



# PLaces

Platform of Local Authorities and  
Communicators Engaged in Science

**Modules used: B1, B2, C1**

**Science City**

**2012**

This is a standardized version of the original case analysis number 9. Specific names and locations have been substituted from the original document number 9 with generic references in order to preserve the anonymity of every participant.

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## **Abstract**

This case study analyses this city as a science city. It is a part of the evaluation work package of the European project Platform of Local Authorities and Communicators Engaged in Science (PLACES, reference 1) which focuses on science communication at the city and regional level and aiming to support the emergence of the concept of 'Cities of Scientific Culture'. This study is focused at the city level, considering the impact of science communication initiatives and policies on the local political sphere and on the actors involved.

The research questions include understanding the meaning of the concept of 'science city' or 'city of scientific culture'; analyzing the impact of the policies and activities; globally understand what makes science become a part of the 'flavour' of a city.

The particular ingredients that make this city a successful science city are: a rich historical tradition of interest in science; a science- and technology-based economy; strong support on the part of public authorities of science venues and events; a dense network of NGO's who develop science-related activities; municipal and regional public policies that encourage collaboration among all actors. Globally, we met policy makers who clearly give their science-related policies a key place in their visions for the city and its region as well as numerous and enthusiastic actors in the field. This balance between top-down and bottom-up activities is essential and needs to be conserved.

This report also includes an evaluation of the way the PLACES Toolkit functions in the field.

## Introduction

This case study is a part of the European project Platform of Local Authorities and Communicators Engaged in Science (PLACES, reference 1) which focuses on science communication at the city and regional level and aims to support the emergence of the concept of 'Cities of Scientific Culture'. It brings on board policy makers as well as different actors of science communication, building partnerships among cities, local action plans and pilot activities and generally providing them with a common platform.

The PLACES project includes an evaluation work package and it is within that framework that this case study was carried out, following the indications of a common 'toolkit' which has been developed to that purpose. The aim of the toolkit is to provide an instrument to measure the impact of science communication initiatives and policies (SCIP) that can be easily and efficiently used by various actors in a diversity of situations, yet still allow a large degree of international comparison. The toolkit has already undergone pilot tests but one of our aims in the present study is also to fine-tune it.

PLACES project in general and the evaluation tool in particular distinguish three different levels of observation, Science Events, Science Centres and Museums and finally science cities. This case study is focused at this last level, considering the impact of science communication initiatives and policies in the city (and its region). The toolkit takes on three dimensions of possible impact: on the public, on the local political sphere and on the actors involved in SCIP. This case study focuses on the last two dimensions.

In other words, we are working at the city level and we are testing the concept of 'science city' or 'city of scientific culture'. What can this notion mean? What type of policies and activities does it include? How are the main actors involved in producing a science city taken on board? What kind of engagement on the part of policy-makers and of science communication actors is needed to build up not a collection of disparate actions but a coherent ensemble that makes science become a part of the 'flavour' of a city? In this study, we hope to bring forth some of the answers that the city has brought to this challenge.

This city, situated in the southwest of the country, has a population of 440.000 inhabitants which makes it the 4th largest city in the country. The urban area around it has close to 1.2 million inhabitants and is the capital of the region. It is a city with a very long history –it was built on a proto-historic site, occupied by the Romans, and its university was founded in the 13th century– that has beautiful and characteristic red brick architecture. Today, its industry is based on highly specialized technology (e.g. aeronautics with Airbus, space

with the launcher Ariane, electronics, and chemistry) and it has a rich cultural offer, both classic and modern.

We selected this city to carry out this case study for these reasons, but also because it is one of the participant cities in the PLACES project and because it has numerous science communication activities and are planning more. Indeed, globally speaking, this city appears to be a successful example of a "science city". We shall point out some of the reasons for that below, but let us first draw a rapid picture of what the city offers in terms of science-related venues events and mediation. We shall distinguish permanent venues such as museums, temporary events and mobile exhibits and the network of NGOs that are very active in the field.

