



Platform of Local Authorities and  
Communicators Engaged in Science

**Modules used: A2, A3, B1, C2**

**Science City**

**2012**

This is a standardized version of the original case analysis number 15. Specific names and locations have been substituted from the original document number 15 with generic references in order to preserve the anonymity of every participant.

In case you would like to read the original document, please contact [occ@upf.edu](mailto:occ@upf.edu).

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## **Abstract**

### **Background**

City of science 2012 was the name adopted for a year-long programme of public events around a central event which was hosted in the capital of the country in July 2012. This city is well-established nationally and internationally as a city of culture (particularly literature), of business and political administration. Its local authorities organise an annual programme of public events on the theme of innovation. But this was the first time that the city was identified prominently as a “city of science”.

The initiative for City of science 2012 came from a broadly representative committee set up to organise a European open forum about science. It was supported by state agencies, scientific societies, higher education institutions and business representative groups, among others. Administrative support was given by the office of the Chief Scientific Adviser to the national government.

### **Research questions**

This study aimed to assess the impacts of the City of science 2012 on those who played active roles in its programme, on institutions which supported it, on members of the public who attended events, and on the wider public of the city.

### **Methods**

The methods applied were taken from the PLACES evaluation toolkit with modifications, mostly shortening. These were: Module A2: Standardised survey of visitors (n=501); Module A3: Focus group with citizens (n=1, 7 participants); Module B1: interviews with stakeholders (n=6); Module C2: focus group with actors (n=1, 7 participants).

### **Results**

The study shows that most citizens who attended City of science 2012 events enjoyed them and were stimulated by them, that groups and individuals who staged City of science 2012 events generally appreciated the experience, that institutions and interest groups with direct experience of City of science 2012 generally considered that experience to be positive, but that awareness of the City of science 2012 was thinly and unevenly spread among the city's population.

## **Conclusions**

The conduct of the case study demonstrated that some assessment of the impacts of a broad and complex initiative such as City of science 2012 can be made with even a relatively modest evaluation such as the present one. The study also demonstrated broadly the validity of the selected instruments in the PLACES toolkit but also the need for revisions, notably in the length and complexity of the instruments.

## Introduction

City of science 2012 was adopted as a designation for this city during the year in which the city hosted a European open forum about science. As part of the bid to Euroscience to host that conference it was proposed that a year-long programme of public science events would take place in the city. The open forum about science taking place in the city during July 2012 and the City of science 2012 were promoted jointly. The office of the government's Chief Scientific Adviser co-ordinated the preparation of both initiatives.

The City of science 2012 was proposed as a programme (sometimes "festival") of events providing for public engagement with science, and for interactions between sciences and arts. In 2011, a call for proposals was published and a briefing was held for interested organisations. Those submitting proposals were invited to apply for financial support, though they were also required to bring forward finance from their own resources.

Proposals were invited from towns and cities all over the country and for events taking place at any time during 2012. However, it was made clear that the centrepiece of the public engagement programme would be a festival in the city ("science in the city") around the time of the five-day open forum, 11th-15th July 2012.

The city is well-established nationally and internationally as a city of culture (particularly literature), a tourism destination and a centre of commercial activity and political administration. Its local authorities organise an annual programme of public events on the theme of innovation. But this was the first time that the capital of the country was identified prominently as a "city of science".

This city with its suburbs has a population of 1.400.000, representing a third of the state's population; it is over four times the size of the next-largest city. It is the principal point of entry and exit to the country, for people and goods, by sea and by air. It houses the main activities and buildings of all the significant national cultural institutions. It has three universities (of seven in the state), with a fourth less than 30 kilometres from the city centre.

Despite the city's very evident dominant position in the country, and the use of the title, the city of science 2012, for the year-long programme of public science events, this initiative was promoted to participants as national. By the June 2011 deadline, 320 proposals had been submitted and these were

examined by a committee of people active in cultural organisations, scientific institutions, local government, science awareness, and related sectors.

Over 150 proposals were approved, of which 60% were given financial support. Grants totalling approximately 500.000€ were approved for these events, representing less than one quarter of the total finance requested by the proposers. More than 50 events were later added to the programme; these met the basic criteria for public engagement events on scientific topics but required no funding.

The city council was actively involved in the planning process and in the selection of projects and in January 2012 the elected councillors formally adopted the designation, the city of science 2012. The city's Lord Mayor attended key events in the programme and council officials provided material and organisational support.

The city of science 2012 programme had its first large-scale event in March. The annual festival and parade on the national day had science as its theme, with science-related topics presented through dance, costume and music. Over 500.000 saw the parade directly and many hundreds of thousands more saw the television coverage, which drew attention to the science theme.

Throughout the year, theatre and street performances, exhibitions, film screenings, talks, science cafés, and other types of event took place under the banner of the city of science 2012. Over ten days in July, there were 77 events in the core programme, science in the city: many of these were targeted both at the city's population and at the 4.500 participants in the European open forum about science. A survey of the open forum participants showed that 46% attended one or more Science in the City events; of these, 86% rated the programme 'good' or 'excellent'.

The city of science 2012 was selected as a PLACES case study as the country's first-ever science city project and because of the city council's affiliation with the PLACES project through its membership of ERRIN. The city has an established identity as a UNESCO city of literature and has been European Capital of Culture. Scientific research and high-technology enterprise are important to the city's economy, as well as to that of the country as a whole. But 2012 was the first time that the city identified itself so prominently as a location of public science.

In Annexe 4 below, we reproduce one of the many posters used to promote city of science 2012 through various media, including airport coaches, city bus shelters, as well as newspapers and broadcast media.

