather information on the needs and preferences of the participants regarding the ECS Katowice 2024 programme in economic sciences, as well as their views on the role and value of science in society and public engagement. The focus group interviews were organised around five topics. The topics included: economic knowledge in the awareness of entrepreneurs (1); Katowice in the awareness of entrepreneurs—association test (2); familiarity with ECS Katowice 2024 by entrepreneurs (3); benefits of ECS Katowice 2024 in the opinion of entrepreneurs (4); entrepreneur preferences regarding the ECS Katowice 2024 programme (5).

The research on the needs and preferences of private companies operating in Katowice and Metropolis GZM was qualitative in nature. It was conducted from 15 November to 21 November 2022. The group interviews lasted from 1.5 to 2 h. Our analysis approach centred on transcribing interview data and identifying patterns through thematic analysis. We employed a qualitative data analysis method, coding the data and interpreting the emerging themes that reflect the needs and preferences of participants for the ECS Katowice 2024 programme in economic sciences. The iterative process of theme identification and development was collaborative, involving rigorous discussions among researchers to gain a comprehensive understanding of the participants' perspectives and experiences. Ethical considerations were taken into account throughout the study. Informed consent was obtained from all participants prior to their participation in the group interviews. The participants were informed about the purpose of the study and were assured of their right to withdraw at any time. The confidentiality of the participants was respected, with all data being collected and stored anonymously. The study was approved by the ethics committee of the {removed due to the double blind review process}. As a token of appreciation for their participation, the focus group participants were given small gifts such as USB sticks, umbrellas and sweets. However, no monetary compensation was provided.

## 4 | FINDINGS

The topics of the focus group study referred to the research objective and included the following fields: economic knowledge in the awareness of private companies (1); Katowice in the companies' awareness—association test (2); familiarity with ECS Katowice 2024 (3); benefits of ECS Katowice 2024 in the opinion of companies (4); companies' preferences regarding the ECS Katowice 2024 programme (5).

### 4.1 | Economic knowledge in the companies' awareness

In the context of the ECS Katowice 2024 initiative, the views and experiences of entrepreneurs in different focus groups were examined to understand their perspectives on the role of knowledge in business and society more broadly. The following remarks present the findings from these interviews, including how companies define and acquire knowledge, their opinions about the level of economic knowledge in society and the sources and entities responsible for creating economic knowledge. The participants in each focus group defined knowledge slightly differently. For micro-entrepreneurs, knowledge refers to everything that is known and contributes to competencies. For the representatives of medium-sized enterprises, it is wealth that needs to be taken care of. Such a wealth is developed through the whole life and results from curiosity. It must be updated. It is worth pointing out that in this group, knowledge is also perceived as

something that constitutes a person's value, enables them to know the world and is the foundation for tools to make a living. For the representatives of large companies, it is a resource for the future and the ability to apply theoretical principles in practice. For all groups, economic knowledge is a basic economic issue.

Many participants independently expand their economic knowledge using various, easily accessible sources. Regardless of the company's size, interview participants cited webinars and training as sources of knowledge. Micro and small entrepreneurs also pointed out podcasts as a source of knowledge. For the representatives of larger businesses, sources of knowledge also include business meetings, trade fairs, networking and the exchange of experiences among employee teams. Participants in focus group interviews assessed the level of economic knowledge in society as unsatisfactory. In their opinion, economic knowledge is the knowledge that enables understanding of processes taking place in the economy that affect their lives (such as budget management, inflation and interest rates on loans). Participants in the interviews indicated entities in which economic knowledge is created. It was stated that we are all such entities. In addition, universities, the internet, friends and social media were also pointed out as places where economic knowledge is created.

## 4.2 | Katowice in the awareness of entrepreneurs—association test

In the association test, participants were asked to provide associations with five words: *Katowice*, *science*, *business*, *residents* and *cooperation*. According to respondents, associations with the city of *Katowice* are very positive. It is seen as a developing capital of Silesia, a metropolis and an agglomeration by all groups of respondents. So far, the city has been associated with the industry, but respondents also notice efforts to make *Katowice* a cultural city.

