

MANAGEMENT OF INTERNATIONALIZATION AND SCIENCE DISSEMINATION IN EUROSCIENCE PROJECTS: A STUDY ON SOCIETY'S EXPECTATIONS FROM TECHNICAL UNIVERSITIES

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Abstract: This study examines the management strategies for internationalizing and disseminating science in EuroScience projects, focusing on the 2024 European City of Science initiative. It assesses societal expectations towards technical universities' roles in science dissemination for sustainable development, emphasizing the need for managing interdisciplinary collaborations and public engagement. Using a diagnostic survey, the research highlights societal desires for accessible scientific knowledge, popularization of research findings, and interactive science activities. Findings are presented through descriptive statistics and comparative analyses, employing the Shapiro-Wilk, U Mann-Whitney, Kruskal-Wallis tests, and χ^2 Pearson test for nominal variables. The results underscore the importance of effective management in science dissemination to foster public involvement and sustainable advancements.

Key words: internationalisation, European City of Science, dissemination of science, sustainable development

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Introduction

EuroScience projects focus on promoting the idea of open access to scientific research and promoting the internationalization of science to implement the principles of sustainable development. EuroScience is an association founded in Europe in 1997. It is based in Strasbourg (France). It was established by 250 scientists and experts from 25 European countries, and was created on similar principles as the American Association for the Advancement of Science (Gyorffi, 2015). As knowledge is widely considered to be the core of economic growth, the driving force of innovation and the answer to humanity's greatest challenges (Kuzior

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and Kuzior, 2020; Hu et al., 2022), scientific communication should provide interpretive categories, tools and patterns for interpreting reality tailored to specific recipients (Lombardi, 2018; Voda et al., 2022). The internationalization of science is developing thanks to the free exchange of research results, but on a European scale, international scientific competition should be taken into account, which has rapidly intensified due to the growing activity of countries such as e.g. China, India and Brazil (Wünning Tschol, 2012; Zhang et al., 2022). Hence the initiative to create a European platform for scientific-and-technical cooperation undertaken by EuroScience with the support of numerous universities, research centres, foundations, enterprises focused on implementing innovative solutions, as well as the European Commission, appeared (Anguelov et al., 2005).

The initiative was launched as the EuroScience Open Forum (ESOF) (of the European Open Science Forum) in August 2004 in Stockholm (Nilsson, 2005). The European perspective focuses on integrating the results of scientists' work into activities for sustainable development in all interactions between society and nature, at the same time creating new connections between individual scientific disciplines, the world of politics and economy as well as social life. What matters is the attitude of open dialogue between these environments in the spirit of experiencing fascination with science and technology (Rolshofen, 2006; Androniceanu et al. 2023; Belas and Rahman, 2023).

The cities where the ESOF conference is planned to be held are awarded the prestigious title of European City of Science. It is worth emphasizing that the ESOF brand, associated with a pan-European interdisciplinary scientific meeting (Madsen, 2004), attracts thousands of participants to the cities hosting the conference – scientists, politicians, businessmen and media representatives from all over the world (Margol, 2022), as well as local government officials and non-governmental organizations, etc. Thus, the conference became a forum for presenting opinions and a platform for exchanging experiences. Since the inaugural edition ESOF has been the largest scientific conference in Europe, and its task is also to support self-education, scientific integration and interest in science among young people, as it also covers topics such as: the use of artificial intelligence or the development of space (Brown, 2012).

European Cities of Science

The title of European City of Science is awarded to showcase the richness and diversity of the European scientific landscape. This prestigious distinction has been awarded since 2004. So far, this title has been awarded to the following cities: Stockholm, Munich, Barcelona, Turin, Dublin, Copenhagen, Manchester, Toulouse, Trieste and Leiden. European Cities of Science become co-organizers of the EuroScience Open Forum (ESOF) conference. During the closing ceremony of the previous ESOF conference in Leiden, the Netherlands, i.e. European City of Science 2022, organized on July 16, 2022, this title was awarded to Katowice (Poland). For the first time the information about Katowice's distinction was officially announced by the chairman of EuroScience, Professor Michaël Matlosz during a press

conference on December 21, 2021. Katowice (Poland) is the first city in history from Central-and-Eastern Europe honoured with the title of European City of Science. Following the title of European City of Science, the city of Katowice became a co-organizer of EuroScience Open Forum 2024, the aim of which is to support a lively exchange of ideas through debate and other interactions between representatives of the world of science, as well as a series of events to disseminate, promote and popularize science. The event takes place every two years and is dedicated to scientific research and innovation. Taking into account the experience of the previous two decades, the title of European City of Science 2024 may increase the impact of universities on the economic and social activity, and will also contribute to increasing the recognition and strengthening the positive image of Katowice and the region on a national, European and global scale.

The idea of disseminating research results and innovations is not new. Many scientific publications are devoted to innovations. The Scopus database shows over half a million records for the query "innovation" in keywords, titles and abstracts. There are already 1454 papers dated to 2024 (accessed December 31, 2023). There are definitely fewer records for the query "dissemination of research" (1147 documents as of December 31, 2023) and none dated to 2024. Innovations are perceived in various ways and in various contexts (Bochko et al., 2022; Kuzior et al. 2022; Kuzior et al. 2023; Ober, 2022; Ober and Kochmańska, 2022; Ahmed et al., 2023; Kozmenko et al., 2010; Koibichuk et al., 2023; Belgibayeva et al., 2022; Kwilinski, 2019; Weryński and Dolińska-Weryńska, 2021; Knop and Ulewicz, 2020; Ulewicz et al., 2021; Ingaldi and Ulewicz, 2020; Litovtseva et al., 2022, Osnovina and Maltsevich, 2021). The issues of dissemination of research are addressed, among others, by papers by Vanhose and Eigsti, 2023; Lowry et al., 2023; Barkowski et al. 2023; Di Nunzio, 2023; Roberts-Lewis et al., 2023; Gunn et al., 2022; Ingaldi et al. 2023; Smagowicz and Szwed, 2024).

It should also be noted that these are scientific publications and they do not reach a wide group of so-called ordinary readers (non-scientists). The European City of Science initiative is therefore an appropriate tool to disseminate scientific research and innovation in society.