## Methods

The methods applied were taken from the PLACES evaluation toolkit with modifications, mostly shortening. These were: Module A2: Standardised survey of visitors (n=500+); Module A3: Focus group with citizens (n=1, 6 participants); Module B1: interviews with stakeholders (n=6); Module C2: focus group with actors (n=1, 7 participants). The selection of methods was aimed to ensure that each of the three levels of impacts, as defined in the PLACES toolkit, was addressed.

It is recommended in the PLACES toolkit that documentary analysis also be used in studies of science cities. This was not done in this case because there were no publicly available documents explaining or examining the programme. The web site and associated 'social media' were actively maintained as sources of information about forthcoming events but present the purpose of the programme in very brief phrases, e.g. "The City of science 2012 festival is a year-long celebration that will bring together a community of cultural institutions, organisations and individuals who are passionate about showcasing the best of national culture, arts and science. The new and innovative programme of science themed events across the city consists of photographic and art exhibitions, several theatre pieces, film festivals, tours, trails and treasure hunts, science buskers, large-scale interactive installations, experiments, public talks, debates and workshops."

For the surveys of people attending events, a single-page form was used, to be completed by the respondents themselves. Given the spread and scale of the events it was not practical to have researchers complete the forms in face-to-face interaction with the respondents. The survey form represents a very significant reduction of that proposed in the PLACES toolkit; it is included at Annexe 3.

Based on the experience of an earlier case study, it was considered that this reduction was necessary. It was intended that the survey could be completed by respondents in 2-3 minutes at the end of an event. In some cases, volunteers helping the evaluation team distribute and collect the completed forms. In other cases, the event organisers distributed and collected the completed forms and sent them to the city of science 2012 project manager ("curator"). All but 15% of the forms were completed at events in July 2012, during the intensive programme of events surrounding the European open forum about science; the remaining forms were completed at events during November 2012.



The selection of six stakeholder interviewees was done by the main researcher and was aimed at including representatives of the principal policy and social sectors directly associated with the city of science 2012. The individuals in each sector were selected for their known awareness of the City of science 2012. Based on the experience of the earlier case study, the guide for semi-structured interviews was used quite informally. In the previous round of interviews, many of the questions had produced no responses. In these six cases, the interviews were opened with a general question, e.g. What in your view were the main impacts of the City of science?, and interviewees were then guided to consider the impacts in policy, quality of life (mainly media and cultural identity), socio-economic (mainly tourism) and educational contexts.

The 'actor' focus group participants were selected randomly from a list of city of science 2012 event organisers that was supplied to the researchers by the city of science 2012 project manager. They included people who had organised drama, film screenings, workshops, a festival, talks, panel discussions, and walking tours.

As the surveys of people attending city of science 2012 events represented the responses only of those actively following the city of science 2012 programme, it was decided to hold also a single focus group of "the public", primarily to assess awareness of the city of science 2012 among the wider population. For pragmatic reasons, the focus group participants were recruited from the students of the university at which the research assistant is based. The participants included students of business and computing.

## Results

### Results 1: Surveys of people attending city of science events

Data collected: July and November 2012

Visitors to city of science 2012 events were approached when leaving and asked to fill out the form. In some cases, volunteers helping the evaluation team distributed and collected the completed forms. In other cases, the event organisers distributed and collected the completed forms and sent them to the city of science 2012 project manager ("curator"). 501 valid surveys were completed, 430 of these at 18 events in July 2012, during the intensive programme of events (science in the city festival) surrounding the European open forum about science, and 71 at 3 events during November 2012. The questionnaire used was a shorter and simplified form of the A2 survey provided in the PLACES toolkit (see Annexe 3); it was designed to allow respondents to answer all the questions by themselves in 2-3 minutes. The events at which the questionnaires were distributed included science cafés, theatre performances, walking tours, exhibitions and musical concerts.

#### Summary of findings

Most respondents were young or middle-aged, mainly female, well-educated and living in the city or the surrounding area. Over a third (37.7%) was aged between 17 and 34 years old, and just over forty per cent between 35 and 55. Two thirds were university educated, and 75.7% lived in the city or the surrounding area. More women (59%) than men (39%) completed the survey.

For almost half of those surveyed this was the first city of science 2012 event they had attended, while one-third of respondents had already been to one or two events. It is notable that the proportions attending their first city of science 2012 events varied little from July to November. However, the percentages who had attended 3-5 or 6 or more previous events grew from an aggregate 8.4% of respondents to 22.5%. This suggests both that there was significant turnover in the public for city of science 2012 events and that the core support who attended multiple events grew strongly.

Half of the respondents (50.3%) reported that they would like to attend other city of science 2012 events, and almost a quarter (24.5%) said that they may do so. A smaller number (14%) reported that they did not plan to attend any more events, and 9.4% said that they didn't know whether they would or not. The indication of growing support is confirmed by the increase in the proportion of respondents stating they planned to attend other city of science 2012 events – from 47.2% in July to 64.8% in November. (The responses to

these and all other questions in the surveys are presented in Annexe 1 as an aggregation of results from July and November events.)

Respondents were positive about the events they attended, with 20.5% reporting that it was much more interesting compared with other cultural events they attended recently and 34.3% saying it was more interesting. Only a very small proportion, 4.2%, found it less interesting or much less interesting. Almost a third (29.6%) said it was about the same.

Over three-quarters (78.8%) found the event more interesting or much more interesting than learning about science in school or college, while only 4.9% found it less interesting or much less interesting, 61 respondents (12.2%) thought it was about the same.

A third of respondents (33.4%) reported that they were now very interested in discussing scientific issues related to the topic of event, and almost half (48.1%) reported that they were quite interested in doing so. Just 4.7% of respondents said they were not interested or not at all interested.

Talks or debates were the most-liked type of event among respondents (34.8%), followed by Performance (23.9%) and Exhibition (24.8%). Screenings were favoured by 8.7% and other types of events by 7.8%.

Of the 287 respondents who had attended other city of science 2012 events, just over a third (33.8%) said that they had discussed them with friends or investigated them further.