### **Permanent science communication activities in fixed locations**

- The museum –originally the natural history museum, but the qualification has since been dropped– was created in 1865 and reopened after a complete renovation in 2008. It is near the centre of the city and is administered by the municipality. It is particularly rich with both natural history collections and ethnographic collections. It includes a botanical garden and a "wild" garden created around a reedy marsh in the northern part of the city. It receives about 200.000 visitors per year.
- Space city is a science centre that opened in 1997, closely linked to the activities of the national space agency and the local space industry but run by the municipality. It is situated near the city's ring road. It functions somewhat like a scientific amusement park, continuously updated, and receives 270.000 visitors per year.
- This city also houses less spectacular venues, a museum of the history of medicine, a museum of medical instruments, an observatory and a heritage centre dedicated to the history of aviation.
- An important new science centre is being built next to the museum and should open in 2015. It will combine in one place a number of science related structures that are dispersed so far. Some parts will concern the university (the offices of the regional higher education pole, housing for visiting academics). A building dedicated to science communication is also under construction.

### **Mobile and/or temporary events**

- The most recent is a science festival. Its 4th edition took place in 2012. It included presentations by scientists in the streets, a flea-market for old scientific and technical instruments, a map of controversy, digital city, theatre, conferences, etc. It appears to be very successful, having gone from 30.000 participants to 70.000 in its first three years.
- Many other events also take place in the city: for instance one of them for

3 days at the end of May.

- A national initiative is organized at a regional level by an umbrella NGO
- Many other activities also go on throughout the region that is quite rural (conferences, visits to schools). There is an annual astronomy festival in August. There was an event called in October 2012. The region is obviously very attentive to the regional dimension but synergies appear to be strong with the policies developed by the city Municipality.

### **A dense network of NGO's active in science communication**

This city hosts numerous, quite specialized, NGOs that develop science-related activities as well as "umbrella NGOs" that group several smaller ones. One of the smaller activities groups NGOs in the different departments that compose the region. It has 16 permanent employees and provides material, exhibits and personnel for many of the events that go on in the area. Another example of an active umbrella is an association that groups a number of smaller and more specialized NGOs.



## Methods

As explained above and following the PLACES toolkit, we are carrying out this case study at the city level, including its region. Two dimensions are particularly important for us here: those of local stakeholders and policy-makers and those of actors involved in the specific science communication activities carried out in the city.

To reach the policy-making dimension, we have used two tools, semi-structured interviews and document analysis – these correspond respectively to modules B1 and B2 of the toolkit. The choice of interviews was made to allow access both to information on policy content and to the points of view, evaluations and judgements of the policy-makers, as well as to the history behind the present situation.

Document analysis (module B2) is complementary to the interviews. We relied mainly on an analysis of websites, those of the municipality and those of the various institutional actors, as well as of paper documents given to us by interviewees or collected by us. These elements are useful at two levels:

- To evaluate the visibility of science in general, at the city level, and of science communication activities. The web is a good tool for this but so are tourist brochures.
- To collect elements of policy of the different actors. Here the corpus of documents is quite variable, some actors producing much more documentation than others. This dimension is complementary to the interviews.

To explore the actor dimension, we also carried out semi-structured interviews (module C1 of the toolkit). This module was selected for similar reasons, to understand the professional trajectories of the interviewees and to collect their evaluations of the situation of science culture in this city.

All the interviews were carried out by an experienced senior-level sociologist, who is accustomed to working on science communication questions. The interviews were taped, except when the interviewee asked for them not to be (3 cases). No one asked for anything to remain particularly confidential but we have chosen to make the verbatim quotes anonymous. Since we use quotes as examples, often of a shared opinion, there is no particular reason to attribute them to a single individual.