The *science* area associated with the city's initiatives is associated with development, challenges, the actions of universities and the presence of students for entrepreneurs. Respondents indicated that employees of local universities undoubtedly have significant achievements, but their promotions could be much higher. For participants, associations with the word *business* are mainly entrepreneurship and the possibility of making money. *Residents* are associated with the community, society and family. They are also a group of beneficiaries, employees and friendly Silesians. For representatives of small businesses, residents are a "million problems". Associations with *cooperation* involve the effective operation of a group/team of people, mutually inspiring, well-organised, helpful and responsible. Cooperation is associated with a win-win strategy, networking and the collaboration of science with business.

## 4.3 | Knowledge of ECS Katowice 2024 among entrepreneurs

Most of the survey's participants had not heard about *Katowice* being awarded the title of ECS 2024. Those familiar with the name were

unable to specify what exactly it represents and what kind of activities or events residents of the city can expect within its framework. When asked about their associations with the City of Science, micro-business owners pointed out its grandeur and prestige, as well as the practical application of science rather than just theory, which ultimately brings benefits to the development of the academic personnel and company employees.

In turn, the representatives of small companies listed several characteristics of such a city and the benefits it brings to its hosts. According to them, the City of Science is associated with being a centre of student life, organising lectures and interesting initiatives showcasing science, including patents acquired and institutes and laboratories' work. The benefits for the city include internationalisation, improving the quality of life and effective long-term investments. The participants representing medium-sized companies associated the City of Science with a place that combines scientific initiatives and an open city, where conferences, training and meetings (including at an international level) take place. According to the survey respondents, the benefits of being such a city include promoting local values and businesses, inspiring students and residents and increasing the availability of academic staff. For representatives of large businesses, the City of Science is a city that is open to foreigners, multicultural and multilingual, where various meetings, initiatives, events, conferences, webinars and trainings take place. The benefits of these activities include cooperation and showcasing the region's diversity.

## 4.4 | Benefits of ECS Katowice 2024 in the opinion of entrepreneurs

According to the survey's participants, the benefits for companies from ECS *Katowice* 2024 include increased access to qualified personnel, thanks to the development of science and educational offerings, as well as increased enrolment of students. Expected benefits for residents include, the development of knowledge, the creation of new jobs and economic awareness and the increased attractiveness of the city as a place to work, live and spend leisure time.

The potential benefits for companies listed by participants include a rise in the quantity of companies/self-employment, international cooperation, promotion of companies, support for companies through science and the popularisation of scientific results. Local companies may also benefit from increased revenues due to an intensification of tourism. Additionally, knowledge and economic awareness, the dissemination of knowledge from universities to businesses, the development of local companies due to visitors to the city, and networking opportunities may also increase. Residents may profit sense of pride in the city, increased entrepreneurial attitudes, greater transparency and readability concerning the city and investments. Both businesses and residents may also benefit from the attraction of a larger number of students, investments, the establishment of cooperation between business and science, an increase in recognition of investors/residents/students, a campus for students, the intensification of cooperation between business and science, the improvement of infrastructure

and the bringing of stakeholders closer to the actions taken by universities.

#### 4.5 | Entrepreneurs' preferences regarding the ECS Katowice 2024 programme

Participants from various focus groups proposed organising a range of scientific initiatives, in many cases indicating the practical nature of such actions. In addition, they declared an interest in strengthening cooperation with universities, which would take the form of jointly organised events such as open days at universities and companies. They also indicated the possibility of mutual support between companies and universities, involving the exchange of acquired experience with the support of the university's research and teaching staff.

Proposals for events within the framework of ECS Katowice 2024 indicated by all participants (regardless of the size of the company) include educational initiatives and events (various)—fairs, lectures, workshops, conferences, an economic fair and practical classes—non-standard ways of conveying the knowledge (such as field games and educational games, knowledge pills on buses and hackathons), cooperation between science and business (including organising open days for companies and universities, bartering consultations for entrepreneurs) and advice for micro, small and medium enterprises.

Participants generated ideas for celebrating ECS Katowice 2024 during discussions and then created individual rankings of those events. Participants in the interviews with micro-enterprises developed 11 ideas, small businesses—15, medium-sized companies—12 and large companies—14. Table 1 shows the overall ranking of events (as a sum of points). The group engaged in a discussion about the ideas, which were then noted down on a board. Every participant made a list of the events they were most interested in attending. To create this list, they allocated a total of 100 points across their chosen events, ensuring that each event they picked received at least 10 points.