40.8% of respondents had heard about the event from family members, friends or colleagues, while almost as many (39.8%) had seen information about it on the internet. 14% had read about it in a newspaper, 5.5% had heard about it on the radio and 2.0% had seen it on television.

A large majority (87.4%) of respondents reported that they were very interested (46.6%) or quite interested (40.8%) in following developments in science. Only small numbers were not interested (2.5%) or not at all interested (0.4%), 7.6% reported that they were unsure or did not know.

Most respondents (81.1%) reported that it was very important (54.4%) or fairly important (26.7%) for the city's image to be a "city of science", 11.8% were unsure or didn't know and a small proportion (5.4%) thought that it was not very important (4.7%) or not at all important (0.7%).

The questionnaire used for feedback on individual events ended with a single open question concerning the 'city of science' in general: "In a few words, what do you understand by 'city of science'?"

Three-fifths (n=296) of the returned evaluation forms included some answer to this question. These included a small number (<20) with a single word or a single mark, e.g. “?” that represented a Don’t Know response. However, it seems fair to assume that many or most of the approximately 200 forms with no answer to this question also represented a Don’t Know response.

Taken together with the substantive responses that indicated confusion about the intention of the city of science, e.g. describing it as an initiative to promote scientific research rather than as one to promote scientific culture, we can say that the survey indicated very widespread lack of knowledge or awareness of the city of science. If this was true for people attending events that were part of the programme it must be true to an even higher degree for the population of the city as a whole.

It should be noted that the stakeholders interviewed all also admitted that general public awareness of the city of science 2012 might be very low. In a city of over one million people, and with modest resources available to the city of science 2012 for advertising and other forms of publicity, this is perhaps not surprising.

A further connection between the stakeholder interviews and the public survey is the frequent conflation of Euroscience Open Forum 2012 and city of science 2012: asked about the latter, respondents often started by speaking about the former. This mixing of brand identities may be considered an outcome of the particular circumstances of the city in 2012; it may have no significance for the use of the “city of science” designation in the city or any other city, at any other time.

We classified the substantive responses to the question, “In a few words, what do you understand by ‘city of science’?” as defining “city of science” in terms of:

- Promoting and Celebrating Science (PCS);
- Supporting Public Engagement with Science (PES);
- Supporting Scientific Activity (SCI);
- Remodelling the City as Smart or Innovative (CITY);
- Mixed and Other Definitions (OTHER).

Recognising the difficulty of making these classifications, we categorised the 240 responses as follows: PCS = 31%; PES = 16%; SCI = 17%; CITY = 16%; OTHER = 24%. The full set of responses is reproduced in Annexe 2 but we present some examples here to illustrate the classifications:

## Promoting and Celebrating Science (PCS)

*Wonderful celebration of science and other disciplines focused in one city to help promote and educate about the importance and relevance of science in our daily lives*

*Promotion of science in the city and the city as a place of science in the world*

*Additional public outreach for scientific awareness across the whole town*

*It raises awareness in the general community about science and brings some great minds to the city to give talks*

## Supporting Public Engagement with Science (PES)

*Proactive encouraging learning and developing science for all age groups and social brackets*

*Making science accessible to all*

*An event where people share ideas in a fun way*

*Inspiring curiosity towards science*

## Supporting Scientific Activity (SCI)

*A city which has centres of scientific excellence*

*Research in the University, developments in the companies, high technology*

*City where there is a lot of science*

*A city that is held as a pinnacle of scientific research and development*

## Presenting the City as Smart or Innovative (CITY)

*A place where new thoughts, ideas, discoveries are encouraged and developed*

*A futuristic city*

*A city of science is a creative, imaginative, forward-thinking city; a prestigious place*

*Innovative forward-thinking, executive, problem-solving, hi-tech*

*A city open to new scientific ideas + processes + leading the way in research*

## Results 2: Focus group of citizens

The focus group was carried out using the Module A3 method and prompts from the PLACES Toolkit. This focus group was held on 27th November 2012. Participants were recruited from among undergraduate and taught Masters Students in the city university. An even mix of male and female participants with a variety of academic backgrounds was chosen. Nine people agreed to take part, however three of these did not attend, so the focus group went ahead with five men and one woman who were studying in the schools of business and computing.

Most of the group had not heard of city of science 2012 before being invited to the focus group. Of those that had heard of it, none had attended any events. One woman said that she would have liked to have gone to some, but she couldn't find anyone to go with. Some participants were surprised that city of science 2012 had been going on all year yet they remained unaware of it. One participant said:

*"I would probably keep my ear pretty close to the media and stuff and I hadn't actually heard".*

Another participant had noticed the advertisements on the sides of airport buses, but added that she only noticed them because she took a particular route to work each day, and for anybody who travelled another way:

*"Well, really it would never catch your attention".*

The same participant also believed that organisers of individual events should have carried out more targeted advertising campaigns, and she gave the example of a science centre' exhibition: the future of play' exhibition (which was not a city of science 2012 event), which she "only found out about by accident", and which she said should have been advertised in the computing schools of the city universities.

Another participant thought that city of science 2012 was a "nice idea" but wondered what tangible benefits it would bring to the city and to the country. The benefits of events like city of science 2012 (arts festivals, fringe festivals, and so on) were discussed by the group, one participant argued that:

*It could generate excitement and interest, you know more so than actual tangible—'all of a sudden you've a hundred more graduates or a hundred more people coming to university'—it's more just an interest in getting people's interest levels up*

Participants also discussed the lack of a "dedicated science museum" in the city; one participant remembered media stories that:

*"This city was a city of science, but we had no dedicated science museum, so people thought that was rather ironic".*

Some participants mentioned that although the city does not have a dedicated science museum, it does have science centre. However, none of the students had ever been there. As one participant put it:

*"The science centre, I know that's a university so I kind of associate like: that's university so that's something to do with college, where if there was an actual science museum you might be more tempted to go"*

While another admitted:

*"I don't even know where the science centre is".*

As this was a group made up of university students, their experiences of learning science in secondary school were still very fresh and they shared these (mostly negative) experiences, agreeing that they "were put off science for life" by teachers they didn't like and by having to memorise and reproduce lists of facts for exams.

