



Science Communication Events in Europe

EUSCEA
WHITE BOOK

Science Communication Events

“I wish this book success
and many inspiring Events for the enthusiastic
and professional organisers of science
weeks and festivals.”

Janez Potočnik

EUROPEAN COMMISSIONER FOR SCIENCE AND RESEARCH

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About this “White Book”...

Since spring time 2001 in Göteborg, a group of people, who organise something like science weeks, science festivals or science days, determined that it is time to put together ideas, guidelines, recommendations on how to organise such “Science Communication Events (SCE)”, as these events were called.

Soon after, the European Commission agreed to fund a project (acronym EUSCE/X) for this group to visit, analyse and record many of the European SCEs. One of the results should be a “White Book” with the following objectives:

- To assess the state of the art of SCEs in Europe
- To summarize strategies on how to start new SCEs
- To structure recommendations on how to improve existing SCEs
- To collect “best practices” and valuable ideas
- To enhance the Science Communication Event community in Europe

This White Book turns mainly to the professional organiser, but also to other science communicators like teachers, journalists, to scientists, also to pupils, in general to those people, who want to improve the “public awareness and understanding of science, technology and the humanities” especially in Europe – and at last, but not the least in our minds were European politicians and managers of companies.

The White Book was written by the team of the project EUSCE/X (Magdalena Fikus, PL; Annika Lotzman-Dahl, S; Annette Smith, UK; Janneke Voltman¹, NL; Mikkel Bohm, DK; Joachim Lerch, D; Peter Rebernik, A; Jan Riise, S). Every member of the team has visited 6 to 8 SCEs, mostly together with another team member.

The process to write this book started with the appointment of a coordinator (me: Peter Rebernik, A) and with a list of chapters and assignment of chapters to the team members. These authors wrote the first version of each chapter according to their experience and their analysis of the visited SCEs. Then, these chapters were sent to all other authors, who included their experiences. The authors collected these amendments and wrote a new version of their chapters. But, since our authors speak diverse mother tongues, Annette Smith and Victoria Picknell from London did the Shakespearianisation, as we called it according to Annette's special adoration of William Shakespeare and his mastery of the English language. Finally, Jan Riise, S, and his colleague Johanna Åkerberg designed the book and shaped the final texts and book.

¹ With the exception of Janneke Voltman from the “Weten Week” in the Netherlands, because her organisation changed its structure and could not participate further in this project.

...and thanks.

Therefore, a very special “thank you” goes to all the authors of this White Book:

Mikkel Bohm Denmark

Magdalena Fikus Poland

Joachim Lerch Germany

Annika Lotzman-Dahl Sweden

Peter Rebernik Austria

Jan Riise Sweden

Annette Smith United Kingdom

Janneke Voltman Netherlands

Thanks also to the officials of the European Commission, to our first contact persons, Steve Parker and Kitty Fehringer, and to the current ones, Catherine Audouze-Ouannes and Michel Claessens for their support.

Our thanks go also to the organisers of the visited SCEs (see Appendix B, where all visited SCEs are listed) for their patience, the lively discussions and the experiences they shared with us. We hope that also they will profit from our effort to write this White Book.

And now thanks to you as the reader for your interest.

May you enjoy the White Book.

If you have any comments, ideas, additions etc., please send them directly to me.

Peter Rebernik

EUSCEA General Secretary

Coordinator of the White Book

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1. Purpose and Philosophy

Annika Lotzman Dahl & Jan Riise International Science Festival, Göteborg, Sweden

The first question to address when looking at Science Communication Events across Europe is “Why do such an event?” Historically, there have for many years been celebrations and festivals with a religious and artistic basis, but the idea of a Science Communication Event is relatively new. Likewise, the science museum is well-established, although the science centre which is not collection-based but communicates using interactive and hands-on exhibits is quite new. In this context, the first concern for the EUSCE/X team was to examine the purposes and the philosophy behind the individual Events.

The Science Communication Events of this study all share basic values, ideas purposes and philosophies about why one should communicate science via Science Communication Events like science festivals and science weeks. They also share a conviction, based on experience and observation, that these projects are valuable and they also share huge enthusiasm and creativity.

Of course, the purpose and philosophy of a Science Communication Event also determines a number of aspects of the Event: budget, marketing and evaluation, to mention a few. They also reflect the context of the Event, its political environment and the relationship to research institutions, museums, media and others active within the science communication field.

Almost all of the Events have some specific purposes, related to the geographic location, the economic situation of the country or the region or the general context of the city. These could be to do with national policy or local developments.

The most widely recognized objective of a science communication event is to “raise public awareness of science”. This is either explicitly said or implied in the presentations of all of the Events’ purpose and philosophy.

The next most important objectives are “to promote the dialogue between science and society” and “to encourage young people into science”.

The notion of “scientific culture” is mentioned in some Science Communication Events’ purpose statements. The idea is to communicate and discuss not only the results of scientific work but also the way science is carried out as a wider concept. This is also something that is supported in the European Union’s objectives.

The most commonly used expressions of objectives imply that a Science Communication Event exists in order to market science positively. The general idea is to increase the status and attraction of scientific work and to recognize scientific results. Even though there are plenty of meeting-places and efforts to increase the dialogue between science and society, the principal idea is not to criticize or scrutinize the science itself, or to present alternative findings in other respects than as a counter-weight to the scientific results.

This is generally no problem at all. No one denies the scientific world the right to present itself to the public, it is rather most welcome – as all the successful stories of Science Communication Events can tell. However, it may be valuable

1.1 General overview

Scientific culture



to keep in mind that there may be differences between scientists presenting their science to their peers and professional Science Communication Events presenting science on behalf of the scientific community.

1.2 **Different models and** **their analysis**

Many of the Science Communication Events studied have a number of different objectives. This is not unexpected; the Events have all developed individually and have become subjects for this study in their capacity of “raising awareness” for Science Communication Events.

Some of these may be useful for new Science Communication Events to consider when planning the organisation, presentation and contents of the project.

Specific objectives related to science and/or science communication

Several of the Science Communication Events visited have, in addition to the general objectives discussed above also some specific objectives. They may express ambitions regarding the Event’s geographic coverage, its aims towards cross-disciplinary activities, the role of science in relation to industry, society and economy or the implementation of a European dimension.

- to contribute to the establishing of sustainable relationships across the scientific sector (Denmark, Danish Science Week)
- to cover the entire country (Denmark, Danish Science Week)
- to open ways to European collaboration (France, Fête de la Science)
- to highlight the connections between research, innovation and industrial activity (Norway, Norwegian Science Week)
- to humanise science and bring it close to the society (Spain, Catalan Science Week)
- to celebrate science and importance to people’s lives (United Kingdom, National Science Week)

Specific objectives related to the situation of the city, region or country

The individual objectives of Science Communication Events also reflect the situation in which the actual Event takes place, for example:

- [the objective is] to make people realise that the position of Poland in the European union depends on high standards of education and science, technology and innovation (Lower Silesian Festival of Science, Wroclaw, Poland)
- In Luxemburg there was until recently no university at all; higher education had to migrate to other countries. In order to compete internationally and gain a new position in the science society, a Science Festival has been introduced to raise awareness among the inhabitants (Luxemburg Science Festival).
- In Göteborg, Sweden, the on-going transition from an industrial city to a university centre needed further manifestation. Furthermore, the city also markets itself as an event city – a concept that the Festival fit well into at the time it was initiated (and still does).
- [---] to offer youngsters a learning platform which will meet their urge for experience and action (Science Days, Freiburg, Germany). The Event’s role and importance for informal learning is specifically mentioned.

- The Edinburgh International Science Festival was initially started to balance the city's many art festivals. The success of the Festival has slightly changed the Event towards a set of professionally performed Activities that sponsors and public are prepared to pay for. In this way, the Scottish SCE organisers may have travelled the furthest towards being professional event managers.
- To demonstrate the achievements in science and the importance for young people to start careers in science to the new EU member states – as in Ljubljana, Slovenia.

Specific objectives related to the media

Some Science Communication Events also express as an objective the wish to support the media in their reporting on science or more generally to enhance the scientific journalism.

Analysis

An enterprise's business idea is often expressed as to explain the “what, how and for whom” of its activities – and the “for how much and what results”, of course. This makes things quite clear, and the business idea may also serve as some guidance for the company management when faced with new opportunities or challenges.

Quite often, this is completed with other statements in the forms of visions, long-term objectives or short statements encompassing the spirit of the company (“Connecting people”, “We try harder” etc).

Finding inspiration in the ways that businesses express their purpose and philosophy may be of some support in preparing the Science Communication Event's objectives.


“The Science Festival communicates science to the general public and the schools in an accessible and interest arousing way, and offers the scientific community a meeting-place” (International Science Festival Göteborg, Sweden)






1.3
Best practises and
outstanding ideas

The following mission statements, or excerpts from mission statements, from European Science Communication Events are chosen to show some of the varieties in expressing the objectives and philosophy.

	SCIENCEWEEK @ AUSTRIA
	Vienna, Austria
	URL: www.scienceweek.at
	Institution: Science Week@Austria
	Contact: Peter Rebernik
E-mail: office@scienceweek.at	
<p>SCIENCEWEEK @ AUSTRIA aims to arouse and/or reinforce interest, enthusiasm, curiosity and pleasure in the sciences, by means of lively and even humorous presentations, which don't just focus on facts, figures, and dates. People's emotions and feelings will be targeted, as well as their intellects. Albert Einstein could serve as a model: the 'beauty' of formulae impressed him, and he was not afraid of explaining even complicated concepts to a larger public in a lively and illustrative way.</p> <p>This Science Week's statement mentions explicitly that it aims to reinforce the interest in science, meaning that a specific target group is those who had an academic interest, such as alumni, students and teachers in other scientific fields. It also talks about the "emotions" of people, which is in line with the practice of many Science Communication Events, but not always accepted as a part of the scientific culture. Such expressions should be carefully considered.</p>	

	DANISH SCIENCE WEEK
	Denmark
	URL: www.naturvidenskabsfestival.dk
	Institution: Danish Science Communication
	Contact: Mikkel Bohm
E-mail: mb@formidling.dk	
<p>The main purpose of the Science Communication Event is to create a wider and deeper understanding of science and technology in Denmark. Therefore the Activities of the Event target three different groups: (1) children and teenagers, (2) adults, and (3) families. The ambitions are stated in six clear goals, among which are found</p> <ul style="list-style-type: none"> - to involve a broad range of potential organisers - to be nationwide - to enhance communication skills among scientists and professionals <p>The Danish Science Week clearly defines its task as to cover the whole country, which means that resources will have to be allocated for this purpose. It also says that it values a wide network of organisers rather than developing the organisation's own skills and finally also that the organisation, in addition to organising a Science Communication Event, occupies itself with training opportunities for those participating as presenters.</p>	

 <p>Vetenskapsfestivalen</p>	INTERNATIONAL SCIENCE FESTIVAL GÖTEBORG
	Göteborg, Sweden
	URL: www.goteborg.se/vetenskapsfestivalen
	Institution: Internationella Vetenskapsfestivalen Göteborg
	Contact: Annika Lotzman-Dahl
E-mail: annika.lotzman.dahl@goteborg.com	
<p>The Science Festival communicates science to the general public and schools in an accessible and interest-arousing way, and also offers the scientific community a meeting-place.</p> <p>The Swedish Festival adds an aspect of the Event saying that it should also be an interesting forum for scientists to meet. Special Activities are arranged to this end, open only to scientists.</p>	

	NORWEGIAN SCIENCE WEEK
	National, Norway
	URL: www.forskningsdagene.no
	Institution: The Research Council of Norway
	Contact: Anne Riiser
	E-mail: ari@forskningsradet.no
<p>The national Science Week is designed to fuel the public's curiosity, interest and understanding of research activities and results, convey the important role that science and research play in everyday life and highlight the connections between research, innovation and industrial activity.</p> <p>The Norwegian mission statement puts the focus on the design and format of the Activities: they are supposed to illustrate science in everyday life. Furthermore, Activities of the Event are to bring insights about the relationships between research and industry, meaning that applied science results may have a priority position in programme presentations etc, compared to basic science.</p>	

	SCIENCE FESTIVALS IN POLAND
	Warsaw and Wroclaw, Poland
	URL: www.icm.edu.pl/festiwal and www.festiwal.wroc.pl
	Institution: University of Warsaw, Association of Academic Schools
	Contact: Magda Fikus, Aleksandra Kubicz
	E-mail: magdaf@ibb.waw.pl , kubicz@bf.uni.wroc.pl
<p>[the objective is] to make people realise that the position of Poland in the European union depends on high standards of education and science, technology and innovation (Lower Silesian Festival of Science, Wroclaw)</p> <p>[---] the methods used by scientists to attain the results, and the potential benefits and limitations should be clearly understood by all of us, both scientists and non-scientists. We must also confront the possible dangers which may result from their improper use and the responsibility our society must undertake to adequately control them</p> <p>Both Polish Events in this study clearly put science and scientific culture in a society context, thus placing a very well defined quality control task on the Science Communication Event management and organisation.</p>	

A clear and well defined mission statement not only makes it easier to communicate the Event's idea to possible sponsors and partners, it is also intended to serve as guidelines for the Science Communication Event organisation. Resources must be allocated and the choice of Science Communication Activities for the Event should all meet the criteria and objectives expressed in the overall purpose and philosophy statements.

The business idea's simple rule of "what, how and for whom" is a good start. Many Events will however need complementing statements reflecting the political, societal or education policy context of the city, region or country.

1.4 Summary

2. Organisation

Mikkel Bohm Danish Science Week

Science Communication Events are created and administered by a wide variety of organisations – governmental and non-governmental, regional government or universities. Some are small, informal ad hoc groups, others are well-established units with a large staff.

Science Communication Event organisations – like all other organisations can be of different types.

The main different types to the outside world are:

- legal construction: direct (national, regional or city) or indirect (University, research council) governmental body, private agency for profit, non-profit organisation, association
- size: small organisations with two to four people to large bodies with dozens of people

The main internal differences of these types can be:

- tasks: inbedded within a larger organisation (e.g. for research, science communication at large, city government, ministry) or determined organisation just for the Science Communication Event
- permanent or semi-permanent working for the Science Communication Event, meaning that the staff works permanently for the Event or starts (bi)annually, sometimes even with new people, to work for the new Event
- staff mainly full-time or part-time or mixed
- responsible for “nearly everything” (including marketing, fundraising, accounting, designing and organising Activities etc. With specialised staff “in everything”) or outsourcing most of the tasks (like engaging marketing and/or sponsoring agencies, leaving the design of the Activities to the participants etc. – with either “generalised” staff or staff, which only specialises in a few certain areas)
- internal organisation: administrative or scientific board (sometimes just “honorary” with VIPs, sometimes manned with sponsors and government officials) or board of “trustees”

The organisations reviewed for this project varied very much in size, from 1–2 to over 10 staff. Some organisations have dedicated full-time staff, including specialists in marketing and fundraising, others are only formed ad hoc to take care of the Science Communication Event and the staff may not even be employed for a full year. There are also differences regarding the independence of the Science Communication Event organisations. Some are formally organised by universities, research councils or ministries with people assigned to the Event from within the organisation. Other Events are organised by independent organisations, often in the form of foundations or other non-profit project groups.

2.1 General overview



The background of the staff will also vary. Some Science Communication Events are organised by scientists who have turned to doing science communication, others are staffed by communication professionals who promote science using marketing tools.

Some organisations have strong scientific advisory boards, others have not. Some have influential VIPs placed on a board of trustees, others have not.

No Science Communication Event organisation can work without a number of subcontractors that are responsible for one or more of the Activities during the Science Communication Event. In some cases, the central Science Communication Event organisation is mainly a co-ordination and marketing unit, leaving the organisation of the actual Activities to subcontractors (i.e. universities, companies, schools and others). In other cases, the central organisation handles a large number of Activities themselves.

2.2

Different models of organisation and their analysis

In the following paragraphs, an overview will be given on the:

- types of organisations
- types of staff
- relations to subcontractors
- relations to the scientific community

Types of organisations

Below, the 21 visited Science Communication Events are listed sorted by their organisation type. An important point to note is that all Science Communication Events are made on a non-profit basis, either by governmental bodies such as research councils, ministries or governmental financed agencies or by universities or non-profit organisations.

National festivals in Norway, France and the Catalonia (which can be regarded as regional) are organised by groups directly under the Ministry of Science or the research council. These festivals are hence very closely linked to government policy on science communication.

Other national Events in Denmark, UK, Netherlands, Portugal and Austria are organised by independent non-profit organisations.

In Edinburgh and Göteborg, the Science Communication Event is a part of the marketing of the city as a cultural centre. A Science Communication Event in these cities is organised in a similar way to an arts or music festival.

In Poland, the Science Communication Events visited by the team are managed by organisations directly based at universities.

Below are the Science Communication Events visited divided by types of organisation:

	Local single-venue	Local multiple-venue	National/regional
Ministry/research council			Norwegian Science Week (Norway) Fête de la Science (France) Catalan Science Week (Spain)
Government-based agency		Science Festival Luxembourg (Luxembourg)	Science & Technology Week (Portugal) National Science Week (Ireland)
Local government/city councils	Madrid (Spain)	Edinburgh International Science Festival (Scotland) International Science Festival Göteborg (Sweden)	
Non-profit organisation (association or agency)	Science Days (Germany) Science Festival (Ljubljana)	BA Festival of Science (UK) Summer of Science (Germany) Festival of Science, Genova (Italy)	Danish Science Week (Denmark) National Science Week (UK) ScienceWeek@Austria (Austria)
University-based organisation		Lower Silesian Festival of Science (Poland) Warsaw Science Festival (Poland)	
Others/mixed		Science Festival, Vilnius (Lithuania)	Weten Week (The Netherlands)

Even though all of the Science Communication Events are organised by non-profit organisations, the different kinds of organisations call for very different ways of maintaining funding for continuing the activities. Organisers based in ministries can be vulnerable to political change, whereas independent non-profit organisations have to fight every year for funding (see chapter 10).

Different circumstances in different countries make different types of organisation relevant. It is not possible to recommend one type of organisation as the perfect base for creating successful Science Communication Events. The persons involved certainly play a very big role. One will hardly ever find a successful Science Communication Event without also finding a team of very dedicated, creative and hard working people behind it.

Another reason for differences lies where the starting ideas come from, either from inside or outside a government, a university, from an existing association or agency or even from a private person.

However, certain elements are certainly useful for a well-tuned organisation:

- A strong board of trustees, with VIPs from the scientific community, from politics, from industry, from the educational system and from media. The trustees help to raise funding, create political influence, get media attention and engage the scientific community.
- Continuity. A system for keeping the lessons learned for each Event within the organisation
- A good balance between independence for the organisation and a strong integration with the scientific (universities) and political culture (government)
- Long term funding strategies - to help to keep experienced and creative staff members



- Strong (and favourable) relations with media and educational institutions
- Sustainable relationships with all organisations involved, such as universities, research institutions, and other authorities necessary for the carrying out of a successful Science Communication Event.
- A mechanism for sharing good practice with other similar organisations e.g. with a local science centre, with science communication professionals in other countries

Types of staff The type of staff involved in the Science Communication Event organisations are very different from Event to Event.

However, experience from the organisations reviewed shows, that at least the following expertise needs to be in the organisation (or maybe outsourced):

- Management, organisation
- Accounting, controlling
- Marketing (advertising, media connections, internet, computers, brochures)
- Popular science, communicating science, creating experiments
- Education, teaching

In a university-based organisation, the initiative to make a Science Communication Event comes from the scientific community itself. The organisers are thus strong in scientific background, but communication skills remain to be learned. A successful Science Communication Event often needs to be organised quite differently from a normal science conference or symposium. Dialogue, hands-on and demand-driven communication to a lay audience is somewhat of a different situation to a classical peer-to-peer scientific communication. All scientist-based organisations acknowledge the fact that they need assistance in marketing to professionalise their Event.

On the other hand, some Science Communication Events employ no scientists at all in their secretariat, but rely on professional communication, marketing and event management staff. A staff like this will certainly be very successful in getting a high profile for the Science Communication Event, but it is vital for them to keep a close and trusting relationships with the scientific community for example by the use of a scientific advisory board.

After some years' experience the difference between communicators and scientists will tend to level out, and we can today see scientists with excellent communication and marketing skills and communicators with a profound understanding of the scientific community.

For new organisers, it is very important to realise that the skills of a successful Science Communication Event staff include both a strong bond to the scientific community AND good communication and marketing skills.

Relationships with subcontractors None of the Science Communication Events visited for this project was organised completely by the central organisation. Both local and regional/national Events rely on the participation of a large number of organisers of the individual Activities.

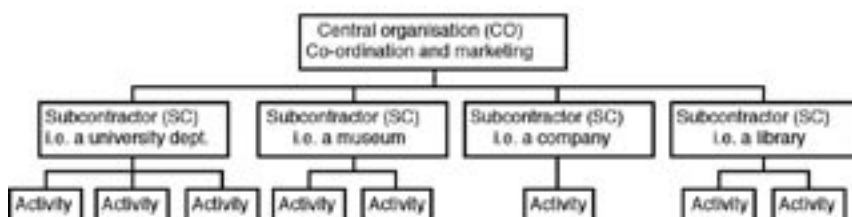


Fig 2.1.
Science Communication Event – organising local event

The central organisation (CO) leads the organisers of the individual Activities, here called subcontractors (SC), sometimes also called participants. The organisational structure could look like the simplified diagram below.

Many different types of SC are chosen for Science Communication Events. Some organisers work only with universities and publicly funded research institutions, whereas others involve companies, libraries, media and schools to play an active role, not only as consumers of Activities but also as organisers in their own right.

Regional and national Events will involve a more or less formalised system of Regional Coordinators (RC) in order to cover the country, whereas local Events can usually manage most of the Activities from the central secretariat (see below)

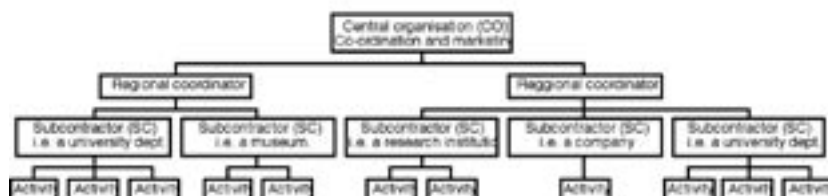


Fig 2.1.
Science Communication Event – organising national event

This means, of course, that a whole layer of communication is added to a regional/national Event by organising the regional coordinators (RCs). At the same time the difference in scale will make it very hard for a national organiser to have the same central control of content and quality as a local organiser, no matter how well the regional structure is managed. Obviously, additional staff would make more detailed control possible.

For regional/national Science Communication Events, the relations to the RCs must be very good in order to maintain quality on a local level. The central organisation must “nurse” the RCs in order to provide them with “ownership” of the Science Communication Event. Some organisations (eg. Denmark) manages to supply the RCs with funding for marketing and activities. In this way, it is easier to ensure a common “look” of the marketing (branding) and quality of the Activities and also to ensure that the RCs take part in the evaluation of the Science Communication Event.



Below is a “checklist” for relations between the CO and the RCs:

- Writing a contract describing the relationship between CO and RC
- Maintaining good communication links through newsletter and personal meetings for planning and evaluating
- Clear (SMART) objectives on what is to be achieved (see purpose and evaluation chapters)
- Clear responsibilities (for example on local marketing with local media, only approaching local sponsors, using the logos of national sponsors)
- Marketing: displaying the common brand and logo at pre-determined locations with places for the local and/or institutional look and logo (university logo etc.), responsibility for press communication
- What kind of Activities, openings (making sure there is no clash of events for the media and VIPs) or other special events
- Reporting on the monitoring data from the Event (sending standardized reports on the number of visitors, pictures or videos for marketing the next Event etc.)
- Financial control (reporting back on the budget needed and spent)
- Evaluation (participating in the general evaluation, discussion, plan how to improve or include new ideas or drop other ones)

The staff of the CO often have a communication background or at least a long experience of organising Science Communication Events. Subcontractors may not have the same experience, and therefore it is an important job for the CO to train the SCs to become successful science communicators.

One example is an institute of a university that wants to take part in an exhibition at the town hall square. Or a library, whose non-scientific staff want to present science for the local population. Or a company that wants to open its doors to school children during a science week.

Experience from the Science Communication Events visited shows that the communication skills of subcontractors increase very much after participating in a Science Communication Event for a few years. Also, that communication experience learned by participating in a Science Communication Event will be used at other times than at the Science Communication Event. It is therefore an important point, that Science Communication Events, apart from creating dialogue between science and society, also help in raising the overall communication skills of the scientific community.

Relationship with the scientific community

Science Communication Events are, by their nature, closely related to scientific institutions. It is the very purpose for most Science Communication Events to facilitate the meeting between scientists and the public in an informal and discursive manner.


Therefore, the organisation behind the Science Communication Event must maintain a very close relationship with the scientific community.