Research Methodology and Materials

With regard to the start of organisational activities before the EuroScience Open Forum 2024, there was a need for public consultations with the residents of Katowice and surrounding cities to establish expectations, plans and level of approval for participation in events prepared within the European City of Science Katowice 2024. This study aimed to quantitatively assess the needs of the residents of Katowice and the surrounding area in relation to the program assumptions of the European City of Science Katowice 2024. Therefore, the following research questions were asked:

- What opinions do residents of Katowice and the surrounding area express about technical universities?

- In what areas should the City of Katowice, according to the residents of Katowice and surrounding areas, tighten substantive cooperation with the Silesian University of Technology as a modern technical university?
- What is the attitude of the residents of Katowice and the surrounding area towards the implementation of technological innovations in the social and economic life of their region?
- What do the residents of Katowice and the surrounding area expect most from the scientific and teaching activities of the Silesian University of Technology in the field of technical sciences in connection with the awarding of the title of European City of Science 2024 to Katowice?
- What do the residents of Katowice and the surrounding area expect most from the events organized within the European City of Science 2024?
- Who do the residents of Katowice and the surrounding area think can benefit most from the cooperation of the City of Katowice with the Silesian University of Technology in the economic, ecological, social and digital transformation?

Research tool

The research was conducted using a diagnostic survey method with the use of the author's questionnaire. This tool consisted of two parts. The first part (22 questions) was intended to collect information on the needs and expectations regarding the program assumptions of the European City of Science Katowice 2024, while the second part (10 questions) was intended to collect anonymous sociodemographic information. The reliability of the research tool was verified with the Cronbach's alpha internal consistency coefficient, the results of which indicated a satisfactory level of reliability ($\alpha = 0.94$).

The surveys were collected electronically via the Interankiety.pl online platform. Residents of Katowice and nearby towns belonging to the Upper Silesian-Zagłębie Metropolis, who were at least 15 years old, were qualified for the study. Children aged 15 to 18 completed the surveys with their parents' consent and supervision. The survey was anonymous and voluntary. Completing the survey was tantamount to the respondents' consent to participate in the study.

Subject of analysis

The needs and expectations of the residents of Katowice and the surrounding area regarding the program assumptions of the European City of Science Katowice 2024 were the main subject of the analysis. Analysing the above-mentioned issues both the level of respondents' expectations related to the events within the European City of Science Katowice 2024, as well as opinions on expectations in this regard from other residents were taken into account. Preferences related to access to information on the above-mentioned events, as well as those related to the form of participation in these events were also examined. In addition, attention was paid to the opinions of the surveyed residents about technical universities. The aim of these analyses was to learn about the needs and expectations of respondents regarding the events within the European City of Science Katowice 2024 and to identify factors relevant to the scope of the above-mentioned needs and expectations.

The first stage of the statistical analysis of the information collected in the study was a general assessment of the distribution of respondents' answers to individual survey questions. Then, the impact of knowledge of universities in Katowice and the surrounding area providing education in the field of technical sciences as well as opinions on their role and the degree of performance of individual scientific and teaching tasks by technical universities were verified.

Methodology of analysis

The results of the survey were subjected to quantitative and descriptive analysis. The values of the analysed measurable variables were presented using the values of basic descriptive statistics, and the unmeasurable ones were presented using the number (n) and percentage (%). The distribution of quantitative variables was verified with the Shapiro-Wilk test for compliance with normal distribution.

The comparison of two independent groups in terms of quantitative variables was made using the non-parametric U Mann-Whitney test along with the effect size measure in the form of Glass's rank biserial correlation coefficient (r_g), and the comparison of three independent groups in terms of the above-mentioned variables - using the non-parametric Kruskal-Wallis test with a *post hoc* test (multiple comparisons) and the effect size measure in the form of the epsilon-squared coefficient (E_R^2). To compare two independent groups in terms of nominal variables the χ^2 Pearson test of independence was used with measures of effect size in the form of the F_i (ϕ) coefficient for 2x2 tables and V Cramér's coefficient for the remaining tables.

The statistical analysis was performed using the Statistica v.13.3 PL statistical package from StatSoft, Inc. company. A 5% risk of inference error was assumed, $p < 0.05$ was considered a statistically significant level.

Characteristics of the research sample

The study involved 382 people living in the city of Katowice and nearby towns, where the majority of the respondents were men (62.30%), the share of women in the study group was 31.15%, and the remaining 6.54% of the respondents refused to provide information about their gender.

The vast majority of respondents were aged 19-35 (80.89%). One in nine people surveyed was between 36 and 50 years old (11.26%). The share of other age groups, i.e. 15-18 years, 51-65 years and 66 years and more, was much smaller and amounted to 2.62%, 3.40% and 1.83% of respondents respectively.

In terms of education, the vast majority of respondents (73.30%) had secondary or post-secondary education. Nearly every fourth person surveyed had higher education (24.08%). A much smaller percentage of respondents had basic vocational education and incomplete primary education (2.09% and 0.52% respectively).

The respondents' households consisted of 1 to 12 members; on average 3.66 people ($SD = 1.57$); whereas the number of underage children in the above-mentioned households ranged from 0 to 6; on average 0.58 ($SD = 0.86$).

Most of the respondents were professionally active, with 46.34% working on the basis of an employment contract, almost every fifth respondent – on the basis of a

civil law contract (19.11%), and 6.81% of the respondents were self-employed. Unemployed people constituted 27.75% of all respondents.

Male and female undergraduate and/or engineering students constituted the vast majority of respondents (68.32%). Every tenth person surveyed (10.73%) was studying for a master's degree. The smallest share in the study group was made up of male and female pupils (2.36%), doctoral students of the doctoral school (2.88%) and students of the university of the third age (1.31%). The remaining 14.40% were neither learning nor studying.

The parents of most respondents did not study in Katowice or other cities in the metropolis. In the case of fathers, the percentage of such cases was 70.42%, and for mothers - 66.23%. The father of every fifth respondent (21.20%) and the mother of every fourth respondent (26.70%) completed the studies. In the case of the children of the respondents, 39.79% of them did not study or they studied in other cities of the metropolis.

The vast majority of respondents lived in Katowice (70.16%). The next places of residence in terms of percentage were Zabrze and Gliwice, where respectively 7.85% and 6.02% of respondents lived. The percentage of other towns was much smaller (from 0.26% to 2.36%).

More than half of the respondents assessed their financial situation as good (51.31%), and 10.73% of the respondents had a very good financial situation. Almost every third respondent assessed their financial situation moderately ("Neither bad nor good") (32.46%), while the percentage of bad and very bad assessments of the above-mentioned situation was 3.4% and 2.09% respectively.