They also argued about whether science was separate from everyday life or not. One participant said that science wasn't for "someone like me", that it was "kind of remote". Other participants disagreed, one student talked about his sister who had graduated with a science degree and worked for a couple of pharmaceutical multinational companies. Her experience led him to assert that there is "great integration between the public and the R&D sector, I think we're doing quite well in the science field".

Another student argued that it would be difficult to engage the "general public" in discussions about science, that: "the general public, it's some kind of discussions about those kind of high level things, they kind of go: 'oh, I don't know anything about science like, let's leave that to the scientists, sure what would I know about genetically modified potatoes?' while a business studies student observed that City of science 2012 was not intended to stimulate debate or bring up controversy, but was rather:

*"More to generate goodwill and that kind of interest rather than debate or controversy".*

Participants saw the idea of a "city of science" as very hard to define, because science itself is "incredibly broad", and the practice of being a scientist and doing science was also not clear to participants:

*I don't know what a scientist is, it's really like, and it's the same word as 'professional' like, what does it even mean like? Is it some guy in a white coat or is it you know a PhD student? It's really hard ... I don't know what they do.*

Participants did not see City of science 2012 as having any influence on their education, or on education in general. They agreed that changing education would mean changing curricula, introducing new courses and changing the way teachers were trained. They didn't see City of science 2012 having a role, and one participant said that:

*"I think there's a big focus on, you know, bringing people out of school, bringing them to a science gallery, but I think it's a pity that you have to be brought outside, I mean why can't there be better engagement in the schools?"*

Another participant observed that “a lot of teachers seem to be more arts background”.

As mentioned above, none of the participants had been to any City of science 2012 events. But some of them had been to TED talks which they were very enthusiastic about: “If you had secondary school class at a TED talk I think it would blow their minds”, “it’s just unreal”. Participants agreed that the reason they liked the TED talks was that they dealt with real-world applications of science—such as the design of the city’s transport system—rather than more esoteric science such as “Stephen Hawking talking about what sort of shape the universe is”.

When asked what kind of event they would be interested in attending they agreed that a jobs fair with big multinational companies involved in science would have been a big draw, as:

*I think they definitely missed out there... they really should have tied employment in... especially with this country the way it is... because I think people have an awful lot more respect for companies when they talk about science they are actually doing it.*

Participants also discussed the idea of holding “outdoor science events”, aimed at families, one participant suggested that people could “build your own rocket, or something like that”, or have an event about “the science of fireworks”, these ideas were greeted enthusiastically by the other members of the group, with a few of them saying that they would take part in such an event. (It should be noted that an event of this type, organised by a science centre of the city during the science in the city festival in July, attracted 5.000 people over a weekend to see the work of “makers [who] range from tech enthusiasts to crafters, educators, tinkerers, hobbyists, engineers, artists, science clubs, students, authors, and commercial exhibitors”. This event was rated by city of science 2012 organisers as one of the outstanding successes of the programme.)

Participants initially said that city of science 2012 and science itself did not play part in their everyday lives. However, as the discussion progressed, one participant mentioned that one aspect of science that they used in their everyday lives was writing computer code for assignments for their university courses. Asked if they had heard of a free computer club for children interested in learning how to code, they responded that they had, and that it was a pity that it didn’t exist for adults:

*“This sounds fun! I wouldn’t mind doing this for a couple of hours on a Saturday morning”.*



### **Results 3: Interviews with stakeholders of City of science 2012**

Interviewees were selected to represent distinct sectors with a stake in the city's development, involvement or interest in science communication activities and an awareness of the City of science 2012. Interviewees were also selected for their status to speak not just for themselves as individuals: all interviewees were heads of units within their organizations.

Interviewees were:

- IV1. Education and Science correspondent (media)
- IV2. City Council (local government official)
- IV3. Councillor and former Lord Mayor (local government elected representative)
- IV4. Outreach Programme manager (scientific institutions)
- IV5. Cultural Centre (cultural institutions)
- IV6. Programme manager of the European open forum about science / City of science 2012 (scientific institutions)

Interviews were conducted between 15th and 27th November 2012. The interviews were face-to-face and lasted 25-30 minutes. Based on the experience of an earlier case study (science centre of the city), the PLACES interview template was used informally as a guide. As reported in that earlier case study, several of the questions in the toolkit, e.g. on economic impacts, produced no answers. Rather than repeat questions likely to stop the flow of the conversation, the interviews opened with a general question: What in your view were the main impacts of the City of science 2012? This was followed by prompts to consider impacts on the city's population in general, the city's local government, the media, and so on. Rather than ask interviewees formally to say how they thought events might play out in the future –as indicated in the PLACES toolkit– questions were put in the form, How do think this year's momentum can be sustained?

Responses to the questions can still be grouped under the four themes indicated in the PLACES guide for semi-structured interviews, as seen below. Responses of individual interviewees are identified by the numbers above, i.e. IV1, IV2, etc.

Some points in common or largely shared between the six interviews and interviewees are worth noting:

- In responding to the general opening question, all interviewees referred first to the Euroscience Open Forum in July 2012, and to the public events surrounding it, referring to the visibility of the conference delegates in the city, the media interest in the large-scale scientific conference with prominent speakers, and the achievement of securing that conference for the city (IV1, IV, IV3).
- Interviewees hesitated to make an assessment of the impact of a City of science 2012 on the city's population in general, saying it was difficult to gauge public awareness (IV1) but suggesting that the media's attention to science events must have had some impact (IV2, IV3).
- In response to questions on maintaining the momentum of city of science 2012 all interviewees referred to the need for an organisational infrastructure to support future activities and/or expressed concern that the mechanisms may not exist to continue the effort. Several interviewees spontaneously identified the city council as the best location for such resources and specifically proposed a city science officer (or similar), along the lines of the existing arts officers. Other interviewees who were prompted to consider this responded very positively.

