



## Evaluation of Sciencehorizons

In May 2006, the Sciencewise programme (part of the Department for Innovation, Universities and Skills – DIUS) commissioned the Sciencehorizons project to explore the public's views on the science and technology themes that had emerged from strategic work by the UK Government's Horizon Scanning Centre.

This summary report identifies the main findings from the evaluation study of the Sciencehorizons project. A full report of the evaluation findings is available, which includes detailed analyses of all the statistical and qualitative data.

The evaluation research was carried out over the whole of the Sciencehorizons project, from May 2006 to end November 2007. The research included review and analysis of all data on the process collected in participant responses to the project by post and online, observation and informal interviews at events, questionnaires at events, informal interviews with public and stakeholder participants and some policy makers, followed by quantitative and qualitative analysis of all the data collected.

### Context

The Sciencehorizons project considered the topics emerging from two key scans of future directions for science and technology published in 2006 by the Government's Foresight Programme's Horizon Scanning Centre (HSC)<sup>1</sup>. The project provided a public-facing engagement process to add to the continuing work of the HSC's Wider Implications of Science and Technology (WIST) programme<sup>2</sup>, which provides for expert and stakeholder appraisal.

The HSC scans identified issues which could transform the delivery of public services, challenge society, and / or affect wealth creation and the nation's security and vital interests over the period to approximately 2015-2020. This timescale and set of issues formed the context for the Sciencehorizons project.

### The engagement activities

The Sciencehorizons project aimed to develop informed, deliberative dialogue processes bringing together citizens, scientists, policy makers and other stakeholders, working in partnership with the broader science engagement community. The project was delivered by a consortium, led by Dialogue by Design.

The project's primary objectives were:

- to discover views about the issues raised by possible future directions for science and technology, from a broad set of participants;
- to inform policy and decision-making on the direction of research and the regulation of science and technology; and
- to help identify priorities for further public engagement on areas of science and technology.

There were also secondary objectives for the project which related to the overall objectives of the Sciencewise programme.

The Sciencehorizons public events were held between January and June 2007. These were, in summary:

**Strand 1: A Deliberative Panel** with a diverse group of the public and invited expert speakers. This group was recruited to provide a demographically diverse mix of participants, including from traditionally 'hard to reach' groups such as black and minority ethnic communities, people with disabilities, older and

younger participants. The Panel met twice (for a full day each time) in Bristol, with 31 participants at the first event and 27 at the second. This process was designed, facilitated and recorded by the highly experienced national project team, and provided opportunities for in depth discussions among the participants. Scientists attended both sessions, with participants choosing which expertise they wanted brought into the second session. This strand provided narrow but deep public engagement.

**Strand 2: Facilitated Public Events** in science centres and other community spaces, held throughout the UK. The British Association for the Advancement of Science (BA) ran four working lunches to promote the project to potential Strand 2 organisers, and there was extensive publicity through other networks. All potential organisers were directed to the Sciencehorizons website which included information on organising an event, facilitation, and a suggested timetable. 18 different organisations ran 36 events usually lasting about two hours, involving about 842 people and generating 97 responses to the project. This provided wider, less deep, public engagement with a larger group than Strand 1, and reached what could be called the 'interested public'. Scientists took part in almost all events, taking a variety of roles including making input, facilitating and taking part in discussions.

**Strand 3: Self-managed Small Group Discussions** run by community bodies throughout the UK such as schools, Women's Institutes, environmental and faith groups. 78 different groups ran events reaching about 2,400 individuals, many of whom had little or no knowledge of science and technology. This strand generated 392 responses to the project and reached what could be called the 'active public' as most were already involved in a local group. Almost all groups had at least one person with a science or technology background and these people took part as group members.

Overall the project reached 3,273 public participants and generated a total of 489 responses to the project. The results of the Strand 1 workshop were recorded by the professional facilitators from the national project team who ran the event and the results of the other strands were submitted by a mix of individuals and group organisers by post or online.

The main public events were supported by carefully designed and colourfully printed information packs (including a DVD), a website (with all documents and other information including details of Strand 2 events), an enabling fund for Strand 2 events (providing grants for 17 groups for venue hire, catering, etc), outreach and publicity information and materials, advice and other support.

All three strands used the same information pack which comprised 16 scenarios within the four themes of minds and bodies, homes and communities, work and leisure, and people and planet. It also included information on where the technology was at present, and a set of forms for groups to use to send in their views on what they liked or disliked about the technology in each scenario, and which of those was most important to them.

