



Platform of Local Authorities and Communicators Engaged in Science

Modules used: B1, B2

Science City

2012

This is a standardised version of the original case analysis number 5. Specific names and locations have been substituted from the original document number 5 with generic references in order to preserve the anonymity of each participant.

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Contents

Abstract 4

Introduction..... 5

Methods..... 7

Results 9

Conclusions 17

Recommendations 19

References 21

Abstract

Regional aspects of science communication represent a potential asset and as such are quite a suitable topic for further examination with respect to future social and economic development in this city based on the city's main development strategies. Closer analysis of SCIP aspects at regional level can present an appropriate complement for the development of adequate measures and projects of regional innovation and education policies. This study focuses on research questions related to the regional dimension of science communication, its impacts and appropriate tools. Document analysis and questionnaires distributed among selected experts were chosen as tools for the elaboration of the study.

Results suggest that the regional dimension of science communication policy and initiatives (SCIP) is a relevant one in the case of this city. However, the attention given to this topic by national and regional authorities is unsatisfactory, resulting in a lack of co-ordination of activities of the respective stakeholders. Impacts of SCIP, as far as causality can be identified, lie in encouraging young people in their interest in science, increasing awareness of the general public in science-related issues and explaining the role of science in society and problems that science (as a sector) is facing. There is a space for national and regional authorities to play an integrating role to maximise the effects of science communication. Given the concentration of SCIP actors, the city could aspire to develop its science communication policy in order to promote itself as a European centre of science.

Introduction

Regional aspects of science communication represent a potential asset and as such are quite a suitable topic for further examination with respect to future social and economic development in this city. Science Communication Initiatives and Policies (SCIP) have a significant influence on the relationship of the general public to science and research and on the appreciation and dissemination of new technologies. This case study has therefore established several main research questions on which the examination will be based.

Research focus and questions

- Does science communication in this city have a discernible regional dimension?
- What are the impacts of SCIP in the 4 pre-defined areas?
- What are suitable tools for SCIP with respect to competencies and capacities of regional government?
- Where are the impacts most apparent?

Rationale for case selection

This city is a typical example of a larger capital city of a newer member state of the EU (accession after 2000) which is still being affected by its totalitarian history with centrally-planned social and economic development, the focus on being a capital city, absence of democracy, free market and entrepreneurship. These circumstances contributed to an exceptional concentration of science, research, education and related organisations and facilities in this city. Nowadays, the city is therefore a natural centre of science promotional activities in the country.

Available data show that this city is a major centre of science, research and education facilities of the country. This also means a high concentration of people that work in research, development, innovation and related activities and who have a natural affection for all things new and are more open to novelties in all forms. The response of these people to information on science-related topics is generally higher than is usual in the country as a whole.

Factors for case study elaboration

In relation to the regional innovation strategy (RIS), which is being updated since last year, participation in the PLACES project in the form of a science city

case study seems to be a suitable complementary step. In the thematic area “People“, which in the RIS includes promotional activities related to science, research and entrepreneurship, a closer analysis of SCIP aspects at regional level can present a valuable base for the development of suitable measures and projects.

Methods

The study focuses on this city as a science city and the chosen research questions led to the selection of methods and modules deemed most suitable for this purpose. Out of the modules offered by the PLACES Toolkit (reference 14), document analysis (Module B2) and semi-structured interviews (Module B1) were used.

Document analysis was used to further examine and elaborate our findings on the situational context of science communication policy in this city and its socioeconomic characteristics as described before in the PLACES national report. Analysis provided us with useful data describing both the general situation of this city as regards research, development and innovation environment, and more closely subjects active in science communication and related policies and initiatives.