The interview guidelines given in the toolkit (modules B1 and C1) were first translated from English into national language then discussed between us. A number of alterations were made at that first stage and a few more after the

interviews began. These modifications were limited to a minimum in order to remain as close as possible to the guide without compromising the quality of the interview. They were generally changes in the order of questions, the idea being to start the interviews with more factual elements before asking people to make judgments or evaluations. We also added two introductory questions (see below).

The final guide translated into national language is in the annexe. We describe the main modifications we made in what follows, and provide the list of interviewees for each module.

### **Module B1: semi-structured interviews with observers/stakeholders**

At the beginning the interviewee was asked to describe her or his professional itinerary and present functions. This narration introduces the interview in a manner that is comfortable both for interviewer and interviewee. It also makes the position that the person is speaking from clear and helps contextualize what is said further on.

Then a factual question was added to focus the discussion to follow: "what are the main science communication activities that have been going on in this city over the past few years?"

- Question 1A was sent to the end of the interview for two reasons. First, the economic metaphor ("added-value") is very marked culturally. In this country, the underlying utilitarian ethics are generally regarded with suspicion. Economic motivations for a cultural enterprise are not legitimate –at least not as the first point of entry. The second reason for putting this question at the end was that the "overall view" that is requested is more appropriate as a synthesis in conclusion than as an opening to the interview.
- Question 3B on financial support measures was sent to the end of section 3 to keep all the impact questions grouped ahead of it.
- Q1E was put before Q1D and Q3F before Q3E, the idea being to keep the interview moving from more general elements (strategies, ambitions) to particular instances (actions, effects, consequences for the public).
- Q1C appeared redundant with the general introductory question and was removed, as were the final "other" questions at the end of each section, because they were very repetitive.

In this module, we focus on the main stakeholders and policy makers involved in SCIP in this city. Thus, we interviewed the people responsible for science communication/science culture in the municipality and in the regional administration. We also interviewed the local representative of the main research organisation (national centre of scientific research) and the person

responsible for science communication in the structure linking the three local universities. We initially planned to interview a person in a similar function in the main local industry Airbus but unfortunately failed to convince them of the interest of the project. The following people were interviewed under this module:

- CGu, deputy mayor of this city in charge of innovation, scientific culture and the natural history museum
- ME, deputy head of service in charge of science programs and the Mission for higher education and research at the region,
- PM, national centre of scientific research, regional delegate
- CGa, head of service for dissemination of scientific and technical culture at the regional pole for higher education, which includes the three local universities plus 16 engineering schools

### **Module C1: semi-structured interviews with relevant actors**

As in module B1, the interviewee was asked to describe her or his itinerary, engagement and present functions to begin with. This enabled us to introduce the interview and clarify the position the person is speaking from. It also helps contextualize what is said further on.

- The order of the interview went from the role and engagement of the person in their institution and moved on the impact of the city's SCIP on their work and their institution (visibility, impact, public perceptions, networks, feedback, etc.).
- The question about "having difficulty" speaking with the public was not appropriate for science communication professionals and was reworded around the "necessary competences for communicating with the public".
- The question about elements "proving" that the public was convinced was reworded as "do you have any information about how the public perceives your actions?".

In this module, we were focussing on the actors of SCIP. The people interviewed are active, on an everyday basis, in the field of science communication in the city and its region. One person works in a university, two in museums and two in NGOs.

- VP, head of cultural service in the science university, one of the 3 universities in the city
- AM, head of programming in the natural history museum
- PD, deputy director for programming in the space museum
- FO, a junior employee in the main NGO responsible for science communication in the region
- JL, director of a small NGO

## Results

A number of favourable factors or "keys to success" seem to have given this city very strong impact as a science city. Nevertheless, as we shall see below, some fragilities do appear.

### **A population that has always valued knowledge**

Knowledge is important to the people of the city and has been for a very long time. The city hosts the second oldest university in the country, founded in 1229. It has a rich network of academies –the first one was established in 1640– and other science-related learned societies –mostly created in the 19th century. More recently, its high-technology industry has been built up on a powerful academic potential in aeronautics, space science, materials science, chemistry, agronomy, etc. In other words, knowledge in general, and scientific knowledge in particular, has been valued and respected for a very long time in the city and still is.