#### Questions on policy: summary of responses

Interviewees generally agreed that there were benefits in having science culture defined at the level of the city, and that this was more effective than, for example, defining it at country level. Interviewees referred to the stronger identification citizens tend to have with their neighbourhood and city than with their country. Designating this city a city of science, rather than the country a country of science, produced a "more concentrated" effect (IV6) and was "very important" (IV2).

Interviewees considered that the local authorities, particularly the city council, had played a strong role in fostering a culture of science and technology in the city. From his vantage position in the organisation of city of science 2012, IV6 considered the partnership with the city council very effective and the two Lords Mayors support during 2012 have been very helpful. For their part, IV2, a senior official of the city council, and IV3, Lord Mayor during the first half of 2012, said that the experience had been strong on the local authority and positive for it and its relations with the population:

*The City of science did awaken awareness of science among colleagues that I work with in the City Council... There was information provided for staff through newsletters and the intranet on the City of science events... City of science 2012 has opened doors and made it possible to discuss things like a new city science festival without having to go back to the start and explain (IV2)*

*Citizens are definitely becoming more articulate. We struggle in our engagement with the public and we haven't really come up with answers to that. But I haven't come across other cities doing much better than us. People tend to become engaged after a decision has been made. How to engage them earlier in the process is the real question (IV3)*

IV5 questioned how and whether this commitment from the local authority could be maintained:

*The City Council was great champions. Practically, they supported through posters and banners. They have lots of resources in arts officers, heritage officer, and libraries, to support this kind of programme. Looking at integrating a science strand into their activities would be an obvious way to go. The question is where is the fit into the city's overall strategy? In the Development Plan there's no mention of science.*

IV4 also questioned how strongly this commitment had been promoted to various levels of council staff, noting that the local community workers that she interacts with did not seem to have been advised to give special attention to science-related issues.

Interviewees could not easily identify instances of greater involvement by researchers in policy processes, or of higher levels of citizen involvement in these processes. As an elected public representative, IV3 considered that citizens were showing increased interest in becoming involved, but “we have not found the mechanisms to support this kind of public engagement”.

Asked to name a policy measure that would promote science culture in the city beyond 2012, several interviewees proposed the appointment of a science officer in the City Council, analogous to the existing arts officer or heritage officer. IV2 noted that the first arts officer was appointed twenty years ago, but there were now five arts officers working for the council, with a City Arts Officer heading the department. He is working on a cultural strategy for the city, and there was good reason to include science within that strategy, IV2 added. IV3 also responded positively to the suggestion of a city science officer, saying a “dedicated focus” on science issues affecting the city would be helpful.

IV5 cited the case of the country's US-based “cultural ambassador” and wondered if there might also be a case for a “science ambassador”, citing the name of a comedian (and science graduate), a prominent television personality in the country but a native of the city, who contributed much to publicising and supporting the City of science.

#### Questions on quality of life: summary of responses

All interviewees considered that City of science 2012 had an effect on the media's interest in science-related stories. Some interviewees spontaneously

mentioned this increased interest as one of the most notable impacts of the programme, e.g.

*City of science 2012 certainly increased the profile of science in the general public mind, achieved through lots of really great media coverage, that was very accessible, newsier and more in the features and leisure parts of newspapers than being directed towards scientists (IV5)*

*The debates on radio must impinge on people's consciousness. Media interest focused on events around the conference. There was great interest in a well-known footballer as science teacher – he stole the show at the launch of the conference programme (IV3)*

The media interviewee (IV1) supported this view from her own experience, saying that the impact on media, especially on the national broadcaster, was “tangible”. She admitted that she was concerned early in the year that city of science 2012 seemed under-resourced to deliver its promised programme but that, by the time of the European open forum about science and associated events. It was well equipped to do so and, in particular, to support the media in covering the programme.

The national broadcaster's attention focused on the European open forum about science and the surrounding days; it was easier to generate stories around research than around debates, exhibitions, etc., though there were opportunities to present the latter as subjects for packages on magazine and current affairs programmes, or to use city of science 2012 public activities as a visual backdrop for news stories. This was also confirmed by IV4, who organised an activity on forensic science for children during the open forum about science period; photographs were supplied to the press and these were used alongside reports from the scientific conference.

IV1 admitted that the media's interest in science-related material had dropped after the open forum and that the continuing programme of City of science 2012 events had received little coverage. She related this to the reduced resources later in the year for promoting these events to the media's attention. However, two interviewees (IV5 and IV2) mentioned the way in which one of the television weather forecasters had recently paused in her presentation to explain the science behind a forecast:

*Sometimes just giving people a bit of background information opens up the interest (IV5)*

IV6 highlighted the interest the national broadcaster showed in City of science 2012, but also commented that some sectors of the print media were unlikely ever to show similar attention to science-related material.

Several interviewees mentioned the pending appointment of a new Science and Technology Correspondent at the national broadcaster as an outcome of the year. But IV1 made it clear that this was also due to the appointment of a new Head of News at the broadcaster, who had a strong personal interest in maintaining coverage of science-related material.

