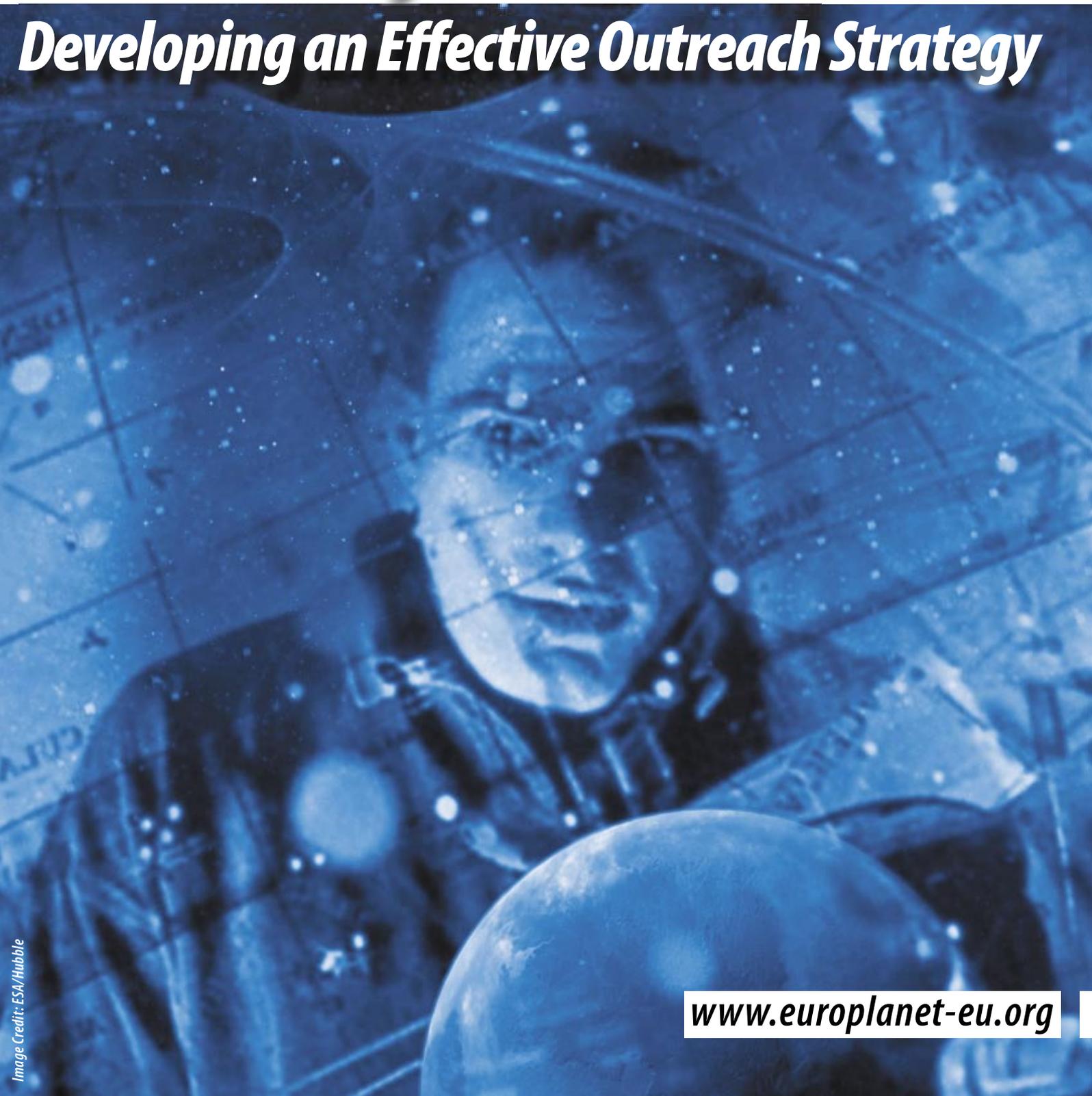


Communicating a Cosmic Vision

Developing an Effective Outreach Strategy



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Over the lifetime of a planetary mission, from conception to completion, there are many occasions in which teams must communicate with non-specialists about their work. These non-specialists can vary widely in terms of knowledge, age, experience and areas of interest: potential audiences include decision makers, school children, the media and the general public and their views on the mission (and space in general) may be supportive and enthusiastic, or may be indifferent or even antagonistic.

Frequently, planning for outreach activities is left until a relatively late stage of mission development and is tied to major milestones, such as the launch. However, for communications to be effective in developing the widest awareness and support for the mission (and funding for future projects), it is essential that thought is given to developing a strategy for outreach from the beginning of the project. NASA has shown the effectiveness of building support for a mission from a very early stage. Furthermore, to produce a coherent outreach strategy, there should be collaboration from all the organisations involved in the mission..