For examining the general situation we used public data from the national statistical office, ad hoc data provided by this office to the city development authority, official documents of the city and to a lesser extent other data found in professional magazines or websites. As regards science communication, the above-mentioned sources were supplemented by outputs of the MASIS project (Monitoring research and policy activities of science in society) which focused on mapping of science awareness activities. (See Annex I and II)

Module B2 was used as a standard tool with which the authors of this study are well acquainted, and they have a thorough knowledge of what kind of data the national statistical office and other mentioned sources can offer. Under these circumstances, use of this module seemed to be a suitable time-efficient and cost-effective approach to proceed with the study elaboration.

After consideration, Module B1 was chosen to consult selected experts and gather a sample of professional opinions on the topic of the study. The experts come from the local authority, research institutes, education and business sphere. Our aim was to approach representatives of all these categories in order to obtain a more complex picture of the issue. The choice was based on their respective expertise and experience in both science-related policy and practice of science communication. Module B1 was adapted from an interview into a questionnaire while maintaining most of the content suggested for the interview by the Toolkit. This adaptation was used to overcome the problem of setting up meetings during the summer period when vacations mostly take place in the country.

Expert opinions were thus gathered using a questionnaire with some

additional clarifications communicated via e-mail afterwards. Translation of core content of their responses is provided in Annex III.

Experts were chosen as follows:

- One representative of local authority (from the city studied) – Mr. JMe
- One representative of academic research institution (academy of sciences) – Mr. PM
- One representative of business sphere (freelancer representing association of SMEs of the country) – Mr. JP
- One representative of science communication facility (centre of administration and operations of the academy of sciences) – Mr. JMa
- One representative of universities and professional association (technical university, Association of research organisations) – Mr. KM

From the sum of their opinions, common observations and conclusions served as a main basis for drawing up answers to research questions of this study and the resulting recommendations.

Furthermore, we used another European project with a similar focus, CASC (cities and science communication), to help formulate the recommendations.

Based on our experience with the questionnaire, we would like to point out certain “weak spots” of this tool. Some questions aimed at finding examples or results of science communication activities (e.g. as a result of scientific culture activities, how is participation of the public developed in this city?) would be more suitable for quantitative analysis than asking for a subjective opinion. Generalisation of such answers still provides rather non-objective conclusions. However, suitable data are very difficult to find or entirely non-existent.

Questions regarding opinion of the respondent on the future development in a given field often produced very general answers (see Annex III), as a qualified answer would require a “foresight approach” or thorough thinking about the issues. Both are unsuitable for a questionnaire which usually has a limited timeframe for completion. Even with the unaltered form of semi-structured interviews, we consider certain questions to be unsuitable for generating more insightful answers.

Nevertheless, within the timeframe of the PLACES project and given the situation of SCIP in this city, Module B1 has proven to be a sufficient tool for finding answers to the research questions posed.

Results

This chapter presents findings related to research questions posed in chapter 2.

Question 1: Does science communication in this city have a discernible regional dimension?

Based on findings described below in Question 2, we conclude that the regional dimension of science communication exists and can be related to. On the part of the regional (in this case municipal) administration, the opportunity for initiative is substantial, as the administration can influence primary and secondary education institutions and many cultural institutions (museums, libraries etc.). Research organisations and universities can also act within the region, as various events organised by them take place in this city and therefore influence the local public the most.

Question 2: What are the impacts of SCIP in the 4 pre-defined areas?

Policy

The environment of science communication policy (meaning mainly publicizing and popularisation) in the country is not formed by a common national policy with a dedicated institution with a specific commission for this field of activities. Only certain measures in national research, development and innovation policy are focused on these issues. It is rather a sum of endeavours of various organisations, groups and individuals with a different focus and rate of influence. Institutions with nationwide renown and activities, many of which are seated in this city, naturally cover a wider public, whether a general or professional one.

This represents an opportunity for the city's region to develop its own regional policy. With the increasing attention being given to RDI in recent years, new forms of financial support are being provided, especially from the level of the European Union. The EU also puts increasing emphasis on mobilisation of regional comparative advantages and local resources to spur economic recovery and development. The concept of "science in society" that projects the role of science communication policy in the regional/local community can be perceived as an evidence-based approach in governing local agendas both at official (regional/local government) and informal (business, non-profit sphere) level. As such science communication seems to be a natural part of RDI regional policy.