Interviewees doubted that city of science 2012 had changed the cultural identity of the city for the longer term. The year's programme may have provided opportunities for many people to engage with science, including many who may not have done so previously, without that affecting their perception of the city or of its cultural identity (IV6). The same interviewee and IV5 suggested that for the city to be seen as a science city in the longer term needs a promotional infrastructure or "sustained follow-up" (IV5). In the view of IV3:

*Naming this city of science helped open up debate about issues of science and the importance of research. It created a different dynamic around, for examples, students choosing science. It takes much longer to affect the cultural identity of the city, maybe ten or twenty years*

IV6 stated the city needed to have a science museum or science centre to be recognised as a city of science. (Perhaps indirectly influenced by city of science 2012, the long-standing but moribund proposal for a science centre to be established in the financial services district of the city was revived prominently during November in a series of articles on the city in the influential national newspaper.)

IV2 underlined that the city council and other major organisations were now working on a "legacy event" to follow city of science 2012, an annual city Science Festival:

*It's easier for us in the city council to do that, having gone through the process of getting the European open forum about science conference and having had the designation of the city as city of science... Ultimately, this will become an entity on its own. That would not have happened with the city of science.*

Several interviewees noted the particular achievement of city of science 2012 in winning support and active participation from cultural groups. From her perspective in the cultural sector, IV5 acknowledged this but also that grants available from City of science 2012 were "a key driver for getting people involved":

*You need to incentivize people to do things differently, or change their behaviour. It will be interesting to see if partnerships that emerged in 2012 last beyond that. I would expect that some of them will. This year put people together that might not normally be together. In the absence of an integrated strategy for public engagement with science, it's hard to maintain these things. It comes down to putting in place some kind of*

*supports, some kind of funding mechanism, to incentivise people to do things differently.*

The principal support IV4 also identified for maintaining the momentum was “funding – when we do something we do it well”. But she also proposed a dedicated web site, providing information on public science events.

#### Questions on social and economic impacts: summary of responses

The only economic impact of city of science 2012 that interviewees identified, either spontaneously or with prompting, was in tourism. But for most interviewees this was seen more as a potential impact rather than a real and measurable one.

IV5 referred to a current project to promote cultural tourism focused on a particular area of the city centre that could easily incorporate scientific culture, noting that the city of science promoted awareness of scientific heritage among the organisations in cultural tourism project. There are elements of scientific activity and scientific heritage that could be part of the city’s tourism offering, she said; they need to be drawn out and be told as “part of the story of the city”.

IV5 and IV6, but also others with less emphasis, underlined the strong participation of cultural institutions in the programme as a particularly valuable outcome, though IV5 considered such support in any future such initiative could depend largely on the availability of financial support.

IV6 mentioned the participant interest shown in science-culture walking tours held as part of city of science 2012 during the summer months but questioned whether the principal tourism interests could recognise the potential this might represent if scaled-up to attract visitors with these particular interests. Tourism interests had benefited from the European open forum about science and city of science 2012, he said, without necessarily noticing that these were science-based programmes.

IV6 also commented that the city’s business community had not engaged much with city of science 2012; the main exceptions were high-technology multinational corporations strongly represented in the city, who have a continuing interest in promoting interest and awareness in science and technology, and particularly in promoting studies in these areas.

#### Questions on education: summary of responses

Several interviewees noted that some higher education institutions (especially two of the city’s universities) had committed strongly to city of science 2012. IV6 commented that the engagement of higher education institutions and research centres was highly variable; perhaps reflecting institutional rivalries, but many

individual researchers got new or additional experience of engaging with the public. IV6 wondered aloud if the educational and research institutions could or would sustain such effort as they had shown.

IV4 stated that her institution placed some events already planned under the city of science 2012 banner but also organised several additional activities, particularly during the open forum about science in July:

*Some of the events would not have happened without it being city of science... Our senior management supported the commitment to the city of science. The Institute's staffs were generally supportive and aware, though some wanted to participate but were unable to do so because of time pressures. Early in the year there was more enthusiasm, but this weakened.*

IV2, from the city council, noted that the council's partnership with higher education institutions in a collaborative network of the city had been boosted through the city of science (IV2). The organisations developing the legacy initiative, a science festival, expect the collaborative network to be a vehicle for the higher education institutions' involvement in that initiative. IV3, former Lord Mayor, considered the strengthening of relations between the local authority and the higher education institutions to be one of the strongest outcomes of city of science 2012:

*The council has embraced the concept of the smart city and city of science 2012 gave it impetus, opening up data sets for researchers to use. These activities made it easier to make the pitch for the conference, but we turned it into a city of science and that was a smart thing to do. To sustain this, we need to continue working with the universities, making ourselves a test bed for research. This connection is relatively new and has great potential. It is stronger than it has been. It's beneficial all round if we can work together on information technology and science issues. City of science 2012 gave that an impetus and we need to build on that.*

As a further example of the strengthening partnerships between the local authority and educational institutions, IV2 referred to the city council's co-operation with a science centre in their main exhibition for the city of science 2012. He also mentioned that the city council would have the services of six PhD students from two universities for a brief period in preparing for the city's hosting of a forthcoming (February 2013) conference on cities against poverty.

IV2 noted particularly the children-oriented events of the city of science, though it was notable that the events he had in mind were targeted to children in families rather than children in schools.

IV4's institution targets much of its public outreach activity to schools and has formal links with three primary and three secondary schools in the neighbourhood. IV4 said it was noticeable that schools gave greater priority to

science-related events in city of science 2012. On the basis of her institutions' experience in city of science 2012 IV4 hopes to repeat a programme of similar events in July, although it is harder to get groups of children to events with schools on holidays at that time.

#### **Results 4: Focus group of event organisers for the city of science 2012**

The focus group was carried out using the Module C2 method and prompts from the PLACES Toolkit. The focus group was held on 20th November 2012. Participants comprised individuals and representatives of groups and institutions that had organised events as part of the City of science 2012 programme. Seven people took part in this focus group. The following are short descriptions of the actors and the events that they organised.