This can be done in a number of ways:

- get University rectors elected to the board
- invite renowned scientists and their local science community
- organise pre-conferences with the rectors, deans and scientists on how to structure their contribution

- have (ir)regular meetings with scientists or science administrators
- include comments (and pictures, logos) from scientists into the marketing information material
- issue (or fund) separate brochures for the Activities in science institutions
- sell books of national scientists in the Science Communication Event shop
- reserve some place for science and scientists and their institutions on your website

2.3 Best practices and outstanding ideas

	LOWER SILESIA FESTIVAL OF SCIENCE
	Wroclaw, Poland
	URL: www.festival.wroc.pl
	Institution: Association of academic schools in Wroclaw
	Contact: Kazimiera A. Wilk
	E-mail: kazimiera.wilk@pwr.wroc.pl
<p>Engaging universities. In Wroclaw, the festival organisation consists of representatives from 15 local institutions that each has a representative on the Executive Committee. Furthermore, all institutions have a general coordinator and with local and regional coordinators, the total network of coordinators sums up to 51. This creates a strong community feeling around the festival, and one sign of this is, that the festival Activities are very visible (posters and flags) in all of the participating institutions.</p>	

	DANISH SCIENCE WEEK
	Denmark
	URL: www.formidling.dk
	Institution: Danish Science Communication
	Contact: Mikkel Bohm
	E-mail: mb@formidling.dk
<p>Danish Science Week: Strong board open doors. The Danish Science Week is managed by Danish Science Communication, a non-profit organisation supported by the Ministry of Education, Ministry of Science and a number of companies and foundations. The organisation employs 5 FTE, of which roughly half work with the science week. Danish Science Communication has a board of trustees with VIPs from industry, universities, organisations, science centres and the media. The board members are individual "ambassadors" for the Science Communication Event and help to promote it. For instance, the confederation of Danish Industries has a seat on the board and has actively supported the Event financially and through opening doors to companies.</p>	


	INTERNATIONAL SCIENCE FESTIVAL GÖTEBORG
	Göteborg, Sweden
	URL: www.goteborg.com/vetenskapsfestivalen
	Institution: Göteborg & Co
	Contact: Annika Lotzman-Dahl
	E-mail: annika.lotzman.dahl@goteborg.com
<p>Marketing professionals with the aid of scientists. The organising group of this Science Communication Event is based in Göteborg & Co., a promotional office for the city of Göteborg. As such, the organisation gets easy access to use much of the marketing infrastructure used for other big city events. The staff of the festival consists of 7 FTE's, all non-scientists, but experts in communication and education. The expertise of the secretariat makes the festival extremely well marketed in the city and its surroundings. The secretariat does not view their lack of scientific training as a big problem, as the project management has very strong formal and informal connections to the local scientific community and appoints scientifically trained people to have certain responsibilities in relation to the themes of the festival.</p>	

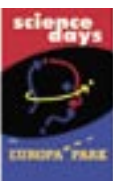
Best practises: staff




	EDINBURGH INTERNATIONAL SCIENCE FESTIVAL
	Edinburgh, Scotland
	URL: www.sciencefestival.co.uk
	Institution: Edinburgh International Science Festival
	Contact: Simon Gage
	E-mail: simon@scifest.co.uk
<p>Edinburgh International Science Festival: Committed, professional staff. In Edinburgh, the staff is carefully selected for skills in the most important areas. Of the 8 FTE, two are permanently engaged in fundraising! A year round project involves taking science festival Activities out to schools all over Scotland.</p>	

Best practises: relationships with regional coordinators/subcontractors

	NORWEGIAN SCIENCE WEEK
	Norway
	URL: www.forskningdagene.no
	Institution: The Research Council of Norway
	Contact: Anne Riiser
	E-mail: ari@forskningsradet.no
<p>Norwegian Science Week: strong network of regional coordinators. In Norway, the Science Communication Event organisation does not organise its own Activities, but leaves it to the regional coordinators to recruit the individual subcontractors. The regional coordinators recruit participants. It is their responsibility to make sure that participants have appropriate qualifications. The Event organisation issues guidelines on the quality of the Activities, recommending interactive events before "old-fashioned" lectures and urging participants to consider their audiences carefully. In addition, the Event organisation invites the regional coordinators to travel to other countries to have a closer look at the Science Communication Events there. As an example, the group visited the UK to see the National Science Week, organised by the BA (British Association for the Advancement of Science). The National Science Week manager from the BA visited the November meeting of coordinators to talk about evaluation of Events. The Event organisation keeps in touch with participants and co-ordinators by sending out about 30 letters and newsletters each year. The last email, just a day before the start, is called the "good luck"-mail.</p>	

	SCIENCE DAYS
	Rust, Germany
	URL: www.science-days.de/kinder
	Institution: Förderverein Science und Technologie e.V.
	Contact: Joachim Lerch
	E-mail: j.lerch@t-online.de
<p>Guidelines for exhibitors. Participants at the Science Days are carefully chosen and must follow a set of guidelines described in a manual. The organisers of the Science Days urges participants make their Activities interactive and a lot of hands-on experiences are preferred. In addition the topics should have a large variety. Learning with all senses is likewise recommended like the reduction of the level of difficulty of facts. The manual ends with tips for a good design of the stand and the correct representation of text labels.</p>	



	SCIENCE FESTIVAL, WARSAW
	Warsaw, Poland
	URL: www.icm.edu.pl/festiwal
	Institution: University of Warsaw
	Contact: Maciej Geller E-mail: m.geller@icm.edu.pl
<p>Organised by scientists themselves. 3 FTE in the Central Office and more than 100 local coordinators are responsible for all of the Activities in their institution. The Scientific Board initiates main debates and evenings under the title "Meet contemporary science and scientists". The Board also initiates new Activities and contact with new scientific communities. Coordinators are responsible for the content of their Activities. According to evaluation procedures the number of failed Activities constitutes no more than 1–5 percent of the overall program (circa 800 activities in 2003, 2004 and 2005).</p>	

Best practises: relations to the scientific community

	INTERNATIONAL SCIENCE FESTIVAL GÖTEBORG
	Göteborg, Sweden
	URL: www.goteborg.com/vetenskapsfestivalen
	Institution: Göteborg & Co
	Contact: Annika Lotzman-Dahl E-mail: annika.lotzman.dahl@goteborg.com
<p>Using a scientific board. The Scientific board has proven to be of great benefit in three ways: Firstly the board members represent a broad range of scientific fields and are all asked to join the board with their general interest in science and science communication as basis. The board members often come up with ideas and suggestions – and they are discussed among them, which gives further input for the staff to arrange Activities. Secondly, the board members have the integrity, knowledge and courage to say no, or at least question, proposals that may be doubtful. And finally the members have extensive networks, both within scientific fields and among potential sponsors.</p>	

2.4 Summary

Type of organisation	Possibilities	Problems	Recommendation
Part of university	Clear connection to science, easy access to lecturers and university facilities.	Danger of Science Communication Event being very "internal" university "conference-style". University staff may not be well-trained in marketing	If targeting a broad audience, remember to also use venues outside of the university. Events specially designed for schools (by people who knows the schools) will be very successful.
Independent non-profit organisation	Independent from specific interests. Will usually be respected for "working for a noble cause". Will often work like a professional cultural event organisation.	Will usually have difficulties attracting long-term funding.	Must have a strong board in order to keep contacts with sponsors and politicians.
Governmental organisation	Has a strong background in governmental science communication policy. Can usually get long-term funding.	Vulnerable to political change. Can be closed down easily.	Must show very good evaluation results in order to keep the political support.



3. Management

Joachim Lerch Science Days, Freiburg, Germany

Project Management can be defined as the “full responsibility of executive duties, organisation and technology, from the conception to the realisation of the project”, The Project Management Institute (PMI: <http://www.pmi.org/info>) describes the concept of project management as follows: “Project Management is the application of knowledge, skills, tools and techniques to project activities to meet project requirements.”

Roughly outlined, the Project Management of a Science Communication Event corresponds with other big events. However, Science Communication Events prove to have unique features, which we will address within the framework of this chapter. During a Science Festival for example, many individual presentations with different formats and requirements need to be co-ordinated and prepared.

The Event organisations within the framework of the EUSCE/X project developed completely different procedures to organise and conduct their individual Events, since the format and requirements of the Science Communications Events differ considerably. However, the project management of many Science Communication Events was influenced by one, or more of the following factors:

- The number of staff participating in the planning and how many are available.
- Whether the institution is responsible for the organisation of a local or a national event
- Whether the presentations of a local Science Communications Event are conducted at several venues or at a central site
- The size of the Event (e.g. number of partners, number of visitors)
- Whether the budget extends to the employment of subcontractors
- Whether subcontractors are available for certain tasks (e.g. setting up computer networks)

The tools observed in use for project management span from simple to-do-lists up to a strong reliance on project management software. If the Science Communication Event project management is not operating on a professional basis, because the organisers lack experience, the management of a first Event, is often not structured very well. If the Events take place regularly, the project management of the Event improves with each successive year that it takes place. Evaluation of the Event is particularly useful for improving future project management strategies.

Since Science Communication Events include many participants, the communication skills of the project team are of great importance for the success of the project. Since unexpected situations are likely to arise in every project, successful project management needs to produce situations which are crisis and challenge-proof.

3.1 General overview



The following factors are extremely important for successful project management of a Science Communications Event:

Integration Management	The individual steps and tasks of a project are defined and co-ordinated here.
Scope Management	The management of contents and scope is responsible for the realisation of determined project goals and for providing alternative solutions in the event of deviation from these goals.
Time Management	Setting and meeting deadlines e.g. those related to target groups, while continuously referring to the project plan.
Expenses Management	Aims to follow the budget precisely. Recording of expenses is essential. If there are deviations, counter measures must be initiated.
Quality Management	By studying the documents about the tasks carried out and their results, they can be analysed and evaluated. This helps to improve and standardise the way tasks are carried out in the future.
Resource Management	The efficient assignment of staff for individual tasks of the project.
Communication Management	Extensive and co-ordinated communication between all project participants is an important component of the project management.
Risk Management	The estimation of risks, connected to the project. This may concern a financial risk, or one related to technology. Risk management is of considerable significance for large and complex projects.
Procurement Management	Co-operation with partners and suppliers

Project management can be divided roughly into four phases:

- *Objectives:* To begin with, a project analysis is conducted, which next to the intended targets (contents, costs, extent and time) will also include potential problems. For very big Science Communication Events a feasibility study is recommended.
- *Planning:* During this phase, the team is assembled and it plans tasks and courses of action to be taken. Dates, costs and risk management are also worked out, which is where the ‘milestones plan’ plays an important role.
- *Implementation:* This is the phase when the plan becomes reality. This phase is characterised by the control of project progression. Any deviations within the project plan are corrected when put into practice.
- *Conclusion:* The results are presented, every phase evaluated and significant conclusions documented.

3.2 Different models of management and their analysis

The project management of Science Communication Events can not be presented extensively within the framework of this White Book, because the objectives and locations differ considerably for each Science Communication Event. The concepts presented in this chapter must therefore be adjusted accordingly. The following information merely serves as a list of suggestions and is by no means exhaustive.

As already mentioned, some details concerning the project management of local Science Communication Events differ from national ones. Because of this, the individual characteristics will be treated as supplements in a special section.

A comparison can clearly be exemplified here:



	Organisers of local SCE	Organisers of regional/national SCE
Contact with participants	direct contact	usually no personal contact
Technical planning of locations	responsible	usually not responsible
Quality control	possible	usually not possible
Press contacts	direct contact	normally no direct contact

For all Science Communication Events, it is useful to carry out thorough assessment and planning at the beginning of the project and allocate preliminary responsibilities. Furthermore, it is essential to clearly designate interim targets (milestones). The most important factors to be addressed during the project management of a Science Communication Event are outlined below.

Project Management of a medium-sized local Science Communication Event

Setting objectives

If a Science Communication Event is conducted for the first time, clear objectives need to be set. This will, amongst other things, dictate the future development of the project. Questions to consider when setting targets:

- For what reasons would you like to run a Science Communication Event ?
- Which topics and formats are to be used primarily?
- Which target groups would you like to reach?
- Should admission be charged or not?
- Will groups have to make reservations?
- Which participants should and could participate in the realisation of a Science Communication Event (only scientists, or also companies, schools, teachers, NGOs etc.)?
- At which locations will your Science Communication Event take place (in the rooms of a university, in big exhibition halls, on a public site, etc.)?

The experiences of many Event organisers in Europe, shows that the basic decisions relating to locations, partners, target groups, means of communication etc., are difficult to change during the latter stages of planning. If, for example, a Science Communication Event is strongly targeted at a certain group (e.g. pupils), an extension to reach other groups may only be possible through considerable expense on marketing. The image of a Science Communication Event therefore tends to be established during the first few years that it takes place.

Clarifying and designating responsibilities

The work rotas and the responsibilities of staff must be clarified by the Science Communication Event organisation. The team should be highly flexible to adapt to any changes that may arise during the planning process. It is therefore advisable, not to allocate the individual tasks to one person, so that work on the project could continue in their absence. Member of staff who are able to put their mind to a variety of tasks are especially desirable.



Financial Plan

The realisation of a Science Communication Event is not possible without financial planning. Financial problems are the main causes of failure in Science Communication Events. A much longer planning period is needed for the preparation of a new Science Communications Event rather than if it is being held for the second, third time etc. This particularly applies to the handling of sponsors, who will generally be more willing to offer financial support, if they are already familiar with the Science Communications Event.

It is highly recommended that you draw up a financial plan, especially for a new SCE. This can then be used as part of the Sponsorship Proposal. The master plan could be of the following structure for example:

1. Summary

2. Description of the plans

- 2.1. Starting situation
- 2.2. Vision
- 2.3. Relevance
- 2.4. Success factors
- 2.5. Strategy
- 2.6. Capital requirement
- 2.7. Risks

3. Organisation Management

- 3.1. Organisation structure
- 3.2. Personnel

4. Plan: The Science Festival in....

- 4.1. Overview of entire plan
 - Activities
 - Pedagogic-didactic concept
- 4.2. The location
- 4.3. Selected examples of Activities
- 4.4. Co-operation partner
- 4.5. Participation of sponsors
- 4.6. Participants
- 4.7. Preliminary time schedule

5. Requirement analysis (Market)

- 5.1. The Science Communication Event in general and its social context
- 5.2. Comparable projects in domestic and foreign countries

6. Target groups

7. Marketing

- 7.1. Marketing measures
- 7.2. Sponsorship-Partner

8. Financial scenario and planning

- 8.1. Calculation of the Science Communication Event
- 8.2. General assumptions, scenario

9. Complete evaluation

A budget plan must consider all of the necessary expenses and should include a risk surcharge of up to 10%. Extensions of the project (e.g. build-up of an additional tent, or an additional science show etc.) should be planned only after the financial means have been secured. See chapter 10.

Finalising the financial plan will allow for the rest of the project to move forward.



Participants: recruitment and selection

When a Science Communication Event takes place more than once, it is advisable to seek help from former participants. In some cases, sending a letter or an email will be sufficient. However, if writing to potential participants about a new Science Communication Event, you will need to provide a much more detailed description of the Event. Before the Science Days in Freiburg, Germany, first took place, the organisers had to conduct hundreds of individual meetings to convince participants to engage themselves. The advantage of such a thorough approach is that the organisers will meet and get to know all of the participants and can consult with them on matters of design and the selection of Activity themes.

To simplify the procedure, a special website for the potential participants should be set up. It should include general descriptions of the Event, application forms, timetable of key dates, information regarding the room plans and other advice.

The biggest challenge during the preparation of a Science Communication Event is ensuring communication with the large number of participants. By putting all of the information on a webpage for the participants, the responsibility for informing themselves on issues relating to the Science Communication Event lies with them and not the organisers. Nevertheless, regular newsletters to participants may help them in their responsibilities.

Selection procedure

The organisers of Science Communication Events will run a selection procedure to decide on the individual Activities that they want to include at the Science Communication Event. Regional and national Events tend sometimes to resist such a selection procedure, because it would be very expensive.

Proposals are evaluated and selected by the organisers, or a scientific advisory council. In some cases, they may re-consult with the participant and come to a mutual agreement over the idea. This way the organisers of Science Communication Events input their valuable experience into the projects – especially if the participants are taking part for the first time.

Developing marketing plans

Once the details of the Science Communication Event have been decided, a marketing plan should be worked out immediately. See chapter 11.

Media campaign

For the media campaign, all of the activities which are proposed for public communication should be planned, including press conferences and media partnerships. Possible media partners must be identified and contacts approached.

Finalising plans and logistical considerations

When a Science Communication Event is conducted for the first time, the planning process is likely to include new courses of action, so it is difficult to have an overall picture of the detailed planning steps before the process is fully complete. In order to aid the project management process of future Events, it is essential that each course of action taken is documented. Written descriptions of proce-



3.3

Best practices and outstanding ideas

dures, as well as flow-diagrams, have proven to be the most effective methods for explaining specific actions. Year by year, they should be adjusted accordingly. These reference documents should include information detailing the most important factors of an event, for example:

- Responsibilities of participants (who is responsible, who participates and who must be informed?)
- Times (when does the procedure begin, when does it end and what are the intermediate steps?)
- Material requirements (which materials, devices, utensils are required; who provides them and when?)
- Personnel requirement (staff needed during the Event? When and where are they in operation?)
- Which tasks must be carried out?
- What is the planned course of action?
- How is communication during the Event achieved? (radio equipment, mobile phones, etc.)?
- Vital information (plans, telephone lists, ID samples etc)

Example: Procedures at the Science Days in the Europa-Park

- Implementation of the on-site-inspection partners
- Application procedures for partner
- Implementation of the teacher-information-presentation
- Application procedure for visitors
- Staff meeting, helper briefing
- Entry on build-up day, parking regulations, control
- Opening event
- Organisation office
- Dismantling, parking regulations, control
- Exhibitor passes
- Safety (fire protection, child missing, etc.) -> security check
- Press conference
- Entrance (ticket control, visitor guiding etc.)
- etc.

Room planning

Depending on the type of SCE, a room plan should be drawn-up and the space allocated to participants. Requests from the participants in the application procedure should be considered and negotiated where necessary. Common room requirements:

- Size (drawing of the stand with measurements, location of sockets etc)
- Location
- Conditions (temperature, light, accessibility etc.)
- Power availability
- Water and sewerage
- Internet access
- Furniture
- Additional material (gases, ice, etc.)



The information about rooms and a draft room plans should be made available to view on the participant's website. Generally, several versions will be generated leading up to the start of the Science Communication Event. While considering room allocations, details regarding insurance should also be clarified. (N.B. there should be a general liability insurance available for organisers.)

Initial marketing strategies

When the date of the Science Communication Event has been set, the first advertisements (including posters and flyers) should be sent out. Mailing campaigns aimed at specific target groups (schools) can be particularly effective. Preliminary information for the press e.g. press releases, should also be drafted. See chapter 11.

Printing of programmes

The final programme should only go to print when no further major changes are expected. There should be a system to communicate late changes to the visitors. Some Science Communication Event organisations distribute their programmes exclusively via the Event's website, which also can be used for late changes in the programme.

Recording of technical needs

The participants' technical requirements for the presentation rooms should also be recorded. Depending upon the size of the planned event, this may generate a large amount of data. The recording and administration of this data using an online-database has proven to be very effective.

Example: database of the Science Days in Freiburg. With this database the following information is recorded:

- Contact data (institution, contact person, postal address etc.)
- Activity (title, theme, description)
- Requested location (building section, room, requested surface, etc.)
- Technical needs (power, water, sewerage, gas, Internet, furniture etc.)
- Names of staff (times of presence, for printing of passes)
- Hotel reservations (if an overnight stay is needed)

The database has several export functions available to convert the data into suitable EXCEL-charts (e.g. for mailing activities, name lists, pass printing, technology lists etc.).

Planning of Special Events

The time for the preparation and implementation of a special Activity within a Science Communication Event largely depends upon the intended size of the Activity. Examples of special Activities include:

- Opening presentations
- Press conferences
- VIP tours for sponsors
- Information presentations for teachers





Logistics Action Plan

To ensure that the Science Communication Event runs smoothly, Events that take place at central locations require careful logistical planning, based on accurate data. All of the available data should be sorted and used to write an action plan, which should then be made available to all participants (participants' website). This plan may include the following information:

- Beginning and ending of construction, assembling and disassembling
- Opening hours of the organisation offices
- Communication at the Event site and during the days of the Event (mobile phone, fax, etc.)
- Presence of security personnel (after Event closing)
- Provision of certain working objects (fork-lift)
- Dates for certain controls (security check)
- Dates for certain services (setting-up tents, rooms, Internet access, sign posting, utilities, etc.)
- Larger set-up activities
- Delivery times for materials
- Arrival of large vehicles (laboratory trucks etc.)
- Dates for meetings and rehearsals (briefing for helpers, sound check etc.)
- Catering dates
- Dates for the filling of control positions (e.g. entrance control, pass control etc.)
- Dates for cleaning personnel
- Arrival time and collection of VIPs
- Provision of information material
- Cashier hours
- Parking information

Event implementation

I Set-up phase

When setting-up central Events (e.g. inside an exhibition hall) difficulties may arise from the participants arriving at the venue at different times. It is therefore recommended that the larger rooms, where there are many things to be moved in and out of, should be dealt with first. It is particularly important to have a well-staffed loading area, to ensure unloading and loading is carried out swiftly. It is also important to set and display clear parking rules (when, where and how long one can park for), because illegally parked vehicles can quickly cause problems. Parking tickets with the driver's mobile phone number, institution and room number printed on them should be clearly displayed.

At medium-sized and large Events, all of the staff and participants should be supplied with and carry passes (with photo) so unauthorised people can be quickly recognised. The possibility of thefts can thus be reduced considerably.

When all of the equipment and rooms have been set-up, a safety check should be carried out. Here are some examples of the things that should be considered:

- Are the gas bottles sufficiently secured?
- Are the gas burners secured from overturning?

- Are the cables secured so nobody will trip over them?
- Can you be sure that no power conducting lines can be touched?
- Are enough fire extinguishers available and are their locations marked as such?
- Are the escape routes clear and well marked?
- Are movable parts around which could cause injuries?
- Could any of the experiments be dangerous in any way? (fire, explosion, glass breaking, chemicals, radioactivity, other radiation, burning, electric shock etc.)
- Is the personnel equipped with gloves, goggles and appropriately trained for emergency cases?

II Opening and implementation

At the begin of an Event, most of the plans have been finalised. Nevertheless, additional staff (“stand-ins”) should be available to solve any unexpected problems that may arise.

Having an organisers’ office has proven to be very helpful. A storage place for material and equipment can also be provided there.

Visitors can easily recognise staff if they are wearing a highly visible uniform (coloured T-shirts, Logo on the jacket, or similar).

During Events lasting several days, short discussion meetings with all the staff and helpers are recommended every day after closing time, to discuss any problems and devise possible solutions. Taking minutes of these daily meetings will serve to improve future projects beyond the current event.

A photographer should take photos of every room and activity for the organisers’ records and press material. He/she should ideally be briefed, in order to obtain good quality photographs for use at the next event (advertising, poster and flyer design). Corresponding agencies could be employed to collect press clippings and log TV coverage.

III Dismantling and afterwards evaluation

At the end of the Science Event, all of the equipment should be dismantled and moved in an organised fashion. (N.B. checking passes at this stage is very important to avoid any thefts.) Examples of suggested post-event evaluations:

- Collating press clippings to produce a summary document
- Writing a financial statement
- Producing a summary report
- Collating photos and TV coverage

It is recommended that a summary CD of photos, press reports, TV-broadcasts, the evaluation results and other information about the Event is sent to the staff, sponsors, other stakeholders and to the participants of the Science Communication Event. It can also be mailed to future sponsors. (See chapter 12 on Evaluation).

Science Communication Events demand skilled project management, since they often consist of many individual presentations and involve a lot of people. The plan must be clearly structured and responsibilities allocated effectively.



General Management	Financing	Marketing	Media	Evaluation
Establish general data: dates, theme concentration, sites (renting of rooms and halls)				
Staff: testing competence and responsibilities	Establishing a budget and financing plan; securing finances			
Website for participants; Call for proposals Selection procedure; establishing program		Drawing up the marketing plan	Working out the media approaches	
Developing procedures, flow diagrams				
Booth and room planning, recording technology needs - traditional (fax, form) - Online database	Calculation for each activity			
		Flyer and Poster mailing; Public website, advertising	First press information	Preparing evaluation and monitoring
		Programme printing, mailing		
Planning of individual Activities: - Opening - Press conference - VIP tour Mailing with invitation		Mailing to schools and specific target groups		
Final schedule for partners: - Construct				
Briefing staff and other helpers				
Opening implementation		Venue designing	Press conference; Assembly of press clippings and TV-participation	Questioning of visitors and participants and other monitoring activities
Draw-up of summary	Draw-up of finance statement	Summary-CD finishing and mailing	Press clippings	Evaluating the Evaluation

4. Audiences

Magda Fikus Science Festival, Warsaw, Poland

The main objectives of any given Science Communication Event will include the definition of the target groups the organisers plan to reach. In most cases the objectives correspond to known and previously verified ways of contacting a given audience and predict the formats which are most effective at engaging that given audience. Some commonly used formats are:

- “Picnics”, “Fairs”, “Street-level-presentations”. These Activities are mostly attended by casual passers-by. Lectures, debates, and museum visits are aimed at more engaged, possibly better educated people, with a broad interest in science, technology and innovations. They attract smaller numbers, but generate more productive dialogue and debate with the scientists.
- Laboratory-style workshops are aimed at the most inquisitive people: often young, sometimes well educated, or currently in education, with a taste for hands-on Activity. These Activities are also the most interactive, and interactivity is one of the most effective methods of engagement with science. Due to limited space, such Activities will obviously reach only a limited number of people.

The venues aiming to attract these various types of audiences should match the needs and habits of the given target group.

- Shows and popular presentations work well in city squares (Danish Science Days, Austrian Science Week), city parks (many Science Villages in France), a theme park (Science Days in Freiburg), markets and malls (Göteborg), or an exhibition hall (Madrid) where tents and/or stands are built.
- Lectures, debates and workshops are often held in scientific institutions, where the hands-on experiments and workshops are run in laboratories (Warsaw Science Festival, Wrocław Science Festival, Fête de la Science in France, Science Festival in Genova).
- In many Science Communication Events, there may be a combination of all of the above.

The number of visitors can be estimated when the topic, the format and the venue have been decided and the target audience chosen. However, day, and time of day of the Activity, as well as the venue, will also influence this number. The audience at the same presentation will be different during the weekends than during week days and during working hours. For example, organizers were surprised to observe low attendance at an academic lecture held at 2 pm, whereas it should be obvious that working people would be unable to attend at that time. Evaluation of the Science Festival in Göteborg, Sweden, shows significant differences in visitor profiles between the different venues. The main finding is that the proportion of young people attending is much higher in venues such as a city park, or shopping mall i.e. places that they visit frequently.

4.1 General overview



The main advice to the organisers of new Science Communication Events is to start with a precise definition of the audience they wish to reach.

4.2 Different models and their analysis

Most of the visited Science Communication Events followed the models shown here:

- No specific target group.
When the Science Communication Event has not defined any specific target group (but the “general public”), there should be numerous and diverse Activities (Science Festival in Warsaw, Low-Silesian Science Festival in Wrocław, Fête de la Science in France, National Science Week in the UK, Science Festival in Genova). In this model any proposed kind of Activity can attract the relevant audience. However, if the description of the Activity in the programme is not precise enough, and the title is not exciting enough, the public may conclude that the content will not meet their expectations and therefore choose not to attend.

Passers-by form the largest proportion of the audience of the Science Communication Event, which subsequently often results in a completely random mix of people. It would therefore be advisable if the presentation (usually prepared in a “for fun” form), generated initial interest in the subject and encouraged the public to enquire about and attend further, more detailed presentations.

In several cases, there is evidence of a significantly higher proportion of young people at drop-in venues. However, the right venue itself is hardly enough – it has to offer interesting Activities as well. Experiences from Göteborg indicate that self-explanatory Activities are particularly popular.

- Pre-school children, school pupils and secondary school students.
This is probably the most important target group, and it is certainly the most commonly targeted group of the Events visited.
For example, there are Science Communication Events almost totally devoted to this target group:
 - A pre-school Festival was held for the first time in Freiburg in 2005, organised within, but clearly separate from, the larger Event.
 - Science Days in Crewe and in Newcastle, Science Festival in Luxembourg, Science Week in Ireland
 - Festival Classes within Warsaw Science Festival
 - Activity in France: “A scientist in every school”

Sometimes young people form a large part of the spectrum of target groups (BA Festival of Science and National Science Weeks in the UK, Fête de la Science in France, Science Festival in Madrid and in Catalonia). Special attention was also given to this group in Stuttgart.

When this model is followed it is advisable to offer special support for teachers accompanying pupils, and it is particularly useful to maintain contact with them throughout the year (Science Festival in Wrocław, Stuttgart, Science Week in Ireland, Danish Science Week, Science Days in Freiburg). Some SCEs also prepare special programmes for teachers (BA Festival of Science, Danish Science Week, Science Days in Freiburg, and Science Festival in Warsaw).