Research Results and Discussion

The Silesian University of Technology was known to the vast majority of respondents as a university offering education in the field of technical sciences (66.75%). The University of Silesia was in the second place in this respect (14.92%). Other universities were mentioned much less frequently by the respondents (from 1.05% in the case of the Częstochowa University of Technology and the Academy of Physical Education to 7.33% in the case of the University of Economics). In turn, almost every fifth person surveyed did not know any university in Katowice and the surrounding area offering education in the above-mentioned field.

When asked about the understanding of the concept of a "learning city", respondents similarly often indicated a city where science is the driving force of economic development (38.74%) and a city where knowledge is used to improve the quality of life of residents (35.08%). According to 13.35% of respondents, the term "learning city" means a city with many universities, while slightly fewer respondents indicated a city with a high percentage of residents with higher education (11.78%). Another way of understanding the above-mentioned concept was presented by 1.05% of respondents.

When assessing (on a scale of 1-5) the technical university in the context of performing specific roles, the respondents gave the highest ratings, in particular

considering it a place for educating engineering specialists (56.54% of ratings at level 5), an institution cooperating with entrepreneurs and industry (50.00%) and a team of scientists conducting specialized research to improve the quality of human life (46.34%). Relatively high ratings, i.e. most often at levels 4 and 5, were given by respondents considering the technical university as a place for discussion and free exchange of views (34.29% and 35.86% respectively), an entity that engages in the discussion on finding solutions to socially, technologically, economically and/or environmentally important issues (35.60% and 40.31% respectively), an institution of comprehensive intellectual human development (39.53% and 39.79% respectively), an institution popularizing scientific knowledge at the local and regional level (34.29% and 37.70% respectively) and the region's brand contributing to the increase in its attractiveness (34.29% and 36.65% respectively). In the case of assessments regarding the remaining roles of the technical university, the respondents assigned them slightly less importance, but in relation to the above-mentioned universities as a team of scientists conducting specialized research only for a narrow circle of interested people they were most often rated by respondents at levels 3, 4 and 5 (25.65%, 31.41% and 25.92% respectively), while in relation to an institution shaping the culture of health, ethical and pro-ecological values – similarly often at levels 3 and 4 (29.06% and 31.94% respectively).

The distribution of the results of descriptive statistics regarding the assessment of technical university in the context of performing specific roles shows that the respondents attributed the greatest importance to the above-mentioned university as a place of educating engineering specialists ($M = 4.41$; $SD = 0.8$), an institution cooperating with entrepreneurs and industry ($M = 4.28$; $SD = 0.86$) and a team of scientists conducting specialized research to improve the quality of human life ($M = 4.21$; $SD = 0.89$). A slightly smaller role was assigned to a technical university as an institution of comprehensive intellectual human development ($M = 4.15$; $SD = 0.85$) and an entity engaging in the discussion on finding solutions to socially, technologically, economically and/or environmentally important issues ($M = 4.12$; $SD = 0.89$). The next places in terms of the importance of the roles performed by a technical university were: an institution popularizing scientific knowledge at the local and regional level ($M = 4$; $SD = 0.98$), the region's brand contributing to the increase in its attractiveness ($M = 3.98$; $SD = 0.99$) and a place for discussion and free exchange of views ($M = 3.96$; $SD = 0.99$). The respondents assigned the least important role to a technical university in the context of a team of scientists conducting specialized research only for a narrow group of interested people ($M = 3.64$; $SD = 1.09$) and an institution shaping the culture of health, ethical and pro-ecological values ($M = 3.57$; $SD = 1.06$) (Table 1).

Table 1. The respondents' assessment of the technical university in the context of performing specific roles (descriptive statistics)

	Descriptive statistics					
	Mean ± Standard deviation	Median [Q25 - Q75]	Min. - Max.	Confidence interval		Standard error
				- 95.00 %	+95.00 %	
A place for educating engineering specialists	4.41 ± 0.8	5 [4 - 5]	1 - 5	4.33	4.49	0.04
A place for discussion and free exchange of views	3.96 ± 0.99	4 [3 - 5]	1 - 5	3.86	4.06	0.05
An institution of comprehensive intellectual human development	4.15 ± 0.85	4 [4 - 5]	1 - 5	4.06	4.23	0.04
An institution shaping the culture of health, ethical and pro-ecological values	3.57 ± 1.06	4 [3 - 4]	1 - 5	3.46	3.68	0.05
An entity that engages in the discussion on finding solutions to socially/technologically/economically/environmentally important issues	4.12 ± 0.89	4 [4 - 5]	1 - 5	4.03	4.20	0.05
A team of scientists conducting specialized research only for a narrow circle of interested people	3.64 ± 1.09	4 [3 - 5]	1 - 5	3.53	3.75	0.06
A team of scientists conducting specialized research to improve the quality of human life	4.21 ± 0.89	4 [4 - 5]	1 - 5	4.12	4.30	0.05
An institution popularizing scientific knowledge at the local and regional level	4 ± 0.98	4 [3 - 5]	1 - 5	3.90	4.10	0.05
An institution cooperating with entrepreneurs and industry	4.28 ± 0.86	4.5 [4 - 5]	1 - 5	4.19	4.36	0.04
A region's brand contributing to the increase in its attractiveness	3.98 ± 0.99	4 [3 - 5]	1 - 5	3.89	4.08	0.05

According to the majority of respondents, the City of Katowice should tighten substantive cooperation with the Silesian University of Technology in the field of implementing the concept of Smart City (67.02%), transport (57.85%) and urban engineering (53.66%). A significant percentage of respondents also indicated the field of ecology (40.05%). One in five respondents believed that the above-mentioned cooperation should be tightened in the field of housing (20.68%), and slightly fewer people also paid attention to social policy in this respect (17.02%). The provision of public services by local government as a field of cooperation between the City of Katowice and the Silesian University of Technology was mentioned by 13.61% of respondents. The respondents least often indicated fields

such as waste collection and disposal; water supply and sewage collection and municipal services (10.73%; 9.16% and 8.12% respectively). Other fields of the above-mentioned cooperation were indicated by 2.09% of respondents.