The science communication in this city was developing together with SCIP on a national level, reflecting the radical changes initiated by major reforms of the national R&D systems, also including the more or less extensive decrease in funding. The significant reduction of ASCR staff in 1993 (50% for ASCR as a whole; some institutes were abolished completely) was seen specifically in this city. On the other hand, new high schools and universities were established there from the second half of the 1990s. Also, the privatisation of the business enterprise sector in the sphere of research and development (the voucher privatisation form) in the city's region was carried out within the framework of the so-called "big privatisation", and was completed in two waves in the 1990s.

Many traditional science popularisation platforms (namely newspaper sections and journals) ceased to exist because they were not able to survive in the new market economy. The transformed or new media are sometimes criticised by scientists for being too shallow and entertaining rather than informative, whereas scientists are criticised by journalists for being unable to carry out any kind of systematic popularisation on their part.

On examining the potential of science communication, however, one cannot leave aside certain fundamental characteristics of this society that apply to the majority of the population. These have consequences for science communication efficiency and reception. This society is one with quite a low share of religious people, hence a "scientific" or "common sense" approach to life is relatively deeply anchored among the population and the need to "measure and weigh" things and phenomena is common. This is reflected in the behaviour of people in both their professional and private life.

Two additional aspects can be added to the description of national specifics. First, no significant change can be expected in upcoming years as the above-mentioned feature of this society has a substantial level of inertia. Second, the country's population of 10 million is too small for this general aspect to have important regional differences.

The observations listed above provide a basis for the role of regional administration in science communication policy. The city administration operates various scientific and cultural organisations and facilities (museums, libraries etc.) that allow for contact of the general public with scientific and technical knowledge and discoveries. Public primary and secondary schools also fall under the city administration's jurisdiction and so education policy can to a significant extent be influenced, as it trains pupils and students up to 19 years of age as far as their perception of science and its role in society is concerned. The city government also supports independent organisations with

relevant similar activities (especially various non-profit organisations and civic associations) through the provision of grants and similar financial support. All these institutions are perceived as an inseparable part of this city of culture. And science is, by one of the PLACES project definitions, a form of culture.

Given the large concentration of institutions relevant to science and education, we conclude that the regional dimension of science communication policy in this city exists. This is more so because, at present, these institutions are the most active in science communication activities. Such activities do, however, arise mainly from individual efforts rather than being based on a unified policy. As domestic and especially international marketing of this city as a European centre of science will be part of the regional innovation strategy (RIS) implementation, with this city's renown abroad it can become a "brand" interchangeable with the country in various research fields.

Support for scientific communication policy is expected to become one of the pillars of activities that this city will implement following completion of its RIS update. It will be an umbrella covering activities that the city will be supporting, ranging from more "traditional" support of the research sphere to new topics such as social innovations, which seem to be especially suitable and topical for cities and urban areas. The updated RIS shall also provide a framework and pilot projects for those activities related to science communication that will lead to promotion of this city as a national and European centre of science and innovation and to the promotion of science as a socially beneficial career path for an individual and as a source of sustainable economic prosperity for the city.

Social and economic impacts

Social and economic impacts of science communication policy are mainly long-term in nature and as such require a long-term approach in their implementation. The presence of science in society directly or indirectly affects social relationships and stimulates public-private interaction.