There was also stakeholder engagement in the project through an Oversight Group which provided advice on the development and delivery of the project, a Project Board which provided the formal governance structure for the project with links to Sciencewise and DIUS, a stakeholder workshop to develop the initial content of the materials for the public, and presentations at the BA Festivals of Science in 2007 and 2008.

The results of the project were published in full on the website in August 2007, so all input could be viewed. This data provided the basis for the reports on each strand which were produced by the team report writer, and a final project report brought the findings from each strand together. This report was presented at the BA Festival of Science and published in print and on the project website in September 2007.

The Sciencehorizons project findings were then amalgamated with the findings from the WIST stakeholder engagement processes and presented to a workshop of about 50 relevant policy makers from across Government in November 2007. The workshop produced a list of priority issues for future public and stakeholder engagement on science and technology.

## What worked well

The evaluation has identified several aspects of good practice:

**The national framework for public engagement.** The opportunity to take part in a project linked to national policy making was the motivation for almost one third of Strand 2 organisers, and more than two thirds of them felt part of a national initiative.

There was also positive feedback about the experience of taking part: 100% of Strand 1 participants were satisfied with the way their events were run, 86% of Strand 2 organisers were satisfied with the support they received, and 88% of Strand 3 respondents were satisfied with the information provided. These very high levels of satisfaction across all three strands show that the project did succeed in providing an effective national framework for engagement on science and technology issues that worked for many organisers and participants.

**Testing different approaches to public engagement on science and technology.** The full evaluation report shows that people could have worthwhile discussions using either a highly-resourced deliberative panel approach (Strand 1) or more devolved patterns of engagement (Strands 2 and 3).

However, Strand 1 did provide much richer data on 'why' participants raised the issues they did and influenced participants' thinking with significant impacts on learning, clarifying people's views and making a difference to what they thought: 20% said (without prompting) that they felt more positive about science and technology as a result of being involved. Other strands helped spread awareness of the issues, and many participants were engaged enough in the discussions to send in responses, but the quality of the engagement and of the data emerging did not have the depth and richness of Strand 1.

**Validation of results.** The diversity of groups involved did provide sufficient breadth for the project to demonstrate that the findings represented a good range of public views on the issues. Responses from all three strands showed similar issues as priorities and this 'triangulation' of results from three different types of engagement was a useful method for testing the robustness of the findings.

**Effective materials that stimulated and supported discussions.** Feedback shows some high satisfaction levels with the materials: 100% of Strand 1 participants were satisfied with the materials, and 87% of Strand 3 respondents found it easy to have a discussion using them. Strand 2 respondents were less positive but they also agreed that the materials did stimulate discussion - more effectively than they had expected.

**Contribution to evidence-based policy making.** The project provided some valuable 'early warning signs' of potentially controversial issues which have been used by WIST and DIUS to identify priorities for future public engagement activities, including within the Sciencewise programme. The evaluation did find evidence that policy makers also felt the process had helped to:

- start public dialogue on what may be controversial future decisions at a very early stage;
- identify areas where future public engagement work may be needed, and what may be the priorities;
- fill a gap in the WIST exercise by bringing in 'public' views, and thus strengthening the WIST process in identifying the key safety, health, environmental, ethical, regulatory and social (SHEERS) issues relating to emerging developments in science and technology;
- challenge expert assumptions about what public views might be;
- demonstrate Government's willingness to engage with the public on these issues.

**Reached diverse groups.** The project reached a broad set of groups and individuals including a demographic cross-section of the population in Strand 1, the 'interested public' in Strand 2, and the 'active public' in Strand 3, with a good mix of types of people and levels of knowledge of science and technology.

**Worked with scientists in various ways.** Scientists were involved in the project as stakeholders but also in all strands of the public engagement activities. They provided input through presentations, facilitated and supported discussions and took part as group members. This integration of scientists across all the activities was a notable achievement of the project.

**Created enthusiasm for further engagement on science and technology.** 96% of Strand 1 respondents thought it was important to involve the public in these sorts of debates, and that there should be more such events for the public. 86% of Strand 2 respondents thought it very important to involve the public and 75% of Strand 3 respondents said they would like to have another discussion on science and technology issues. This feedback shows a real interest in taking public engagement in science and technology issues further in future.