Outreach activities to raise awareness of a mission could include:

- developing a dedicated outreach website for the mission, with sections aimed at different audiences, e.g. interested public, educators, and the media
- developing education programmes (this can be done 2-3 years prior to launch e.g. the University of

Arizona's "Changes in Altitudes" programme, which relates to the Phoenix Mars Lander, has been running since 2005) including teacher training programmes, lesson plans and hands-on activity ideas.

- building media awareness of the mission gradually through briefings, releases and press packs
- briefing politicians and decision makers
- attending exhibitions, science fairs, education shows and public events
- running institution open-days
- making school visits
- producing printed materials, including leaflets and posters
- gathering names of the public/messages to send on the spacecraft
- running competitions
- setting up webcams (annotated to give explanation) showing the spacecraft during construction and testing
- sending regular e-mail bulletins on construction/mission progress.

Contents

Introduction.....Pag.4

Section 1.....Pag.5

[Top 10 tips for effective outreach](#)

Section 2.....Pag.7

[General advice](#)

Section 3Pag.8

[Examples of good practice](#)



1. Be professional

Your audience is not waiting in a vacuum for you to tell them about your mission – the people you want to reach are already overloaded with information. If an outreach activity (e.g. a leaflet, website, DVD, display or media release) is to make an impact, it must compete for attention. This means it must look and feel high-quality and must be attractive.

Advice is available from the PR and marketing departments in most universities, institutes and funding agencies, as well as from professional science communicators.

2. Allocate an appropriate budget

Allocate a sensible budget to activities: Christensen (2007) recommends 2% of the total budget for the mission. An absolute minimum of ½% should be set aside for outreach activities.

Time and money spent on an amateurish final product will make little impact and are, in practical terms, wasted. If you do not have to budget to carry out your activity to a professional standard, then look for partners that have similar interests. A single, properly-funded activity produced by all the institutions and companies involved in a mission will have a much bigger impact than several low budget publications by individual members.

It is equally important to allocate sufficient time for planning and developing an activity and also that the work is done by an experienced communicator. If you do not have the time or expertise in-house, contract a professional science communicator to do the work. Educational materials must be developed by a professional educator who is up to date with curriculum requirements.

When planning an activity, ensure that the distribution channels are identified and included in the costing – there is no point producing 10 000 posters if you have no way of getting them to your audience. If you are planning to distribute products digitally, work out how they can be advertised and marketed to your audience.

3. Think about the audience

Never overestimate the knowledge or underestimate the intelligence of your audience! Effective communication means giving to your audience the information that interests them, not telling them what you think they should know. Materials and activities will need to be targeted for specific audiences.

Language should be kept simple, particularly if it is to be translated or used by people for whom the language in which you are writing is not their first language.

With some activities, particularly those relating to the media and education, it will be necessary to create resources that are specific to each country involved. For instance, UK school teachers have strict guidelines for what they must teach; if educational resources do not relate directly to the National Curriculum, they will not be used.

4. Build links between groups, including academia and industry

Co-ordination and co-operation between organisations have wider benefits than simply a bigger budget. The more people you involve in developing your outreach programme, the wider the range of ideas, expertise, resources, contacts, established distribution channels and manpower you will have to draw upon.

Jointly produced materials, such as display boards and leaflets, with joint branding (or multiple logos) can be shared between groups. This means that groups can reach audiences that they wouldn't ordinarily access (e.g. at exhibitions that they wouldn't normally attend).

5. Make use of outreach training courses

Media and public engagement training is extremely useful, not just for the PIs of the project, but also for younger scientists involved in missions. Training gives scientists and engineers experience in putting their ideas across to different audiences, confidence in communicating their work and knowledge of how to deal with difficult situations, e.g. an interview following a launch failure.

Check with your institution, funding agency or academic society to see what training is available.

6. Involve students

PhD students and post-docs have more time to spend on outreach activities than PIs and are (usually) young, approachable and enthusiastic. They are, therefore, often the best people to interact with the public and schools. They may also be able to assist in developing websites and producing materials.

7. Don't re-invent the wheel and don't be possessive about ideas

Don't replicate resources that are already available. Before undertaking any outreach activity, find out what resources have already been produced, or are in production, on similar topics and see how your ideas can complement rather than compete with what already exists.

In some cases it may be possible to adapt resources produced by others, e.g. interactive games or models, to fulfil your own aims at a much lower cost than if you started from scratch.

If you find that someone else is producing a similar product (e.g. a poster) to the one you have planned, then try to get your logo included on their product and spend your money on something else!