NS, writer and performer of a one-woman show, a part-lecture, part-biographical, interactive, informative and visual performance piece about 'What If?' moments of her life, CERN, String Theory, to explore our existence, our life's work and the effect of choice, chance and coincidence on our life journey.

AM, Head of Education at a national film institute which ran a trail to raise young people's awareness of the process of animation itself, encouraging them to ask questions such as: How is it done? Who are the animators? What technology do they use? The trail was complemented by animation feature films and workshops.

SO, producer of a science radio programme, which held two live shows in two universities. These shows were free and open to the public and included panel discussions and a link to a post-mortem examination of a dog.

EB, Corporate Engagement is an executive at a national festival which had a scientific theme for its city parade in 2012. Floats included animations of a selection of science questions posed by children, such as 'How is a rainbow formed?', 'What makes the weather change? , How is electricity made?' presented in imaginative, colourful and thought-provoking ways.

ST, journalist and organiser of a debate about the explosion of arts projects in healthcare settings. The panellists included a consultant in geriatric and stroke medicine and chairman of a national centre for arts and health, an arts director, a musician and arts mental health co-ordinator, and a newspaper columnist and health promotion consultant.

MM, originator and guide for eight science-related walking tours of the city. The tours tell stories of invention and innovation and include walks themed on medical history, ingenious inventions, and great national scientists.



DD, scientific is an officer at an agency for environmental protection, which organised a range of national and international speakers to give public lectures, updating audiences on the science of climate change and possible responses to it.

The biggest impact that the participants reported experiencing was that they saw what the potential engaged public was for science events. Participants were surprised (and very pleased) at the level of engagement from audiences, and at the kind of questions the adults and children were asking. For DD: “It reinforced for me, if you do engage people, they will actually participate”. NS said that it reinforced for her that: “you can embed more [science] without apologising for the existence of science in things ... people will connect with it, and they're not put off by science when the thing is presented outside of the curriculum, outside of school, people will come to it.” EB agreed here, emphasising that the audiences for the events were “getting into that, that science isn't one thing, which it's fun and there's different ways of looking at it”.

Another impact was that the participants got to see the size of the science communication community in the city. As SO said:

*For me it was nice to see how many people were involved in science communication. I think science communication sometimes is a bit 'public service' as a term, but you know people were doing it because what was part of their programme was actually part of science, or was interesting for people who wanted to engage with science, or was a nice way to explain or connect with people addressing science or wanting science. More so it was nice to see how many diverse people had something to offer, sort of the, the conversation.*

Participants as a whole did not think that city of science 2012 events made publics more aware and interested in current scientific research. But for AM bringing science into culture, and “drawing the connections between the two, I think, was really useful”. Also, participants agreed that the city of science 2012 logo on their publicity material helped, as it “added a weight to what we would have done”. MM said that although most of her works (historical scientific walking tours) did not link with current research”.

Participants also pointed out that some events also encouraged discussion about how scientific research is carried out, ST organised a debate that was: “at that interface between arts and health and arts and science and art and medicine”, which led to discussions about scientific research methodology and whether it can be applied to cultural initiatives. NS found that after the first few performances: “people kept hanging around afterwards” to ask questions and discuss the performance, so they added a discussion session at the end of each performance to facilitate this.

SO stated that be a city of science 2012 was “really good at expanding existing conversations”. He suggested that city of science 2012 expanded science in people’s minds to no longer just be a school or college subject but as:

*“Explaining something very simple about the world around us, it’s about exploring certain discoveries like quantum physics, it’s about climate change which is possibly the most important thing you could be talking about, all of these things had the label of science attached”.*

Participants found that the scientists they worked with in running events—some of whom had never participated in public events before—were amazed at the level of knowledge of the audiences, especially the children.

*“They had never worked with kids before... They were astonished, we were all astonished, because the kids could grasp this absolutely high level technology and use it” (AM)*

Participants in the focus group also agreed that the scientists that they worked with got a lot out of seeing their field being performed and discussed in a public arena. NS said that a lot of researchers came to see her performance and it “was almost like it legitimised it for them... It seemed to really strike a chord for them that somebody actually took the time to look at their area”.

Participants also noted that scientists were enthusiastic about engaging with the public, although DD noted that there were barriers in place preventing them from doing this—mainly funding. Scientists would willingly give up their time, but did not have the resources to book rooms or publicise events. SO agreed, observing that: “having other people who are interested in facilitating events was a great opportunity for those scientists”, because as MM remarked: “At the end of the day, they’re scientists first”.

ST made the point that it was a useful experience for the scientists to talk in public, that it forced them to put their work into a wider societal context for a broader audience.

One part of city of science 2012 that participants were disappointed in was the organisational backup and the missed opportunities for networking. The participants all agreed about this and this part of the focus group discussion became very animated. Participants reported feeling left on their own, without much support from city of science 2012 and, for example, waiting four to five days for an e-mail reply and waiting weeks for the website to be updated.

Participants agreed that city of science 2012 did well for such a small team, but said that the fact that it was a year-long festival made it very difficult to organise. DD:

*“You certainly got the impression that they were overwhelmed by the amount of applications that they got in, and the organisational backup wasn’t there to deal with that.”*

There was also confusion between City of science 2012, the European open forum about science and the Science in the City festival which ran the same week as the open forum. ST noted that: “there was a lot of bureaucracy over the application”.

Participants had attended a large information session to kick off their applications; this meeting was described as a “very lost opportunity for networking” by MM. She suggested it would have been better as a day-long event “where we could all have networked and brought together more collaborative things”. MM continued that after the first session participants were left on their own way and were in fact competing against each other. A database of 500 email addresses was sent out (although not all participants in the focus group received it), but it was not sent until after the closing date and was too unwieldy to do anything with. For all this, participants agreed that “the positives outweighed the negatives” DD.