According to the majority of respondents (65.18%) all residents could benefit most from the cooperation of the City of Katowice with the Silesian University of Technology in the economic, ecological, social and digital transformation. Moreover, just over half of the respondents paid attention to local entrepreneurs as potential beneficiaries of the above-mentioned cooperation (50.26%). A significant percentage of respondents believed that external investors creating jobs in Katowice (41.62%) and primary and secondary schools (38.48%) can benefit most from the above-mentioned cooperation of the City of Katowice with the Silesian University of Technology, and slightly fewer respondents mentioned here cultural, sports and recreation institutions (28.01%). One in five respondents believed that public administration can also benefit from the above-mentioned cooperation (21.20%), and slightly fewer respondents paid attention to environmental protection services (18.06%) and health care (14.40%) in this respect. Almost every ninth person surveyed was of the opinion that non-governmental organizations (11.52%) and crisis management and protection of residents (11.26%) can benefit most from the above-mentioned cooperation.

The respondents were divided in their assessment of the performance of particular tasks by technical universities through their research and teaching activities. The task of developing knowledge and competences of the residents of Katowice and the surrounding area was assessed on a scale of 1-6, mostly at levels 4, 5 and 6 (24.08%; 30.10% and 23.30% respectively). The situation was similar in the case of tasks related to making it easier for residents of Katowice and the surrounding area to find a job (24.61%; 25.65% and 24.08% respectively), contributing to the creation of technological innovations related to the functioning of Katowice and the surrounding area (30.89%; 30.63% and 20.42% respectively), having a positive impact on the cooperation of Katowice with other cities (25.92%; 31.94% and 21.99% respectively) and on the international image and recognition of Katowice and the region in the European cultural and economic space (21.73%; 32.72% and 28.53% respectively).

Slightly worse, although still good, i.e. mainly at levels 4 and 5 on a scale of 1-6, was assessed the degree to which technical universities perform tasks such as: facilitating comprehensive and widespread contact with science for the residents of Katowice and the surrounding area (31.15% and 26.96% respectively); a positive impact on the integration of residents of Katowice and the surrounding area (33.51% and 26.18% respectively) and on pro-ecological solutions in the field of transport in Katowice and the surrounding area (31.41% and 24.61% respectively) and in the field of energy sources and heating (28.80% and 26.44% respectively); contributing to the creation of cultural innovations (33.25% and 25.65% respectively) and social innovations related to the functioning of Katowice and the surrounding area (34.55% and 24.87% respectively); supporting the use of digital solutions in Katowice and

the surrounding area (29.32% and 33.51%, respectively); as well as facilitating active participation of Katowice residents in the region's transformation process (30.10% and 28.01% respectively).

Most respondents would like to obtain information about new technical solutions developed by scientists from the Silesian University of Technology primarily from social media (67.02%), at popular science meetings (58.38%) and on a distance education platform (54.97%). Postgraduate studies were preferred as a way of acquiring the above-mentioned information in the case of almost every fifth person surveyed (19.37%). On average, every ninth person mentioned the University of the Third Age, the Children's University and other methods of obtaining information (10.99%; 10.73% and 11.52% respectively). 2.09% of respondents did not have any specific preferences in this respect yet.

The respondents mainly showed rather high or high approval for the introduction of technological innovations into social and economic life (41.62% and 40.05% respectively). The share of people with rather low and low levels of the above-mentioned approval was 3.66% and 0.52%, respectively. The remaining 14.14% of respondents had no knowledge in this field.

In the case of people who received information about planned events within the European City of Science Katowice 2024 almost half of them learned about them from social media (47.06%). Internet portals and presentations were much less likely to be such a channel for transmitting the above-mentioned information (18.63%), and the least common were radio, television and the press (6.86%; 3.92% and 3.92% respectively). Almost every fifth person (19.61%) was reached through other information transmission channels.

According to the vast majority of respondents technical sciences can largely contribute to solving problems and taking up urban, regional and metropolitan challenges (77.49%). One in five surveyed people assessed the degree of the above-mentioned possibilities of technical sciences as average (21.20%). The remaining 1.31% of respondents believed that the degree of possibilities of technical sciences in this respect is low.

The respondents noticed relatively many expectations of the residents of Katowice and the surrounding area towards the events within the European City of Science Katowice 2024. Similarly, they often mentioned expectations such as access to knowledge, popularization of the latest scientific research, attractive spending of free time in contact with science, the opportunity to learn about the impact of technical sciences on improving the quality of life and increasing the level of their professional competences (from 42.93% to 49.48%). Moreover, a significant percentage of respondents drew attention to expectations related to the promotion of the region and Katowice as areas of science (37.17%). Other expectations were mentioned by an additional 0.52% of respondents.

The respondents rated most of their expectations towards the scientific and teaching activities of the Silesian University of Technology in the field of technical sciences in connection with the awarding of the title of European City of Science 2024 to

Katowice as high, i.e. at levels 4 and 5 on a scale of 1-5. This situation was noted in the case of expectations such as: facilitating comprehensive and widespread contact with science for the residents of Katowice (41.62% and 35.34% respectively), facilitating solving the problems and challenges of Katowice and the surrounding area (39.01% and 30,89% respectively), making everyday life easier for residents of Katowice and surrounding areas (36.91% and 38.48% respectively), developing knowledge and competences of residents of Katowice and surrounding areas (40.05% and 36.91% respectively), making it easier for residents Katowice and surrounding areas to find a job (32.20% and 43.19% respectively), contributing to the creation of technological innovations related to the functioning of Katowice and the region (37.17% and 42.67% respectively), supporting the use of digital solutions in Katowice (39.79% and 39.79% respectively), positive impact on the integration of residents (35.08% and 30.89% respectively), on the cooperation of Katowice with other cities (38.22% and 37.96% respectively), on the international image and recognition of Katowice in the European cultural and economic space (35.86% and 43.19% respectively), on pro-ecological solutions in the field of transport in Katowice (33.77% and 37.96% respectively), as well as in the field of energy sources and heating (35, 86% and 35.08% respectively) and in the field of waste segregation and recycling in the city (33.77% and 37.17% respectively), as well as facilitating active participation of Katowice residents in the process of transformation of the region (38.48% and 30.63% respectively).

In the case of other expectations, the respondents were more divided, and most often they assessed at level 4 on a scale of 1-5 those related to helping in planning the strategy of Katowice and other cities in the region (40.84%) and contributing to the creation of social innovations related to the functioning of Katowice (40.31%). They were most divided in terms of expectations related to contributing to the creation of cultural innovations related to the functioning of Katowice and the region, where ratings of 3, 4 and 5 were similarly often indicated (28.53%, 33.25% and 27.23% respectively).