This means that there is a large population already interested in science that will quite readily support new science-related activities. Of course, that is not sufficient and all the challenge to science communicators is to go beyond this relatively accessible group. However, somewhat paradoxically, it appears that it is easier to do so when an initial public is there to 'prime the pump', to test and validate new and innovative initiatives. Success then calls success and the audience of new events widens.

*"We arouse curiosity and we disseminate knowledge but success depends on the conjunction of a theme, a format, and organisation... and above all on the intellectual wealth of a territory. But a lot still needs to be done to go and fetch the populations in the outer neighbourhoods, in schools"*

### **Converging policies that empower the regional level**

A number of changes in national policies have converged to create a favourable environment for the development of 'scientific culture' at a city or regional level, even though they weren't initially thought out with that aim. Local authorities have made science and technology an important part of their policies and have well integrated these issues in their general action.

First, in 1982, a national law on decentralisation transferred a number of competences from the state to the regions (as well as to the departments and municipalities). In particular, the regions received competence for higher education and research. Large cities can also in practice play an active role there too and this is the case in this city. This law has brought on profound changes in a country that was traditionally very centralized.

The recent –and relative– autonomy given to universities in 2007, in a still very centralized country, has played a role too: more things are 'happening' locally. Regional coordination structures have been set up. The University of the City is one of these regional poles for higher education and groups the three universities in the city plus a number of engineering schools. More or less successful (one of aims of this type of structure was to help reunify universities –the three in the city have so far declined to do so), they have at least allowed science communication activities to be stepped up.

Our general impression is that local policies converge efficiently to support science culture and that these policies are well integrated within the city's global policy. Document analysis supports this conclusion. For instance, science venues are clearly present in tourist brochures.

*Starting with spaces that had been created for research, we try to take advantage of the development of tourism, but relying on scientific research*

In a municipal magazine a feature article on 'New Faces of Culture' includes 'promoting scientific and technical culture', with the portraits of the recently appointed directors of the museum and of the space city. Science culture is an easily accessible part of 'Culture' on the municipality web-site.

### **A network of well supported NGOs**

Not surprisingly, a rich local network of NGOs has grown up within the population and has provided strong "grassroots" support for science communication and culture. Importantly, both the municipality and the region have been working hard to coordinate them, for instance by conditioning funding on collaboration among them.

*There are quite a lot of things going on in the city, and now the science festival, but we must meet all the needs, there are real deserts in the rural areas. So we have been developing this sort of initiative over the past 2 years to oblige the NGOs to work together, several of them together.*

The municipality tries to provide the NGOs with pluri-annual funding which is important to allow them to make sustainable projects. Globally speaking, there seems to be a fruitful convergence between a municipality that is interested in science and that is working to structure activities, on the one hand, and a very active base of enthusiastic associations on the other.

*The NGO sector had been neglected. We met all the people responsible for the academies and we are supporting them to demonstrate how important they are.*

## **A device co-constructed by many actors**

This situation where top-down and bottom-up currents come together to contribute to the success of this city as a 'science city' is only part of the picture. But beyond that, we found many signs of convergence among local actors and institutions around the importance of what can be called scientific culture.

*The elected councillors now understand that research and innovation are essential, especially during a period of crisis. They are convinced. (...) And there's a demand on the part of the NGOs: in the region there is an enormous number of associations who ask for help. The need was also coming from the base.*

*We also need to go back to traditional humanities, to reflect on the role and place of scientists in civil society. Finally, the communication of science and technology is only the emerged part of the iceberg. Today, one of the priorities is to give it meaning again.*

We have collected many reports of collaboration between all the different actors as the following verbatim quotes illustrate. There are of course some signs of tension between them –we shall come back to this below– but, globally speaking, they appear to work a great deal together and to value this collaboration. For instance, many take part in the recently created a science festival and most have plans for the future science centre.