In fact, it is currently impossible to find in any SCE that does not aim to attract this target group in Europe. The reason for the popularity of this model could be that young people readily learn new information, enjoy interactive Activities and are highly imaginative. In addition, at the age of 8-12, young people often decide on their career path. It is therefore important to present scientific research as an attractive option to this age group, particularly in the light of the Lisbon strategy, which states that the EU needs 700,000 new practicing scientists by 2012.

Well prepared Activities for young people are extremely rewarding for the presenters. Children are very active, they enjoy communicative and interactive programmes (Ireland, Newcastle, Crewe) and are imaginative and creative. On the other hand, it can be difficult and time consuming to prepare high quality, appropriately pitched, exciting shows and presentations for children, compared with those targeted at an adult audience.

- Specific groups drawn from the general public

In all of the Science Communications Events visited, the objectives and the philosophy of the Events are very similar. The similarities extend to the targeted audience models used by each Science Communications Event. However, each of the Events may also concentrate specifically on a chosen group of people. These groups do not form the core audience of the Event, but help the organisers to attract new sectors of society, (the other groups related to a given one.) Specific groups commonly targeted are:

- University students
- Journalists
- Women
- Families
- Science Communication Professionals
- Ethnic minorities

For these kinds of Activities, one does not expect large audiences and the activities are mostly workshops, shows, working lunches, or very specialized lectures.

Although the outstanding ideas for reaching a specific audience for large Events are seldom exclusive to a single Science Communication Event in Europe, exceptional ideas which take the Activity *to* the audience, should also be shared. One may consider the following ideas:

- France: “A scientist in each school”
- The special Science Festival separated in time from the “traditional” one, e.g. for kindergarten children (Freiburg)

Since it is taxes paid by the public that fund scientific research, there is a duty to present how this money is spent, in an accessible way, to a variety of audience groups.

Cooperation with other science and technology or even cultural events that take place in the same city will help to avoid competition for audiences. Particular attention should be given to the current activity of the Science Centres which operate in the same area (Ciencia Viva in Portugal, Technopolis in Belgium, Life Sciences in Newcastle, the Natural History and Science Museums in London, La Villette in Paris).

4.3

Best practices and outstanding ideas



4.4

Summary

Many of the established Science Communication Events reach a “plateau” in the number of visitors after a few years (Fête de la Science, Warsaw Science Festival). However, it is possible to increase this number, if the organisers evaluate and analyse the audience more closely, and improve their marketing strategies.

This is what the BA (British Association for the Advancement of Science) did for their Festival of Science; by analysing the audience and the number of visitors (circa 10,000 of visits, mostly by middle aged and retired people), they proposed changes in the overall strategy, specifically targeting different groups with accessible activities in town centre venues, which successfully increased the number of people attending the Event.

The European dimension could be observed at many Science Communication Events not only in an international spectrum of Activities, but also in the number of visitors from the neighbouring countries. The best outcome is seen where most of the population of neighboring countries can speak the same language (Ireland and the UK, Scandinavian countries, Luxemburg and France). One of the most popular presentations seen by the author of this chapter, involved Russian scientists with a physics show in Genova, speaking mixed Russian/Italian with a heavy Russian accent.

The possibility of cross-regional or cross-border Science Communication Events could be taken into consideration by those who plan to develop such events in the Slavic countries.



5. Activities

Joachim Lerch Science Days, Freiburg, Germany

Science Festivals, Science Weeks and Science Days are excellent examples of a special form of science communication. They offer a wide range of activities and attract a variety of audiences. When choosing an activity for a Science Communication Event, the following factors should be considered:

- Complexity of the topic (can the audience understand the content through the existing activity format, or because of its complexity, is it better suited to a lecture?)
- Target group (is the activity appropriate for the target group?)
- Safety (e.g. are the experiments safe for the public participation?)
- Costs (what costs are connected with the activity?)
- Communication (does the activity encourage good communication between the presenter and the audience?)
- Staff (are the presenters suitably experienced to communicate the topic in an accessible manner?)
- Venue (is a suitable venue available?)
- Number of visitors (will the format attract a large enough audience to make the event viable? Is there, in a given location, enough public interest, in a given activity?)

One of the biggest challenges when planning a Science Communication Event is to find a format which is appropriate to both the topic and the target audience. Often, scientists have great knowledge of the topic, but have little experience of how to communicate this knowledge to people outside of the scientific community. Therefore they need to be supported by teachers, science communicators, or other people with experience in science communication.

Using unusual formats also requires a certain willingness to take risks. Many activity formats have not turned out to be a success when they are put into practice for the first time. One important rule should always be considered by presenters when designing activities: every presenter must learn and find out which format is suited to him/her and which is not. Not every scientist can successfully run a workshop with youngsters and not every engineer can conduct an invention competition. Very few people have the qualities to present a good Science Show.

Within the many Science Communication Events in Europe and elsewhere, the following Activity formats have been observed:

Guided Tours

Guided tours are of limited importance at the majority of Science Communication Events. Most Events concentrate on encouraging the visitor to discover, rather than to be guided. However, there are cases in which guided tours can be of great interest, for example by offering “behind the scenes” tours of factories and laboratories.

5.1

General overview

5.2

Different models of activities and their analysis



Guided tours during which visitors are encouraged to participate are particularly successful (conducting a basic experiment, looking through a microscope etc.). Guided tours are suited to target groups who need additional encouragement to take part in activities at a Science Communication Event. They are also sometimes appropriate for disabled people and for senior citizens.

Workshops

Workshop Activities are most popular with people who have made a conscious effort to visit the Science Communication Event. If the workshops are well organized, they often receive feedback referring to them as the highlight of the Event.

At many Science Communication Events, workshops are booked out to school classes and last approximately one hour. At other Science Communication Events, they operate on a “drop in” basis – in these circumstances they tend to last for a shorter amount of time.

With regard to the subject matter, the workshops are in most cases closely connected to the concerns of the participants e.g. when running events targeting school children it is advisable to relate the workshop content to the national curriculum.

Workshops at Science Communication Events are often targeted at primary and secondary school pupils, from ages 6 to 16. Workshops are less likely to be offered to individual visitors, families or other groups. The design and content of workshops must be appropriate for the target groups. It is recommended that pedagogical advice is sought.

Typically, workshops have special room requirements. Most workshops at Events visited for this project were therefore set up in rooms especially equipped for this purpose (e.g. laboratories). It is important however, to avoid a “school” atmosphere, but to provide a relatively quiet environment while still maintaining an element of fun. The organisation of workshops needs a strict reservation and pre-application scheme for groups, sometimes special entrances for these groups and also signs at the doors or in the hallways.

Science Shows

Science shows are a good option if you want to present information in a little more depth to a larger audience. The range of shows offered at European Science Communication Events is enormous. Science Shows generally include experimental demonstrations and some degree of audience participation. They tend to work well and are of more interest if they have a background story (e.g. “Crime Show”, “Volcano Show”). Quiz games and audience voting are other examples of features which help to make a Science Show attractive.

Lectures

Lectures are the most common Activity formats used by scientists and other experts. However, lectures are often only of interest to adults and they also require the audience to have a basic knowledge of the subject. The aim is to match the audience’s level of knowledge with the level of knowledge required to communicate the subject. Lecturers covering well-known topics often prove to be audience magnets, and this should be used to the presenter’s advantage to capture



the audience's attention. Well placed audio visual aids and experiments making a lecture appear alive and vivid, can be particularly effective.

Science Theatre

Theatre performances at which scientific themes or historic events are presented are very popular with the public. Science Theatre is a good vehicle for presenting themes which are normally limited in the use of AV, objects and experiments available to communicate them, e.g. in the field of humanities or the discussion of science issues. There have been some excellent examples of science theatre in the UK presented in a similar format to a drama serial ('or soap') on the subject of the ethics and issues involved in genetic testing.

The quality of Science Theatres depends largely on the script and the actors. Do not forget humour, laughter, deliberately making funny mistakes, or props such as masks, clothing and scenery. Also, music, different sounds (explosions!) and smelly dust clouds can stimulate all of the audiences senses. The invitation to "volunteers" to come on stage can also improve the success of the performance.

Demonstrations

Where scientific experiments are too dangerous to be conducted by the audience themselves, they should be demonstrated by the scientist presenting the activity. Here, the visitor merely observes what is going on, but the experience is much more real and will give a more lasting impression than a film or audio-visual representation of the experiment. The experiments demonstrated should be clearly explained and set out in a logical manner. Sometimes, the results, e.g. some soap, or cloth are distributed amongst the audience, with the clear objective that giving them something to take home, increases the possibility that they will remember the Activity.

Debates

Debates are not an appropriate format for exchanging knowledge. Their strength is to serve as a dialogue between members of the audience. Thus, topics of ethical, political and social relevance are often raised. A good chairperson and a succinct set of initial brief talks are essential. The chairperson of the debate should be skilled at summarising the key points and focusing the discussion, so that the views of the audience can be effectively aired.

Science Café or Café Scientifique

More than ten years ago a discussion forum was developed in France which is practised in many European countries, the Café Scientifique. The main premise is that the visitors and the scientists are removed from the formal situation of a lecture theatre, or laboratory and meet in the comfortable, informal atmosphere of a café. In a short preamble statement (max. 10 min) the speaker introduces his/her field of work and research and summarises the central issues of his/her research. Following this, there is a discussion with the audience in the café. For the café to be successful, the main speakers should not sit at one table, but mingle amongst the audience. This helps to emphasise the "café atmosphere". The Café Scientifique format can be adapted successfully for specific target groups (women, journalists, etc.). As with a debate, an experienced chairperson is very important.



Film festivals

Some Science Communication Events also include Science Film Festivals. There are a number of films with a background of natural science or technology (“Gattaca”, “Twister”, etc.), so some festivals have included such films in their programme. However, some of these films were not well-received by the audience as the films had been released a long time before the Science Communication Event. In many instances, Science Communication Events have now removed such films from their programmes.

Visitors have been found to be much more interested by a combination of the film and a discussion about the film with a scientist.

Scientific films are rarely shown at Science Communication Events, although the scientific film festival during Science Week in Portugal has become a very well-respected international event.

Competitions

Children and young people like challenges. They like to participate in competitions, especially if there is an attractive prize to be won. The competition must be promoted appropriately for the target group. Competitions which involve developing, or conducting an experiment, are particularly attractive since they promote creativity and motivate the youngsters to do something themselves. The competition results should be announced and prizes presented during the event.

Mass experiments

Mass experiments have been conducted during the past few years, mainly at national Science Communication Events. They are aimed at attracting the public’s attention to a scientific subject and invite all visitors to watch, analyse and evaluate. The selection of mass experiments is not easy. They have to include questions which have possibly not been answered by science and can be followed easily by the public. It is important that the observation and activity tasks are simple to do, clear results are produced and can be easily communicated so that scientists can use the results.

One good example of a mass experiment was for the UK National Science Week, where the public noted a number of “signs of Spring” e.g. the first appearance of hazel catkins and logged them on a website. Following this, an Activity was held at which the start of spring in different regions was shown using the collected results.

Open House Day

Scientific institutions and businesses hold regular or one-off Open House days. These are intended to introduce the work which goes on behind the scenes of the institution to the public. Members of staff display their research equipment, explain how it is used and then are available for questions from the public. Activities, competitions and hands-on activities contribute to the attraction of such events. Of course, the audience will consist mainly of people, who have the confidence to visit science institutions.



Exhibitions

The visitor's response to an exhibition depends a great deal on, whether:

- It is an interactive exhibition or not,
- The exhibition is explained by supplementary guides, or
- It is a permanent, or temporary exhibition.

Although it is possible to include permanent exhibitions in Science Communication Events, they are unlikely to lead to an increased number of visitors, since visitors to these Events prefer Activities which are only available for a limited period of time. Temporary exhibitions must be of attractive design and include interesting Activities. Interactive exhibitions with many hands-on exhibits are most popular. Science Communication Event organisations prefer exhibitions (if any), which take place only during the time of the Science Communication Event.

Self explanatory experiments or games

Games and experiments that are self explanatory are particularly enticing elements in science venues created for people who drop in. These are Activities that are explained either by posters or short leaflets. This gives the visitor the opportunity to approach the Activity at his or her own speed and interest. Most exhibitions that can be found in a science centre may serve as examples, and many such experiments can easily be adapted for use outdoors or in other specific places.

Excursions

Some Science Events in Europe offer excursions to local places of interest e.g. sites of archaeological importance, a biotope (don't know what this is?), a volcano, a geological formation, nature reserves, research stations etc.

Special Formats

Some Science Communication Events in Europe have been very creative when developing special formats. Some years ago, as part of the UK National Science Week and also at the Klagenfurt University in Austria, a taxi was installed in which a scientist offered the passengers an introduction to his field of work. Colleagues from Danish Science Communication have had a lot of success with the project "Hire a scientist", where a scientist can be "hired" for a lecture. French scientists even went into prisons to present their science to a "captive" audience.



There are of course many mixed formats which would make this chart endless, however, this is a brief guide to those mentioned above.

Activity	Very formal	Formal	A bit formal	A bit informal	Informal	Very informal
Lecture						
Exhibition						
Panel discussion						
Guided tours						
Open Doors						
Debate						
Café Scientifique/science café						
Demonstration						
Competition						
Workshop						
Interactive exhibition						
Science show on the street						
Film						
Science show						
Science and art (e.g. lecture and music)						
Science theatre						

5.3

Best practises and outstanding ideas


Across the whole of Europe, a great variety of formats and activities have been developed over the past few years. The following examples are given because they are:

- Conducted in unusual locations (Parliaments, market places etc.)
- Address special target groups
- Offer interesting tasks
- Comprise interdisciplinary formats (“Music and Science” etc.)


Unfortunately only a few examples can be detailed here.


	SCIENCE CAFÉ FOR GIRLS
	Science Days, Freiburg, Germany
	URL: www.science-days.de/café
	Institution: Förderverein Science und Technologie e.V.
	Contact: Charlotte Willmer-Klumpp
	E-mail: cwk.uk@t-online.de
<p>The “Science Café for girls” is a meeting place for girls of different ages with female scientists, engineers or technicians (role models). This organisation, designated to allow the girls a vocation oriented an insight is divided into four steps:</p> <ol style="list-style-type: none"> 1. A first “getting to know you” in a Café 2. A visit to the working place of the role models 3. Attending a several days lasting practical 4. Final debate in the Café 	




	STUDENT PARLIAMENT
	Wissenschaftsommer, Stuttgart, Germany
	URL: www.wissenschaft-im-dialog.de
	Institution: Wissenschaft-im-Dialog GmbH
	Contact: Herbert Mnder
	E-mail: info@w-i-d.de
<p>During the Stuttgart Scientific Summer of 2004, 100 students were invited to the Parliament of the state Baden-Wuerttemberg. Attention was directed at topics around mobility, communication and technology. The participants were occupied in group workshops with the topics of mobility (how is immigration to be controlled by politics; mobility during studies and career; mobile communication; the effects of technology and mobility; how much mobility is good), cheap flights, mass tourism, environment damage.</p>	


	INVENTORS SHOP
	Science Days, Freiburg, Germany
	URL: www.science-days.de
	Institution: Frderverein Science und Technologie e.V.
	Contact: Joachim Lerch
	E-mail: j.lerch@t-online.de
<p>In co-operation with German television (ARD), a workshop for inventors was conducted during the Science Festival in Freiburg. Various groups were confronted with tasks, for which a solution had to be found within a certain time period by using simple materials ("producing a fire extinguisher which could extinguish a candle from a distance of 8 m"). Since television and newspaper journalists were also among the participants, the competition was well presented in the Media.</p>	


	SCIENCE PICNIC
	Warsaw, Poland
	URL: www.radio.com.pl/bis3/piknik
	Institution: Polskie Radio BIS
	Contact:
	E-mail:
<p>A so called Warsaw Science Picnic – an event of public funfair character at Warsaw’s historic market place which is supposed to arouse and promote the interest in science by the wider public - was staged for the ninth time in June 2005. The Picnic day is traditionally organised by a Polish public radio broadcaster. The first Picnic was held in 1997, with at the time thirteen different exhibitors. The great success of the Picnic becomes evident when considering the terrific increase of exhibitioners and audiences. The recent one included 130 tents and an audience of 100,000.</p>	

	ALBERT EINSTEIN SHOW
	Freiburg, Germany
	URL: www.science-days.de/einstein
	Institution: Frderverein Science und Technologie e.V.
	Contact: Joachim Lerch
	E-mail: j.lerch@t-online.de
<p>On the occasion of the Einstein-Year, Science und Technologie e.V. presented several lectures including picture and sound documents about Albert Einstein’s life. Animations made the illustration of the basic relativity theory possible. The individual stages of Einstein’s life were accompanied with the matching Live music, presented by three female musicians. This particular mixture of music and science was with great enthusiasm accepted by the audience.</p>	



	BECOME A TOP CLASS ER SURGEON
	Edinburgh International Science Festival, UK
	URL: www.sciencefestival.co.uk
	Institution: Edinburgh International Science Festival
	Contact: E-mail: esf@scifest.co.uk
<p>During this very special workshop a traffic accident was simulated with several injured people. The visitors (mostly children and youngsters) could participate in a reproduced operating theatre and observe how the care for injured people is managed in a hospital. On professional practice devices (artificial respiration, endoscope etc.), the workshop visitors were able to experience themselves how these medical technology procedures are conducted.</p>	

	THE SWEET SCIENCE SHOW
	National Science Week, Newcastle, UK
	URL: www.lifesciencecentre.org.uk
	Institution: Centre for Life
	Contact: Linda Conlon E-mail:
<p>The Sweet Science Show is a constant component of the Centre of Life show program of the Centre for Life in Newcastle. In a separate Science Theatre, a centre staff member lectures about chemicals and physics of sweets. The presentation is very well thought through and includes a series of interesting demonstrations. According to their age group, the children find out about the soluble possibility of candy floss, the various aggregate conditions of sugar and more. The show lasts about 20 min.</p>	

	OUR NEIGHBOURS AND THEIR OPINION ABOUT POLES AND POLAND
	Festiwal Nauki Warszawa
	URL: www.icm.edu.pl/festiwal
	Institution: Science Festival
	Contact: Maciej Geller E-mail: m.geller@icm.edu.pl
<p>Four debates were organised, during which the public met journalists and scientists from Russia, Ukraine, Czech Republic and Germany. The debate was lead by Polish journalists. A very intensive discussion followed the presentations. The general feedback from the public was that it had been one of the most important and interesting activities of the 2005 Festival. The whole Project "Science for the people" was accepted and financed in accordance with the "Researchers in Europe" Program of the EU.</p>	

5.4 Summary

The selection of successful science Activities is strongly related to the concept of the Science Communication Events themselves. Topics, target groups and the formats must be defined. The huge number of successful examples in Europe shows that there is a lot of creativity involved in designing activities. Nevertheless concepts can not always be transferred easily to other countries.

The following table should give a rough overview of the different variables contributing to Science Communication Activities. There are obviously a lot of exceptions, which are not addressed in this list.



	Complexity of the topic	Target group	Security aspects	Costs	Communi- cation	Staff/ personal	Venue	Number of visitors
Guided tours	average	usually older pupils and adults	precaution depends on venue	low	average	experienced	laboratory, workshop	<20
Workshops	low	usually children and young people	low risk	low	high	well trained	classrooms, labs, work-shops	<15
Science shows	average	all	low risk	average	average	well trained	stage	high
Lectures	high	usually older pupils and adults	low risk	low	low	highly edu-cated	auditory	high
Demon-strations	average	all	average	average	average	well trained	different	<30
Debates	high	usually older pupils and adults	low risk	low	high	highly edu-cated	auditory	<50
Science café	high	older pupils and adults	low risk	low	high	highly edu-cated	café, restau-rant	<20
Film festival	average	all	low risk	average	low	No experi-ence neces-sary	cinema	depends
Competi-tions	average	usually children and young people	precaution depends on venue	average/ high	high	experienced	different	limited
Mass experiments	low	all	low risk	average	average		different	high
Day of Open House	average	usually older pupils and adults	precaution depends on venue	average	high	experienced	institutions	high
Exhibitions	average	all	low risk	high	low	only as guides	exhibition halls etc.	high
Self instructed experiments/ games	average	all	precaution depends on venue	average	high	experienced	special places	<20



6. Venues

Mikkel Bohm Danish Science Week

6.1 General overview

The choice of venue is very often the factor that separates Science Communication Events from other forms of science communication.

While science museums invite the audience to come to their premises, they will reach only a certain type of people, who are interested enough to go and visit. Science Communication Events in open public places will also reach those people who are intrigued by the show or the demonstrations, but would never have thought of visiting a university or a science museum.

There are basically three kinds of venue involved in the Events visited:

- Unusual places
- Unusual use of scientific institutions
- Schools

A speciality of many of the Events visited is that they bring science to unusual places in order to engage with the public in a non-scientific arena.

Unusual places

The advantages of choosing everyday places for Science Communication Events are many:

- The audience don't have to go out of their way to encounter science
- The audience don't feel threatened by a unfamiliar and "scientific" environment
- The communication between science and the public becomes more equal, as they meet on "neutral ground"

These unusual "non-scientific" venues vary considerably, and we have encountered many very good, creative solutions to arenas for Science Communication Activities, from amusement parks to train stations. We also include in this category the use of conference facilities, museums and other auditoriums – not normally used for Scientific Communication Activities.

Many Science Communication Events use existing scientific institutions as venues for their Activities. These Activities usually take the form of an "open doors" Activity, where the general public or a more targeted audience (e.g. school children) are invited to visit a university or scientific institution.

Unusual use of
science institutions

The last type of venue is schools. Many Science Communication Events encourage schools to participate by running an Activity in their school.

Schools

Special materials for the schools (leaflets, competitions, web-based mass experiments and so on) are often provided. In some cases, scientists give lectures or perform shows at the schools, something which can enhance the connection between schools and universities.



6.2

Different models of venues and their analysis

Moving out of the laboratory to an everyday environment is often a very successful way of communicating science. The variety of venues is huge, and some examples can be found below.

Street science Very often, a Science Communication Event includes one or more street exhibitions. Although these may vary in form, size and organisation, many common trends are evident.

Simply stated, the idea is to find a crowded place in a city where you will find many pedestrians. This may be the town hall square (e.g. Graz, Austria or Copenhagen, Denmark, Luxemburg Garden in Paris) or another central location. An exhibition is then set up in tents, so that the Activity will work in all weathers.

An even simpler form is presenters who just put a table on the corner of a street and perform as long as the weather permits (or they draw back into a shop or under a tree). This saves money on the one hand, and also permits easier access to the people on the streets.

Usually the Activities are put on by local science institutions, schools and in some cases companies. Presenters can be students, pupils or senior scientific staff. In some cases, local school children are also invited to give presentations. Science Communication Activities work best if they are hands-on and there is something to taste or try and small souvenirs to bring back home. It is very important to do proper research on the number of passers-by in the particular place and also to consider what kind of people will be there on which days. On working days, in the middle of the day, you will see mainly senior citizens; whereas most adult pedestrians will be too busy to take part. On such days, many organisers choose to invite schools to visit in order to use the Activities efficiently.

At weekends, people are in shopping mode and will have more time to spend. In Göteborg, the organisers have chosen to place exhibitions in a particular square popular with teenagers to target that specific group. In Vienna, the tents were in between the national art galleries. Therefore, the audience consisted mostly of people who love art, but stumbled into the science tents.

The layout of the performance arena is important. One big tent can seem claustrophobic and will easily get dark and humid, whereas many small tents can be more open and inviting to visitors. Balloons, banners, flags and large and attractive signs make it easier to create a “festival” atmosphere. Activities around the tents (in good weather) are also very good for attracting attention. Attractive sounds and loudspeaker announcements work well too. Tents on their own, without any additional features, can easily look miserable in bad weather. Organising a tent venue is painstaking work. It takes a lot of coordination to make sure the exhibitors are in place, that electricity is provided, that the proper permits from authorities are obtained, that the exhibition is locked and guarded at night. Therefore, this project is sometimes put into the hands of a professional event management company.

As a means of Science Communication, street science is very efficient. By placing the exhibition at the right place and at the right time, the organisers will reach an audience of people who would never visit a lecture, a science institution or maybe even a science centre. By creating a strong visual impact, the Activities will also get good press coverage.



Many countries, especially in the Northern part of Europe, choose indoor venues in order to avoid weather problems.

Indoor venues

As with outdoor events, the choice of venue is crucial for the success of the activity. Shopping centres, libraries, railway stations etc are popular with many organisers.

Apart from street science, a good way of capturing the attention of an audience in a non-scientific environment is by communicating science in cultural institutions. These institutions offer a number of advantages for a Science Communication Event's Activities:

Working with cultural institutions

- Attracting an audience: Museums, concert halls, amusement parks etc. have a large number of visitors every day and are as such good arenas for connecting with a new audience. The National Science Week in Ljubljana, Slovenia, was entirely organised in the major art museum of the city. In this way a very different audience was reached - a good example of cross-fertilisation.
- Getting attention: Most people are used to "consuming" culture in such places, and will be eager and receptive to try something new, in this case engage in Science Communication Activities.
- Getting publicity and the infrastructure for the Activity: cultural institutions are used to marketing of their events, and they often have very good contacts with the media. Also, they usually have all of the presentation equipment and staff needed for organising the event, dealing with the public and so on.
- Having good access: The venues for Science Communication Activities must be easily accessible. Usually such places are well connected with public transport and have easy access for people with disabilities.
- Moving the presentation: Some small Science Communication Events change their venue after a while, as they grow too big for the original venue, or just to vary the experience for the visitors. As an extreme example of this, "Wissenschaft im Dialog" runs activities aboard a ship (2005: Motorship "Einstein", 2006: Motorship "Technik") where visitors can see an interactive exhibition. The ship is moving to different cities and places in Germany.

Below is a list of examples of cultural institutions involved in Science Communication Events:

- Copenhagen Jazzhouse, Denmark
- Europa Park, Rust/Freiburg, Germany
- Madrid Exhibition Centre, Spain
- Museum of Modern Art, Vienna, Austria
- GöteborgsOperan, Göteborg, Sweden
- Royal Castle in Warsaw, Poland
- Parliament building, Barcelona, Spain

Apart from these examples, cafés and pubs are used in almost all Science Communication Events for science cafés or other kinds of talks and discussions. These



are often a meeting between scientists and journalists and centered around a controversial (for instance genetically modified food) or current media issue (for instance tsunamis). Some science cafés are targeted towards a selected audience (youth, specialists and so on), others towards the general public. The idea of informal discussions in a pub or café environment is usually very successful.

Unusual use of scientific institutions

As well as Science Communication Events in unusual venues outside of scientific institutions, most Events include Activities held at one or more big universities and scientific institutions. These Activities will vary from popular lectures to big Activities targeted at either the general public and/or schools (see chapter 5 Activities)

There are a number of advantages and disadvantages connected with these types of Activities. The advantages are, among others:

- Much easier access to demonstrations involving heavy or specialised equipment
- Much easier to organise Activities in existing facilities
- Easier to involve students and the faculty on their “home territory”
- Gives an atmosphere of an authentic academic environment
- Brings the public closer to the real conditions in which scientists operate – in many scientific institutions in Poland, for example, one can see, not only hear about, the poor condition of the research facilities.