The values of descriptive statistics measures relating to the level of individual expectations towards the scientific and teaching activities of the Silesian University of Technology in the field of technical sciences in connection with awarding Katowice the title of European City of Science 2024 show that the respondents expected to the greatest extent contributing to the creation of technological innovations related to the functioning of Katowice and the region ($M = 4.18$; $SD = 0.88$), a positive impact on the international image and recognition of Katowice in the European cultural and economic space ($M = 4.14$; $SD = 0.95$) and supporting the use of digital solutions in Katowice ($M = 4.14$; $SD = 0.88$). The next places in this respect were expectations such as making it easier for residents of Katowice and the surrounding area to find a job ($M = 4.09$; $SD = 1$), facilitating comprehensive and widespread contact with science for the residents of Katowice ($M = 4.06$; $SD = 0.89$), developing knowledge and competences of the residents of Katowice and the surrounding area ($M = 4.06$; $SD = 0.93$), making everyday life easier for the residents

of Katowice and the surrounding area ($M = 4.04$; $SD = 0.98$) and having a positive impact on the cooperation of Katowice with other cities ($M = 4.03$; $SD = 1$). Regarding the scientific and teaching activities of the Silesian University of Technology in the field of technical sciences in connection with awarding Katowice the title of European City of Science 2024, the respondents expected slightly less from activities related to a positive impact on pro-ecological solutions in the field of energy sources and heating ($M = 3.97$; $SD = 0,98$), transport in Katowice ($M = 3.97$; $SD = 1.06$) and waste segregation and recycling in the city ($M = 3.97$; $SD = 1.03$), as well as those related to facilitating the solution of problems and challenges of Katowice and the surrounding area ($M = 3.92$; $SD = 0.96$) and helping to plan the strategy of Katowice and other cities in the region ($M = 3.91$; $SD = 0.94$). The least expected tasks included: having a positive impact on the integration (social, economic and territorial) of residents ($M = 3.87$; $SD = 0.99$), facilitating active participation of Katowice residents in the process of transformation of the region ($M = 3.85$; $SD = 1.04$), contributing to the creation of social innovations ($M = 3.77$; $SD = 1.04$) and cultural innovations related to the functioning of Katowice and the region ($M = 3.72$; $SD = 1.08$) (Table 2).

Table 2. Respondents' expectations towards the scientific and teaching activities of the Silesian University of Technology in the field of technical sciences in connection with the awarding of the title of European City of Science 2024 to Katowice (descriptive statistics)

	Descriptive statistics					
	Mean \pm Standard deviation	Median [Q25 - Q75]	Min. - Max.	Confidence interval		Standard error
				-95.00%	+95.00%	
Facilitating comprehensive and widespread contact with science for the residents of Katowice	4.06 \pm 0.89	4 [4 - 5]	1 - 5	3.97	4.15	0.05
Facilitating solutions to problems and challenges of Katowice and the surrounding area	3.92 \pm 0,96	4 [3 - 5]	1 - 5	3.82	4.02	0.05
Making everyday life easier for residents of Katowice and the surrounding area	4.04 \pm 0.98	4 [4 - 5]	1 - 5	3.95	4.14	0.05
Developing knowledge and competences of residents of Katowice and the surrounding area	4.06 \pm 0.93	4 [4 - 5]	1 - 5	3.96	4.15	0.05

	Descriptive statistics					Standard error
	Mean \pm Standard deviation	Median [Q25 - Q75]	Min. - Max.	Confidence interval		
				-95.00%	+95.00%	
Making it easier for residents of Katowice and the surrounding area to find a job	4.09 \pm 1	4 [4 - 5]	1 - 5	3.99	4.19	0.05
Positive impact on the integration (social, economic and territorial) of residents	3.87 \pm 0.99	4 [3 - 5]	1 - 5	3.77	3.97	0.05
Helping in planning the strategy of Katowice and other cities in the region	3.91 \pm 0.94	4 [3 - 5]	1 - 5	3.81	4.00	0.05
Contributing to the creation of technological innovations related to the functioning of Katowice and the region	4.18 \pm 0,88	4 [4 - 5]	1 - 5	4.09	4.26	0.05
Contributing to the creation of cultural innovations related to the functioning of Katowice and the region	3.72 \pm 1.08	4 [3 - 5]	1 - 5	3.61	3.83	0.06
Contributing to the creation of social innovations related to the functioning of Katowice and the region	3.77 \pm 1.04	4 [3 - 5]	1 - 5	3.67	3.87	0.05
Supporting the use of digital solutions in Katowice	4.14 \pm 0.88	4 [4 - 5]	1 - 5	4.05	4.23	0.05
Positive impact on Katowice's cooperation with other cities	4.03 \pm 1	4 [4 - 5]	1 - 5	3.93	4.14	0.05
Positive impact on the international image and recognition of Katowice in the European cultural and economic space	4.14 \pm 0.95	4 [4 - 5]	1 - 5	4.05	4.24	0.05
Positive impact on pro-ecological solutions in the field of transport in Katowice (electric	3.97 \pm 1.06	4 [3 - 5]	1 - 5	3.86	4.08	0.05

	Descriptive statistics					
	Mean ± Standard deviation	Median [Q25 - Q75]	Min. - Max.	Confidence interval		Standard error
				- 95.00%	+95.00%	
vehicles, bicycle paths, clean transport zones, etc.)						
Positive impact on pro- ecological solutions in the field of energy sources and heating (photovoltaics, heat pumps, etc.)	3.97 ± 0.98	4 [3 - 5]	1 - 5	3.88	4.07	0.05
Positive impact on pro- ecological solutions in the field of waste segregation and recycling in the city	3.97 ± 1.03	4 [3 - 5]	1 - 5	3.87	4.07	0.05
Facilitating Katowice's residents to actively participate in the region's transformation process	3.85 ± 1.04	4 [3 - 5]	1 - 5	3.75	3.96	0.05

The preferred form of access to information about the Silesian University of Technology's offer within the European City of Science Katowice 2024 by the majority of respondents is primarily social media (83.77%) and Internet portals (70.42%), but also meetings with scientists during open lectures and talks. (52.88%). Television was such preferred form of access to the above-mentioned information for 26.96% of respondents, and radio – for every fifth person (20.94%). The respondents chose press and outdoor advertising media slightly less frequently (16.75% and 12.83% respectively), while other forms of access to the above-mentioned information were indicated by 0.79% of the respondents.