EB, who worked a lot with schools and teachers in organising the national festival, noted that city of science 2012 events were: “really well done from the point of view of younger audiences”. She added: “I think it worked, I mean it really opened up science to people and it really changed the way people look at science, and definitely from a younger audience point of view as well, it’s kind of changed peoples’ opinions of it”. EB also remarked that the teachers who were involved were very encouraging and optimistic and reported that the parents were also enthusiastic. MM mentioned that she has now begun running inventions workshops for children—a direct spinoff from the walking tours.

SO broadcast a couple of live science radio shows from universities with student audiences, he described these as fun and reported that the students “were engaged with us”

When asked what the impact of city of science 2012 was on the economy and tourism in the city, participants thought that the European open forum about science conference had a big impact with the number of conference delegates “when you went round town you kept seeing these European open forum bags, everywhere, and there was very much a strong presence that something was happening in the city” NS. However they were doubtful if the year-long city of science 2012 had much impact: “I think just for the week really, I can’t see how it would have too much of an impact on tourism throughout the whole year but certainly for that week it was pretty full on, in and around the conference and

the branding was there, the media I think did a pretty good job although there were some dodgy Star Trek effects a couple of the nights!" DD.

When asked about the long term effects of city of science 2012 on young people—perhaps in influencing their career choice—SO noted that it was very difficult to pin down what would inspire young people to choose science, while EB observed that events such as those held during city of science 2012 were “definitely something that would open up a lot more young people to getting into the area, and the subject and thus going that little bit further with it than in education”. All the participants agreed that if city of science 2012 was to spawn an annual science festival, then that would be more likely to have an influence.

Participants made suggestions about possible future science festivals, mainly that they would need to be “programmed very carefully and so far in advance so that nothing is conflicting or overlapping, and everything makes sense as a festival as opposed to a series of individual things” NS. MM also suggested that the city of science 2012 hold “some kind of a networking event or a post hoc closing event... or closing celebration, you know maybe celebratory but with an opportunity to put in place a bit of networking for future”. (It may be noted here that such an event was on the organising team’s agenda for several months but could not be held before the team ceased to operate.)

### **Personnel in this case study**

The case study research was led by an individual contractor in the impact assessment (WP6) team on the PLACES project. He is a former senior lecturer in science communication at a school of communications in the city’s university. He co-founded the Masters in Science Communication there in 1996 and remains active as a science communication trainer and researcher. In this case study, he conducted the stakeholder interviews, analysed the survey responses on defining a city of science, and compiled and edited the case study report. He was a member of the Local Organising Committee for the European open forum about science and City of science. Interviewees were told this and it did not appear to affect the frankness of exchanges.

The research assistant on this case study was a woman engaged in studies for a PhD on science communication and holds an MSc in Science Communication from the city university. She was in charge of the analysis of visitor surveys, actor focus group and citizen focus group.

## Conclusions

This case study indicates that adopting the label, city of science 2012, had perceptible impacts on the city's local authority, on some of the scientific and higher education institutions, on the cultural bodies and other event organisers, on people attending events, but very diffuse and difficult-to-quantify impacts on the city's citizens. The survey responses of people who attended city of science 2012 events indicated they had very largely positive experiences. But the (admittedly limited) citizen focus group demonstrated the difficulty of ensuring widespread awareness of and support for a programme such as city of science 2012.

Adopting the "city of science" designation for a single year has very different implications from the more usual practice in Europe of designating a city to be a "science city" more or less permanently. This case study indicates that there are significant forces in the local authority, in the state and cultural institutions and in the science events community and cultural organisations who would wish to see the impetus of the city of science 2012 maintained. Some initiatives are under way, and this case study brought forward further expressions of support and suggestions, aimed at maintaining the momentum. The chances of these initiatives succeeding cannot be assessed at this time but it does appear that the actions of the city council, in particular, will have a significant bearing on whether and how the city of science 2012 leaves a lasting legacy.

## **Recommendations**

### **Visitor survey (A2)**

The survey form proposed in the PLACES toolkit is very difficult, perhaps impossible, to implement in the circumstances that are typical for visitor surveys, i.e. when visitors are leaving a building or an event. The survey, as proposed, aimed to incorporate too many dimensions, including of scientific citizenship. Having used a significantly reduced form for a previous case study (a science centre) and experienced difficulties in getting visitors' co-operation, this case study used a shorter, simplified form that people attending public science events could complete in 2-3 minutes. It is recommended that two forms be prepared, one longer one for use in face-to-face settings, and a shorter one for self-completion.

### **Semi-structured interview (B1)**

The interview guide proposed in the PLACES toolkit is also too detailed and too long. It can be considered a schedule for a structured interview rather than a guide for a semi-structured interview, where the interviewer prompts the interviewee and has the discretion to follow the discussion where the interviewee takes it. It is recommended that one or two general questions are set down for each heading (policy, quality of life, etc.), that any other topics are mentioned in prompts and that interviewers are given the discretion to select from these prompts as they consider appropriate.

### **Focus group guide (A3)**

The focus group guide proposed in the PLACES toolkit presupposes an understanding of what a science city is. A group made up of citizens who are unfamiliar with the concept may be unresponsive or give very short answers, even after an explanation by the moderator. Also some questions in the Toolkit are very specific, and would be more suited to a questionnaire than a focus group. It is recommended that one or two general questions are set down for each theme. These can then be explored further using prompts. Moderators need to be given the discretion to select from these prompts as they consider appropriate.

### **Focus group guide (C2)**

The only change recommended for the C2 focus group guide in the PLACES toolkit, is that the time given to each participant to talk about his/her response and the respective institution's response to participating in the event is reduced from 5 minutes to 1 minute, to allow the group discussion proceed sooner.

## References

1. De Semir et al. (2012) *The PLACES toolkit for the impact assessment of science communication initiatives and policies*. Barcelona: Universitat Pompeu Fabra.