



Facilitated Public Events: Report

Dialogue by Design

September 2007

The sciencehorizons consortium would like to thank:

- all of the individuals and organisations that organised, facilitated and reported on events in this strand,
- all of the people who participated in these events,
- the British Association for the Advancement of Science for organising the 'Working Lunches'.

Introduction

- This report summarises the results of the sciencehorizons public discussion events held around the country in the first half of 2007. These facilitated public events formed *Strand 2* of the project.
- Separate summary reports have been produced on Strands 1 and 3. The former involved two deliberative panel events in Bristol in the Spring of 2007. Strand 3 was an outreach programme for people not necessarily interested in science and possibly not able to get to an externally organised event, but who were interested in having a discussion about the future.
- The report covers the following topics:
 - *The methodology used for the Strand 2 events;*
 - *The aims of the events;*
 - *The range of participating citizens and organisations;*
 - *The findings of the group discussions, by theme;*
 - *Concluding commentary on the results*

Facilitated public events: background

- The Strand 2 events involved facilitated public discussions around the regions in a variety of settings, such as science centres, community centres and museums, on issues arising from the **sciencehorizons** stories. These cover general themes: Home and Community, Mind and Body, People and Planet, and Work and Leisure. The events were usually open to the public. The organisations that took part were invited to run group discussions using the **sciencehorizons** pack and were offered advice and help in setting the events up.
- Organisations had access to a fund provided by the Government Office for Science to help them pay for the running costs of the events. Organisations receiving funding were asked to:
 - Run discussions using the **sciencehorizons** packs;
 - Report on the results of the discussion;
 - Involve one or more practicing scientists in the discussions, whether as a guest speaker or facilitator or participant;
 - Send in an evaluation form.
- Applications were received from **24 organisations** and of these **17** were funded.
- Strand 2 consisted of **36 events**, with a total of **842 participants**. events were held across the country. Response forms reporting on events were received from **97 groups**. The average group had 9 people.
- The groups met in a variety of settings. A full list is given in the report of group responses, available on the website www.sciencehorizons.org.uk. For example:
 - Museums
 - Cafés Scientifiques
 - Science festivals
 - Local science and technology clubs or interest groups
 - Women’s Institutes
 - Online / telephone discussion with young mothers

Facilitated public events: method

- The format for the events was the same, although settings, speakers, facilitators all varied around the country. The background knowledge that people brought to the discussions also varied considerably. Some events were aimed at school and college students and some of the comments reflect specialist scientific or technical expertise. But for many people some or most of the issues were unfamiliar, or areas where they had some general knowledge but little or no detailed understanding or even interest.
- Each group considered the sciencehorizons stories from the pack, grouped by theme. There are four stories, presenting brief scenarios focusing on particular technologies and issues, for each of the themes. The four themes are:
 - *Mind and Body*
 - *Home and Community*
 - *Work and Leisure*
 - *People and Planet*
- For each story, the discussions were based on these questions:
 - *What do you like about the technology in the story and why?*
 - *What do you dislike about the technology in the story and why?*
 - *Of the things that you either like or dislike, which is the most important?*
- After each theme's stories had been covered, the facilitator would pose this question, allowing for further reflection either on the issues raised so far or on the quality of the briefing materials:
 - *What else would you like to say about the stories in this theme or about the pack in general?*

Facilitated public events: analysis of the group responses

- In the following pages we summarise the responses from the groups **by theme and story within theme**. The full set of comments made by group members is available on the project website, www.sciencehorizons.org.uk
- The responses were coded according to summary 'headlines' capturing key points, allowing grouping of similar responses. In what follows we highlight the range of issues raised and focus on the categories of comments that appear most frequently. For example, in many discussions one or two categories of response stand out, attracting considerably more comments than any others. We have highlighted these along with the issues that were mentioned as being the most important when the groups reflected on their responses so far to each story.
- We have included **illustrative quotations** for many of the most frequently raised issues. However, in a summary report a great deal must be excluded, and we would encourage readers to browse through the **collated responses** to get an impression of the richness of the comments made by the groups.
- In the concluding section we make general comments on the range of responses to the stories and on the issues that cut across the stories and themes.

sciencehorizons themes and stories

- **Mind and Body theme:**
 - *George and the jogging cap* (tracking technology for people with dementia)
 - *Ruth and the tests* (automatic medical testing devices)
 - *Katie and the doctors* (biotechnology for mental and physical enhancements - 'standard' ones and 'premium' ones)
 - *Roy and the new heart* (stem cell technology for growing new heart tissue to avoid transplantation)

- **Work and Leisure theme:**
 - *Henry at the café* (advanced teleworking with ICT)
 - *Jennifer and the salon* (new methods for beauty treatment, boosting health and wellbeing) etc)
 - *Malcolm at the wheel* (sensors and computers to assist driving)
 - *Katie at the park* (security/surveillance devices)

sciencehorizons themes and stories (continued)

- Home and Community theme:
 - *Malcolm and the shopping* (IT systems for tracking of food shopping)
 - *Paul and his love life* (online dating systems)
 - *Emily and the robot* (robotics for household chores)
 - *Henry and the cameras* (advanced scanning systems for security)
- People and Planet theme:
 - *Roy and the migrants* (advanced robots for complex tasks)
 - *Cynthia and the gas bill* (climate change and alternative energy systems)
 - *Rajpal and the relatives* (climate change and personal carbon credits/quotas)
 - *Emily and the vaccines* (new genetic vaccine systems and implications for developing countries)
- Responses to each story by theme are summarised in the following pages.