Most respondents wanted to participate in the events organized by technical universities within the European City of Science Katowice 2024 both online (61.26%) and in person (53.93%). Nearly every third person surveyed expressed their willingness to participate in the above-mentioned events by disseminating information about the course of events on social media (31.41%), and on average every fifth person expressed their willingness to participate through the implementation of events (volunteering), cooperation with scientists within the idea of citizen science and co-creation of the program (21.99%; 19.63% and 19.37% respectively). 2.09% of respondents were interested in other additional forms of participation in the above-mentioned events.

When assessing the attractiveness of particular forms of popularizing scientific content on a scale of 1-5, most respondents gave the highest rating to the demonstration of equipment and new technologies (70.42%), observation of a scientific experiment (67.02%) and workshops (52.36%). Generally, respondents gave high marks, at levels 4 and 5, when assessing the attractiveness of participating in solving tasks (37.96% and 30.63% respectively). The respondents assessed slightly lower, i.e. most often at levels 3 and 4, the attractiveness of the talk or lecture (26.18% and 38.22% respectively) and the question and answer session (28.01% and 32.20% respectively). However, they were most divided in their assessment of the attractiveness of the expert debate, rating it similarly often at levels 3, 4 and 5 (29.06%; 29.06% and 26.44% respectively).

After calculating the descriptive statistics regarding the assessment of the attractiveness of particular forms of popularizing scientific content, the previous conclusions were confirmed, indicating that the most attractive for the respondents were: demonstration of equipment and new technologies ($M = 4.56$; $SD = 0.79$), observation of a scientific experiment ($M = 4.55$; $SD = 0.74$) and workshops ($M = 4.29$; $SD = 0.89$). The next places in this respect were forms of popularizing scientific content such as: participation in solving tasks ($M = 3.84$; $SD = 1.07$), expert debate ($M = 3.62$; $SD = 1.13$), talk or lecture ($M = 3.57$; $SD = 1.07$) and question and answer session ($M = 3.48$; $SD = 1.15$).

In terms of the scale of willingness to learn about the achievements of particular technical sciences during the events organized within the European City of Science Katowice 2024, respondents were very divided. Generally, they expressed readiness to learn about the above-mentioned achievements in fields such as: automation, electronics and electrical engineering (43.98% of responses were "Definitely yes" and 28.80% of responses were "Rather yes"), technical IT and telecommunications (39.01% and 28.80% respectively) and civil engineering and transport (25.13% and 26.96% respectively). Moreover, the respondents mostly expressed their willingness ("Definitely yes" and "Rather yes") to learn about the achievements of biomedical engineering (23.82% and 27.49% respectively), mechanical engineering (23.30% and 27.75% respectively) and management and quality sciences (social sciences) (27.75% and 23.30% respectively), but similarly often they had no opinion on their willingness to learn about the achievements of the above-mentioned sciences (24.08%, 24.08% and 22.51% respectively). In the case of other technical sciences (i.e. chemical engineering, architecture and urban planning, as well as materials engineering), the respondents were very divided in terms of the degree of willingness to learn about the achievements of disciplines, which is presented in detail in the table below.

The respondents highly assessed the potential importance of particular activities carried out as part of the metropolitan event European City of Science Katowice 2024. On a scale of 1-5, over half of the respondents gave the highest rating in relation to free activities for children and/or school youth (50.79%) and the availability of events (51.83%). In the case of all other activities, most respondents

rated their importance at levels 4 and 5; this concerned both the involvement of specialists in technical sciences (35.08% and 47.12% respectively), the possibility of engaging the audience in performing practical tasks (34.03% and 44.50% respectively), the effectiveness of information on planned activities (35.08% and 42.41% respectively), contact with specialists and scientific authorities in a given field (30.89% and 46.07% respectively), use of forms of distance communication – ensuring online transmission of events (31.68% and 44.76% respectively), diversification of offers tailored to the needs of different age groups (35.08% and 37.70% respectively), as well as free classes for seniors (28.53% and 35.60% respectively).

Taking into account the measures of basic descriptive statistics regarding the assessment of the potential importance of particular activities carried out within the metropolitan event European City of Science Katowice 2024, the respondents attributed similar importance to the availability of events ($M = 4.25$; $SD = 0.92$) and the involvement of specialists in technical sciences ($M = 4.25$; $SD = 0.85$), and slightly lower to free classes for children and/or school youth ($M = 4.21$; $SD = 0.98$). The next places in this respect were: the possibility of engaging the audience in performing practical tasks ($M = 4.18$; $SD = 0.9$), contact with specialists and scientific authorities in a given field ($M = 4.16$; $SD = 0.95$), the effectiveness of information on planned activities ($M = 4.15$; $SD = 0.89$) and the use of forms of distance communication – ensuring online transmission of events ($M = 4.14$; $SD = 0.95$). The respondents attributed the least importance to the diversity of offers tailored to the needs of different age groups ($M = 4.01$; $SD = 0.99$) and free classes for seniors ($M = 3.79$; $SD = 1.19$).

The majority of respondents believed it is necessary to present the post-industrial monuments of the region during the European City of Science Katowice 2024 and assessing the above-mentioned need on a scale of 1-5, the highest ratings, i.e. 4 and 5, were indicated by 36.13% and 36.13% of respondents respectively. A moderate rating at level 3 was given by 18.59% of respondents, while the least respondents rated the above-mentioned need at levels 2 and 1 (5.50% and 3.66% respectively).

The respondents generally assessed the scientific potential of the Upper Silesian-Zagłębie Metropolis positively compared to other academic centers in the country, with most people assessed it at level 4 on a scale of 1-5 (38.48%), and the share of the respondents with the highest ratings was 29.84%. Slightly fewer respondents assessed the above-mentioned potential moderately (26.70% of ratings "3"). The share of the lowest ratings, i.e. at levels 1 and 2, was 0.26% and 4.71% respectively.

Conclusion

Residents of Katowice and the surrounding area consider technical universities primarily as a place for educating engineering specialists, an institution cooperating with entrepreneurs and industry, and a team of scientists conducting specialized research to improve the quality of human life. When assessing the scientific and technical activities of this type of universities, residents pay particular attention to

their positive impact in the context of the international image and recognition of Katowice and the region in the European cultural and economic space and in the context of Katowice's cooperation with other cities, as well as the contribution of these universities to the creation of technological innovations related to the functioning of Katowice and the surrounding area, developing the knowledge and competences of the residents of Katowice and the surrounding area and facilitating their comprehensive and widespread contact with science.