The information presented in Table 1 shows that micro-companies focus on sharing scientific achievements and cooperation with businesses, as well as learning about science through virtuality, informal meetings that allow for the development of skills and networking, open days and practical contact with inventions.

The participants representing small businesses declared their willingness to participate in events celebrating the ECS Katowice 2024, which focuses on exchanging experiences and sharing good practices. They also stressed the importance of education in schools, financial support for short-term internships and practices, advice for companies and publishing papers presenting solutions to company problems.

Among the initiatives proposed by the representatives of medium-sized enterprises, the greatest interest was shown in international projects available to residents and employees, conferences, hackathons and study visits to companies.

The highest importance among the events listed by large companies had educational offers for various age groups, including the

elderly, and the business involvement in the City of Science initiatives. Those educational initiatives include knowledge pills in places where we are waiting for something (e.g., bus stop), interesting lectures open to non-economists, an outdoor game with an application, educational paths using IT, practical classes and periodic training.

## 5 | DISCUSSION

The research findings suggest that most companies surveyed were unaware of Katowice being awarded the title of ECS 2024. Those who had heard about it could not accurately describe its meaning and the types of activities or events that residents can expect within its framework. When asked about their associations with the City of Science, micro-business owners highlighted its grandeur and prestige, as well as the practical application of science rather than just theory. Small business representatives listed characteristics such as being a centre of student life and hosting lectures and initiatives showcasing science. For medium-sized businesses, the City of Science was seen as a place that combines scientific initiatives and an open city with conferences, training and meetings. Large companies saw the City of Science as a city open to foreigners, multicultural and multilingual, with various meetings, initiatives, events, conferences, webinars and trainings. The benefits of being a City of Science were seen as promoting local values and businesses, inspiring students and residents, increasing the availability of academic staff and showcasing the region's diversity. Those benefits are coherent with the city of science characteristic described in previous studies (Barry, 1995; Zhang & Fu, 2013).

In terms of the ECS Katowice 2024 programme, businesses had various suggestions for events, including basic economic knowledge for households, finance and managerial knowledge for businesses, conferences, hackathons, visits to companies, exchange of experiences and best practices, education in schools, financial support for internships and short-term practices and counselling for companies. There was also interest in non-traditional ways of transferring knowledge and creating spaces for exchanging experiences between science and business. It was noted that some suggestions are long-term investments. For promoting the ECS Katowice 2024 initiative, it was suggested to use social media, the city's and universities' websites, appropriate positioning in search engines and urban communication means and city spaces. It was also recommended to consider the associations with the ECS idea and tailor the message to different age groups. In terms of policy, planning and management, there was a need for long-term initiatives and the continuation of successful events beyond 2024. It was also noted that the city should consider the feasibility of organising events in terms of financial and technical possibilities.

The conducted study is in line with new perspectives on sustainable development. First, science and universities are important in driving sustainable development in a region. Their role encompasses educating and preparing future leaders, fostering innovation and conducting vital research. Universities act as incubators for new ideas and