In the long term, the main goal of promotional activities is to attract young people to science and influence the decision on their future career. As science and the innovation-driven economy are deemed to be a source of European competitiveness, increasing the number of graduates ready to employ creativity and innovations in their professional life is a valuable contribution of science communication. Demand on the labour market for graduates with a background in natural and technical sciences is increasing, following fast development in human knowledge and technology. Public policies are beginning to reflect this trend with increasing resources being dedicated to adapting to the new situation. These economic repercussions can be seen behind the effort of this

city to stimulate co-operation between schools, enterprises and research organisations, which is embedded in the city's key strategic documents (strategic plan for this city, regional innovation strategy). The non-profit sphere can also provide a valuable input and ways are being developed to allow for its more active participation.

Science communication is also developing independently from public policies to some extent. This is a result of the omnipresence of IT technologies which allow for easy communication and are key element for easy diffusion of science-related knowledge and information. Contemporary IT-based tools function as an interface between the general public and professionals. Easy access to information has become an ordinary element of our lives. On the other hand, the volume of communication activities tends to decrease our ability to study information in greater detail, resulting in its superficial absorption. Management of science communication is therefore important to help set up respected communication channels.

As already mentioned, the increasing role of science in society leads to the setting up of new sources of funding on the part of the public administration. European policies are the main driving force behind this as well as a contemporary economic reality. In this city, during the last few years, significant funds were disseminated that were provided from EU structural funds. Science-related activities received major support that would otherwise not have been available from the city budget itself, as in the country RDI policy is mainly the domain of the central government. EU cohesion and R&D policy thus provided a stimulus that hastened development of support measures at both national and regional level.

Infrastructure built with this support in this city will be accompanied by further promotional activities multiplying the effects described above. To list a few examples where the EU co-funded projects related directly to science communication, we can name the Information centre of the academy of sciences for general science communication and the "Power for Competitiveness" project of a technology centre aimed at a professional public.

Promotional events organised by the academy of sciences are one example when the general public can communicate directly with the R&D sector. The same is true for various web pages addressing different scientific topics, regardless of their institutional (official) or individual (private) origin. A detailed list of activities was elaborated in the course of the project "Monitoring Policy and Research Activities on Science in Society in Europe" (MASIS; see Annex II).

To conclude, science communication activities have impacts, among others, on the relationship of the public with science, on the approach of pupils and students to their future career and on the decisions of public authorities on allocation of their financial resources and prioritisation of their respective activities. This means that a better understanding of science and what it can offer society can improve the quality of both public and private decision-making.

Quality of Life

Within the PLACES project context, this part refers mainly to public participation, media activities and cultural identity.

There are no formalised procedures of public engagement (grounded in legislation, in governmental or city management structures or in municipality measures of this city) focused specifically on RDI in the country; it is only possible to file specific petitions. Public debates (public hearings) oriented toward the general public and civil organisations have not yet become part of public life in this city. However, there are initiatives trying to open up public debates on the part of civic society. In general, public engagement is an important trend influenced by examples coming from advanced European countries, one that public authorities are trying to respond to and make efficient use of.

To name one example, in 2009, debates with the participation of the public took place in response to the proposal of a new budget for the academy of sciences, which was 20% lower in comparison with 2008 and was projected to be 50% lower in 2012. There were public debates involving officials representing scientific and educational institutions, the government and industry, which dealt with the actual ratio of institutional and project funding, basic and applied research, and the levels of applicability of results in research and industry. New civic initiatives aimed at supporting science in society have come into being.

The current intensity of public interest in political debates about science, R&D and new technologies and their impact on the given society in the city's region is rather low. The main reason is the contemporary economic and financial crisis and related financial cuts and public savings. In general, the city's public learns about S&T decisions and developments via the mass media. As regards the scientific community, it can be said that the citizens are consulted, and their opinions are considered in S&T decision-making.

The following are the most frequent topics included in the debates: climate change, the environment, energy policy and reform of tertiary

education, broader national strategies for science and research development and various issues related to the knowledge-based economy. The main result of public participation is the realisation of the existing problem and discussions on possible approaches, problems and clarifications of attitudes of the parties involved. The extent of public participation is expected to slowly increase in the future, depending on the ability of the science community and the media to articulate relevant topics and issues.