According to the residents of Katowice and the surrounding area, the City of Katowice should tighten substantive cooperation with the Silesian University of Technology, primarily in the fields of implementing the Smart City concept, transport and urban engineering.

Residents of Katowice and the surrounding area express a positive attitude towards the implementation of technological innovations into the social and economic life of their region, i.e. they have a high level of approval for the introduction of this type of innovation and believe that technical sciences can largely contribute to solving problems and taking on urban, regional and metropolitan challenges (mainly in the fields of infrastructure modernization, improving the quality of life and access to knowledge-based jobs in the industries of the future).

In view of the scientific and didactic activities of the Silesian University of Technology in the field of technical sciences in connection with the awarding of the title of European City of Science 2024 to Katowice, the residents of Katowice and the surrounding area expect, first of all, to contribute to the creation of technological innovations related to the functioning of Katowice and the region, a positive impact on the international image and recognition of Katowice in European cultural and economic space and supporting the use of digital solutions in Katowice. In terms of how to obtain information about new technical solutions developed by scientists from the Silesian University of Technology, residents mainly prefer social media, popular science meetings and the distance education platform; and they would prefer to obtain information about the offer of the Silesian University of Technology within the European City of Science Katowice 2024 from social media, internet portals and meetings with scientists during open lectures and talks.

Regarding the events organized within the European City of Science 2024, the residents of Katowice and the surrounding area expect, above all, access to knowledge, popularization of the latest scientific research and attractive ways to spend their free time in contact with science. The topics most interesting to residents in the field of technical sciences are – in terms of the above-mentioned events – automation, electronics and electrical engineering; technical IT and telecommunications as well as environmental engineering, mining and energy; at the same time, residents express their willingness to get to know during the above-mentioned events with achievements in technical science disciplines, mainly related to automation, electronics and electrical engineering, as well as technical IT and telecommunications. According to residents, the greatest importance within the above-mentioned events have activities related to their accessibility, the involvement

of specialists in technical sciences and free classes for children and/or school youth. In terms of the form of participation in the above-mentioned events, residents most often express their willingness to participate in online events and participate directly in events within the European City of Science Katowice 2024. The respondents consider the most attractive form of popularizing scientific content to be mainly the demonstration of equipment and new technologies, observation of a scientific experiment and workshops.

According to the residents of Katowice and the surrounding area, all inhabitants of the region can benefit from the cooperation of the City of Katowice with the Silesian University of Technology in the economic, ecological, social and digital transformation. Moreover, they often mention local entrepreneurs and external investors who create jobs in Katowice as potential beneficiaries of the above-mentioned cooperation.

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References

- Ahmed, N., Ore Areche, F., Saenz Arenas, E. R., Cosio Borda, R. F., Javier-Vidalón, J. L., Silvera-Arcos, S., Ober, J. and Kochmańska, A., (2023). Natural disasters and energy innovation: unveiling the linkage from an environmental sustainability perspective. *Frontiers in Energy Research*, 11, 1256219.
- Androniceanu, A., (2023). The new trends of digital transformation and artificial intelligence in public administration. *Administratie si Management Public*, 40, 147-155
- Angelov, S., Baruch, P. and Praderie, F., (2005). Spreading the word: who profits from science publishing? A symposium held at the EuroScience Open Forum. *Learned publishing*, 18(1), 67-74.
- Barkowski, C. M. A., Ward, E. A., Barrera, S., Shen, S.-E. and Tandon, S. D., (2023). Development of an Online Training to Engage Home Visitors as Research Stakeholders. *Progress in Community Health Partnerships: Research, Education, and Action*, 17(4), 721–730.
- Belas, J., Rahman, A., (2023). Financial management of the company. Are there differences of opinion between owners and managers in the SME segment? *Journal of Business Sectors*, 1(1), 1-9.
- Belgibayeva, A., Samoilikova, A., Vasylieva, T. and Lieonov, S., (2022). Influence of Monetary Policy Instruments and Indicators on Dynamics of Financing Innovation: Empirical Evidence. *Financial and Credit Activity: Problems of Theory and Practice*, 3(44), 30–42.
- Bochko, O.Yu., Maletska, O. I., Tsitska, N. E. and Kapral, O. R. (2022). Paradigm of a Country Competitiveness Under Conditions of Digital Economy. *Review of Economics and Finance*, 20, 572–580.
- Brown, F., (2012). Space at ESOF 2012. *Space Policy*, 28(4), 299-300.

- Di Nunzio, G. M., (2023). Focused Issue on Digital Library Challenges to Support the Open Science Process. *International Journal on Digital Libraries*, 24(4), 185–189.
- Gunn, C. M., Amerson, A. M., Adkisson, K. L. and Haxel, J. H., (2022). A Framework for Effective Science Communication and Outreach Strategies and Dissemination of Research Findings for Marine Energy Projects. *Journal of Marine Science and Engineering*, 10(2), 130.
- Gyorffi, M. L., (2015). Focus on: Learning in the 21st Century at the EuroScience Open Forum-ESOF 2014. *EPRS: European Parliamentary Research Service*.
- He, Q., Xia, P., Hu, C. and Li, B., (2022). Public Information, Actual Intervention and Inflation Expectations. *Transformations in Business & Economics*, 21(3C), 644-666.
- Ingaldi, M., Ulewicz, R. and Klimecka-Tatar, D., (2023). Creation of the university curriculum in the field of Industry 4.0 with the use of modern teaching instruments - Polish case study. *Procedia Computer Science*, 217, 660–669.
- Ingaldi, M., Ulewicz, R., (2020). Problems with the implementation of industry 4.0 in enterprises from the SME sector. *Sustainability*, 12(1), 217.
- Knop, K., Ulewicz, R., (2020). Analysis of the impact of technological innovation on improving the quality of door joinery. *Sustainability of Forest-Based Industries in the Global Economy - Proceedings of Scientific Papers*, 327–331.
- Koibichuk, V., Samoilikova, A. and Vasylieva, T., (2023). Digitalization and Innovation Transfer as a Leadership Trend in Education: Bibliometric Analysis and Social Analytics. *Springer Proceedings in Business and Economics*, 233–247.
- Kozmenko, S., Vasylieva, T. and Leonov, S., (2010). The structuring of components of the net domestic product according to the innovation criterion. *Innovative Marketing*, 6(4), 30–41.
- Kuzior, A., Kuzior, P., (2020). The Quadruple Helix Model as a Smart City Design Principle. *Virtual Economics*, 3(1), 39–57.
- Kuzior, A., Pidorycheva, I., Liashenko, V., Shevtsova, H., Shvets, N., (2022). Assessment of National Innovation Ecosystems of the EU Countries and Ukraine in the Interests of Their Sustainable Development. *Sustainability*, 14(14), 8487.
- Kuzior, A., Sira, M. and Brożek, P., (2023). Use of Artificial Intelligence in Terms of Open Innovation Process and Management. *Sustainability*, 15(9), 7205.
- Kwilinski, A., (2019). Implementation of blockchain technology in accounting sphere. *Academy of Accounting and Financial Studies Journal*, 23(2), 1-6.
- Litovtseva, V., Krawczyk, D., Kuzior, A., Brychko, M. and Vasylieva, T., (2022). Marketing research in the context of trust in the public sector: A case of the digital environment. *Innovative Marketing*, 18(4), 133–147.
- Lombardi, A., (2018). The EuroScience Open Forum: an open arena reflecting multiple dimensions of contemporary science communication, Scuola Internazionale Superiore di Studi Avanzati Master in Comunicazione della Scienza „Franco Prattico”.
- Lowry, E., Hogan, M. J., Moriarty, J., Harney, O.M, Ruijter, E., Pilch, M., Groarke, J.M., Hanlon, M. and Shuttleworth, I., (2023). Using collective intelligence methods to improve government data infrastructures and promote the use of complex data: The example of the Northern Ireland Longitudinal Study. *Health Research Policy and Systems*, 21(1), 134.
- Madsen, C., (2004). Report on the EuroScience Open Forum 2004. *The Messenger*, 117, 66-66.