**Opportunities for learning.** As well as the learning by public participants, the project also provided a valuable opportunity for Strand 2 organisers and others to learn about new approaches to working with the public, and some organisers were interested to develop their skills further.

## What worked less well

**Policy connections.** The project had significant problems in developing and demonstrating direct links between the issues discussed in the project and influence on policy decisions, largely because the issues were so far upstream that it was too early to identify specific policy 'homes'. Lack of direct policy impact does not necessarily imply any failings on the part of the dialogue project, as policy processes are rarely predictable or controllable. However, in this case, the lack of direct links between the project and policy outcomes did cause some difficulties, as follows:

- **Hard to explain to participants how results would be used,** and to report on policy impacts later.
- **Lack of direct contact between public and policy makers.** Policy makers often value hearing public views first hand, rather than reading reports, and public participants often feel more satisfied that they are influencing policy if policy makers hear their views direct.
- **Lack of topicality and controversy in the issues.** Some Strand 2 organisers reported difficulties in recruiting people for events. More controversial and topical issues that were linked to current policy developments may have encouraged more people to engage.

**Recording and reporting.** There were three problems here:

- **Capturing participants' views.** It is always difficult to capture the full richness of participants' views. Strand 1 did this well and fully, but recording and reporting were much more variable in Strands 2 and 3 as these relied on groups (and individuals) themselves capturing views and reporting back to the project. However, self-reporting does have the advantage of being in participants' (or organisers') own words, without any mediation or translation.
- **Limited questions for feedback.** Groups in Strands 2 and 3 used feedback forms to send back their views, and some felt the use of questions about 'likes' and 'dislikes' were too superficial to capture the full extent of their discussions and views.
- **Lack of data on participants and processes.** There was not full data on the public participants in Strands 2 and 3. There is sufficient data to show the range of people (and that it was diverse enough to be seen as a good spread of public views), but not enough to provide a deeper analysis of participants.

**Timing.** There were four problems with timing:

- **Too much to discuss in the time suggested.** The packs suggested 1.5 hours would be needed for discussion, and some respondents felt this was far too little to cover all the issues, which created some frustration.
- **Deadline too close to launch.** Several respondents felt that the timescale between the launch (January 2007) and the deadline for responses (June 2007) was too short to find out about the project, plan and publicise events, recruit participants, deliver events, and collate and provide feedback from their groups.
- **Too early in the policy process.** The project was too early for links to specific policy outcomes to be clear, and thus to be clearly explained to participants.
- **Parallel rather than iterative processes.** The working of all three strands in parallel helped to spread awareness of the issues, and to provide triangulation of results by allowing comparisons of findings across strands. With more time, an iterative process could have built on the identification of issues by then exploring these findings again in more depth.

**Target audience very broad.** The project and materials were designed to reach and provide support to as wide a cross-section of the public as possible. In practice, this very broad target audience caused a number of problems:

- **The design and content of the materials did not suit everyone.** In general, school groups and young people liked the personalisation of the stories and the design and illustrations; but some adult groups found the materials too simplistic and superficial, and the design too cartoonish.
- **Marketing and publicity not suitable for everyone.** Strand 2 organisers identified the most problems in recruiting people to take part in their events, and several asked for more and different marketing materials and stronger 'branding'.
- **Proliferation of responses from schools.** About two-thirds of responses in Strand 3 were from schools, which could have unbalanced the findings, although as the responses here were analysed qualitatively not quantitatively it was not the major issue it may have been in other circumstances.
- **Lack of involvement by some 'hard to reach' groups.** The project did reach the main 'hard to reach' groups identified originally as targets for the project: younger people and older people. From the limited data available on Strands 2 and 3 it seems that there were few responses from black and minority ethnic communities, neighbourhood or community groups, workplace communities (including unions), or groups from disadvantaged communities. These groups require precise targeting and support if they are to participate in these sorts of exercises, and are often unlikely to participate in projects aimed at the 'general public'.

These problems suggest that it is impossible to write and design materials and processes that will be appropriate for audiences of all ages and levels of knowledge of the subjects. A more focused and targeted approach may be needed in future.

**Collaboration between stakeholders.** There were fewer new collaborative initiatives than had been hoped. Some Strand 2 organisers suggested this was due to lack of time to develop new collaborative ventures, and not lack of interest.