Scientific culture in this city is formed by the city being the capital of the country and by its long tradition of science in local universities and, since the mid-20th century, also in the academy of sciences. The region of this city was analysed in the research study of a science event, with the results describing the “science city” features of this city. The main conclusion was that the capital city stands out from the other national regions, being a typical representative of the “science & service centre” type. This city, with a population of around 1.2 million, is by far the largest city of the country. It serves as a national centre for business services, government administration, public research institutes and higher education.

However, historic tradition is related mainly to the former local industrial base. A more contemporary notion of tradition related to science and reflecting present socio-economic development is spreading only slowly among the general population.

Education

As this city is an educational centre of the country, educational activities are a strong impulse for the development of science communication activities. Recently, around 60% of secondary school graduates have applied for admission to tertiary education institutions. Unfortunately, this trend –supported by public funding of universities– has detrimental effects on the quality of university graduates as regards their readiness for practice.

A significant share of students apply for social sciences and humanities, whereas the needs of the economy and labour market lie more in natural and technical sciences. On a side note, the share of students of this city’s tertiary education institutions (public and private) out of the country’s total accounts for around 40%.

Lifelong learning initiatives are also developing in larger numbers as the strong intellectual potential of tertiary education will generate courses for both the public and firms. The non-saturated demand for certain qualifications of graduates (e.g. soft skills) is one of the driving forces.

New and growing initiatives of research organisations that want to attract present and future students and graduates are being developed. The project Open Science can be considered as another good practice with a focus on science education in schools. This project is aimed at attracting especially secondary schools students to pursue scientific careers, namely in natural and technical sciences. Efforts of R&D workplaces to open up to the public are expected to increase. For example, the number of school trips is increasing. Scientific events are organised during the week of science and technology. New sponsors are interested in participation in such events, which further strengthens the campaign. However, a systematic approach to “detect” and work with talented young people should be behind these efforts, not only self-presentation.

Question 3: What are suitable tools for SCIP with respect to regional government competencies?

The competencies of regional and local authorities in the field of scientific communication are not stipulated in national legislation. Therefore, it is either up to the voluntary initiative of these authorities to exercise measures that support SCIP or this can be done in relation to their other competencies (e.g. primary and secondary education).

As with many other policy fields, regional science communication policy should, in ideal circumstances, be based on relevant national policy. Such specific policy exists only in the form of rather generally formulated measures in national research, development and innovation policy for 2009-2015. The administration of this city can therefore only rely on various related national policies in the field of RDI, education etc., with their particular objectives and measures.

Leaving aside systematic measures and complex projects, we observed that tools offering direct personal experience for participants (promotional events, trips, exhibitions etc.) seem to have potential for a more profound effect or response on the part of the target group.

Question 4: Where are the impacts of SCIP most visible?

According to our findings, the main recent general outcome of SCIP activities identified is their growing numbers. Their increasing frequency positively affects their perception by the public, and makes them more ordinarily part of cultural life in this city. Even more important is that the numbers of (young) people who participate in events and visits to scientific workplaces are increasing. The number of marketing products (website, leaflets, TV shows, etc.) is also

increasing. All this makes science an increasingly common part of life, which is one of the general objectives of the SCIP.

There is still space for the SCIP to aspire to obtain more concrete outcomes relating to the socio-economic development of both the country and the city.

Conclusions

Citizens have a growing interest in issues of a spiritual, philosophical, cultural and ethical nature, issues that seem to stem from a greater appreciation of the actual weight of cultural and moral values and the human dimension in all walks of life. Furthermore, these issues are connected with an urgent need to restore local cultural-historical traditions, while safeguarding the development of what are seen as unique and irreplaceable local studies. These topics come primarily under the heading of humanities, and today's rising interest in these branches – especially among young and well-educated people– is highly visible in the public of this city.