- Margol, J. (2022). Konferencja EuroScience Open Forum 2022 Regional Site (Katowice, 15 lipca 2022 r.). *Biuletyn EBIB*, (205).
- Nilsson, A., (2005). Giving substance to sustainable development: *Documentation from a round-table discussion August 26, 2004, at the EuroScience Open Forum 2004 in Stockholm*. Linköping University Electronic Press.
- Ober, J., Kochmańska, A., (2022). Adaptation of innovations in the IT industry in Poland: The impact of selected internal communication factors. *Sustainability*, 14(1), 140.
- Ober, J., (2022). Open Innovation in the ICT Industry: Substantiation from Poland. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(3), 158.
- Osnovina L., Maltsevich I., (2021). Assessment of innovative solutions and risks of development in the construction industry. *Construction of Optimized Energy Potential (CoOEP)*, 10(2), 7-14.
- Roberts-Lewis, S. F., Baxter, H. A., Mein, G., Quirke-McFarlane., S., Leggat , F.J., Garner, H.M., Powell, M., White, S. and Bearne, L., (2023). The Use of Social Media for Dissemination of Research Evidence to Health and Social Care Practitioners: Protocol for a Systematic Review. *JMIR Research Protocols*, 12, e45684.
- Rolshofen W., (2006), ESOF2006 – EUROSCIENCE Open Forum in München, IMW. *Institutsmitteilung*, 31, 73-75.
- Smagowicz, J., Szwed, C., (2024). Development of a systematic approach to the implementation of modern information technologies in manufacturing enterprises. *Production Engineering Archives*, 30(1), 36-47.
- Ulewicz, R., Siwiec, D., Pacana, A., Tutak, M. and Brodny, J., (2021). Multi-criteria method for the selection of renewable energy sources in the polish industrial sector. *Energies*, 14(9), 2386.
- Vanhoose, L., Eigsti, H., (2023). The Changing Landscape of Intercultural Mindset in 616 Doctor of Physical Therapy Students over the Past 7 Years and the Implications for Doctor of Physical Therapy Cultural Competence Education. *Journal of Physical Therapy Education*, 37(4), 271–277.
- Voda, A. I., Florea, N., Ciulu, R., Costuleanu, C. L. and Gradinaru, C., (2022). Digital Strategy Assessment in Education. What Actions Need to be Addressed? The Perception of Students in Social Sciences and Humanities. *Transformations in Business & Economics*, 21(2A), 462-478.
- Weryński, P., Dolińska-Weryńska, D., (2021). Agency barriers of the members of silesian senior NGOs in the implementation of social innovation (Poland). *Sustainability*, 13(7), 3734.
- Wünning Tschol, I., (2012). Euroscience Open Forum–ein Ort der persönlichen Begegnungen für die europäische Forschergemeinde. *Handbuch Wissenschaftskommunikation*, 89-92.
- Zhang, N., Ding, W., (2022). Influencing Paths of China’s Financial Investment in Science and Technology on Low-carbon Economic Transformation. *Transformations in Business & Economics*, 2(2A), 630-657.

**ZARZĄDZANIE INTERNACJONALIZACJĄ
I UPOWSZECHNIANIEM NAUKI W PROJEKTACH
EUROSCIENCE: BADANIE OCZEKIWAŃ SPOŁECZEŃSTWA
WOBEC UCZELNI TECHNICZNYCH**

Streszczenie: Niniejsze badanie analizuje strategie zarządzania internacjonalizacją i rozpowszechnianiem nauki w projektach EuroScience, koncentrując się na inicjatywie Europejskie Miasto Nauki 2024. Ocenia oczekiwania społeczne wobec roli uczelni technicznych w upowszechnianiu nauki na rzecz zrównoważonego rozwoju, podkreślając potrzebę zarządzania współpracą interdyscyplinarną i zaangażowaniem publicznym. Wykorzystując ankietę diagnostyczną, badanie podkreśla społeczne pragnienia dotyczące dostępnej wiedzy naukowej, popularyzacji wyników badań i interaktywnych działań naukowych. Wyniki przedstawiono za pomocą statystyk opisowych i analiz porównawczych, wykorzystując testy Shapiro-Wilka, U Manna-Whitneya, Kruskala-Wallisa oraz test χ^2 Pearsona dla zmiennych nominalnych. Wyniki podkreślają znaczenie skutecznego zarządzania w upowszechnianiu nauki w celu wspierania zaangażowania społeczeństwa i zrównoważonego rozwoju.

Słowa kluczowe: internacjonalizacja, Europejskie Miasto Nauki, upowszechnianie nauki, zrównoważony rozwój.