**TABLE 1** The ranking of proposed science events.

Rank	Micro	Small	Medium	Large
1	“After-hours” integration science events (110 p.)	Education in schools on basic economic laws (70 p.)	International projects available to residents/employees (105 p.)	Educational offers for various age groups (75 p.)
2	Business open day (90 p.)	Consulting (70 p.)	Conferences (75 p.)	Involvement of businesses in the City of Science (75 p.)
3	Presentation of scientists' achievements (80 p.)	International exchange of experiences (60 p.)	Hackaton* (75 p.)	Knowledge pills in places where we are waiting for something, for example, bus stop (75 p.)
4	Congresses and science fairs (70 p.)	Scientific papers on companies (solving problems of companies operating in Silesia) (60 p.)	Study visits to companies/1:1 with representatives of companies (75 p.)	Interesting lectures open to non-economists (60 p.)
5	Exploring science through practical contact with achievements/inventions (60 p.)	Financial support for internships (60 p.)	Educational games (60 p.)	Outdoor game with an application (60 p.)
6	Internet 3.0—virtuality (40 p.)	Scientific workshops (50 p.)	Open days in the company for students (45 p.)	Educational paths using IT (55 p.)
7	Consulting (40 p.)	Creation of a space/platform for exchanging knowledge and experience (physical or virtual) (50 p.)	Consultation barter for entrepreneurs (45 p.)	FestEconomic festival (45 p.)
8	Night of Universities (40 p.)	Business education (40 p.)	Company sponsorship of universities/ faculties/ courses (30 p.)	Practical classes (40 p.)
9	Tour of the National Bank of Poland (40 p.)	Science fair (30 p.)	Consultations with an expert from the university (30 p.)	Periodic training (35 p.)
10	Events in iconic places (in terms of age) (30 p.)	Promoting the benefits from learning (25 p.)	Talent showcase (university employees) (15 p.)	Events for the elderly (30 p.)
11	Business incubators (0 p.)	Showing (celebrating) the successes of science (25 p.)	ESG (Environmental, Social and Corporate Governance) as a new area of knowledge—educational initiatives (15 p.)	Scientific competitions (30 p.)
12		Field games (20 p.)	Promotion of new talents—showing the results of the work of young scientists and interest in these business ideas (15 p.)	University open days for high school students and others (20 p.)
13		Support for start-ups (20 p.)	Trainings (15 p.)	“After-hours meetings”—knowledge exchange (0 p.)
14		Combination of science with other scientific and practical disciplines (20 p.)		Computer game (0 p.)
15		Sharing good practices (10 p.)		

\*A hackathon is an event that involves brainstorming ways to solve difficult problems.

solutions, contributing significantly to the social, economic and environmental development of their regions. Their research and collaborative efforts with various stakeholders translate into practical, sustainable solutions, addressing regional needs (Biancardi et al., 2023). Moreover, sustainable development highlights the importance of cultivating relationships with stakeholders and the local governance instruments' development, which requires more involvement of stakeholders (Zeemering, 2018). As Voorberg et al. (2015) claim, it

is also possible to expand the role of stakeholders in the co-creation process beyond implementing a service into designing it and even initiating certain services. Co-creation of services can add more public value to society, which may show up as the development of social capital (Alford, 2011). On the other hand, social capital is also recognised “as an outcome of the co-creation process” (Osborne et al., 2016). The research results show that companies' representatives are willing not only to be recipients of the ECS Katowice 2024

initiative but also play an active role. In their opinion, the joint actions may relate to the stronger city and region brand.

The cooperation between companies and universities is essential for stimulating the economic development of the region. According to Youtie and Shapira (2008), turning a university into a knowledge hub is crucial for fostering business skills among academic faculty, start-up businesses, established corporations and industry. The development and gathering of boundary-spanning roles is one of the essential ways that universities can exchange knowledge. Boundary-spanning activities typically involve exchanging knowledge across boundaries within and outside of the organisation, as well as with actors working in the business, government, and non-profit sectors, including those operating in the social and educational spheres. (Youtie & Shapira, 2008). The research results presented in this work support previous findings in this area. In the opinion of the respondents, universities should be more active participants in the sphere of local development through sharing knowledge with businesses.

There are a number of areas where further research could be beneficial in the context of science communication and public engagement in the ECS Katowice 2024 programme (Moreno-Ibarra & Torres-Ruiz, 2019). Future research could assess the effectiveness of varying science communication and public engagement strategies on public attitudes towards science and technology (Ramasubramanian & Albrecht, 2018). Strategies may include surveys or focus groups to determine the efficiency of different methods in enhancing public comprehension and backing for science. It could also focus on tailoring programmes to the interests of different demographic groups, such as children, youth or older adults.

Exploring the role of media in science communication, both traditional and social, is another promising area of focus. It might entail analysing media coverage of scientific events and gauging the effectiveness of various media forms in advancing scientific literacy. A cultural lens can further enrich this endeavour, investigating cultural values and traditions' impact on the perception and communication of science. This understanding can aid in the effective design of science communication initiatives tailored to cultural nuances.

Examining the impact of science communication and public engagement on policy decision-making could analyse the relationships between public engagement initiatives and policy decisions related to science and technology and identify best practices for involving the public in policy debates.