## Issues and questions raised

This project has raised some interesting questions about the nature of public dialogue. For example:

### **Different engagement methods for different types of issues.**

Deliberative dialogue, as used in Strand 1, seems to be particularly effective for addressing contentious issues where there is scientific uncertainty, and the public are often quite comfortable in those processes with the idea that knowledge is still evolving. The approaches in Strands 2 and 3 can be more effective in spreading more general public awareness.

### **Same issues raised in all three strands: why pay more?**

The findings from all three strands were remarkably similar in terms of priority issues. The evaluation suggests that the simple identification of issues may be possible across a large number of people at relatively low cost, but deeper and more resource intensive dialogue (as in Strand 1) can provide much richer data to explain 'why' people hold the views they do, and what influences those views.

**Is dialogue about engagement, research or education?** This project was designed primarily as a public engagement process, and the research and education aspects were secondary, but were also achieved. Dialogue can provide all these benefits, but the process design will need to be based on clarity about which is the primary purpose.

**Extending the Sciencehorizons approach.** In this field, innovation is important and everyone is learning all the time, so it will be important to find new ways to maintain the balance between extension, quality, and innovation, and extending the skills of those relatively new to public engagement, within realistic budgets.

**Diversity or representation.** The evaluation draws attention to the need for diversity among the participants in public dialogue where the aim is engagement, but not necessarily full demographic representation of the UK population unless the dialogue has specific research aims that require that type of sample.

**Continuity.** There was good feedback to participants during and at the end of the project, but the contact ended with the project. There was potential for continuing engagement on many of the issues discussed, but no easy mechanisms (or funding) to ensure that happened.

## Lessons for the future

**Scientists and other experts can support and stimulate dialogue.** The project showed that, ideally, dialogue involves scientists with diverse views and perspectives from local institutions (where participants are from one locality), who are good communicators, are open and straightforward, and who recognise doubt and uncertainty. These qualities seem to stimulate and support dialogue most effectively.

**Learning can reduce fear and negativity.** Some public participants said that some of their fears about science and technology were dispelled by finding out more. In other circumstances, of course, the reverse may happen, and finding out more may raise more questions and concerns than it answers.

**Involvement of policy makers vital to policy impact.** The early involvement of policy makers helps ensure the results of the process are relevant to current policy initiatives.

**Boundaries of the dialogue need to be clear.** The focus of dialogue may need to be spelt out very clearly (e.g. to consider the social and ethical issues and not just the technology) so that participants know what to expect and what is expected of them.

**Materials and dialogue need to be targeted.** It is probably impossible for information materials and dialogue processes to work for all age groups and all levels of knowledge. Materials and processes probably need to be targeted at specific audiences that are identified in advance.

**Realistic timescales are needed** for individual events and to enable organisers to decide to get involved, plan and run group meetings and feedback results. The six month timescale of this project from launch to closure was too tight for some, and reduced options for using iterative processes to refine and agree findings with participants.

**Identification of sources of views is vital for research purposes.** Robust research requires clear identification of who said what. Where there are extensive comments from a single group (e.g. schools in this instance), or where there are comments from both groups and individuals, care must be taken to ensure that these responses are collected and analysed in ways that do not unbalance the overall results.

**Feedback and continuity is vital.** Although the practical problems are recognised, all public dialogue projects should include planning for feedback to participants about the impact of their input on policy, and continuity of contact after the end of the project.

## Conclusions

The Sciencehorizons project was very successful in meeting its stated objectives and standards of good practice in public dialogue according to the Sciencewise guiding principles.

The project has reached diverse publics and developed valuable new materials that have stimulated and supported discussions among a wide range of groups on complex issues of future scientific and technological development. The participants were very satisfied with the process overall, and the project provided valuable data that enabled policy makers to prioritise issues for future public engagement on new scientific and technological developments.

There have been lessons from the process, especially in terms of ensuring more direct links between dialogue and policy processes, targeting materials and support, and allowing realistic timescales both for discussions in individual events and for the project overall.

Overall, the Sciencehorizons project has achieved a great deal in a short timescale, and provided excellent foundations for future dialogue in science and technology.

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<sup>1</sup> [www.foresight.gov.uk/Horizon%20Scanning%20Centre/index.asp](http://www.foresight.gov.uk/Horizon%20Scanning%20Centre/index.asp)

<sup>2</sup> [www.foresight.gov.uk/Horizon%20Scanning%20Centre/WIST.asp](http://www.foresight.gov.uk/Horizon%20Scanning%20Centre/WIST.asp)