The disadvantages are, among others:

- Difficult to attract an audience other than the very enthusiastic
- Problems involving transport to and from the venue

It is therefore very important to consider what target audience is to be reached when placing Activities on, for instance, a university campus. Experience from all of the Events visited shows that schools will turn up in large numbers if invited well in advance. However, for the adult lay audience, many will feel threatened by the unfamiliar academic environment. So for schools and the already engaged lay audience, universities will work very well as venues. To attract the “man in the street” to a university, exceptional measures must be used, for example, family events, such as treasure hunts, competitions, food and drink.

Schools

Some Science Communication Events encourage schools to organise their own Activities in their schools as part of the overall Event. School Activities can take many forms, for instance:

- Participating in a national mass experiment or competition
- Inviting scientists to give talks or presentations
- Holding a science day or even a science week in the school
- Sometimes, the school not only presents within their building, but also outside near to the school, to catch the interest of the direct local community – and to teach the pupils how to communicate with the public.

A school Activity can thus vary from just a few hours effort (for instance a visiting lecture) to a whole week of Activities. The level of effort has a lot to do with the specific teachers involved and the willingness of school management to support



such Activities. But of course the Science Communication Event organisation must create a very attractive programmes for the schools to take part in.

The advantages of having Science Communication Activities in schools are numerous:

- It is easier and cheaper for schools to avoid transport costs by “staying home”
- It is easier to involve parents
- It creates opportunities to involve local companies and industry
- It opens up the possibilities for cooperation between science teachers and their colleagues from other fields
- The lessons learned from the Activity are sustainable and can inform the school’s normal curriculum
- It is extremely useful to encourage classes, groups of pupils and students to perform a “scientific” Activity – they are excited by organising things that never happened before in their school life and may be encouraged to see science as a possible career path. (cf the need for new researchers in Europe)

On the other hand, there are also disadvantages:

- There is a greater impact on children when engaging in informal learning in venues outside the school (see chapter 7 on education)
- It is harder to make an Activity really special, when it is taking place in a well-known everyday environment

The ideal model for making an impact in schools is probably a combination of both in-house activities and visits to other activities at the science communication event.



Lecture in shopping centre, International Science Festival Göteborg, Sweden




6.3

Best practice and outstanding ideas

Below are examples of “classical” and very well organised street science events. Events like this can be found in most science events all over Europe

Street science

	TOWN HALL SQUARE IN GRAZ
	Graz, Austria
	URL: www.scienceweek.at
	Institution: Science Week@Austria
	Contact: Peter Rebernik


E-mail: office@scienceweek.at

The city of Graz has app. 550,000 inhabitants. As a part of Science Week @ Austria, this event in Graz in 2004 was a tent exhibition with stands from the local university and from local schools. The tent was placed centrally in the main square of Graz. In front of the tent a number of smaller tents were filled with young elementary school pupils who did active hands-on experiments with water. This worked very well as an eyecatcher for passers-by. Inside the tent, most Activities were very good and interactive. It was clear that many of the participating institutions had experience in doing popular hands-on presentations – for instance a street-demonstration of the “falling cat” – robot in Graz. The tent was full of people most of the time. The audience consisted of school classes, university students and elderly people. No precise monitoring was made on the number of visitors but the estimates range from five to ten thousand.

	THE SCIENTIFIC VILLAGE
	Copenhagen, Denmark
	URL: www.naturvidenskabsfestival.dk
	Institution: Danish Science Communication
	Contact: Mikkel Bohm

E-mail: mb@formidling.dk


The Scientific Village was one of the more ambitious projects during Danish Science Week 2004. The five research and higher education universities in greater Copenhagen joined forces and built the Scientific Village, at the town hall square, right in the middle of Copenhagen, the most well-known and most frequently visited place in the city (left, top). Five large tents with 24 hands-on exhibition stands were erected and staffed with students from the participating universities. The stands all had hands-on Activities, and the students had been trained to communicate by a professional presenter. (left, middle) The mornings were reserved for visiting school classes, whereas afternoons and the week-end was open to the public. The school programme was sold out within 45 minutes, and the tent attracted a very large number of visitors and media in the weekend (left, bottom)

	SCIENCE ON THE RIGHT TRACK
	Copenhagen, Denmark
	URL: www.naturvidenskabsfestival.dk
	Institution: Danish Science Communication
	Contact: Mikkel Bohm

E-mail: mb@formidling.dk


In Copenhagen, a number of schools got together to organise a public Activity at the central station in Copenhagen, where school children presented science to an audience of commuters. Among the experiments was a water rocket, do-it-yourself inflation of pig's lungs and other hands-on experiments. The feature of children presenting science had tremendous value for the children involved and for the adult audience and it also attracted considerable media attention.




	SCIENCE IN THE PARK
	Göteborg, Sweden
	URL: www.goteborg.se/vetenskapsfestival
	Institution: Internationella Vetenskapsfestivalen Göteborg
	Contact: Annika Lotzman-Dahl E-mail: annika.lotzman.dahl@goteborg.com
<p>In the city centre, located on a green area near the Promenade, a tent of approximately 25 m in diameter was erected. Programmes (rotating in a 9 day cycle) which are offered there include:</p> <ul style="list-style-type: none"> - Reading a love story, discussing it afterwards - Mathematics hands-on (From Baghdad to eternity), interactives from Navet, a university with a small science centre in Borås (60 km east of Göteborg). - Various mathematics games and riddles could be solved. <p>The Activities here are primarily intended for the younger people, and also serve to inform the casual visitors of the many other Activities, which are staged in more than 49 locations in the city. Sitting on a couch, visitors could discuss love (the main theme of the festival in 2004). Medical students supervised this Activity. Here, the (mostly young) visitors could discuss problems with sexuality, respect and contraception. The response to this location is very good since the boulevard here is very pleasant to stroll along. It is a particularly popular area with young people. The various alternative Activities are displayed on a large blackboard. The guides in charge of this tent, clad in the easily recognisable orange colored T-shirts, are very friendly and approach the visitors themselves. During the Festival the tent is open daily between 11.30 and 18.00 h, to attract the optimum number of visitors.</p>	

Use of cultural institutions. Below are some examples of the use of cultural venues for science communication activities.

Unusual places

	SCIENCE DAYS
	Rust, Germany
	URL: www.science-days.de
	Institution: Förderverein Science und Technologie e.V.
	Contact: Joachim Lerch E-mail: j.lerch@t-online.de
<p>Science Days are held twice a year in the very unusual setting of a theme park in Germany. The Event is held in two very big tents and other halls outside the theme park, but close to the main entrance. Science Days attracts more than 20,000 visitors each year. The theme park as a venue is in itself very attractive and thought of as "fun". Presenting science in these surroundings is a great advantage. Also, the theme park gets a lot of publicity as a partner and is therefore very happy to cooperate in the project.</p>	

	SCIENCE CAFE IN PORTUGAL
	Portugal
	URL: www.cienciaviva.pt
	Institution: Ciencia Viva
	Contact: Ana Norhona E-mail:
<p>Science Cafes are held all over Europe, the concept is a debate in a informal environment. Pubs, cafés and many other venues are used for this Activity. In this case from 2003, the Ciencia Viva Science Centre in Lisbon was converted into a café where science writers, journalists, scientists and other interested members of the audience discussed science and science policy.</p>	



SCIENCE JAZZ

Copenhagen, Denmark
 URL: www.naturvidenskabsfestival.dk
 Institution: Danish Science Communication
 Contact: Mikkel Bohm
 E-mail: mb@formidling.dk

The well known Copenhagen Jazzhouse had a full crowd on a Thursday night with science jazz. A prominent brain researcher and a scientist who also happens to be a professional bass player held a very inspiring lecture about how jazz music affects the brain (it enlarges the language centre), followed by a concert with top Danish musicians. Many of the audience claimed that they were not attracted by the music or the science but by the unusual combination.

Scientific institutions are very often used as venues in Science Communication Events. Below are a few examples of succesful activities.

Unusual use of scientific institutions



THE BA FESTIVAL OF SCIENCE

UK
 URL: www.the-ba.net
 Institution: British Association for the Advancement of Science
 Contact: Annette Smith
 E-mail: annette.smith@the-ba.net

The BA Festival of Science is the oldest and one of the UK's biggest science festivals. It attracts 400 of the best scientists and science communicators from home and abroad who reveal the latest developments in research to a general audience, at a week long event held at a different location each September. Apart from lectures, which attract an audience of interested adults and schools, a number of schools Activities are organised as well as special meetings for teachers. In the most recent years, Activities in the city of the host university help to advertise the festival. The BA Festival of Science also attracts a huge number of science journalists.



FESTIWAL NAUKI WARSZAWA

Warsaw, Poland
 URL: www.icm.edu.pl/festiwal
 Institution: University of Warsaw
 Contact: Magda Fikus
 E-mail: magdaf@ibb.waw.pl

The University of Warsaw opens several Departments (Physics, Mathematics, Chemistry, Geology) completely for various activities: shows, workshops, games, outdoor demonstrations, lectures and debates, over two weekends. A good example is a special temporary exhibition "Toys and Physics" shown with enormous success in the Physics Department.

Schools




NORWEGIAN SCIENCE WEEK


National, Norway
 URL: www.forskningsdagene.no
 Institution: The Research Council of Norway
 Contact: Anne Riiser
 E-mail: ari@forskningsradet.no

Mass experiment. In the Norwegian Science Week, a mass experiment for schools is organised every year to encourage schools to hold Science Communication Activities. In 2003 the theme was to measure the indoor climate in schools using a guide issued by the science week organisers. This campaign was very successful, attracting data from more than 1000 schools and resulting in a scientific report from the Norwegian Institute for Air Research.



	AUSTRIA
	Vienna, Austria
	URL: www.scienceweek.at
	Institution: Science Week@Austria
	Contact: Peter Rebernik
	E-mail: office@scienceweek.at
<p>In Vienna in 2003, one school built tents and used containers (for shows in the dark about infra-red and colours) and open-air demonstrations in a public square – and thereby created a little “science town” about 1 km distant from their school – directly next to the entrance to the subway. Thereby, they reached a very new audience. They had to transport all of the equipment every morning to the square – and back again in the evening. Pupils aged from 12 to 17, were the only presenters. The most popular activity was kicking a football and having the speed measured – certificates were awarded showing the speed achieved.</p>	

	DENMARK
	Tønder, Denmark
	URL: www.naturvidenskabsfestival.dk
	Institution: Danish Science Communication
	Contact: Mikkel Bohm
	E-mail: mb@formidling.dk
<p>In the small town of Tønder, the local High School (Tønder Gymnasium) used the Danish Science Week to invite 1000 elementary school pupils to visit the high school. An extensive programme with more than 25 workshops was arranged, and local companies participated with hands-on exhibitions making it a great success for both the high school students (learning science as presenters), the visiting pupils (trying science as audience) and the local companies (getting a strong local profile).</p>	

	FESTIWAL NAUKI WARSZAWA
	Warsaw, Poland
	URL: www.icm.edu.pl/festiwal
	Institution: University of Warsaw
	Contact: Magda Fikus
	E-mail: magdaf@ibb.waw.pl
<p>In a special initiative devised by the most popular daily newspaper, “Gazeta Wyborcza” under the name “School with Class”, schools are supposed to make special efforts in various areas. One of them is to create their own “Science and Culture Festival”. These Activities are extremely exciting for schools: students, teachers and parents.</p>	



6.4

Summary When planning Science Communication Events, the choice of venue makes an enormous difference to the success of the Activities as seen below:

Venue type	When and what to use	Impact on the audience	Recommendations
Unusual places	Anything goes, just as long as there is an audience. Working with cultural institutions is particularly effective.	Street science and science in cultural institutions can attract an audience which would otherwise never be attracted to science museums etc.	Street science is an excellent science in society activity and should be encouraged throughout Europe.
Unusual use of institutions	All science institutions have good facilities for presentations and exhibitions	Schools will always turn up to "open doors" Activities and lectures. The adult audience will probably be people already interested in science.	For schools, visits to scientific institutions are very good for career planning and meeting role models. For a broad lay audience (eg families) to attend an open-doors Activity, special attractions and exhibitions must be created.
Schools	Schools are usually ready to do special theme weeks. Lack of money for travel and materials can be a problem.	Schools are very receptive to engaging in mass experiments. Also many schools will be very interested in hosting visiting scientists.	It is crucial to have detailed knowledge of the schools everyday life (planning, budgets, curriculum etc.) in order to create Activities that really fit into the school system.



7. Education

Joachim Lerch Science Days, Freiburg, Germany

This chapter considers all of the aspects surrounding education that apply to Science Communication Events across Europe. It is important when running such Events year on year, to maximise their educational impact, without losing the sense of fun and excitement that children undoubtedly get from Science Communication Events. This chapter aims to help to achieve this, through a description of the 'best practices' for dealing with education at Science Communication Events.

Science Communication Events often include a programme targeted directly at schools. In this respect, the Events become a supplement to the school's everyday activities and offer something that can be viewed as an enhancement of the national curriculum. This is an important aspect of Science Communication Events and requires expertise in learning and education in either the staff, or an advisory committee member to suggest and evaluate educational activities.

Ongoing discussions about educational programmes in scientifically well-developed societies indicate clearly that the field of education outside of schools is already of great importance. The existence of such programmes will probably increase in future. Science Communication Events will become an increasingly important supplementary source of educational programmes in the field of science and technology, to those provided at museums and science centres. The motivation to conduct Science Communication Events, however, may be very different to those of museums and science centres:

- **Lifelong learning:** Modern society seeks the opportunity for lifelong learning. The constant changes in the economy, industry, science and society demand a certain basic knowledge to enable a person to react to scientific and technological changes and to participate in decision-making processes. Thus, self-directed learning is becoming more and more important. Learning is a life-long process which does not end when one leaves school or college.
- **Supporting learning in natural science and technology:** The quality of school lessons greatly influences the subjects a student chooses to study and also later career choices. Considerable shortcomings became evident in many European countries after extensive surveys within the framework of international education studies (PISA; <http://www.pisa.oecd.org>). Science Communication Events could contribute more lively and attractive learning experiences in natural science and technology, which motivate not only students, but teachers as well.
- **New generation of scientists:** The decrease in the number of students studying natural science and technology has caused many science institutions and businesses to either arrange or participate in Science Communication Events. Science Communication Events are particularly useful for forming new contacts with professionals in a given field of science.

7.1 General overview



- **Public Understanding of Science (PUS):** Although this term is used less currently in the field of science communication, it is still the case that modern nations have developed into scientific societies, but many developments in science and technology are not easily understood by the general public. The aim of PUS is to therefore inform the public and to communicate more information about research in these fields. An extended term is PAUSTH: Public Awareness and Understanding of Science, Technology and the Humanities.
- **Acceptance of science and technology:** The influence and effects of science and technology on society can not be ignored and the expectations and fears surrounding them must be recognised. It is for this reason that scientific institutions and businesses are increasing their attempts to provide greater transparency of the work that they conduct.
- **Dialogue:** Knowledge becomes the driving force of social development under the basic model of the knowledge society. At the same time, confidence in the science community and its capabilities to foresee, and cope with, the risks of technical modernisation, is diminishing. Science Communication Events can provide opportunities for dialogue between scientists and the public and diffuse tension surrounding issues such as public confidence in science and expectations for the future.

Learning is to be understood as an individual gain of knowledge of social and ethical as well as physical skills and abilities. Two types of learning can be defined as follows (although different definitions of the terms exist):

1. Formal learning may be described as a systematic change of behaviour, through gaining information (knowledge) by observing environmental changes.
2. Informal learning refers to everything which is developed through life experiences, outside of a formal educational framework.

According to D H Livingstone (“Working and Learning in the Information Age”), we learn 70% in an informal and 30% in the formal way. Unfortunately, the majority of people in many countries associate the concept of ‘learning’ only with schools. Learning is considered as something arduous and burdensome. The reason for this is the past neglect of factors, which are essential for successful learning:

1. While learning through a formal education process is signified by strong leadership and agreed teaching methods, an open learning situation is much more liberal – as for example at Science Communication Events. At Science Communication Events opportunities for learning can be more varied, although they are often lack coherence. The question remains, how the acquired knowledge can be rendered useful.
2. The learning atmosphere is relaxed and free of regulations. This allows for the flow of communication and co-operation.
3. The learning time in school education is often defined as, for example, 45-minute lessons. In an informal education environment, the student sets his or her own time parameters.

4. Open learning situations provide more opportunity for individual input which allows the individual to voice more of his or her own ideas. By including the individual in the learning process, one improves their experience of the learning process as a whole.

The subject on offer in an informal learning environment such as a Science Communication Event is not always the main factor that attracts a person to a certain Activity, but more often, it is the Activity itself. An individual taking part in an interactive Activity, for example, may be so focused on completing a set task that they do not realise that they are learning at the same time. Informal learning provides interesting and varied learning environments, and is therefore recommended as a highly effective method of learning. Science Communication Events, which include informal learning Activities, prove to be particularly popular with young people.

However, the different formats of Science Communication Events, obviously offer quite different informal learning experiences. Below are educational Activities most suited to Science Communication Events:

- **Activity oriented learning.** Science Festivals, which offer their visitors the opportunity to participate in activities, are generally very popular and projects, workshops, drop-in stations and so on are very good at engaging visitors. The learning process is also more intensive and long-lasting.
- **Discovery learning.** While in school, knowledge is normally passed from teacher to student, Science Communication Events can provide visitors with more opportunities for self-directed learning, in a less formal setting. The aim of such activities is for the individual to work on his/her own to discover and learn new things.
- **Problem bases learning.** Given a problem, children are given the freedom in the informal situation to frame the problem in their own terms and to discover their own solution and thereby add this learning readily to their view of the world.
- **Integrated learning.** Since J H Pestalozzi, (biography: http://www.heinrich-pestalozzi.de/en/zur_biographie/) who instead of cognitive learning promoted the idea of “learning with brain, heart and hand”, learning methods which stimulate all of the senses have been considered to be very successful. Science Communication Activities should therefore contain as many visual and auditory stimulants as possible and offer opportunities to smell, touch and taste.

Educational activities at Science Communication Events are not generally led by a single ‘teacher’ figure, which means the Activities can be less structured and subsequently, the amount that is learned is limited. This is one of the disadvantages of informal learning activities at Science Communication Events.

One of the main advantages of running educational Activities at Science Communication Events, is that the visitor consciously chooses to take part in these Activities and is therefore generally willing to learn. Also, there is no set time frame dictating how quickly information should be learned, so participants can progress at their own pace.



Target Groups

Many Science Communication Events are aimed at young people, since they tend to make up the greatest proportion of visitors. Science Communication Events are even more effective, when the educational Activities offered are in-line with the teaching curriculum of the school. Teachers often hope that the Activities will supplement their own lessons and that they themselves will learn about different methods for teaching certain subjects.

Additional target groups and the possible outcomes when attending educational Activities at Science Communication Events:

Target group	Specific outcomes
Younger pupils (Primary school)	Entertainment Learning Learning about different professions
Older students (Secondary school)	Furthering their academic education Careers
Teachers	Furthering their academic education Learn new teaching methods
Women	Equality of opportunity in careers
Senior citizens	Entertainment, interest
Scientists	Interest in science communication
Journalists	Objective reporting, identifying interesting Topics
Ethnic minorities	Integration Careers
Disabled	Integration Careers
Families	Entertainment Social event Career guidance Supporting their children
Politicians	Creating acceptance for political decisions Gaining information about scientific Developments gaining evidence to support Decisions about new legislation

Specific teaching and learning strategies are required for each of these groups. An accurate analysis, as to which target group should be addressed, what kind of needs and motivations the target group has and which methods are most effective at reaching a specific group, should be carried out.


All of this is connected to learning processes. Because of this, all Science Communication Events have an educational component, even if the organisers do not intend to create learning situations.


Special target group: Children under 8 years:

The latest research in the fields of psychology and education, indicate that natural science subjects have a significant impact, when taught to younger children. There are various reasons for this:

1. They have made few judgements about science and technology
2. They are interested in a wide variety of subjects
3. They will have not made any career choices
4. The obvious preferential period for absorbing natural science and technology subjects is before adolescence sets in
5. Their natural curiosity has not been stifled by a highly structured educational system

These factors are particularly useful for children aged between 5 and 12. Some of the Events observed decided to run Activities specifically targeted at this age group.

	SCIENCE DAYS FOR CHILDREN
	Rust, Germany
	URL: www.science-days.de/kinder
	Institution: Foerderverein Science und Technologie e.V.
	Contact: Joachim Lerch
	E-mail: j.lerch@t-online.de
<p>The Science Days for Children are targeted at kindergartens and primary schools. There they comprise a total of 28 workshops, which are offered simultaneously, plus several Science Shows. Each group may apply to participate in two workshops and one Science Show. The workshops are conducted by students from secondary schools and staff of universities, teacher education colleges and businesses. To ensure that the Activities run smoothly, an extensive information programme is provided to accompany Activities. Representatives from almost all of the Kindergartens and Primary schools participate. Each child has to pay two euros. In 2005, approximately 2,500 children, accompanied by adults, attended the first Science Day for Children. In 2006, the organisers plan to stage a two day event.</p>	

	BA SCIENCE DISCOVERY DAY
	UK
	URL: www.the-ba.net/the-ba/ResourcesforLearning/ScienceDiscoveryDays/
	Institution: British Association for the Advancement of Science
	Contact: BA Office
	E-mail: help@the-ba.net
<p>BA Science Discovery Days are Science Communication Events for children aged 6 to 13 years old, held around the UK each year and at the BA Festival of Science. They are packed with exciting workshops, fun talks, dynamic demonstrations and hands-on activities, bringing science alive to children, teachers and parents.</p>	

Educational programmes

Four different categories were observed among the numerous Science Communication Events in Europe:

Type 1: A Science Festival primarily targeting school children (Example: Science Days in Rust, Germany).

Science Communication Events aimed at school children and youth groups are generally tightly focused to include Activities that engage this specific audience. Workshops, hands-on Activities, interactive exhibitions and exciting Science Shows are often favoured. All Activities should directly include as many young people as possible.



Didactic Activities such as lectures are acceptable to young people only if they feel they are personally included, e.g. if the topics presented prove to be directly related to their lives, or if they are unusual, or are presented by interesting people (role models like astronauts, TV presenters etc.).

Simplifying the subject content of educational Activities is very important when targeting young people. Children may not possess even a basic knowledge of the scientific subject, so presenting complex information will not be helpful. Instead, the Science Communication Activity should aim to arouse a general interest in science and technology, thus creating a basis and enthusiasm for further study.

Science Communication Events, which primarily target teenagers, must ensure that the Activities on offer are presented by people who have experience of working with this specific target group. It is recommended that participating scientists or engineers receive help and advice from teachers. The inclusion of the students in these types of presentations often also proves to be very effective.

It is advisable to set aside more preparation time for the presentation of topics which are less popular with students. Even complex areas can be made more interesting by including competitions, or quizzes, hands-on experiments etc.

Type 2: A Science Communication Event which includes a separate school programme within a wider public Event. (Example: International Science Festival, Göteborg/Sweden)

Adults are much more interested in lectures and talks than children. It is for this reason, that some European Science Communication Events target adults, with Activities, such as lectures, guided tours, exhibitions, demonstrations or open house, but to also offer programmes for children and young people.

Teachers tend to find separate student programmes very useful especially if the content is relevant to the school's curriculum. Consequently, some of the Science Communication Events issue separate information (programmes, leaflets, etc.) for the school oriented Activities. It is advisable to include details about the age of children that the Activities are appropriate for, the subject and at what level it is being presented.

Type 3: The Science Communication Event is promoted to schools, but the Activities on offer are not appropriate for students.

Almost all topics at Science Communication Events have some relevance to schools. However, although children may find the Activities on offer attractive, they will not necessarily learn a great deal if they are not carefully targeted. Very often, scientist's lectures do not achieve their desired outcome, because they have little experience in presenting to children and have not prepared their lectures to target this group. Therefore, it should be made clear to all presenters which target group the Activity should be directed at. Even if a Science Communication Event does not have a separate school programme, the programme leaflet should still include sufficient information for teachers wishing to attend. It is recommended that an educational expert is available to advise and support presenters where needed.



Type 4: The Science Communication Event does not target schools or include any educational references.

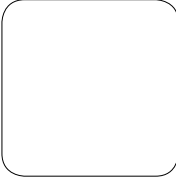
There are some Science Communication Events in Europe, in particular in the UK which run programmes exclusively aimed at an adult audience. Discussions and lectures tend to be at a complex level, which are appropriate only for students in the upper high school years. The educational aspect of these events fall in to the “Lifelong Learning” category.

Young people as presenters


Some European Science Communication Events invite school classes to participate as presenters. They independently prepare and demonstrate their own projects during the event. The inclusion of young people has two objectives:


- By working intensively on a project, students become familiar with a specific topic. and learn to communicate scientific ideas in an appropriate manner. This will strengthen their ideas and practical competence enormously (experimenting, evaluating, presenting, planning, developing, carrying out etc.) and may encourage them to work with science and technology after completing the project. More often than not, the students also receive a boost in confidence through working on projects for Science Communication Events. For the audience, a slightly older person presenting science can provide a very good role model
- Science Communication Event visitors, particularly young people are more willing to communicate with students rather than adults. Some universities take advantages of this by sending students to man stands and represent them at Science Communication Events. This should not replace the presence of scientists, engineers and representatives from various professions as these people facilitate the dialogue between science and society.


The participation of student teachers is also of special significance. During their first period of training they will gain an understanding of the positive impact that an activity-orientated approach can have on young people. Science Communication Events provide valuable experience for both experienced and starting teachers, which they can then go on to use in the future.