*It's great to be part of a vast project, the work of conception is more satisfying, and we lean on other structures: a theatre next to the museum, the science quarter, the Space City, the NGOs. There's a real will to work together –and the position of the museum is clearer'*

*Our strategy is to assemble. Just promoting scientific culture isn't enough. We need to exchange, to share –that's what we do with another umbrella association.*

*We try to be more present in cultural festivals like the science festival, in the big science exhibitions, we accompany the heads of projects and give them space on our premises, we are active in the disadvantaged neighbourhoods.*

*In the science festival the scientists are in the city, they come out of their labs and share these moments with the public, to meet the youngsters in the neighbourhoods and that reinforces territorial cohesion.*

*The interesting thing today is to make the public become an actor, to co-construct knowledge, to allow them to work on projects with us. The future event planned in the future science centre will capacitate people to use technology for their leisure. It's the same sort of experimental approach we have in primary school with another event for children.*

## Strong supportive personalities

Although the collective resources of this city are essential to understand the impact of this city as a science city, an important element favouring its present SCIP has been the election of PC as mayor of this city in 2008. An engineer by formation, he was a member of parliament from 1997 to 2012 and was particularly invested in science policy. He regularly took part in the technology assessment activities of the national assembly. Such interest in science and technology questions is not very common among politicians of this country and has no doubt provided one more favourable factor since these issues are high on the list of municipal priorities.

Several other figures also emerge in the science communication landscape in this city. Even if they are less well known, they too are frequently referred to in the interviews as important personalities.

## Possible threats

We have painted a somewhat ideal picture so far - and it is true that this city appears to be a highly successful 'science city' with strong impact. However, a number of elements can threaten this situation.

A major threat is the possible future lack of resources, when budgets are being tightened in these times of crisis. As in all sectors, the dense network of NGOs that plays an important role in this city's SCIP is extremely dependent on public funding.

Another difficulty is the complexity of the set-up. The synergy between all these actors is clearly very fruitful but it is complicated to organize and requires a lot of energy to keep it going.

*The most difficult thing is working together [in an umbrella association]. How to fix common objectives for everyone? I'm not yet exactly sure even though there was a need to centralize. (...) It's complicated because the associations come into the umbrella one to highlight what they already do and not to join a new work of creation – but that's what we're going to ask them to do!*

*There's a problem of organisation with the town hall. We aren't always the go-between. When there's a call for projects, we don't necessarily know that our scientists are taking part in the science festival*

*Today, theory is invented as we go along. There is a strong will in the town hall, that's already a lot. But [all the NGOs] do what they each think is important, by themselves. We are still very far from a federal structure.*

As we pointed out above, both top-down and bottom-up currents contribute to the success of the city as a 'science city'. The balance between

more 'elitist' activities and more 'popular' educational activities is also delicate. A number of interviewees expressed their worry that it might be difficult to keep this equilibrium, especially if the future science centre tipped the balance in favour of more established, sedentary activities to the detriment of the multitude of small-scale activities.

Finally, a weak point of the cities activity is that no formal evaluation seems to be carried out. Clearly actors are attentive to popular success but a better understanding how and why things work would be useful.

*We sent out questionnaires to the teachers but we didn't get many back. But we really should make an assessment.*



## Conclusions

From this case study, we can draw a number of conclusions concerning the impact of this city as a city of science as well as concerning the PLACES Toolkit.

### A science city

What are the basic ingredients of a 'science city', based on this case? Based on our fieldwork, we have found a number of positive features that we think lead to the success of the city some of which the city will have to be attentive to retain in the future. Obviously, it will be important to confront this case study with others, to be able to generalize and to identify more globally what are the necessary conditions to create a science city. But we believe we have a very interesting case here.

This city has increased its SCIP over the past few years, adding exciting events (the science festival) and prestigious venues (the museum) to a rich tradition of activities based on a dynamic network of NGO's and on links to the industrial tissue (space city). These new and sophisticated initiatives have widened the public, for instance towards families or youth from the suburbs without compromising on the quality of content. The more rural region beyond greater city has not been forgotten.