8. Plan ahead

Work out a timeline of all the mission milestones, both major (launch, arrival, first light, first images etc) and minor (phase completion, instrument testing etc) and plan your outreach strategy around them.

Ensure that the press officers at your institutions and funding agencies are aware of these dates well ahead of time so that they can plan media activities.

Plan outreach activities to be released ahead of milestones to build up anticipation and interest in what happens.

9. Have clear priorities and clear messages

Outreach can take many forms and include many different audiences. You will need to decide which of these are most important to you and prioritise them accordingly. It is also helpful to decide on two or three sentences that summarise the main messages that you are trying to communicate and order them in terms of importance:

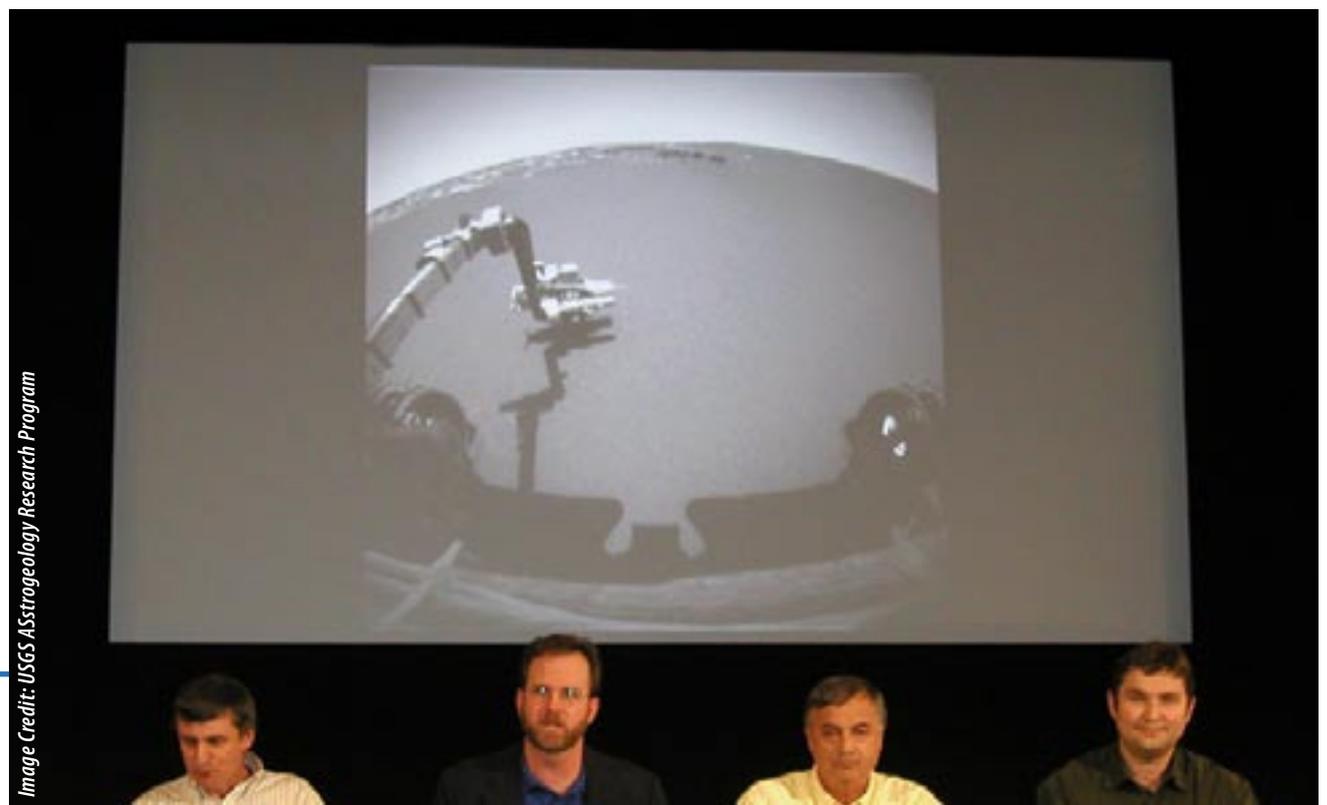
For example:

1. Cassini Huygens is a joint NASA/ESA/ASI mission to Saturn and Titan.
2. The Huygens probe is a flagship for European science and technology.
3. Exploring Titan, which resembles a primordial Earth, will help understand our own planet's origins.

10. Evaluate

Evaluation is essential in developing a good outreach programme. There are two types: formative evaluation, or the research and evaluation that you do when designing your project to assess the most effective ways to reach your audience, and summative evaluation, which compares the outcomes of the project to its original objectives and attempts to assess its success.