	MADRID SCIENCE FESTIVAL
	Madrid, Spain
	URL: www.madrimasd.org/madridporlaciencia
	Institution: Comunidad de Madrid
	Contact: Carlos Magro
	E-mail: carlos.magro@madrid.org
<p>Part of the annual Feria Madrid por la Ciencia is a school programme with approximately 60 schools participating. Following an invitation to bid, they are selected from hundreds of applicants by a jury after having visited the schools. They then assist and advise them during the preparation period. For their preparation of the individual projects, the schools receive a grant from the festival budget. A special incentive for the teachers is the fact that their participation is officially recognised as continuing professional development.</p>	



	STUDENTS AS PRESENTERS AT SCIENCE DAYS
	Rust, Germany
	URL: www.science-days.de
	Institution: Förderverein Science und Technologie e.V.
	Contact: Joachim Lerch E-mail: j.lerch@t-online.de
<p>Up to 10% of the presentations are school projects and the participants come from all types of schools (even primary schools). Schools, having participated at the Science Days on a number of occasions, are beginning to forge relationships with universities and enterprises. In individual cases they even receive a cost contribution for material.</p>	

	DANISH SCIENCE WEEK
	Denmark
	URL: www.naturvidenskabsfestival.dk
	Institution: Danish Science Communication
	Contact: Mikkel Bohm E-mail: mb@formidling.dk
<p>"One-step-down" pupil's presentations are used extensively in the Danish Science Week. For instance, in Tønder, a high school invited 900 elementary school pupils to visit the high school, that was changed into 20+ workshops manned by high school teenagers. University students also visited the Event with a science show and another high school toured the region with a science show that they had developed themselves. A third project involved engineering students building bridges with elementary school pupils. In all these projects, the age difference between presenters and audience was only a few years.</p>	

	SCIENCE DAYS AS A PLACE FOR TEACHER TRAINING
	Rust, Germany
	URL: www.science-days.de
	Institution: Förderverein Science und Technologie e.V.
	Contact: Joachim Lerch E-mail: j.lerch@t-online.de
<p>Some years ago, the State Seminar for Teacher Education in Secondary Schools' decided that participation at Science Days would be compulsory for trainee teachers. Every year, more than 50 seminary student teachers participate.</p>	

Involvement of Science Communication Event participants and quality control

It is not enough to merely invite institutions to Science Communication Events. It is absolutely essential to care for participants during and prior to the Event and use the opportunity to consult with them on project development and to form networks with other institutions.

• **Consulting**

All participants of Science Communication Events should be consulted on educational Activities. It is recommended therefore to establish a consulting circle consisting of scientists and educators. At the very beginning the experience of the Activity's staff can be incorporated into the themes and design of the Activity. Consultation should definitely concern the following aspects: target group orientation, topic, experiments, co-operation with other participants or sponsors, development of learning and playing materials, development of learning processes, design of stands etc.



- ***Selection procedure***

A selection procedure allows the promoters to include high quality educational Activities at Science Communication Events. It is important that the participating institutions are made aware of the selection criteria, before submitting their proposals. The selection criteria may include one of the following:

- Topic
- Scientific level
- Educational concept
- Design
- Costs
- Surface requirement
- Target groups

Furthermore, the participants should be fully aware of the target audience the Science Communication Event is aiming at. Guidelines will also help to strengthen the structure of the festival as a whole. The Science Days in Germany for example have developed the following guidelines:

- Variety of Activities
- High level of visitors' own Activities
- Learning with every sense
- Reduction of complexity in subject matter

- ***Relationship with participants***

It is important to maintain a good relationship with all participants of the Science Communication Event. Offering free meals and drinks during the Activities for example and after the Event sending them a final-CD with photos, films, newspaper articles and evaluations are certainly always welcome and graciously received. It is furthermore recommended to maintain personal contact with the participants inbetween Events.

- ***Support for networking***

After a Science Communication Event has been held several times, additional educational projects often develop between the participants. This can be promoted by defining projects and forming contacts at the early stages of the project. Strong relationships have been achieved at Science Days, for example:

- "Bionik", a project of the University Freiburg together with a grade school,
- "Food", a project of a food producing company with a school,
- "Rain Forest House", a project involving co-operation between WWF, the Europa-Parks, the Forest Zoological Institute of the University of Freiburg with the Secondary School Seminar Freiburg.

Teacher support

The success of a good Science Communication Event for young people does not only depend on the quality of content and good organisation, but also on the thorough preparation of teachers and students. Providing information about the Science Communication Event prior to it taking place, can contribute to the success of the Event. For this there are various approaches:



• **Information material for teachers**

Material is ready for teachers in printed form or on a website

This material could consist of:

- access plans, location plans
- organisation information (ticketing, appointments etc.)
- programmes
- show times
- information regarding teacher telephone numbers
- overview of themes with reference to a teaching plan
- worksheets of individual workshops, shows and demonstrations
- teaching material for preparation or assessment of topics
- background information regarding the festival (intentions, etc.)
- contact addresses of participants
- etc.

• **Information presentation for teachers**


Personal contact is very successful in creating permanent links between teachers and the Science Communication Event. At a prior visit they can ask questions and obtain an impression of the space to be used. In addition, they receive information pertaining to the reservation procedure, ticketing and how to get there. Exhibitors can distribute their material in advance of the visit. Teachers, who have visited earlier Science Communication Events with their classes, can discuss and exchange their experiences.

• **Teacher-info telephone line**

An expensive but very helpful feature for the smooth running of the Science Communication Events is a teacher “hot line”. Questions pertaining to the organisation and content can be asked here.

• **Teacher clubs**

A small number of Science Communication Events offer preferred rights of admission to a teachers’ club. They receive important information in advance and are able to be a relay source for other teachers. They also have preferential treatment when applying for professional development courses, which are offered in various topics in between the Science Communication Events. Contact with schools can be considerably improved by this method.

 Vetenskaps festivalen	TEACHER TRAINING
	Göteborg, Sweden
	URL: www.goteborg.se/vetenskapsfestival
	Institution: Internationella Vetenskapsfestivalen Göteborg
	Contact: Annika Lotzman-Dahl
	E-mail: annika.lotzman.dahl@goteborg.com
<p>The International Science Festival held annually in Gothenburg always includes a considerable amount of professional development for teachers. They are different types and formats (workshop, lecture, debate) and are directed at teachers from Primary Schools up to High Schools.</p>	

8. Science

Magda Fikus Science Festival, Warsaw, Poland

Scientific discoveries are some of the greatest achievements of the human race and the practical applications of scientific research profoundly affect our day-to-day lives and our knowledge about the state of our planet. The way that science is embedded in all our lives was noted during the summary session of the “Science Forum 2005” in Brussels, when the old slogan “Science AND Society” was replaced by a new one “Science IN Society”

When a discussion about any Science Communication Event is undertaken, the most important issues are how, where, when and by whom, science should be promoted. We therefore need to begin by defining what science is.

For the purposes of this guide, we will define “science” as those subjects that are researched and taught at European universities. This allows for differences in language among the Europeans, for example in Germany, where the word “Wissenschaft” translates more readily to “knowledge” in English, rather than to “science”. In Norway, the Science Week is called “Research Week” which incorporates additional subjects to those often classed as science subjects. In our case, astronomy is science and astrology is not. However, contrary to some traditional understanding, we will also consider sociology, psychology and history as sciences. It is a matter of convention whether a “Science Communication Event” should include the Arts in a pure form. Presenting them as subjects of scientific description and investigation, as well as artistic presentations of scientific research and researchers (e.g. Michael Frayn’s “Copenhagen”, a well-known play about physicists in the 20th century) is well accepted. The promotion of scientific culture is often included in Science Communication Activities.

Why science and technology should be promoted has been under discussion for some time. At each of the Science Communication Events visited the overall objective is expressed in different words, but essentially they mean the same thing. Science Communication Events are established with the aim of achieving one, or more of the following:

- To bring science and technology and their implications closer to the public, and arouse their curiosity and to promote discussions and understanding of what science, engineering and technology can and cannot achieve.
- To introduce the basic concepts of scientific methods and methodology.
- To help in shaping people’s perspectives on the direction of further development.
- To bring together scientists and the public for active discussions, debates, and various new forms of dialogue, with the aim of reaching a better understanding of the most important issues affecting today’s society. A very important point is to clearly demonstrate how scientific research, from basic, even “abstract” studies to the applications of science and technology, influences and affects people’s everyday lives.

8.1

General overview



Copenhagen, Michael Frayn's play about Bohr and Heisenberg was shown at the International Science Festival Göteborg, Sweden



- To encourage young people to choose a career in science .
- To offer to the public a learning platform which will meet their interests in science and at the same time motivate them to want to find out more. This learning platform promotes strong motivation by fuelling an existing interest in science. It increases understanding and comprehension of science, which in turn may be the starting point for further learning .
- To show the extent to which science is an integral part of human culture and civilization.
- To promote the knowledge of science, technology and cultural developments in a given country/region by bringing together their various scientific and cultural institutions.
- To open up new avenues for European collaboration in science, technology and culture and take part in their development. The introduction of a European dimension and the integration of science on a global scale. This is achieved through the exchange of programmes and Activities, with a particular emphasis on international scientific cooperation.
- To consider and point to the possible dangers which may result from improper use of science and the responsibility the scientific community and society must undertake to control them.
- And last but not least, to communicate a different image of science to the people, that science can be interesting entertaining and fun!

Some of these objectives are also specifically mentioned as a priority in the process of creating the European Research Area:

“Scientific and technological culture, young people, science education and careers” aim to increase public awareness of scientific and technological advances and their societal impacts, to increase dialogue between citizens and the scientific community, to develop a wider understanding of scientific and innovation culture, to promote young people’s interest in science, and to improve science education and the uptake of scientific careers. (www.cordis.lu)

Scientific fields are classified or categorised very differently by the UNESCO, by the EU, by government statistics agencies and other standardizing bodies. This makes any international survey of the effect on the public, the percentage of Activities in each scientific field performed at Events and the interest of the audience very complicated.

For example, in the Netherlands, a 2004 survey showed the following result for the interest in general scientific fields (percentage of “very interesting”):

Diseases and Health:	60%
Human Customs:	58%
Human Body:	55%
Nature:	50%
Animals:	40%
Society:	35%
Social Welfare and Culture:	33%
Creation of Matter:	30%
Astronomy:	27%



By comparison, the 223 Activities of the 2004 Science Week in Ireland were classified as follows:

Anthropology:	2%
Mathematics:	2%
Chemistry explicitly:	3%
Geology:	3%
Medicine, some mixed with bio:	3%
Information about jobs:	4%
Astronomy:	8%
Physics explicitly:	16%
Biology & biotech & environment:	21%
Other sciences:	40%

The ScienceWeek @ Austria grouped differently again with Activities covering the following fields (which were set up according to the categories of the Austria Public Television website <http://science.orf.at>):

Chemistry, Physics, and Mathematics:	30 %
Culture and Education:	20%
Cosmos and Earth:	12%
Medicine and Health:	11%
Life and Nature:	10%
Society, Economy and Politics:	7%
Technology and Computers:	6%
Ecology and Climate:	5%

When visiting various Science Communication Events today, one can observe a strong public interest in the areas of astronomy, biotechnology, genetics, medicine, physics, nanotechnology, environmental sciences, geology, field-biology, history etc. Indeed, it is hard to find fields of research that are not popular in certain parts of the general public. There is currently no national or European wide survey which shows the fields of science which are more or less attractive to the audience of a Science Communication Event. To some extent, the popularity of the science depends on the quality of communication, which further depends on the teaching methods used in schools and the quality of the research in the same field, in a given country.

When Science Communication Event organisers want to promote certain branches of science, it would be advisable to search for interesting examples to promote this research, such as the following:

- Archaeology – creation of a mock excavation site with artefacts that can be found and analysed (Crewe, UK, Vienna, Austria)
- Chemistry – show the role that chemistry plays in everyday life (Science Festival in Warsaw, Poland, Science Day in Crewe, UK, Science Week, Austria, Science Festival in Genova, Italy)
- Philosophy – a “philosophical labyrinth” – searching for spokesmen for various philosophers in cafés situated along the most lively street in Warsaw



- History - guided tours through old parts of the city, or sites of special interest (last war history in Warsaw, buildings famous from history of science, Paris, old excavations and walls in Newcastle, UK, geology and history walks through the city of Salzburg, Austria).

Science is communicated at universities, schools, museums, companies, libraries, educational organisations, research institutes, city markets, and various city spaces (supermarkets, gas stations, metro stations), outside city walls, at the beach and even on the top of a volcano! (see chapter 6 Venues)

8.2

Different models of venues and their analysis

Possible basic, primary models for the scientific content of a given Science Communication Event may be considered:

1. Science Communication Event communicating the most recent progress in science and technology
2. Science Communication Event with a “teaching” objective, presenting basic knowledge as a starting step to sophisticated research
3. Science Communication Event showing science “for fun”, in forms of shows, contests, presentations
4. Science Communication Event showing science on an academic level, mostly by lectures, debates, laboratory practice and workshops
5. Science Communication Event showing science as an integral part of culture, including humanities and arts as substantial part of the program.

In practice, however, most of the Science Communication Events visited for this project have chosen a combination of the above models (Fête de la Science in France, Science Festival in Genova, BA British Association for the Advancement of Science initiatives).

Science Week in Ireland and Science Days in Freiburg are predominantly based on the model 2, with a “teaching” objective. The Science Festival in Madrid is closer to model 3, the “for fun”, model. Where there are two Science Communication Events during the year, it is advisable to adopt different model for each Science Communication Event. In Warsaw the “Science Picnic” in late spring is based on the “for fun” model (3) and the “Science Festival” in early fall shows science both at an academic level (4) and as a part of culture (5). The BA Festival of Science started out as the “academic level”, but is gradually being changed to conform to a combination of model.

When the main target audience of the Event is the ‘general public’ (an undefined audience), the mixed model is recommended. It may lack a central theme, but if faced with a situation where the future number of presenters and organisations may be limited, this model could be the best option.

Taking a diverse approach to the selection of science themes for new Events will allow organisers in future to pick the most successful Activities from previous years. Choosing a single model requires more organisation. It also limits the size of the Event. However, some of the Science Communication Events observed had been organised around a main topic e.g. “Sustainable science” in Manchester, UK, “Love” in Göteborg, or “Discoveries and Innovations” at Danish Science Week. This main theme might influence the selection of scientific fields, but also influence how different fields are presented to the public.



Science communicators are constantly searching for new forms of science and technology communication, which are not typically included in the programmes of Science Communication Events such as the ones visited by EUSCE/X team. Their creative efforts have resulted in Events such as Science in the Summer (Portugal), Green Action (Poland), Science Forum for Children, Parliament of Students (Germany), Science Days for Kids in Rust/Freiburg (Germany), Science Cafes (UK, France, Denmark, Switzerland, Poland), mobile buses (Belgium, Luxemburg, UK), “stand-up scientists” in Norwegian pubs and the river boat (Stuttgart).

Exceptionally interesting “Physics Shows” are now part of all Science Communication Events. In Denmark there is even a new group (<http://www.europhysicsfun.org>) coordinating these shows internationally, which are being presented during the Science Festivals in Warsaw and in Wrocław and during the Science Week in Austria.

Finally, it is again important to consider the idea of the interaction of natural sciences with humanities and arts. It should be taken into account and discussed, the possible methods for presenting these issues. This was an issue that was raised during the closing meeting at the Science Forum 2005 in Brussels. Interesting initiatives in this area were proposed in Austria, Stuttgart, Wrocław, during the Danish Science Week and the Science Festival in Warsaw. The main objective of these initiatives is to communicate the importance of accepting science as an important part of human culture. When organising particular artistic activities as part of a Science Communication Event, their scientific context should be highlighted e.g. in science theatre, through analysis of music, paintings, literature, etc. There is a potential difficulty if this is not done as Events may move away from being Science Communication – the Arts world has a historical connection with the public already.

More and more, science is playing an integral part in the network of social bonds that exist between basic research, technological developments, industry, banks, international firms, media, and last but not least, the political system. Thus, science should not be separated from this network or from the issues of importance in a given country or continent.

The most important feature of all initiatives in the field of science popularization should be to encourage *dialogue*. This is something that is not always easy to do and many ideas have been proposed in the past of the best way of achieving this.

In today’s society, new methods of communication between scientists and the public are needed. Traditional methods of information exchange and sharing knowledge must be replaced by new communication services, such as the internet, which are able to include a larger number of people. However, it is hard to predict how useful services like the internet will be at propagating science in the future.

The Science Centre network, providing a facility throughout the year, is able to offer activities outside of the Science Communication Event. In the most successful cases Science Centres work with Science Communication Events, for example the Science Centres in Belgium (Technopolis), Portugal (Sciencia Viva), Catalonia (Spain, Barcelona) UK (Newcastle, London, Edinburgh).

8.3 Best practices and outstanding ideas

8.4 Summary



While taking into account these general suggestions, the ways, forms and methods of promoting science should be interpreted in accordance with the science policy of a given country. The most important factors affecting these decisions will be the level of GNP and the financing of science (as a percentage of GNP) in a given country. Taking these factors into account, a special slogan was developed for the Science Festival in Warsaw:

“Lack of investment in science, is investment in ignorance”

It is also important to highlight the fact that all over Europe young people are losing their interest in pursuing science careers. The reasons for this differ geographically across Europe (in Poland, for instance, the salary of a young researcher is insufficient to support a family). The political position of science thus has a bearing on the success of science communication events. The differences can be seen from some examples:

In the UK recent government spending plans have invested heavily in science, indicating that they see science playing an essential role in the future.

In Poland, starting from the time of the political transition in 1989, research financing, expressed as percentage of GNP, steadily decreased. There is a hope that in 2006 this will be reversed.

9. Presenters and presenters' institutions

Annette Smith National Science Week & The BA Festival of Science, UK

The presenters at Science Communication Events are crucial to the success of these projects. They are the interface between the subject matter and the audience or they are the facilitators of a discussion. Because of the way that most of the Science Communication Events we observed have grown up, there is often too little emphasis on the ability of presenters to communicate their message. Too often, we find that scientists with insufficient training are plunged into Science Communication Events resulting in a less than perfect experience for them, and for the audience. This is particularly unfortunate as one of the key elements of the Science Communication Events described in this book is the direct contact which they provide between real working scientists and the audiences. This feature is one of the distinguishing elements of Science Communication Events. In many cases, however, natural talent is discovered and nurtured and the experience is rewarding for all. This chapter aims to collect some of the excellent practices we have observed in visiting Science Communication Events across Europe to help our colleagues in finding and developing effective, engaging presenters.

The nature of the different Activities demands a variety of qualities in the presenter. For example, a talk on a scientific subject of great interest to an adult audience needs a presenter with very different qualities to a hands-on Activity for young people, and a science café requires a facilitator with further different abilities. The following table outlines some of the formats of Activities and some qualities one would look for in a presenter (see next page).

9.1 General overview

Types of presenters



Activity	Presenter qualities
Talk for an adult audience	<ul style="list-style-type: none"> • Engaging speaker • In-depth knowledge of the subject • Able to answer questions succinctly • A sense of humour
Hands – on activity for young people	<ul style="list-style-type: none"> • Able to explain briefly and clearly the purpose and background to the activity • Pleasant, relaxed manner with young people • Practically skilled at performing the Activity • Able to answer questions about the subject matter • Creative with unexpected situations
Science theatre show performer	<ul style="list-style-type: none"> • Skilled, convincing performer with good stagecraft • Knowledgeable about the subject matter • Able to engage the audience
Experiment demonstrator	<ul style="list-style-type: none"> • Skilled at performing the experiments • Able to engage the audience at the same time
Facilitated discussion (eg Science Café)	<ul style="list-style-type: none"> • Prepared to be the "voice of the audience" • Quick to pick up audience members who wish to speak • Skilled in keeping comments and points brief and to the point – even with VIP speakers and talkative members of the audience • Skilled at injecting pace into the discussion
Poster exhibition	<ul style="list-style-type: none"> • Prepared to engage with the visitors • Helpful and courteous

Because of the nature of many Science Communication Events, presenters have been drawn from a variety of sources, and sometimes the requirement to be knowledgeable about the subject matter means that less emphasis has been placed on the need to communicate effectively. The choice of presenters has sometimes been less selective than might be wished for.

9.2

Different models for presenters and analysis

The following recommendations for good practice were extracted from the visits to Events and from the experience of the team:

1. Give presenters experience in presenting

Often research students and lecturers are recruited – but it seems that when they have had even a little experience of presenting Science Communication Activities, their abilities increase markedly. (Austria, Stuttgart)

2. Give presenters feedback in a “dry run” situation

Where presenters are “learning” it is important for them to receive some feedback in order to be able to improve. They can be asked to give their presentation in front of the organiser and a few others and constructive criticism is then offered. This can be configured as a “self-help group” for a number of presenters, and can be enhanced by filming or audio recording the presentation.

3. Don't be afraid to “audition” presenters

If you are selecting from a number of possible presenters, and especially if you are paying for a presenter's services, auditioning or making sure that you see a presenter in action before you hire them can be very helpful. (Edinburgh Science Festival)

4. Produce “presenting tips”

Many organisers feel inhibited by the idea of instructing distinguished scientists in presentation skills, however, the organiser is the expert in running an event. A set of notes and tips may be more appropriate for some people. An example of some presenting tips used at the BA Festival of Science in the UK is shown below. Also, as happens in Austria, pre-Event conferences for the presenters can improve their skills.

5. Use presenters who will connect with the audience

There are no hard and fast rules for this. Professor Stephen Hawking connects with an audience brilliantly using an electronic voice and no body movement at all, and any experienced Science Communication Event organiser will have encountered many similar examples. Note that young people relate well to other young people, and students are closest in age to children. One of the most exciting and dynamic science festivals in the visit programme used children from the age of around 5 as presenters, and this was particularly effective in attracting a young audience. (Madrid Science Festival) Visitors will look around for “someone like me” at an Activity, and will be happier and more relaxed as soon as they realise that they are not alone.

6. Communication courses

Some Science Communication Event organisers offer communication courses to presenters. They can include written and oral techniques and last for a few hours or a few days. Experience shows that these courses must be tailored carefully and sensitively to the presenter’s own requirements and experience. (Genoa Science Festival, International Science Festival Göteborg and others)

7. Share experience

Ask fellow organisers for recommendations, and share your information with others. This is particularly useful when looking for facilitators of discussion Activities, who may come from the worlds of broadcasting or print journalism.

8. Make sure that presenters are aware of any legal requirements

It is up to the Event organiser to make sure that there is a strategy in place to ensure compliance with all relevant legislation as it applies to presenters. Risk assessments may be required, or child protection legislation which requires a criminal record search or there may be issues of intellectual property rights and insurance. Presenters should also be aware of people in the audience with special needs such as mobility and hearing difficulties.

9. Offer educational advice

Presenters who are new to creating Activities for school-aged children may need advice about the current science curriculum in schools – be prepared to help them with this and to put them in touch with experts if needed. The chapter on “education” in this book will help with the principles of informal education.

10. Consider how presenters might learn from each other

If presenters have the opportunity to see the reaction to other presenters, or to network and swap experiences, they have an opportunity to learn from each other.



Rewarding presenters In the vast majority of cases observed for this project, presenters are not paid for their time. This is something of an anomaly as they are so central to the success of the Event. They take part in the Events because they have been encouraged to do so or their research funding includes a requirement to involve the public, including young people, in the work that they do. Most often, presenters are reimbursed for their travel and subsistence costs. In spite of this lack of financial reward, it is important to recognise the value of presenters in some way, and organisers should build this into their planning. Most organisers will write to thank volunteer presenters, others will thank their institutions – some may issue certificates if appropriate.

There is, however, a growing resource of professional science presenters. Using these as presenters for a Science Communication Event gives the organiser some control over quality, but can lose the freshness that a volunteer brings. The use of professionals is obviously a budget-based decision and negotiation may be helpful, while realising that a professional may have no other source of income.

9.3

Best practices and outstanding ideas

During the visits to European Science Communication Events, a number of different examples of good practice were encountered for the selection of presenters. The richest sources of presenters in general were the universities and research institutions. The following are some of the practices used and observed:

- In Austria the presenters were drawn from universities, companies and schools and also included 41 of Austria's most illustrious scientists
- Also in Austria, many of the institutions had experience in doing popular hands-on Activities, so the presentations were of a high standard and very interactive
- In Stuttgart, the lack of experience showed as many displays were overly scientific and too detailed
- Also in Stuttgart, however, the experienced presenters found the right tone to communicate effectively with visitors, and the visitors especially appreciated additional personal explanation of the exhibits from the exhibition guides.
- Thirty Catalan researchers visited thirty schools to talk about their research and also their personal experiences. They had a practical and approachable attitude which was very successful with the young people.
- For Edinburgh Science Festival, the presenters are selected by interview and audition leading to very high quality science shows and hands on Activities in the main section of the Festival.
- The quality of presentation was found to be significantly lower in Edinburgh among less experienced presenters
- A rich source of presenters in Edinburgh was found among writers of popular science books who combined the Activity with an opportunity to promote their latest book.
- In Portugal, school pupils do research projects alongside real researchers, so there is a close relationship with the presenters
- In Madrid the children become the presenters. Young people from the age of five upwards run the hands-on Activities in booths for the general public.

- In Wrocław, ministers of religion (professional communicators!) take part in the science festival
- In the UK professional broadcasters and journalists facilitate discussion and “in conversation with” type events
- In Sweden, the presenters were offered a free two-day workshop, developed at Stanford University, where their communicating skills were trained.
- In Denmark, staff from the children’s library run and present events
- In Denmark and in the UK talks for schools are “franchised” during Science Week. Schools are given a programme of speakers to choose from – this allows the organiser to check carefully the ability of the presenter before offering them on the programme.
- In Poland a well-known TV producer takes part in informal training sessions for presenters.
- In Germany TV journalists run hands-on Activities and science shows
- At several Events there are presenters from other fields, such as firemen, policemen, stonemasons, medical doctors and other health workers

We have seen a great variety of presenters while engaged on this project, from many types of institution. None come with a guarantee that they will be successful in conveying their message and engaging their audience. Some conclusions and recommendations can be drawn, however, which could be helpful to those who plan to run Science Communication Events:

- When looking for presenters, think first of the audience. Children and young people respond well to young researchers who can communicate with them and are familiar with their world.
- Experience is very valuable – many times in compiling this chapter the writer has found examples of presenters who have been involved over a couple of years then becoming expert. So to complement a training session, some hands-on experience is very valuable – introduce a few new presenters each year to “increase the stock”
- Just because a scientist is well known and distinguished doesn’t mean that he or she is a good communicator. Make sure that any scientist presenter speaks for a maximum of 30 minutes and is prepared to answer questions. Ask to see Powerpoint presentations in advance of the Activity and be sure that these are of suitable quality and not too numerous.
- Don’t be afraid to audition presenters. If using professionals, ask to see a presentation before you book them for your Activity.
- Provide guidance and training. In addition to communication skills, make sure that presenters are familiar with the place where they are going to operate and with the location of equipment, audio visual equipment etc. Sufficient background information will allow them to relax and perform well.
- Don’t forget that some of the very best presenters get very nervous and apprehensive before an event. Help them to relax and make sure that they are well looked after, with plentiful tea and coffee. Hold any drinks reception after the presentation.

9.4 Summary



- Pay great attention to safety and security. Make sure that presenters are police checked if they are to be in contact with children and that they give full risk assessments for their Activities. Do not use anyone who will not agree readily to these procedures.
- Use non-scientists as science show actors (Ireland, UK)
- Encourage the participation of many local initiatives with a non-scientific background (light houses in Portugal, fire departments in France and Warsaw, police investigations of crime acts in Wrocław and Warsaw) etc.
- Invite presentations on scientific achievements for the conservation of artifacts (Genova, Wrocław, Warsaw, France, UK),
- Invite experts in the Arts (music, dance, paintings, sculptures, photography) and the history of arts (Vienna, Warsaw, Wrocław).
- Encourage patrons and sponsors to present their own activities (Genova, Warsaw, Göteborg)



10. Funding

Peter Rebernik ScienceWeek @ Austria

10.1 General overview

The quality of the organisation of any Science Communication Event depends on the objectives set for the Event and the budget available to run the Event; it is essential that the budget is sufficient to achieve the objectives.