The indicated future research directions should take into account the barriers to scientific location and investments. The main barriers to scientific investments may relate to International Property Rights Index, which locates Poland in third quantile of all 125 analysed countries, according to the report (Levy-Carciente, 2023). One primary concern in Poland regarding Intellectual Property (IP) usage relates to the prolonged and costly process of securing IP protection. There is also a notable deficit in IP education and awareness among STEM graduates, resulting in many companies lacking the expertise for effective innovation protection and development. Additionally, feedback from smaller innovative firms suggests that Polish universities show limited engagement in collaborations with small- and medium-

sized enterprises (Clayton et al., 2023). The other barrier may be low level of investments in R&D by Polish enterprises (Bienias et al., 2021). The value of national gross expenditure on R&D activities per capita was 1182 PLN in 2022 (about 300 EURO), the main sectors financing research and development activities in Poland were the business sector and the government sector (GUS, 2023).

Key recommendations for building metropolitan events related to the promotion of economic sciences within the ECS Katowice 2024 programme can be made based on the research findings. Primarily, it is recommended to increase efforts to promote the ECS Katowice 2024 initiative through social media, the websites of the City Office and universities and effective positioning in search engines. The use of urban communication channels and city spaces for promotion should also be considered. Initiatives for residents should focus on basic economic knowledge related to household finance and budget management, while those for companies should consider the specific nature and size of the business. Micro and small companies are mostly interested in improving their knowledge of finance, while medium and large companies are also interested in managerial knowledge. To change the perception of Katowice, it is important to incorporate the academic aspect into the city's marketing strategy and base promotional messages on positive associations with the idea of the ECS.

Secondly, the process of designing the plan for celebrating ECS Katowice 2024 should incorporate initiatives proposed and listed in the research participants' rankings. They should be evaluated in terms of feasibility (financial and technical). It should be noted that some of these proposals are long-term investments that would be highly attractive to both residents and companies, such as creating an economy museum. In addition to traditional science promotion activities organised by universities (possibly in collaboration with the city offices and companies), such as conferences, open lectures or knowledge fairs, it is recommended to consider non-traditional ways of transferring knowledge, like field and educational games, knowledge pills on buses or hackathons, and to create opportunities for exchange of experiences between science and business and counselling. Proposals from residents to hold events in outdoor locations, like squares or the Three Ponds Valley, should also be considered. In line with the expectations of companies, the city's actions should be long term, meaning the implementation of the highest ranked initiatives not only in 2024 but also their continuation in subsequent years.

## 6 | CONCLUSIONS

The main objective of this study was to analyse the private companies perception of Katowice as the ECS. The research design referred to its several dimensions—the knowledge perception, city (Katowice) perception, city of science initiative's perception and the perception of planned initiatives. Additionally, the companies' preferences regarding the ECS Katowice 2024 programme were analysed. The research applied the focus group methodology as, despite collecting data, it additionally enables engagement of stakeholders from the private sector. The research sample includes



representatives of businesses operating in the city and metropolitan area.

The study findings contribute to the knowledge explored by the regime theory, (neo)corporativism and inter-organisational theory stating that the city management should incorporate interactions between government and non-governmental actors. The results contribute to the growing body of literature on public engagement and co-creation as well as place branding. The study underlines the significant impact of science and universities in advancing sustainable development within a region, focusing on their roles in education, innovation and research. These institutions strongly contribute to regional development across various domains. Additionally, the study underscores the value of stakeholder engagement and the evolution of local governance tools in sustainable initiatives and emphasises the process of co-creation as important for sustainable development. The involvement of stakeholders is essential, extending from service implementation to design and initiation, thereby enhancing public value and fostering social capital. The research findings also indicate a strong willingness among corporate representatives to actively participate and contribute to initiatives like ECS Katowice 2024, aiming to strengthen the city and regional brand.

Despite the theoretical implications, they also have the practical implications for business. The research results include the detailed description of companies' expectations, as well as the list of concrete activities that should be considered in the process of designing the promotion, communication and celebrations' events related to the City of Science initiatives. As, to the best of the authors' knowledge, this is the first study related to companies' preferences and perception of the ECS initiatives.

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## CONFLICT OF INTEREST STATEMENT

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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