Seen in this context, the relationship between expert opinion and democratic decision-making appears to be of great importance. At present, scientific expertise is known to exercise only an occasional and limited influence on the political decision-making process of the city hall.

The public in this city does not perceive all the relevant factors of “science”, but rather considers the various unique aspects connected to it individually. In the public opinion polls, a “scientist” belongs traditionally to the most prestigious occupations (ranking second behind physicians, while university teachers rank third). Until recently, the questions of science policy and science funding were not a subject of serious public debate. From the middle of 2010, though, we could say that they present an “important” agenda. It is, however, being pushed aside by the social and economic problems caused by the economic depression.

Generally, the dialogue between science and society and the science communication initiatives and policies supporting it are a key issue. Often, they talk about the necessity for a new alliance between science and society on all societal levels. As far as this city is concerned, such a vital dialogue has so far been replaced by efforts to popularise science and well-meant endeavours aimed at making the general public understand science and its importance. But a genuine dialogue needs a two-way model, i.e. efforts to win over public understanding for science should be supplemented with endeavours to make scientists understand public attitudes.

Nevertheless, the science communication initiatives and policies can play a valuable role in the regional dimension. In this city, we identified (also based on the MASIS project findings) initiatives of various bodies (universities, academy of science) in science communication that can influence the

perception of the role of science in the daily lives of the city's citizens and workers. Clearly, promotional activities can ease articulation of what science has to offer a common person and society as a whole.

To maximise the effects of science communication there is a space for the national and regional authorities to play an integrating role in the form of elaborating and implementing suitable national and regional policies with an appropriate focus. By influencing public authorities in many research institutions and in the education system, they could help to create respected communication channels for systematic promotion of science and its role in society.

The city expects to develop some kind of science communication policy, together with the implementation of its regional innovation strategy which began to be updated last year. With this strategy in place, this city aspires to promote itself as a European centre of science and innovation and to exploit its comparative advantages in competition with relevant cities in neighbouring countries with similar aspirations.

Recommendations

The ambition of this study is to put forward recommendations focused on the regional level. However, our first recommendation calls for a national umbrella framework for SCIP (science communication initiatives and policies) activities. Having said this, if the regional government wants to take the initiative within its remit, the non-existence of a higher policy should not constitute an obstacle.

Elaborate a national science communication policy.

A national science and communication policy should further motivate both the public and scientists towards dialogue. But such a dialogue must be genuine and necessitates a two-way model, i.e. efforts to win over public understanding for science should be supplemented with endeavours to make scientists understand public attitudes and needs.

Elaborate the regional dimension of national science communication policy.

The most effective science communication initiatives and policies in this city, which would support future scientific and innovation culture, should systematically and intensively support innovative entrepreneurship in this region. This should be accompanied by the popularisation of positive results and explanatory communication of examples of “best practice”. This type of popularisation activity could bring more communicable and understandable comprehensibility of both real and potential effects of research and technology development. Development of SCIP for the city could motivate higher participation of the public in decision processes and the implementation of solutions for the key problems in this city.

The potential for public-private interaction is substantial in this city. If it is stimulated through SCIP, it will lead to the development of a science and innovation culture and subsequently to an improvement of the city’s competitiveness.

Emphasise personal experience in science communication – place a substantial focus on events where people can “meet with science” in person.

New modes of SCIP; scientists understand public attitudes and are coming closer to the public (occasional TV programmes, shows, exhibitions, street

activities).

Popularisation events organised by research organisations in this city are becoming increasingly frequent. Their positive influence on the awareness of the local public, on encouragement of young people in their interest in science, research and technologies is undeniable. However, so far, they tend to be more one-way communication campaigns instead of a two-way discussion on society's priorities.

Follow recommendations of the CASC Project aimed at strengthening public participation in science, in particular:

- Promote science through partnerships between scientists and corporations.
- Invest in science educators and communicators.
- Strengthen links between science professionals and the media.

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