The amount of money needed to organise a Science Communication Event varies greatly, and depends upon:

- **Size of staff and the office costs.** The number of employees including part-time employees, determines a large proportion of the budget. Office costs such as rent for office space, heating, lights, cleaning, communication, copying, postage etc. should be calculated accurately.
- **Geographical reach of the proposed event** (national, regional or local)
- **Cost and complexity of the proposed marketing campaign** (advertising in newspapers in electronic media, special marketing ideas such as workshops for journalists or taxi drivers, promotional activities such as science clowns in the cities, colourful programmes with large print runs)
- **The contribution of partners** (such as universities, perhaps paying for their own Activities; government institutions assisting with the organisation; participating museums using their own space, marketing and personnel)
- **Free-of-charge or in-kind services or goods** (such as free advertising space, offices, transport and postage, volunteer helpers)
- **Funding which is raised for special Activities or venues** (such as open air science shows or a science play with paid performers, or renting a large exhibition hall or a stadium, inviting Nobel Prize winners or holding expensive dinners with VIPs)
- **Added value for the Science Communication Event** (such as training and paying students as explainers at every activity, training workshops on demonstration skills for presenters – or organising pre- and post- event conferences for all participants – or awarding special prizes for the best presentations or for visitors).

The main advice compiled from the analysis of the Science Communication Events visited was: Recruit as many influential partners as possible so that you can obtain as much in-kind provision of services and goods as you can, especially for marketing; try to recruit personnel from volunteer projects or similar programmes; ask for free office space from sponsors or government institutions; investigate exemption from as many taxes as possible (including for your sponsors) – and report in detail to your stakeholders on how efficiently and effectively you manage the budget.



For the financing of a successful Science Communication Event the following questions must be answered:

1. What is the total budget needed for the Event?
2. Where will the money come from?
3. Should the income support more than just the next Event?

What is the total budget needed? The size of the budget varies greatly between the Events visited – from € 4,500 to more than € 3,000,000 – and the figures are not always clear. Sometimes, the institutions involved organise many other Science Communication Events (and therefore have no data on the cost of the Science Communication Event alone), some do not have the exact costs of the Event in their book-keeping, other institutions have personnel and office space for free, and many do not include the value of free-of-charge services or goods in their budgets.

The main items for which the budget of a Science Communication Event will be used, are:

- People: personnel, management board, advisors, helpers etc.
- Activity costs: hire of venues, cleaning, travelling etc.
- Marketing: advertising, brochures, promotion campaigns, posters, CDs, website etc.
- Office costs: rent and heating, IT, telephone, postage etc.
- Budget for participants: assisting with activities, materials, awards etc.
- Evaluation costs: preparation, surveys, report, presentation, contractors etc.
- Miscellaneous costs: royalties, preparatory conferences, taxes, fees, insurance

The largest part of the budget is taken up with personnel and marketing costs – and for special initiatives for achieving specific objectives.

Where does the money come from? There are of course numerous sources for funding the Science Communication Event or providing free-of-charge services or goods. In most of the cases observed, the funds and assistance come from:

- Government (national, regional or local)
- Government institutions (such as universities) or agencies
- Public or semi-public enterprises such as public transport (e.g. advertising in the metro stations), airlines (free transport of VIP presenters)
- Trans-national agencies such as the European Commission or European scientific institutions (e.g. CERN, ESA)
- Companies as sponsors (money or in-kind goods or services such as SMS services)
- Public or private foundations or trusts, e.g. in the field of culture, education or science and technology
- Associations such as the association of physics teachers or national academy of scientists

Each source of funding requires a different approach. In some countries there are agencies which specialize in raising funds and sponsorship.



There is also a different strategy for each type of organisation putting on a Science Communication Event. If the organisation is a government institution it may be restricted and not allowed to seek sponsorship, whereas a charity is able to do this. Private companies are subject to changing budgets as they are connected more loosely to funding agencies.

A major problem for nearly all of the Science Communication Events observed is the maintenance of a secure budget to last longer than just for the next Event. Therefore, if long-term planning of the marketing budget or for the securing of partners is not in place, there might be a problem with the onward budgeting.

Is there long-range planning of the budget for more than just the current/next Event?

The following models were identified or could be seen during the EUSCE/X project, mostly dependant on the ownership of the Science Communication Event organisation (government institutions are almost solely by government, private enterprises or agencies are more often funded from private sources):

- Funding only by government (city, region or national)
- Funding mainly by government (sometimes city and regional/national government together) with a few other sources (the other sources are usually one or two major companies or agencies)
- Funding by an equal mixture of government and other sources
- Funding almost completely by non-government sources (“private” Events)
- Changing structures – some organisations change their funding sources from one pattern to another, sometimes suddenly, sometimes gradually.

Organisations whose funding comes mostly from government tend to enjoy larger budgets with better stability, although when changes in government take place, sudden re-organisation or strategic changes can take place, which can be enough to stop all activities.

Local government, for example of regions or cities, is often proud to support their science communication facilities and their Science Communication Events – often more so than national government.

The support of (local, regional or national) government might act to lever the support of government-related institutions such as schools and universities.

Even government funded organisations are increasingly encouraged to try to source funding outside of government. Some of the government controlled organisations (such as research councils) are not allowed to raise external funding, mostly because they have to be unbiased and free from any pressure from sponsors.

That said, most sponsors do not use any pressure to affect the subjects or presentations, but rather want to be presented as part of the scientific community or part of a communication process with the public.

Special efforts are made to attract companies as sponsors. The following strategies are found to be effective, always considering that free services (e.g. transport, web space) or goods (e.g. computers) are always welcomed, in addition to funds.

10.2 Different models of financing and their analysis



- Person-to-person talks: the head of the Science Communication Event organisation (or the head of the board or the minister responsible) knows the head or the marketing head of the company personally; this personal method seems to bring the greatest success in securing funds.
- Categories of sponsorship: several categories are defined, for example from “contributor” to “premium partner” with increasing packages of funds and associated increasing benefits for the sponsor.
- Participation of sponsors: the sponsors take an active part during the Event, for example providing scientific content (not just their products) and personnel or the sponsor’s CEO takes part in special events such as “Dinner with the Royals” or press conferences at the opening.
- Special events to attract sponsors: these events could be conferences or dinners (networking events) or workshops for the personnel of the companies, e.g. instruction on how to present their scientific contents, how to lobby governmental institutions, how to reach children or other target groups – or simply how to participate in the Event more effectively.
- Sponsors as partners: If the Science Communication Event organisation allows, highly valued sponsors can become active partners, participating in the advisory board of the organisation, assisting in marketing, involved in the scientific educational programme e.g. for young people, providing their products and also contributing money – or financing special Activities.
- Presentation material: It is sometimes difficult to explain what a Science Communication Event is without the help of pictures, even better with (short) videos, made at the previous SCE. This material should be created professionally, show the complete engagement of the visitors and presenters, the wonderful atmosphere, some photogenic “tricks”, the broad range of Activities and also pictures of VIPs such as ministers, CEOs of interested companies, movie or pop stars taking part in the Event.

As mentioned previously it appears to be very valuable to report to all of the stakeholders on the efficient and effective management of the budget, and on the objectives achieved. The main difference in the total amount of budget available for the various Events seems to be driven by the following:

- High or low GNP (Gross National Product); it seems obvious that countries like Lithuania or Poland have smaller budgets for their SCEs than Switzerland, Norway or the United Kingdom. On the other hand, there are differences in the percentage (and amounts) of the government budgets dedicated to R&D.
- Special European event; the occurrence of the European Capital of Culture (Genoa in 2004) can be used to increase funds beyond normal budgets for that city.
- Combination of stakeholders; it seems that an association of stakeholders (research institutes, companies, government agencies) can increase the budget, but only if these stakeholders can have some control of the organisation.

Surprisingly, the amount in the budget rarely increases with time or with the quality of performance.



The budgets for most of the Event organisations barely increase with the rate of inflation, regardless of their success in achieving their objectives. Since some governments tend to be more reluctant to spend money than others, efforts to raise sponsorship money seems in most cases the only way to increase the budget – the other way being to look for further interested stakeholders. It is very important to negotiate for an increase in the budget with the arguments of increasing quality, increasing achievements of the aims and increase in inflation.

Following further consideration of the different levels of budgets observed, these factors became evident:

Geographical reach

There is no obvious correlation between the budgets of national, regional or local Science Communication Events. Some of the Events based in one city have the largest budgets. It clearly depends on the marketing plan. It seems that local Events tend to put a lot of marketing effort across the city, trying to reach the whole population, whereas national Events do not attempt to market to the whole nation – they may leave the responsibility of marketing locally to the participants in the regions; hence they do not need a proportionally higher budget.

Ambitiousness of the marketing plan

This is one of the main reasons for the difference in budget size. Efforts to inform large parts of the population in advance by advertising in newspapers, with large posters on billboards, banners across the streets, and on radio and television can be very costly. The budgets for advertising in the “old” EU member states range from € 100,000 to one million Euros. The Science Communication Events in the “new” EU member states try on the whole to obtain free coverage in the media (unfortunately this is seldom in advance, so it cannot attract an audience to the Event) and rarely advertise. Very few organisations include monitoring the effect of the marketing campaign in their evaluation. Nevertheless, it seems that, due to the different marketing plans, in many cases local Events can get better public recognition than a national Event. Some of the Events also benefit from their long tradition – “either a lot of marketing effort once or small marketing efforts for a long time”.

The main principle should be that the marketing effort matches the marketing objectives. If there is an objective to reach a high percentage of the total population, the marketing effort must be very high. If only a certain target group is to be informed, for example a group which is easily defined and reached such as students, kindergarten teachers, taxi drivers or doctors, the budget for marketing can be much lower.

A combination of strategies is to be recommended: comprising definition of a small target group, which can be reached easily (and cheaply), such as students or pupils of certain school types and ages – with a separate strategy for the more general audience such as families with small children or office workers of private companies. The methods for reaching a large percentage of the first, main target group will rely on their own institution’s communication systems – which will be cheap and easy to use. The objectives for the main audience must be lower, for example to reach 5%. This objective can be met using appropriate media or partners.



Participants

The budget also depends on the participants involved (universities, schools, government or research institutions, museums, companies, even social institutions etc.) in the Event. In most cases, the presenters from these participants work and present for free and do not charge for using venues (museum or university spaces). Most of these participants also organise their own marketing.

If the Event organisation has to pay for the participants, e.g. for the materials for each Activity from the schools or universities, the budget increases considerably. Usually, some Science Communication Event organisations pay several hundred to one thousand Euros per participant. For several hundred participants, the amount might reach an additional € 100,000 or more.

In this case, the Science Communication Event organisation can impose more control on the content of the presentations using the principle “Money for quality” if it supports the participants with funds.

Sometimes, the participants do not receive any money, but receive considerable amounts of marketing material, ranging from simple posters and programmes to give-aways such as pens with logos and even sweaters, T-shirts and banners. This is recommended, if the budget allows for it, because then a common branding is achieved, with the advantage of better marketing (the public will remember it more easily) and a feeling of a “common cause” among the presenters.

In some cases, the participants who receive no funding forget to use the common branding. However, participants who feel free of central guidance, can sometimes be more creative in their marketing and presentation ideas.

In any case, one recommendation is to set up a “Participants Club”. This “club” can be used to pass information to the participants, to get structured feedback, to say “thank-you” and to have some kind of control, over their planning and organisation.

Most presenters participate in Events for free. However, within the world of science there are famous personalities, well known people, often authors or media stars who have something to contribute to the Event. As such Activities are part of their job, they naturally charge a fee for to attend. An Event may benefit greatly from hiring some of these professional science presenters; media coverage may increase and thus the profile of the Event in the eyes of sponsors and partners.

However, these funds must be found. Several of the Events reported success in co-operation with the British Council (and similar organisations from other countries), who have generously supported a number of British researchers participating in Events in other countries.

Finally, as noted earlier free-of-charge or in-kind services or goods can cut down costs – and many sponsors would rather provide goods or services than cash. The Event organisation can save up to hundreds of thousands of Euros when such goods or services are acquired in large amounts.

Funding of special Activities or venues

Some Events are concentrated in one city and in a single venue such as a large exhibition hall – and this might be costly, if not sponsored, perhaps up to € 10,000. Cleaning and preparation must also be accounted for.

Some Events use groups of tents in public places in the middle of the city. The cost for renting these tents can also reach tens of thousands of Euros – and the



cost of electricity, garbage cans and toilets etc must to be accounted for. Some Science Communication Event organisers use event management companies to organise these venues.

The use of a public open-air arena could also be costly at € 20,000 or more. Special Activities such as conferences and dinners with VIPs - maybe Nobel Prize laureates can be expensive, depending on the arrangements for the dinner – and the cost of inviting the VIPs, may include their travel and accommodation.

Development strategies

Many Science Communication Event organisations have strategies to enhance the quality of their Events or to reach the right target audience better – with resulting effects on the budget.

Among these ideas are pre-Event workshops to assist in improving the quality of the presentations. Also post-Event conferences can bring the participants together again to evaluate the Activities for improvement the next time. The cost of these Events depends largely on the support given to the participants such as travel costs, information material, special dinners etc. These costs are rarely sponsored.

The cost of special awards for “Best Presenter” or “Best Visitor” have to be included in the budget.

One of the strategies encountered was the training and organisation of “explainers”, who were present at each Activity, assisting the visitors to understand the science of the Activity. If training and “explaining” working hours are paid, this can amount to several hundred thousand Euros. Sometimes, these costs can be covered by agencies or institutions dealing with unemployment.

Good practice was demonstrated by all of the Science Communication Event organisations where the budget and the objectives of the project matched.

Even the smallest Events such as the one in Lithuania could reach their objectives with the given budget of a few thousand Euros by not being over-ambitious and creating a friendly, inclusive Event. Of course, if the event is successful, the objectives become more ambitious – and the budget has to increase.

Other SCE organisations have much more expansive objectives – and need more money.

Good practice also occurs when the funders feel that their money is spent wisely, efficiently and effectively – and receive a report on the whole project describing this.

It is good practice – and very necessary – to have a good accounting system so that of the costs of organising the Event are known. Some of the organisations observed were not able to give details on the budget, because the costs for the Event were merged with the other activities of the institution. This is unacceptable for a modern business and undermines good planning and the effective use of the budget.

It is also good practice, for the Event organisation to have more than one or two sources of funding. It is also recommended that there is a mixture of financial sources including government and private funding, from “big spenders” to many small helpful friends (perhaps creating a support association to engage

10.3 Best practices and outstanding ideas



the “friends” of the Event). This mixture can help particularly when budgets are endangered because of changes in government. The remaining funding partners might help to persuade the new government to keep funding a good project.

Good practice for minimizing the budget but increasing effectiveness is to recruit good marketing or advertising partners. In many cases, newspapers and radio stations are willing to cooperate and advertise the Event. Sometimes, the organiser will have to guarantee some exclusivity to a media partner.

Another good practice is to appoint staff to be responsible for certain parts of the budget, especially if there is more than one venue and city for the Event. These people can be trained together in the background to the budget and can help with the efficiency of budget management.

Good practice would be to have long-term contracts with funders (government or private sponsors) as happens in Edinburgh (mostly 3 year contracts). The Event organisation should put considerable effort into negotiating such contracts in order to be able to concentrate more on the quality of the Science Communication Event instead of constantly fundraising.

Some of the outstanding ideas with a significant effect on the budget – listed in no particular order, because the effect depends on the total structure of the Event:

- **Forward Planning:** Very few Science Communication Event organisations plan their budget in such a way that, say, 20 % of the budget is retained for the following year or for funding new projects in the field of science communication. This good practice is strongly recommended by Freiburg, Germany.
- **Overheads:** Make sure that in drawing up the budget the true costs of overheads (staff costs on top of salary, office costs etc.) are included.
- **Huge posters in every subway station:** The Madrid Science Festival achieved this major advertising free of charge from the subway.
- **Partner in the Entertainment Business:** The Science Days near Freiburg, Germany, recruited the theme park Europa-Park as a partner to host the Event, a park which attracts about 3.7 million visitors each year. This influential partner reduces the marketing costs considerably, has a complementary target audience and assists in professionalizing the event.
- **Give the managers from the sponsoring company a role at the opening and at other events (for example: Science Week in Austria).**
- **Combine the Event with another event or workshop.** This was organised effectively in Ljubljana, Slovenia, where exhibition, Activities and a workshop in international science communication took place at the same time and in the same building, an art gallery.
- **Create a “Club of Major Sponsors”:** Austrian Science Week achieved its budget with more than 90 % of private sponsorship in 2004 mostly from 4 companies. These were featured intensively in television spots advertising Science Week.
- **Connect themes of the Event to specific participants (e.g. companies)**
- **Lottery money for Science Communication Events:** in some countries, especially in Switzerland, the organisation received funds from the national lottery with a proposal that “fun money” should assist in communicating “fun science”.



- Special conditions for sponsors' employees: some Events admit sponsors' employees for no charge, others open at special times or in special venues for sponsors.
- Entrance fees: if the Activities are worth an entrance fee, the Event organisation should charge. This creates additional work and costs for accounting, taxes, data handling, ticketing and appropriate personnel. But the image of an Event with an entrance fee will not suffer; in fact audiences often value an Event which charges a small entrance fee more. One of the advantages is the ability to count the number of visitors precisely, another one the possibility to give attractive free tickets to invited guests (journalists, sponsors⁷ etc.) or reduced price tickets to those (e.g. families), who want to visit more than one Activity.
- Special venues for free: there are many possible venues for an Event organisation, which are free even for special events. Therefore, some Events use the parliament building or town hall for the opening or for conferences, the railway stations for performances or libraries for receptions.
- Use of similar organisations: in some cases, the Event organisation can cooperate with similar organisations such as arts festivals (e.g. Edinburgh for marketing) or tourism agencies. This can reduce the marketing costs considerably while increasing the number of people knowing about the Event.
- Cooperation of SCEs: in the future, European Science Communication Events could cooperate to reduce costs. They could develop common interactive travelling exhibitions, (electronic) games, booklets, shows, educational materials etc. There is no end to the imagination, if one has partners and good mutual motivation. EUSCEA, the European Science Events Association is a very good platform for initiating such cooperations
- Good relationship with the tax authorities: in many cases, non-profit organisations are tax-exempt. But, sometimes only good relationships can persuade the authorities to use their leeway to grant tax-exemptions or alleviation (from VAT, corporate taxes etc.).
- Continuing good relationships with sponsors: some Science Communication Event organisation managers have regular lunches with the managers of the sponsoring companies (Göteborg) to maintain contacts, some raise sponsorship using working breakfast meetings (Vienna), because this is a good time for stressed top managers.

Short Overview list of "Best Practices":

- Match budget with project objectives (it is useful to create a table showing objectives and the dedicated part of the budget)
- Report on budget use professionally
- Ensure good book-keeping and accounting standards
- Aim for a mixture of funding sources in public and private, big and small
- Try to attract advertising partners
- Appointment of reliable staff with responsibility for the budget
- Negotiate long-term contracts with funding sources – and annual increase due to inflation, quality and size



Short Overview List of “Outstanding Ideas”:

- Put a part of the budget aside for other projects or for the future
- Use public transport for the possibility of free advertising
- Look for partners in the entertainment business for cooperation
- Court the sponsors’ managers
- Create a “Club of Major Sponsors”
- Try to raise money from the lottery
- Give special entrance rights to sponsors’ employees
- Collect entrance fees (but consider the effort and costs involved)
- Look for special venues, which are free (parliament, town hall etc.)
- Make use of partnerships with similar organisations having similar objectives (tourism, festival etc.)

10.4
Summary

For consideration	Alternatives	Impact on Budget	Recommendations
Geographical reach	National, regional, local	As experience shows: very little impact	None
Marketing	Definition of the target group ranging from EVERYBODY to only students or primary school pupils – or making no definition	Great impact ranging from nearly zero to several 100.000 depending on the definition – if there is no target group defined, the money for marketing should be saved	Adopt a layered strategy: define a small target group, where nearly everybody should be contacted – and a strategy for the main audience with a much lower percentage
Partners	Finding partners who fund their own Activities or contribute – versus paying for everything centrally	Can be quite a large impact not only on the budget but also on the responsibility and efforts of the partners	Found a “Partners Club” to exchange information and keep control
Free services & materials	Find sponsors who grant free services and materials	Can be quite a large impact	Create a range of benefits for sponsors, depending on the value of the sponsorship
Special events and venues	Central Activities versus de-centralized	Centralized Activities increase the budget somewhat, but increase the control on the money and information flow between the participants	Centralize as much as is sensible according to your objectives of the SCE
Development strategies	Assist centrally in increasing the quality and reach of presentations – or not	Quite a considerable impact on the budget, but necessary	Never try to save money by disregarding the quality of the presentations and the improvement of the event
Evaluation	Perform a full evaluation of the event	Expensive, but indispensable for reporting to stakeholders and improving the event	Make sure that sponsors are aware of the cost of evaluation

11.

Marketing

Annika Lotzman Dahl & Jan Riise International Science Festival, Göteborg, Sweden

Firstly, it has to be said that a Science Communication Event IS a form of marketing. Probably without exception, all events have “raise awareness of science and technology” as an important objective. So what the organisers want is to make people, especially young people, interested in the world of science. Thus, a Science Communication Event is one of many ways to market science.

This chapter deals with experiences from the Events visited, but also includes some basic guidelines and ideas about how to think about marketing and communication strategies.

The term “marketing” is a difficult word, meaning different things to different people. To many people and often enough, “marketing” means brochures, advertising and other sales promotion activities. To others, marketing is discussed in a broader “business school” sense, including aspects such as product design and distribution, pricing strategies, branding and communication plans.

In this way, marketing may encompass almost everything that the Science Communication Event does in order to achieve its objectives. The design of Activities, choice of venues and how an Event may be organised are covered in other chapters of this book.

Most Science Communication Events would use words like “general public”, “interested public” or just “people” when describing the anticipated audience (see also chapter 3) – but this means “everybody”, which is not a target group at all. If you want to shoot “everywhere”, you do not have a “target”.

For those Events that include specific school programmes, “schools” or “school children” would also be mentioned, thus defining the Event’s major target groups. However, a more fine-tuned segmentation of the groups may prove fruitful, as will be shown in the following analysis.

There are also a number of other groups who would have an interest in the Event: stakeholders, sponsors, regional contact people, members of staff and participating presenters, to mention some of them.

Media coverage is often regarded as part of the marketing of an Event. This is often the case and the media also seem to like Science Communication Events, both as events and as sources of interesting news.

However, it is important to keep in mind that the media work on behalf of the readers, listeners and viewers; it is the editors who choose what and how to communicate, not the Event organiser or the individual participating scientist. Nevertheless, media coverage is, despite the somewhat capricious choice of news, an important marketing channel. Media contacts and relations should definitely be part of the marketing plan.

11.1

General overview

Definition of marketing

Target groups

Media



Internet and mail	The internet provides an extraordinary opportunity to distribute information and to communicate with the different target groups. The challenge is to attract visitors to the Event's website, especially visitors from priority target groups, such as young people.
Budget	The amount of money spent on marketing varied greatly between the Science Communication Events studied, as does the proportion of the budget. It is impossible to compare different Events, not least because of the uncertainty concerning in-kind sponsorship and other arrangements for reducing costs.
The marketing plan	The marketing plan, as a tool for the Event's communication with all its target groups, will be discussed in detail in part 11.2.

11.2

Different models of marketing and communication and their analysis

The Events studied here have very different conditions, budgets and experience in the field of marketing. Some have professionally produced marketing plans, some use professional agencies and some have access to colleagues within the same organisation for consultation and/or production of marketing and information material. Others do most of the work themselves or "in-house".

For the long-term survival and development of an Event it is probably necessary to find some professional advice and at least have some sort of structured and co-ordinated plan related to the different target groups. This chapter aims to provide some assistance in that respect, and some tools are briefly described below.

This is a particular area where Science Communication Events may find many advantages in participating in EUSCEA and other networks. The exchange of best practices may be both inspirational and profitable!

Target groups

Generally speaking, most Events talk about the general public and/or school children as their major target groups. It could be argued that "everyone" can't be a target group, but, as we shall see, there is more than one dimension to this.

But first, let us present a list of other important target groups, useful for the Science Communication Event's marketing and communication plans.

- Stakeholders. This group includes the people who represent founders, sponsors, other funding organisations, board members, advisors and other with an interest in the organisation as such: planning, financing, evaluation, strategies, development, staff, new partners etc. (Internal communication)
- "External VIPs". This is the group consisting of people from government (politicians and staff), authorities, foundations and industry, who for different reasons do not (yet) belong to the group of stakeholders. These are people that would be invited to VIP occasions, such as opening ceremonies, and also be informed about the overall activities of the Event. (External communication)
- Presenters. In a way, the presenters form part of the Event organisation, and as such they are a target group for internal communication, not least concerning the objectives of the event and what is expected from them.

- Staff members and colleagues of staff members. Internal communication regarding the development of the project. In many cases, the SCE is organised by a small group of people within a larger organisation, e.g. a research council, and their colleagues may be regarded as important ambassadors for the Event.
- Media, meaning journalists and reporters publishing stories from and about the Science Communication Event and often also about science in general. (Media companies as potential stakeholders or sponsors are covered in the above groups). (External communication)
- The audience, the “general public” or the “school children”, may be further divided into sub-groups, or real target groups. The choice of groups to concentrate marketing resources to overall objectives or strategies of the Science Communication Event. (External communication)
 - adults with an academic education
 - adults without an academic education
 - young people, not at schools, different ages
 - students at university level
 - students and pupils at lower levels, different ages
 - teachers
 - women
 - special groups, easily reached through their organisations such as police, fire brigade, red cross helpers, taxi drivers
 - etc.

The general public also includes groups of people that for different reasons will not respond to the attempts to communication; people speaking a different language, small children, people who are away from home or for other reasons incapable of participating.

Be careful, when defining a target group such as “general public”: The Eurobarometer (http://europa.eu.int/comm/public_opinion/index_en.htm) estimated that 50 percent of the public simply is not interested in science – and will not be persuaded to become interested.

As the Science Communication Event organiser in most cases works as an intermediary on behalf of one or more other stakeholders (founders, sponsors) such as universities, research councils, cities or regions, there is a need to also communicate “upstream”, that is to ensure that the stakeholders and sponsors feel comfortable with the Event, which implies an appropriate level of knowledge about what is going on. How this is actually carried out varies: newsletter, personal meetings and lunches, invitations to specific activities etc. The important thing is not to forget the representatives of this group or to include them in the “target group”.