Part of the city's success seems to be based on its history. The city has a long academic tradition: it founded a university in the 13th century, an academy in the 17th, a natural history museum and various learned societies in the 19th century... At the same time, the place of science and technology is very important in the present-day economy of this city, in aeronautics, space industry and electronics in particular.

The municipality (and the region) consider that science and technology have an important place in their general policy and they strongly support museums, science centres and science-related events. However, numerous bottom-up science communication activities are also developed by a dynamic network of NGO's. The municipality, as well as the region, actively encourage collaboration among all these actors. No doubt an essential ingredient, we met a lot of enthusiasm on the part of the people we interviewed as well as a lot of will to cooperate in this field.

### The ingredients

- A rich historical tradition of interest in science
- A science and technology-based economy

- An active network of NGO's
- Solid investment by local authorities in science venues and events
- Municipal and regional public policies that encourage collaboration
- Enthusiastic actors

All the actors we met referred to a common fundamental aim: make science accessible to everyone because understanding how the world works is an essential part of a citizen's skills. Policy-makers added that sharing knowledge reduces the fracture between social strata.

### **Using the PLACES Toolkit**

Concerning the toolkit, we made fairly minor adjustments to the interview guide (detailed above). The methodology worked well for exploring the SCIP activities of the city and identifying the main keys to success as well as possible threats (Module B1). We could say the institutional view was well captured.

On the other hand our attempts to capture personal impact on individual actors (module C2) were not very successful, essentially because people replied as professionals, as the legitimate representatives of their structure. In short, when we asked what was the impact on themselves of being in a science city, they replied as a scientist, a member of an NGO, an employee of a science centre, etc. and not as an individual. This is not a problem in itself. The interviews were very interesting and enabled us to draw a picture of SCIP at all levels, from policy-making to its implementation the field. However, the texts of the toolkit should discuss this point.

Documentary analysis was well supported by the toolkit.

## **Recommendations**

Based on our case study, recommendations can be made at different levels:

### **The city**

This city (and its region) appears to be very successful in 'cultivating' science and technology. However the city needs to be attentive to preserving the delicate balance between 'bottom-up' initiatives from NGO's and more 'top-down' –better organized but potentially more elitist– venues and events. The rich combination of the two is no doubt one of the main keys of this city's success.

The city –but this is not a local specificity– need to be attentive to the financial fragility of NGO's. Support will need to be maintained, especially at a time when both public and private funds become scarcer.

Finally, more evaluation of the SCIP is needed, not just in quantitative terms (numbers of visitors or participants) but also in qualitative terms: what works and why?

### **Candidate science cities**

What can the policy-makers of future science city learn from this city? We can give them three main recommendations:

- Use their resources to coordinate the existing forces in the field, be they museums, festivals, science days, etc. Conditioning their funding to collaboration among the beneficiaries multiplies the impact of the support provided by the municipality or the region;
- Diversify the offer to cater to all types of public and to invest different areas of social life. Well-identified and clearly visible institutions, such as science centres or museums, should be combined with festive temporary events taking place in all parts of the city (including less favoured areas)
- Evaluate their policies and actions both in quantitative terms (numbers of visitors or participants) and in qualitative terms: what works –or not– and why?

### **About the toolkit**

As discussed in detail in the methodology section, the interview guide could benefit by a little reorganisation.

For comfort of use, the interview guide of module C1 should be presented visually like Module B1 (with questions numbered). The multiple

cases provided were not really very useful and add a lot of length to the text of the toolkit. One or two versions of the guide could be given with recommendations for adapting them.

In our case, Module C1 picked up impact on actors as professionals engaged in science communication and culture activities, and not as simple individuals. This may be partly cultural, partly an effect of our sample. This does not diminish the interest of the study –probably to the contrary– but it should be discussed in the toolkit.

## References

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