An excellent guide to evaluation methods can be found at: <http://www.rcuk.ac.uk/news/evaluation.htm>



Websites

- Ensure that there is one main outreach site that has input from all groups involved in the mission.
- Keep the site focussed on the mission – there are plenty of other good sites that give general background on the Solar System and it is better to link to these sites than expend energy writing your own version.
- Highlight the human side of the mission – include photos, case studies and Blogs about the people that are doing the work.

For general advice on good practice in web-design, see the WC3 Accessibility Guidelines:

<http://www.w3.org/TR/WAI-WEBCONTENT/>

Printed materials

- Use a standard page size.
- Order information like a newspaper article: include a sentence or two that summarises the main message in a large font
- Make sure that contrast between the colour of the text and the background allows for easy reading and is accessible to colour-blind and visually impaired. Try photocopying or printing proofs in black and white to check contrast.
- Use a sans-serif font
- Use pictures or illustrations instead of words where possible
- Make your material available on demand in large print format for the visually impaired

Exhibitions

Before designing a temporary exhibition or display, talk to staff at your potential venues (museums and science centres) to find out what kind of displays

would be most suitable.

- What is the maximum and minimum size of exhibition in which the venue would be interested?
- If hardware or models are part of the display, what kind of insurance and security arrangements can the venue supply or will you need to put in place?
- How robust do exhibits need to be? If they are to be left in an unsupervised area, they must be able to withstand potential use as a climbing frame.

Talking to the public

(e.g. giving a talk or helping at an exhibition stand)

Do:

- Expect a wide range of questions at a wide range of levels
- Think about the best way of explaining key points and the order in which they need to come (preferably in advance of the exhibition)
- Practice on non-scientist friends and family
- Be yourself and use your own language
- Use short words and short sentences
- Think positive
- Smile
- Aim to inform, inspire and entertain!
- Familiarise yourself with the rest of the exhibition/ the context of the event
- Try and keep up with the latest science news
- Have water to hand
- Stand up when talking to visitors

Don't:

- Use jargon
- Try long, complicated jokes
- Repeat the same thing, word for word, to every visitor
- Read from notes.



Webpages

1. NASA/Mars Odyssey Themis Website

<http://themis.asu.edu>

Some features:

- i. Modern graphics
- ii. Good overview
- iii. Access to real data with simple web tools
- iv. Interesting to multiple target groups (from planetary sciences community to laypeople)

2. ESA/Space Telescope

<http://www.spacetelescope.org>

Some features:

- i. Updated (very) regularly
- ii. Good organisation of a huge amount of information
- iii. Access to real data
- iv. Educational activities

3. NASA/JPL/ Cassini-Huygens

<http://saturn.jpl.nasa.gov>

Some features:

- i. Updated regularly
- ii. Good overview
- iii. Excellent multimedia collection
- iv. Educational activities

Exhibitions

1. Space Detectives

<http://www.sciencemuseum.org.uk/antenna/space/>

Some features:

- i. Heavily IT based to allow rapid updating of content
- ii. Robust structure for touring exhibition
- iii. Companion website to allow a wider audience and to continue access after the physical exhibition closed
- iv. Features interviews with scientists, putting over the human story.

Activities

1. Astronomy/Gastronomy: presenting astronomy through food.

Some features:

- i. Reaches a completely different audience
- ii. Large number of gastronomic events in all countries e.g. La Foire Internationale et Gastronomique de Dijon, the Great British Cheese Festival, so there are many opportunities to run activities.
- iii. Attracts media attention as a “quirky” item.

Events

1. Huygens Landing Event

Some features

- i. Excellent media coverage
- ii. National events
 1. Public Talks
 2. Telescope Observations
 3. Local Press conferences and interview opportunities

2. Transit of Venus 2004

Some features

- i. Good synergy between professional astronomers, amateur astronomers and schools
- ii. Excellent educational activity
- iii. Excellent Media Coverage

Educational resources

1. NASA Solar System Quest Website

<http://quest.nasa.gov/ssso/teachers/index.html>

Some features:

- i. Online hub with access to NASA's vast suite of educational resources.
- ii. Several opportunities to interact with NASA scientists live online per month
- iii. Planet by planet guide to resources and lesson plans
- iv. Biographies of NASA employees.

2. Cassini Huygens Educational Resources

<http://www.bnsc.gov.uk/lzcontent.aspx?nid=4832>

Some features:

- i. Lesson plans developed for literacy classes as well as science lessons.
- ii. Resources developed by teaming a scientist/engineer from the Cassini Huygens mission with an Advanced Skills Teacher.
- iii. Lesson plans developed and branded with clear links to the National Curriculum.