The participating scientists and presenters should also be regarded as a separate target group. They are asked to make preparations and give some sort of presentation, in most cases without being paid anything extra for their efforts (see chapter 9 Presenters). Their needs for information differ from those of potential visitors, and as such they qualify as a separate target group. A generous communication strategy towards this group, including newsletters, phone-calls, invitations to



meetings and other activities and maybe a specific part of the Event's website, can provide many positive spin-offs. Not least important is the good-will that may persuade the presenter to act as an ambassador and persuade his or her colleagues to become presenters themselves. The group includes people working at the participating researchers' organisations such as information officers at universities, faculties etc.

Another important group for the marketing efforts is the people working with the Event. In many cases these people are volunteers, doing this for little or no salary. A well-informed and motivated group of volunteers may do wonders! Finally, the event organising team, of course, needs to be involved and informed.

Finally, thinking in terms of plural target groups may make marketing and communication easier. Acknowledge the fact that different target groups have different needs. Treat sponsors and other important "friends" with great respect, and make sure that they get the information they want at times that are convenient.

They also read different media, look at different advertising pages, are impressed by different pictures and themes, etc. The marketing team of the Event has to match the ways of reaching the target audience with the correct methods. It may be advisable to construct a table with the different target groups and the possible means to reach this and only this group. Then the team can decide which methods will be most effective with the lowest budget.

Media The success of Science Communication Events in generating media coverage has a number of explanations, including the local, regional and national media landscapes and the general interest in science journalism. But to some extent the reasons are to be found among the Event staff involved; without their dedicated efforts and hard work (talking to journalists, producing press releases, calling one more time, etc) the outcome will be much less significant.

National associations for science journalists can be helpful for distribution of information. In some cases, these associations have participated, e.g. as moderators for science cafés. It is normally favourable for both sides if journalists play an active role in the Science Communication Event.

Some activities that may stimulate interest among editors and journalists:

- press releases
- press conferences
- media seminars
- personal contact
- telephone calls
- personal invitations to activities

When writing press releases, it is important to keep in mind some of the characteristics that make the information attractive to the media: it should be "news", it should have an influence on many people and it should be easy to relate to – "close to home". Interesting and attractive images are also very important. The BA's template for press information is found in section 11.3.

Internet and e-mail Science Communication Events use the internet mainly for information about the programme and individual activities. Some Events have their own site and own domain name, while others may publish the information on the organisation's

domain. (see Appendix B Events visited). The choice is: the strengthening of the brand name versus the chance to reach website visitors that otherwise would have been missed. The perfect combination is a domain name reflecting the Event's name, coupled with banner advertising, including links or even redirection to the sites of stakeholders, sponsors etc.

However, relatively few Event organisers use the internet for marketing Activities besides the distribution of general information about programmes, venues, presenters etc. There are a few exceptions: The Edinburgh Science Festival publishes its programme exclusively on the internet prior to the event. During the Festival a printed version is available at the venues, but the previous system of distribution with a major newspaper has been abandoned.

The BA Festival of Science has invited web visitors to take part in competitions and polls on the website. In 2004, the competition was about finding the most popular science fiction character (eventually won by Dr Bunsen Honeydew from the Muppet Show, by the way). This creates a lot of visits to the website where information about the Event is placed.

The internet could also be used for other purposes, e.g participation in mass experiments, where the website includes forms for entering data, as well as other information about the project and its outcome, or for gathering evaluation data. (See also chapter 5 Activities and chapter 12 Evaluation and Monitoring)

Mailing lists are frequently used for the distribution of newsletters and other information about the SCE. This is a cost effective way of reaching large groups of people in specific categories..

It is important not to forget marketing when the budget is made up. It is no use Budget
at all to have the most wonderful Event, if people do not know about it.

The budget for marketing, especially the promotional part, is important. The promotion activities constitute almost the only channel between the Event and the target groups. Without promotion, no one knows about the Event.

Naturally, many Science Communication Events have realised that, from the start, it is important to take advantage of an existing distribution channel, such as the major regional newspaper, radio station or TV network. If the partner agrees to publish ads or distribute the programme for free or a reduced fee, the budget may be used for other marketing purposes.

And, as schools are often a major target group, a similar agreement with the school authorities is desirable – thus making it possible to distribute the publicity free to all schools.

A complete marketing plan comprises several dimensions of an organisation's activities, including budgets, financial objectives, visions and missions. A marketing plan worksheet may be most useful. It will include a number of headings: target groups, communication objectives, strategies (who, what, where, how and when), communication tools and evaluation. The marketing plan

Target groups are discussed above. It is important to keep the different groups in mind; their needs for information and the sources they use may differ significantly.

When thinking about objectives, it may be wise to think "SMART". Objectives ought to be Specific, Measurable, Achievable, Realistic and Time-bound. This is further discussed in chapter 12 Evaluation and Monitoring.



Having established the major target groups the next step is to answer the following three questions:

1. What do we want them to know?
2. What do we want them to feel?
3. What do we want them to do?

Obviously, the answers to question number 2 are different for the sponsor and the school child. “This is a context I am happy to be associated with” (due to its nature, creating something good for society) and simply “This is fun”.

In the same way, question number 3 generates different answers. The Science Communication Event organiser would want the sponsor to maintain or increase the sponsorship the next year, whereas the most obvious action we would want the member of the general public to do is to visit the event.

This means that a proper marketing plan has to take into consideration all of the target groups and their varying interests and needs for information.

Example 1: The “ordinary visitor”, someone representing the “general public” Communication objectives: the potential visitor should know that there is a Science Week coming up, he or she should think that it seems fun and interesting. Finally he or she should want to visit the Science Communication Event.

Example 2: The teacher in school with pupils of 12–14 years old. Communication objectives: the teacher should know that the upcoming Science Communication Event offers a number of Activities for schools and that they complement the curriculum in science. He or she should feel that this is an opportunity to add something to the ordinary classroom lessons. And finally he or she should make a reservation for the class at a specific time.

The Four P's Traditional business school textbooks in the 1980s brought us the “Four Ps of marketing”: product (or service), place, price and promotion. The “Four Ps” can be useful when evaluating the Science Communication Events offer to the People (the fifth P – the target group(s) – around which the four others are concentrated)

Product: Most Science Communication Event organisers care deeply about the product, the individual Activities of the Event. They work hard to ensure the overall quality is high, the level of the subjects in question is appropriate and that they fit into the framework of the Event. This means that they are suitable for the defined target groups, that they fulfil what is promised in the advertisement and that they are designed according to the objectives of marketing (i.e. to reach a particular age group).

However, in some cases, most often national Events, the Event organisation may act as a co-ordinator rather than taking overall responsibility for the quality and contribution to the objectives of the individual activities. Quality is then maintained through support resources, telephone and e-mail contact with organisers, meetings and evaluation strategies.

Place: This is the hallmark of a science communication event – using unusual places for the communication activities. This way, the barriers are lowered and the opportunity for people to participate spontaneously is increased dramatically. The European Science Communication Events show different patterns in this respect. Some have all of their activities outside of research institutions and uni-

versities; others arrange activities in many places, while others concentrate on the campus areas. (See chapter 6 Venues).

Price: Is science communication something that people will and should pay for? This is viewed differently in various countries. In Sweden science communication is supposed to be free, as long as the universities and publicly funded research institutes take part. It is reasonable, it is argued, for tax payers to have an opportunity to be involved in research activities and the outcome of them. In the UK, on the other hand, Edinburgh Science Festival – the role model of many Science Communication Events – has had tickets for its Activities for many years, obviously feeling that few potential visitors are dissuaded from attending by this. The idea is that the Activities are so professionally attractive (similar to movies or the theatre) that people will be willing to pay for them. The BA Festival of Science offers a mix: the Festival’s “scientific core”, is arranged like a conference, with tickets, registration and conference material, while the “Festival Fringe” offers a wide range of free activities in other locations.

Promotion: Activities carried out in order to raise the awareness, curiosity and interest of the intended audience. The most obvious promotion material when it comes to Science Communication Events are programmes, brochures, advertisements, radio and TV spots, flyers and other material. But also activities like trailing shows in the street, participation at other events, “word-of-mouth” count as promotion. This is a real challenge for the creative and daring Event organiser. Almost anything is possible.

If time and resources are sufficient, it is a good idea to think about a timeline for the marketing of a new Science Communication Event, and to build this into the project plan for the Event.

The time dimension

The first step is to create awareness of the Event. The idea is to give the obvious answer to the question “What do we want them to know”: “There is a Science Communication Event going on during a weekend in September.” The second step is to gain the interest and the curiosity of the potential visitor; this is where clever headlines, press releases about special guests and Activities during the Event as well as small but awareness raising activities at shopping centres come into the picture. This is also the place for ads with a little bit more information. And finally, the advertiser would want to get to the “buying decision”, that is when the reader (listener or viewer) is prepared to decide to participate, to be a “visitor”. However, this decision is probably reached quite late, perhaps the same day as the Activity is taking place. Example of messages communicated over a period of time:

- *First step:* Science Communication Event from this date to that date. More information on the website.
- *Second step:* This year’s theme is “Love” or “Physics” (or whatever). Activities in shopping malls and schools 1–2 months prior to the event. Graphic design of ads and programme introduced that combines themes and organisation profile.
- *Third step:* The crown princess (or other suitable celebrity) opens the event at this time at that place. See you there. Complete programme available here, there and on the website.



Of course, a campaign like this takes a lot of time and money – resources that may be scarce. But it could be helpful to have such a timeline in mind, no matter what kind of communication budget is available.

Creating a brand strategy

It is always advisable to try to establish a common and consistent image of what the Science Communication Event is. This image includes a graphic profile, colours and a number of other characteristics. The brand or trademark is often thought of as just a logotype and maybe the use of a certain typeface. But in a wider sense it includes everything the public may associate with the Activities and presence of the organisation or, in this case, the Event.

Naturally, the better the Event is perceived by the public, the better the chances are to actually reach and influence the desired target groups. Of course, figures vary for many reasons, but a successful local Event could be recognised by 75–80 percent of the population; naturally the figure would be less for national Events: in the UK a third of the population are aware of the National Science Week (34 percent). French and Danish surveys report comparable figures for their national Events. These are results of careful brand management.

This means that the Event's values and philosophy really matter. Including words like “access”, “friendly” or “creative” can help to promote the Event's values and philosophy.

- Partnerships with newspapers or broadcasting corporations are usually favourable. The reach of the mass media cannot be underestimated, but beware of advertising space that is too small to be useful and the costs of design and formatting which means that “free ads” can be rather costly.
- Banners, flags and posters in the city help to strengthen the event's trademark
- As does participation in other events throughout the year
- Creative Activities for marketing purposes raise the awareness of the event
- Consider the choice of place, the location of the Activities as a part of the marketing efforts
- Good contacts with the press (that is the journalists, not their companies as above) can be very fruitful. Respect their work and provide them with the material they want. The BA's template for press information may be very useful
- The Event's web site can be used for all year marketing. Competitions, mass experiments and Q&A pages draw visitors to the site.
- Take good care of the Event's trademark. Using colours and logos in a consistent way helps to increase the recognition of the Event with the public. It is advisable not to change the logo each year. If necessary, limit the changes to small details.
- Use copywriting for headlines and texts. It is really disappointing if people don't come simply because they did not understand the subject.
- Be bold! Most successful marketing campaigns include some crazy idea...

11.3
Best practices and
outstanding ideas

	<p>THE BA FESTIVAL OF SCIENCE</p> <p>UK</p> <p>URL: www.the-ba.net</p> <p>Institution: British Association for the Advancement of Science</p> <p>Contact: Annette Smith</p> <p>E-mail: annette.smith@the-ba.net</p>
<p>Media – The BA Press Office</p> <p>The BA Festival of Science and the British National Science Week benefit from the BA's (British Association for the Advancement of Science's) highly professional press office resulting in extensive media coverage. All of the Event's scientific talks are presented to journalists in a similar way, where some of the content is highlighted through a number of headings in the press paper. This is produced by the press office, based on the presenter's response to the following questions:</p> <ol style="list-style-type: none"> 1. Details of the presentation (1000–2000 word summary) 2. What is the key finding of the work/research? 3. What is new and interesting about this work? 4. What is the relevance to the general public? 5. What is the next step? 6. Others working in this specific field? 7. Details of relevant publications 8. Interesting images 	

 <p>Vetenskapsfestivalen</p>	<p>INTERNATIONAL SCIENCE FESTIVAL GÖTEBORG</p> <p>Göteborg, Sweden</p> <p>URL: www.goteborg.com/vetenskapsfestivalen</p> <p>Institution: Göteborg & Co</p> <p>Contact: Annika Lotzman-Dahl</p> <p>E-mail: annika.lotzman.dahl@goteborg.com</p>
<p>Audience – other events</p> <p>The Göteborg International Science Festival participates in other events in the city throughout the year. Such events include the annual book fair and next year's European Athletics Championship. This gives the Festival direct access to potential visitor groups that normally would not participate in the Activities of a Science Communication Event.</p>	

Other good examples include the following:

Stakeholders – working lunches

The manager of the Göteborg International Science Festival regularly sees the representatives of the sponsors over a working lunch to keep them informed about the development and ideas of the upcoming and recent events

Stakeholders – “Friends of the Festival”

The Genoa Science festival has created a group called “The Friends of the Festival”

Media – Hands-on TV science

At the Science Days in Rust/Freiburg, Germany, TV journalists are invited to present their own hands-on activities at the Science Days, which normally results in TV reports from the event.

Teachers – Teacher training

The organiser of the Science Days in Germany, the Förderverein S&T, also offers training programmes for teachers. As many teachers are members of the same teacher's network, the efforts are multiplied.

Teachers – Educational material on the website

The Science Days in Germany provides special educational material and information on the website for teachers who will visit the Event with their classes.

Audience TV spots Wissen Sie, dass'

Science Week in Austria 2004 had a co-operation agreement with the Austrian Broadcasting Corporation, to transmit a number of short slogans "Wissen Sie, dass..?" ("Did you know that...") with a reference to Science Week

Audience – Europa-Park's advertising

Science Days in Freiburg, Germany, co-operates with the Europa-Park and benefits from the amusement park's marketing and distribution of information

Audience – unusual marketing channels

The Lower Silesian Festival of Science in Wroclaw, Poland, had marketing help from the church. At the end of Mass the congregation was encouraged to visit the upcoming science festival. This was done because all churches in the area were invited to participate actively in certain Activities.





12. Evaluation and monitoring

Annette Smith National Science Week & The BA Festival of Science, UK

The main purpose of evaluation of a Science Communication Event is to establish whether it has achieved its stated aims. Evaluation will comprise not only monitoring the numbers who attended and operating questionnaires to assess the enjoyment of people at the event, but also looking at the impact of the Event, for example on the educational attainment of children attending or on the engagement of adults with science and scientific issues. The field is complex incorporating quantitative and qualitative research, and is therefore expensive and difficult to organise at the same time as organising an Event. It is understandable that some of the Science Communication Events we visited for the EUSCE/X project conducted no evaluation and only limited monitoring of their Events. However, the following chapter aims to offer tips and hints for painless evaluation which include cost effective ways to gather data.

It is very important for the professionalisation of the field that newcomers, as well as existing organisers build efficient methods of measuring the effectiveness of their Events into the early planning. More and more, stakeholders require evidence that their support is used effectively, and the value of informal learning and public engagement is rightly questioned.

The early advice learned from the analysis of the Science Communication Events visited:

1. Plan evaluation as you plan your Event
2. To improve or demonstrate success to stakeholders you have to keep records of the Event
3. Use your student helpers to gather information
4. Offer a prize to visitors to encourage them to return questionnaires
5. Pay for really independent specialised evaluation or better still, get your sponsor to pay
6. Only ask for the information you need
7. Create an action list from your conclusions

Before planning the evaluation it is important to establish the main aims of the Science Communication Event. These could include raising awareness of science and science-based issues, or enthusing young people so that they consider a career in science. Whatever the main aims of the Event, the organiser then needs to think about objectives – what needs to be done in order to achieve the aims. Objectives must be set in such a way that they are SMART, i.e.:

Background to evaluation

Specific
Measurable
Achievable
Relevant and
Time bound

12.1 General overview



Setting SMART objectives is the beginning of the evaluation process as this allows the organiser to set up the mechanisms by which to measure the objectives. Examples of SMART objectives for a Science Communication Event that aims to raise awareness of science and science-based issues among the public in a particular town might include:

- Increase the number of visitors each year by 5%
- Achieve 70% satisfaction with the Event among visitors
- Provide effective support for Activity organisers

Some of the quantitative information required to evaluate against these objectives will be gained by monitoring. This is the counting of numbers of visitors, numbers of Activities and so on, which can usually be collected from the organiser's spreadsheets and databases. The audience satisfaction data can be gathered by questionnaires, administered via the internet, by telephone, by having forms out at an Activity or by personal interview.

Of these methods, the most accurate and efficient is the personal interview, although this is expensive in terms of time and effort. The least efficient is probably the internet survey, unless a really good system for driving people to the questionnaire is found. One possible strategy to do this is to have the survey on computers at the Event, with the possibility of a prize as a reward. For all methods, the data then has to be collected and collated in order for statistics to be gathered. This data collection and entering is a long clerical task, unless the data is gathered on-line, which must be completed after the Event. If volunteers can be used for this task it will save the organising team some work, but it is very important that the accuracy of data input is checked. A database is set up to collect the information, from which charts and tables can be constructed easily using standard software.

For really detailed in depth, qualitative work on specific issues small groups of specially chosen individuals can be gathered to discuss a particular facet of the Event. These are often called focus groups and comprise representatives of particular categories (for example event organisers, presenters, segments of the audience) who can be gathered together with stimulus materials and an experienced facilitator who will tease out information on the issue under investigation. The information gathered is then very specific and usually extremely useful, but this is a very expensive process.

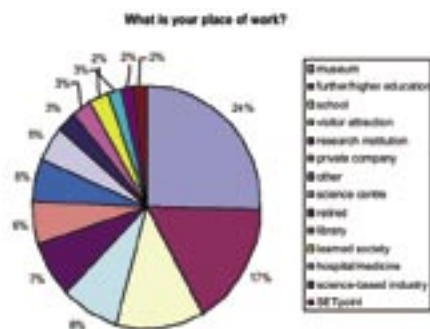


Fig 11.1. This chart shows where the organisers of activities for the UK National Science Week work.

Some Science Communication Events have used surveys to assess what proportion of the population has heard of their Event. This is an interesting statistic for Event organisers to have to hand, but the question must be phrased very carefully. For example, in the UK, when we ask “Have you heard of National Science Week” about 34% of the population answer “yes”, but when the interviewees were asked what time of year National Science Week is held, the percentage of people who know drops dramatically. For local Events, the percentage of people who are aware of the Event often is significantly higher. It is obviously easier to reach a larger proportion with local marketing.

There is also a huge difference between the results for this kind of survey conducted in person and over the telephone. Often this kind of information only becomes useful when it is repeated year after year (a longitudinal survey) so this must be built in to a long term plan.

In addition to these parts of the evaluation strategy it is important to monitor the media coverage of the Science Communication Event. This is always of interest to sponsors, and can be done by the organising team or by professional cuttings services. The professional services are very good at collecting printed media references to the event, but less good at monitoring broadcast references. To do this, the best way is often to ask friends and relations to listen out for references to the event on TV and radio and to note when and where they heard them.

It is very valuable to look at the visit rate to the Event’s own website, and also the pattern of visits. This is easy to do with readily available software. Monitoring of websites which mention the Event may prove harder, but one strategy is to put the name of the Event into a search engine to see how many references appear, and from which sites. Also, looking for references on well used news sites (for example BBC online news in the UK) can yield some information.

Finally, a few words about statistical significance. It is of vital importance that the selection of interviewees is properly done. It is unacceptable to claim statistical significance for questionnaires returned by a self-selected group or where no randomness was introduced (for example by instructing student helpers to interview every tenth person through the gate). Of course, every opinion may be important (e.g. e-mails to the organiser or comments made in personal discussions), but the only valid basis for conclusions regarding the overall response is the randomly chosen group of respondents (if “everyone” is impossible). Many Science Communication Event organisers will find evaluation in general difficult to build into their planning, and may find randomising the sample of visitors to be questioned completely impossible. In this case, a qualifying comment should be used whenever the figures are used, reflecting the randomness or otherwise of the sample.

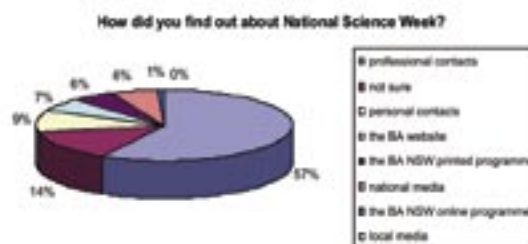


Fig 11.2

This one shows how people found out about the UK National Science Week.



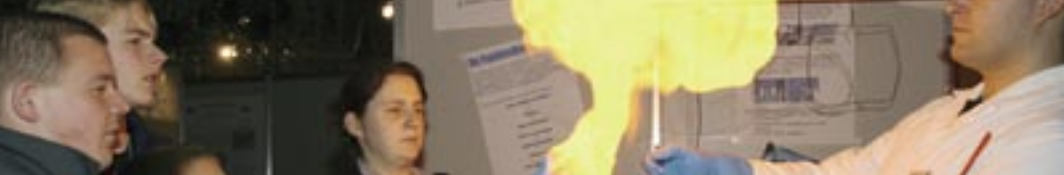
Table 1. Example of the BA press coverage charts: 1) National Press coverage in 2004 for the BA Festival of Science

National press coverage 2004	No of Items	Column Inches/Duration	News/Feature	Comment/Editorial	Preview/Review	Listing	Other/Not Specified
Independent	23	329.75	22	1			
Guardian (incl. Guardian Weekly)	31	687	30	1			
Telegraph	23	499.75	23				
Times	30	587.35	28	1	1		
Financial Times	12	232.75	11	1			
Irish Independent	1	24	1				
Sunday Times	2	56.25	1		1		
Observer	1	2		1			
Daily Express	9	301	9				
Daily Mail	12	110	12				
Daily Mirror	8	50	8				
Daily Sport	2	21	2				
The Morning Star	1	2	1				
Evening Standard	6	85.75	6				
Metro	8	50.5	6	2			
TOTAL	169	3039.1	160	7	2		

Table 2. Examples of the “action list” drawn from the publicity part of the BA Festival of Science evaluation in 2004.

Publicity

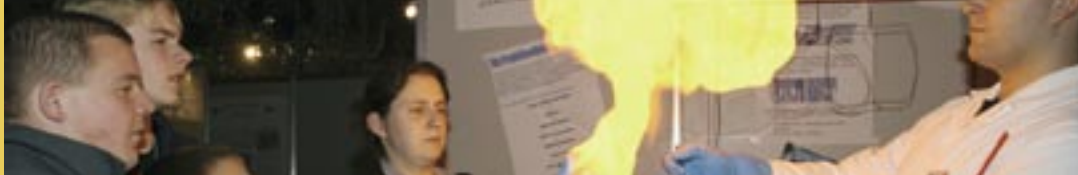
1. Maximise University attendance by having a representative of the University External Relations department on the Steering Group
2. Cross reference the additional information in the back of the programme with the front
3. Think of ways to highlight the “useful information” section in the programme
4. Make sure that the “Festival in the City” programme is thoroughly cross-referenced with the main programme and check all entries with organisers
5. Send the Festival in the City programme to all science communication professional contacts
6. Produce fewer posters in a mixture of sizes
7. Research local interest groups and send targeted publicity
8. Promote individual events in any advertising resulting from a media partnership deal
9. Factor in the cost of design and specialised formatting of the ads received from a media partnership
10. The coding of events in the Festival programme was well received and should be developed



12.2 Different models of evaluation and analysis

The models of evaluation for the Science Communication Events visited varied widely. The smallest and newest Events tended not to evaluate at all, while larger, well established and well resourced Events tended to complete sophisticated evaluation and monitoring providing rich information to sponsors and visitors. Some examples of good practice and interesting ideas were:

- Catalonia Science Week had three dedicated pollsters looking at a representative sample of the Activities. Each pollster visited 15 Activities. There were also surveys of the different audiences - adults, schoolchildren, institutions and the press impact was measured.
- In Edinburgh, very detailed monitoring information is collected – the age, sex and home location of visitors is monitored and the attendee numbers are counted against the time of day and the theme of the Activity
- In Portugal, emphasis is on the number of Activities rather than the number of visitors
- In France, a professional evaluation firm is used and the percentage of the French population who are aware of the Fete de la Science is measured. This also happens in Denmark and in the UK, and is an interesting exercise for national science weeks as well as being a statistic which interests sponsors tremendously.
- In Genoa, the evaluation was extended to include a survey of attitudes to science among young people, locating the science communication event directly into this set of statistics so that this will allow comparison in future years of the effect of the science festival.
- In the Netherlands, non-visitors were surveyed, and this strategy was also used in the UK to discover the reasons for potential visitors not coming to the Science Communication Event. This is an excellent way of discovering the effect of the marketing campaign.
- In Göteborg, the student assistants who are employed as guides and general helpers also conduct interviews with the visitors for evaluation purposes.
- The BA Festival of Science evaluation includes in depth focus group work on very specific aspects of the Festival conducted in order to elicit specific information.
- Science Days in Germany target the evaluation on exhibitors, students, teachers and visitors through interviews with 50% of the teachers and 10% of all other visitors. A large number of responses are thus achieved and some sound statistics result. The process is carried out by trained students and completed by scientists at the university, keeping costs very low.
- For the UK's National Science Week, the individual Activity organisers are surveyed in order to find out about the level of support offered by the central organisation.
- In Warsaw, students who write an internet newspaper during the Festival, collect questionnaires from the visitors – these are not statistically significant, but help to provide some information and suggestions for future development.



- The Göteborg Festival evaluation includes comparisons between different types of venue and location. This has brought new insights about where and how different target groups approach the Event. The percentage of young people seems to be consistently higher at drop-in locations.
- In the UK, a pack of branding materials was trialled. Focus groups and telephone interviews were commissioned to find out how effective this was, and the strategy was altered to take account of the responses.

12.3 **Best practices and** **outstanding ideas**

From the experiences outlined above, one of the main recommendations would be, for a selection of the objectives, to gather comparable data year on year (or event on event). This gives a good idea of the way an event is growing and developing, and there is no substitute for thinking in advance of the event and setting this up early. In addition to this, involving sponsors and supporters in the process is very useful. Not only will they indicate exactly what measures will be useful to them – and sponsors have to justify their spending back at their companies and institutions – but they will realise that the process is expensive and time consuming and may well provide some additional funding for it.

12.4 **Summary**

The main recommendations from this chapter are:

- Set aims and objectives for the Event right at the start
- Plan the evaluation early based on the objectives
- Collect year on year information
- Discuss with sponsors and supporters what needs to be measured
- Use face to face interviews wherever possible
- Incorporate the results of the evaluation into future plans
- Review the evaluation and make recommendations for next time
- Don't over-evaluate – make sure that you need all of the information you gather, on other words, don't ask questions where the answers will not be used

13.

The European Dimension

Peter Rebernik, ScienceWeek @ Austria

13.1 General overview

Science and technology are international and not regional or local fields of human endeavour. Scientific culture and its results embrace the entire world, and there is virtually no research that is carried out in national isolation – science is international by definition.

Science transcends political and geographical boundaries, especially in the age of electronic communications. The enormous projects such as the search for a workable nuclear fusion power generation system, the investigations into the structure and forces between the basic particles of matter and international diseases like BSE and avian influenza demand cooperation between countries, and the European networks for scientific research are strong. Likewise, networks across Europe between science communicators are fruitful and creative as can be seen from this report.

Having stated this, it is also clear that one wants to know about the scientific research and developments and its specifics in its own surrounding – also above the level of one's own country.

Over the recent decades, we have seen an increasing effort to create the European Research Area (ERA) by the European Commission. This is in line with the overall objectives and visions of the European Union, manifested not least in the Lisbon agenda. One of the reasons naturally is the aim to increase European cooperation and partnerships for further scientific achievements – all adding to the competitiveness of our continent, compared to mainly America and East Asia.

Thus, it has become an objective also for European Science Communication Event organisers to include the European dimension of the scientific culture – the ultimate objective naturally being to stimulate and show – above all – the resources and possibilities in Europe.

Most often, the European dimension is cared for by visiting scientists or other Activities from another European country. This exchange of Activities has been supported from a range of partners, not least the British Council (and other similar organisations such as the French Institute and the Goethe Institute), that generously has made numerous visits of British researchers to other countries possible.

Each Science Communication Event organisation will decide, how much local, national, international and European “touch” it will communicate to the public.

Since EUSCEA is a European association and the White Book deals with European Science Communication Events, a certain “European Dimension” seems essential.

There are many reasons to add this European dimension such as:

- Science and the scientific community as it functions today with its institutions (universities, research labs etc), culture, structure and knowledge base, *originated mainly from Europe* (starting maybe with Galileo Galilei and Newton; although Chinese, Indian, and Arabic contributions were

quite notable in the past, but not to the structure we experience in the current science community – and the Japanese and the enormous American influence during the last decades);

- Europe is in *competition* with the other continents like America and Asia – and therefore, the public should know and understand the European contribution – and European scientists should be encouraged more and more; not the least, the Lisbon agenda to strive for a more competitive stand of European science enforces the need to increase the European dimension also of Science Communication Events.
- Science and Technology has an *influence on daily life* of all Europeans. Problems in one country (e.g. BSE, the cow disease, avian influenza) can easily become problems in all European nations after a while and can only be solved in multi-national scientific cooperation. Science Communication Events can help to increase the acceptance for decisions or advice on the European level (e.g. of the European Commission) within this field.
- Science is also a factor of *identification for our society*, in this case with the European society as one of the binding bonds of this continent (like music, common history and art). When Europeans think about their culture, science is – and should be considered - an essential part of it.
- Some organisations emphasise the achievements only of the local scientists. The European Dimension can bring this into a *broader perspective*.
- A European dimension can also assist in binding the different countries of Europe closer together with increasing cooperations, getting to know each other, the others' science and technology history (e.g. nearly every country invented the typewriter or similar inventions during the last century) and current cooperations in science; especially bridging possible gaps between the “old” and “new” and “future” member countries of the EU.

Although the European Union is the main organisation of Europe, the “European Dimension” should not exclude countries on the European continent, which are not EU members.

All European Science Communication Events organisations are encouraged to add such a “European Dimension” to their Event and Activities.

In writing and researching this book, the authors have confirmed the value of cross-European sharing of knowledge and experience. The EUSCEA organisation provides a context for this co-operation and projects such as this White Book, which brings together European experience and expertise producing some unlooked-for collaborations and creative solutions and also many challenges facing science communicators in addition to their stated goals.

Indeed the value of European collaboration is seen markedly as the work of EUSCEA continues. The organisation is invited to take part in collaborations beyond Europe, further into the Eastern European geographical area and into the Middle East, Israel, Korea, China and beyond. The bond with South Korea has been particularly strengthened by special Science Communication Activities shown in Daejeon every year since 2002. EUSCEA, European Science Events

Association, is the association for all SCE organisations, currently with nearly 50 member organisations from 25 countries.

It is also important for the network of Science Communication Event organisers to connect with the other Event organisations across Europe, and with the trans-Europe science and technology collaborations.

A “European Dimension” can be reached by attaching a special “flavour” or part of the project or intentional “colouring” to the Science Communication Event. There are many possibilities to achieve this, among them:

- **Marketing:** Adding the flag of the European Union to information material, into the website, into banners, invitations, advertisements, broadcasts etc.; raising EU flags next to the Activities; showing maps of Europe (possibly with the places of special European science achievements or from the guests);
- **Inviting Special European Guests and Media:** Special cooperation with media or invitation of journalists from other countries of Europe; special guest speakers (scientists, journalists, politicians etc.) from other European countries (or from the European Commission); electronic connections to other European countries;
- **Exchange of Activities** with other European Countries: Activities invited from other European countries or sent to them;
- **Special European Projects:** Mass experiments to be done within Europe for the general public in all European countries (like asking to tell the time, when certain flowers start to bloom in spring as done at the National Science Week in the UK); projects needing cooperation between universities, schools etc. between European countries;
- **Cooperation with European Institutions:** There are many European, and international, institutions like EUSCEA and others beyond the European Union, such as EUSJA, ECSITE, CERN, ESA, the British Council, OSCE, UNO, Red Cross, scientific associations and cultural institutions, which can be integrated into the national Science Communication Event. (see Appendix C, Networks)

The main advantages of adding a “European Dimension” are:

- Possibilities for the media to inform about new aspects of the Science Communication Event in Europe
- Possibilities for new project ideas within and between the hosting and the guest organisation
- Improvements of existing Activities by looking at the other performances and qualities
- Extended networking by really working together with people from other European countries
- Learning about different cultures and views on science

13.2

Different models and their analysis

The European Dimension seems rather new to most Science Communication Events.

- Very few of them use the flag of the European Union in their marketing (some at their website and posters, but mostly only, if funded by the EU). It is recommended for all Science Communication Events organisations to use the EU flag as much as possible on their marketing material.
- But, an increasing number of organisations invite Activities from other European countries to their own Event – with great success for their own image and for the media. Examples of hosting Science Communication Event organisations are the ones in Göteborg, Sweden, in Freiburg, Germany, in France, in Warsaw and Wroclaw, Poland, in the Netherlands and Austria. The costs for such exchange is often very small, but the effects for the public, the media and the colleagues from both organisations very positive. It is recommended to increase this exchange and to reserve special venues and times for marketing these “European Exchange Activities”.
- Some do invite scientists and Nobel prize laureates from other European countries (as the Norwegians invited British scientists for the opening of their Research Days and the “Festival della Scienza” in Genoa, where many renowned scientists from other European countries were invited, hosted by enterprising families and given large audiences). These invitations are very successful for the public and for the media. Very few organisations invite journalists from other European countries. It is recommended to use such invitations much more intensively. Since the guests hold lectures mostly in English (or report back home in their language), the knowledge about this/these language(s) is also enhanced.
- Officials of the European Union are rarely invited to the Science Communication Events as speakers, although they are sometimes invited to contribute to preparatory conferences. It is highly recommended to invite officials of the EU. The advantage is visible for the media and the public. But, on the other hand, these important officials also get acquainted with the importance and the methods of Science Communication Events and of EUSCEA.
- Mass Experiments with a European reach have only been conducted by the British Association for the Advancement of Science. The experiment was to find the “funniest joke”, in order to research the psychology of humour, with participants on the web from many European and international countries. It is recommended to use mass experiments in each country only. But, because of language problems, the reach of these experiments will tend to be largely national. This is rather fortunate, because the European public would be overloaded, if all 30 or so Science Communication Events organisations would issue mass experiments on a European level each year. Therefore, it is highly recommended to join forces only for ONE European mass experiment per year (in English language). EUSCEA can help in the coordination.

- Very little cooperation with European institutions is known. An important factor seems to be the British Council, which supports Science Communication Events in several countries, e.g. the start-up of Lithuania's first Science Festival. Also, the BA (British Association for the Advancement of Science) invites European officials to its "Festival of Science" as in Dublin in September 2005.

It is recommended to use these institutions, either from other countries (e.g. by asking the embassies) or at the European level, to include them into the programme and to encourage them to participate actively.

13.4 Summary

To be considered and decided	Possibilities	Impact on Organisation & Resources	Recommendations
Focus on "European Dimension"	Small – Medium – Large	Above a certain effort, special responsibilities have to be created and appointed	"Medium" is recommended
Marketing	EU logo used; European maps shown	Just a "directive" not to forget using it	Highly recommended to use EU logo and European maps abundantly
Special European Guests	Scientists, Nobel price winners, journalists	Funds for travel & accommodation, looking after the guests	Highly recommended to invite science VIP and journalists from other countries
Exchange of Activities	One or more Activities; from one or more European countries	The more, the more impact on funds and management	This exchange is highly recommended; possibly with various participants each year; emphasis by using special venues and marketing
Officials from EU	From different levels and directorates-general and services of the EU; with different possibilities for participation (speech, lecture, discussion panels etc.)	Funds for travel & accommodation, looking after the guests	Highly recommended to invite these officials of different levels and DGs
Special European Projects	European mass experiment; creation of multi-lateral projects	Rather large impact with new funds and responsibilities	Recommended to participate at the ONE European mass experiment; recommended to design projects between certain groups like schools
Other European institutions	Funding and/or participation of them	Possibly positive impact on funds; possibly some effort in management	Recommended to search for influential and/or interesting European institutions to cooperate or to get as sponsors
New Other Ideas	PLEASE REPORT THEM VIA www.euscea.org		

Appendix A.

Introduction to the Project

Peter Rebernik Coordinator

The need to bridge the gap between science and the public is widely acknowledged. In a modern society it is the citizen's right to be informed about developments that influence their lives, and there is also a need for a strong infrastructure for education, research and development as a basic requirement for retaining economic strength. To sustain such culturally important institutions, the citizens have to be properly and continuously engaged with scientific developments, scientific possibilities and about the scientific contribution to society.

Most governments regard public communication on science an integral part of their policies and support national and regional activities to stimulate communication between scientists and the public. The high value of more, sustainable and in depth improved Public Awareness and Understanding of Science, Technology and the Humanities (PAUSTH) is commonly known. Various means in diverse institutions and organisations are currently in use to promote PAUSTH in Europe. Among them:

Many public relations programmes at the research and development organisations have emerged over the years, for example. "university goes public", days of open doors at laboratories, "university for children", series of articles in newspapers or broadcasts in radio or TV on scientific subjects, series of lectures, science projects in schools, projects involving museums, science centres and botanical gardens, training of school and university teachers for science communication and several forms of exhibitions in science & technology museum and science centres.

Another form of science communication developed alongside these with the creation of science festivals, science weeks, science days and similar forms of interactive and public-oriented Science Communication Events = SCE.

These SCEs differ compared to the other forms of communication of contents and methods of science and technology in many ways:

- the Events are concentrated around a periodically repeated short time span (days, weeks)
- they aim to attract to the "people on the street"
- they often take place outside of the usual scientific or technological venues
- they comprise activities which are sometimes humorous, sometimes based on drama and other art forms and are interactive and engaging.

Several SCE organisations were created in the last decade in Europe, and previously had no forum at which to exchange ideas about Activities, organisation and measures of quality.

Therefore, the need for an institutional forum for the exchange of information and experience came apparent; to enhance the performance, the quality, the range, the themes, the methods and the European dimension of various SCE organisations and to initiate new organisations in new regions and countries.

A.1

General overview

These were the main reasons for starting the EUSCE/X project = European Science Communication Events Extension. An application was made to the European Commission, DG: Research, Science & Society, which was accepted in late 2002 and the project started in January 2003.

One of the main outputs of the project as planned was to be a “White Book” on how to initiate new and how to improve existing Science Communication Events – a sharing of “best practice”. This “White Book” is the one you are just reading now.

Exchange of experience in this specific area was an exception, and this is the reason that EUSCE/X was launched. The same holds for EUSCEA, the European Science Events Association, which was founded in December 2001 in Vienna, Austria and now has almost 50 member organisations from 25 countries. Many Science Communication Event organisers are the only ones in their country responsible for a similar Event. For a serious discipline of growing importance to the knowledge society this was not acceptable.

Seven EUSCEA members joined forces for this peer review of Science Communication Events, both in their own countries and in other European countries. The main objective of the EUSCE/X project was to observe and discuss as many Science Communication Events as possible within the restraints of time and money. Other EUSCEA members fully supported the project and welcomed the project team to their Events.

The main part of the project which ran between 2003 and 2005 could never have been completed without the kind cooperation of representatives from those involved and visited: 21 organisations for Science Communication Events in 16 countries: Austria, Denmark, France, Germany, Ireland, Italy, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, Slovenia, Spain, Sweden and the United Kingdom. The organisations for whom the seven members of the project team work were similarly cooperative and supportive.

A.2 Objectives of the project

The main objectives of the project EUSCE/X, which was the basis for this “White Book” were concerned with a structured collection of data and exchange of experiences with the aim of improving Science Communication Events in Europe and creating new ones. Specifically, the project aims to help organisations to achieve:

- (a) more efficient organisation for funding and for marketing
- (b) more professional Science Communication Events with respect to their methods of communication and their educational value.
- (c) more effective contact with and engagement of the public audience
- (d) a greater European dimension, with opportunities for international exchanges

The EUSCE/X project was planned for a duration of 36 months and contained General, Specific and Coordination Tasks.

The “General Tasks” consisted of preparation, intermediate analysis, specifically targeted conferences for Start-up and reviewing the results, and the finalisation of the project.

The “Specific Tasks”, which form the core for this project, were the following:

- EUSCEA - Overall Task: Creation of a sustainable professional network among the SCE organisations in European member and associated states for the exchange of information and experience
- Creation of a specific detailed Database and Website of all SCE organisations for public (dates of events, addresses - email - telephone - websites, specialities) and internal use (comparisons) and as basis for further analysis and evaluation.
- Observing and surveying SCE organisations for a detailed insight and review also from the outside viewpoint of colleagues from other countries for a practical exchange of experiences and applicable data collection.
- Analysing all resulting data to come to conclusions for general and individual improvement recommendations, which are communicated back to the Science Communication Events organisations and observing/coaching the implementation of the accepted proposed steps and communicating the implementation results.
- Based on the results, creation of a package for assisting existing and new SCE organisations possibly in countries currently without SCEs - with personal assistance and with delivery of a general “White Book”.

The “Coordination Tasks” concerned the coordination of the project members, the financial and planning control, the reporting and submission of deliverables, the distribution and control of the EC funds.

Appendix B. Overview of Visited SCEs

Peter Rebernik Coordinator

In 2003, nine Science Communication Events were surveyed:

France	"Fête de la Science"	nationwide	03.10.–19.10.2003
Germany	"Science Days"	Europapark, Freiburg	16.10.–18.10.2003
Ireland	"Science Week Ireland"	nationwide	10.11.–17.11.2003
Luxemburg	"Science Festival Luxemburg"	nationwide	08.11.–16.11.2003
Netherlands	"Wetenschap en Techniek Week"	nationwide	15.10.–22.10.2003
Portugal	"Semana da Ciência e da Tecnologia"	nationwide	22.11.–28.11.2003
Spain	"Feria Madrid por la Ciencia"	Region of Madrid	13.02.–16.02.2003
Sweden	"Internationella Vetenskapsfestivalen"	Gothenburg	05.05.–18.05.2003
United Kingdom	"The BA Festival of Science"	Manchester	08.09.–12.09.2003

In 2004, twelve Science Communication Events were surveyed:

Austria	"ScienceWeek @ Austria"	nationwide	07.05.–16.05.2004
Denmark	"Dansk Naturvidenskabsfestival"	nationwide	24.09.–03.10.2004
Germany	"Wissenschaftssommer"	Stuttgart	25.09.–01.10.2004
Italy	"Festival della Scienza"	Genoa	28.10.–08.11.2004
Lithuania	"Mokslo Festivalis"	Vilnius	04.09.–17.09.2004
Norway	"Forskingsdagene"	nationwide	10.09.–04.10.2004
Poland	"Festiwal Nauki Warszawa"	Warszawa	17.09.–26.09.2004
Poland	"Dolno I ski Festiwal Nauki"	Wrocław	17.09.–24.09.2004
Slovenia	"Slovenski Festival Znanosti"	Ljubljana	19.10.–21.10.2004
Spain	"9a Setmana de la Ciència"	Barcelona	05.11.–15.11.2004
United Kingdom	"Edinburgh International Science Festival"	Edinburgh	03.04.–14.04.2004
United Kingdom	"National Science Week"	nationwide	12.03.–21.03.2004

In general, Science Communication Events were visited and observed by a team of two project members. Questionnaires were sent out in advance to the organizers. At the Event, both organizers and other people involved (sponsors, participants, etc) were interviewed. In addition to this the, Activities were visited and described.

The following members of the EUSCE/X Project Team visited the countries (websites):

Austria	Mikkel Bohm, DK	www.scienceweek.at
Denmark	Annika Lotzman-Dahl, S & Jan Riise, S	www.dnf2004.dk
France	Magda Fikus, PL	www.recherche.gouv.fr
Germany, Stuttgart	Joachim Lerch, D	www.wissenschaft-im-dialog.de
Germany, Russt/Freiburg	Annika Lotzman-Dahl, S	www.science-days.de
Ireland	Magda Fikus, PL & Peter Rebernik, A	www.science.ie
Italy, Genoa	Magda Fikus, PL & Peter Rebernik, A	www.festivalscienza.it
Lithuania	Peter Rebernik, A	www.mokslas.lt
Luxemburg	Charlotte Willmer-Klumpp, D	www.science-festival.lu
Netherlands	Peter Rebernik, A & Paula Wallace, UK	www.wetenweek.nl
Norway	Aleksandra Kubicz, PL & Peter Rebernik, A	www.forskningsdagene.no
Poland, Warsaw	Katarina Thorstensson, S & Janneke Voltman, NL	www.icm.edu.pl/festival
Poland, Wroclaw	Katarina Thorstensson, S & Janneke Voltman, NL	www.festival.wroc.pl
Portugal	Mikkel Bohm, DK & Annette Smith, UK	www.setmanaciencia.org
Slovenia	Aleksandra Kubicz, PL & Peter Rebernik, A	www.ustanova-szf.si
Spain, Barcelona	Mikkel Bohm, DK & Annette Lotzman-Dahl, S	www.setmanaciencia.org
Spain, Madrid	Joachim Lerch, D & Annette Smith, UK & Peter Rebernik, A	www.madrimasd.org/madridporlaciencia
Sweden, Göteborg	Mikkel Bohm, DK & Joachim Lerch, D	www.goteborg.com/vetenskapsfestival
United Kingdom	Annette Smith, UK & Paula Wallace, UK	www.sciencefestival.co.uk
United Kingdom	Mikkel Bohm, DK & Jan Riise, S	www.sciencefestival.co.uk
United Kingdom	Magda Fikus, PL & Joachim Lerch, D	www.the-ba.net

Appendix C. Science Communication Networks

Peter Rebernik Coordinator

C.1

General overview

There are many different institutions and associations in Europe, which work at least partially in the field of Science Communication Events and which can assist with projects and sometimes help with funding.

Principal amongst these for organisers of Science Communication Events is EUSCEA, the European Science Events Association.

EUSCEA was founded explicitly for Science Communication Event organisations, and is responsible for the project which has led to this White Book. The other European networks mentioned here have cooperated with EUSCEA or with individual Science Communication Events and could be approached for further networking.

Beyond Europe there are further science communication networks, and there is a proposal to set up a world wide network of Science Communication Events. This proposal will be investigated at the next meeting of the PCST (see p 120).

This list will, of course not be exhaustive. Please contact EUSCEA via the General Secretary (details below) if you have any additions or corrections for the next edition of this publication.

EUSCEA – the European
Science Events Association

EUSCEA was founded in 2001 and aims to provide a network of support for the organisers of science festivals, science weeks and other SCEs across Europe. From relatively small beginnings, the network has grown to 46 members from 25 different countries. Each year an Annual Conference is held – in 2005 it was in Barcelona, in 2006 it will be in Reykjavik, Iceland on June 1 and 2.

Contact details

EUSCEA European Science Events Association www.euscea.org

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MEMBERS

Country	Organisation	Name of event	Location of event
Austria	PHAROS International	ScienceWeek @ Austria	Wien
Belgium	F.T.I Foundation	Vlaamse Wetenschapsweek	Mechelen
Belgium	Réseau Scité	Printemps des Sciences	Namur
Cyprus	Cyprus Marine Environment Protection Association, CYMERA		Limassol
Denmark	Dansk Naturvidenskabsformidling	Dansk Naturvidenskabsfestival	København
Finland	Academy of Finland		Helsinki
Finland	Federation of Finnish Learned Societies	Science Forum (Tieteen päivät)	Helsinki
France	Institute de Physique et Chimie des Matériaux de Strasbourg, Groupe d'Etude des Matériaux Métalliques	Fête de la Science	Strasbourg
Germany	British Council Germany		Berlin
Germany	Förderverein Science und Technologie e.V.	Science Days	Köndringen
Germany	Phaeno GmbH		Wolfsburg
Germany	Wissenschaft im Dialog gGmbH		Berlin
Hungary	Hinsenkamp and Co International Communication Services DP		Budapest
Hungary	Society Dissemination of Scientific Knowledge (TIT)		Budapest
Iceland	The Icelandic Research Council (RANNIS)		Reykjavik
Iceland	University of Iceland		Reykjavik
Ireland	Forfás	Science Week Ireland	Dublin
Ireland	Moore communications		Dublin
Ireland	Royal Dublin Society		Dublin
Israel	The Bernard Bloomfield Science Museum Jerusalem, Hebrew University	Science Festival	Jerusalem
Italy	Associazione Festival della Scienza	Festival della Scienza	Genova
Italy	Eurac - Europäische Akademie Bozen - Accademia Europea Bolzano	ExplOral EURAC Science Festival	Bozen/Bolzano
Italy	Perugia Science Festival		Perugia
Latvia	University of Daugavpils		Daugavpils
Luxemburg	Musée national d'histoire naturelle du Luxembourg	Festival International Des Sciences	Luxembourg
Malta	Malta Council for Science and Technology	Science Popularisation Programme	Kalkara
Netherlands	Nemo – Weten Week		Amsterdam
Norway	Norges Forskringrad	Forskningsdagene - The Norwegian Research Week	Oslo
Poland	Akademia wi tokrzyska im. J.Kochanowskiego	Kielce Science Festival	Kielce
Poland	Festiwal Nauki - Warszawa	Festiwal Nauki - Warszawa	Warszawa
Poland	Nicholas Copernicus University	Festival of Science and Art	Toru
Poland	University of Wroclaw - Uniwersytet Wroclawski	Lower Silesian Science Festival	Wroclaw
Poland	Progress & Business Foundation		Kraków
Portugal	ANCCT	Ciencia Viva	Lisboa
Slovakia	Centre for Advancement, Science and Technologie, SARC		Bratislava
Slovenia	The Slovenian Science Foundation	Slovenian Science Festival	Ljubljana
Spain	Fundació Catalana per a la Recerca i la Innovació (FCRI)		Barcelona
Spain	Research Directorate General, Ministry of Education, Regional Government of Madrid	Madrid Science Festival	Madrid

Sweden	Göteborg & Co, International Science Festival Göteborg	International Science Festival Göteborg	Göteborg
Sweden	Swedish Research Council		Stockholm
Switzerland	Stiftung Science et Cité	Science et Cité	Bern
Switzerland	Swiss Federal Institute of Technology, ETH	Festival des Wissens	Zurich
United Kingdom	British Association for the Advancement of Science	National Science Week	London
United Kingdom	University of Birmingham, Electronic and Electrical Engineering		Birmingham
United Kingdom	Orkney Science Festival	Orkney International Science Festival	Kirkwall, Orkney

For current contact details for all EUSCEA members and details of the dates of the next Events they are holding with links to individual websites, please see the EUSCEA website www.euscea.org.

C.2

Other networks

EUSJA – the European Union of Science Journalists Associations

Members of EUSJA are the national associations of science writers throughout Europe. EUSJA, the European Union of Science Journalists' Associations, helps science writers throughout Europe to keep in touch with one another. EUSJA does not have individual members. To become a part of the EUSJA 'family' join your local science writers' association.

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ECSITE - The European Collaborative for Science, Industry and Technology Exhibitions

ECSITE is a not-for-profit organisation representing science and technology centres and museums throughout Europe. <http://www.ecsite.net/>

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The European Schoolnet is an international partnership of more than 26 European Ministries of Education developing learning for schools, teachers and pupils across Europe.

European Schoolnet

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Website: www.eun.org

Corporate portal: www.europeanschoolnet.org

Websites: <http://www.eun.org>, <http://www.europeanschoolnet.org>

ENSCOT is a project that ran from March 2000 – July 2003. It was funded by the European Commission under the Framework 5 “Raising Public Awareness of Science and Technology Programme”.

ENSCOT – The European
Network of Science
Communication Teachers

The project brought together leading institutions and individuals involved in science communication teaching from across Europe, to exchange ideas on good practice in teaching, develop a European perspective for science communication courses and to act as a nucleus for other science communication teachers throughout the European Union.

The project has now been completed, but there is hope to launch an expanded network. Details of the resources produced by ENSCOT can be found on the website.

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Website: www.enscot.com

ESCIN aims to improve the appreciation and understanding of basic and applied scientific research among Europe’s citizens and opinion-formers. Set up in 1993, ESCIN brings together the heads of communication from 21 of Europe’s major research councils, institutes and associations in nine countries.

ESCIN - The European
Science Communication and
Information Network

Website: www.esf.org/escin/default.htm

Euroscience
ESOF Euroscience
Open Forum

Euroscience is a grass-roots organisation open to research professionals, science administrators, policy-makers, teachers, PhD students, post-docs, engineers, industrialists, and in general to any citizen interested in science and technology and its links with society. It represents European scientists of all disciplines (including social sciences and the humanities), in the public sector, universities, research institutes as well as business and industry.

EUROSCIENCE has initiated the EUROSCIENCE OPEN FORUM meetings which are meant to be a European meeting place for scientists, science teachers, media, politicians, industry and the public at large on issues of science and technology, society and policy.

The first successful ESOF meeting took place in Stockholm in August 2004 (www.esof2004.org). The second will be held in Munich in July 2006 (www.esof2006.org).

The head office of Euroscience is in Strasbourg
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PCST Network

The International Network on Public Communication of Science and Technology (PCST) is a network of individuals from around the world who are active in producing and studying PCST.

The PCST Network includes:

- Science journalists
- Science museum and science center staff
- Science theatre directors
- Academic researchers who study aspects of PCST
- Scientists who deal with the public
- Public information officers for scientific institutions
- Many others interested in these issues

The PCST Network sponsors international conferences, electronic discussions, and other activities to foster dialogue among the different groups of people interested in PCST, leading to cross-fertilization across professional, cultural, international, and disciplinary boundaries. The PCST Network seeks to promote new ideas, methods, intellectual and practical questions, and perspectives.

Website: www.pcstnetwork.org



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