Mind and Body theme: *George and the Jogging Cap* story

Likes:

- The most frequent responses focused on helping people maintain **independence and dignity**, allowing the vulnerable to find their way safely and keeping them **healthy and mentally active**:
 - *Technology seems to create independence for George. This scenario shows that technology can be put to good use for the benefit of the individual, if used for the right thing and in the right hands, and as long as George has the right to choose;*
 - *As the oldest person in the room, I can't see any negatives, think it's brilliant.*
- There was also a widespread welcome for the potential in the technology to **reduce the burden on carers**.

Dislikes:

- Two issues stood out in these discussions: the risk of **abuse or misuse of the technology**, and the risks people perceived to **privacy and civil liberties**:
 - *Tracking could mean it is impossible to do anything privately*
 - *Monitoring of a person's every move is a concern - where will the monitoring stop?*
 - *Danger of abuse - for example people requesting help when they can't find a map*

Most important

- The dislikes outweighed the likes. The risks of **abuse, invasion of privacy and liberties, lack of human interaction and overdependence** were all highlighted. Against these, it was affirmed that the attractiveness of the technology lay in the scope for **increasing the independence of users**.

Mind and Body theme: *Ruth and the tests story*

Likes:

- The issues that stood out were the gains in **convenience and time-saving**, for medical services as well as for patients, and the scope for the technology to enable **early diagnosis and prevention of disease**:
 - *Using this technology yourself is useful as it enables a check-up for an individual if they have no time for a surgery visit. Saves surgery time as individuals can perform self-check-ups;*
 - *Save clogging up doctors, people go for real problems.*
- Prevention of disease and early diagnosis received the most responses:
 - *Likely to deal with preventive health issues which can mean informed decisions can be taken early on.*

Dislikes:

- Two issues in particular were highlighted: the **lack of human interaction** and absence of the 'personal touch', and a perception that the technology could be **costly, exclusive and socially divisive**. Fears were also expressed by some about **unreliability**. There was support too for the view that the technologies posed risks to people's insurance status and that there was scope for **abuse or misuse of the technology**:
 - *This technology only appears to be for the use of the wealthy;*
 - *There is no personal touch, a computer diagnosis of a serious illness would be blunt;*
 - *Where would the information go? If it became available to insurance companies this would cause problems.*

Most important

- The dislikes outweighed the likes. Participants tended to dislike most the potential for discrimination and the way the technologies could reduce the human touch in medical services, 'taking humans out of the system'. The likes that were reiterated concerned early diagnosis, speed and convenience.

Mind and Body theme: *Roy and the new heart story*

Likes:

- The most popular aspect of the story was the scope for solving the shortage of organ donors and the related benefit of reducing time spent waiting for transplants:
 - *Solves issues with donor organs - long waits, people selling organs in developing countries. Growing organs better than getting them from other people.*
 - *His life would be healthier and he might treat his new heart better.*
- Groups also referred to improvements in **longevity and quality of life** as gains from the technology, along with potential **cost-savings** over the longer term:
 - *Could be cheaper, more maintenance-free than long-term treatment and care.*

Dislikes:

- There was a fairly even spread of responses but the issue that stood out for the groups was the view that the technology could prove **socially divisive and exclusively expensive**:
 - *Potentially leads to a huge strain on the health service;*
 - *Could lead to a two-tier system.*
- There were also concerns about use of technology for frivolous **cosmetic reasons**, encouragement of **reckless or unhealthy living**, and risks of **failure or negative side-effects**.

Most important

- There was a broadly even split between likes and dislikes. The likes focused on the scope for **longer and better quality of life**. The problems highlighted were the **cost to the NHS** and the **risk of exclusiveness**.

Mind and Body theme: *Katie and the doctors story*

Likes:

- Three issues stood out. One was the enhancement of **independence and individual choice**:
 - *If the daughter wants to be an athlete then she should have the means to do it.*
- Second was the related perception that the technology could improve **quality of life**. Third, and the most mentioned, was the view that the *standard enhancements* described in the story would bring disadvantaged people to a '**normal**' level of **health and capability**:
 - *Standard enhancement good for people who are injured and it can return them to 'normal' state - fair*
 - *Increases mobility and return to normal life.*

Dislikes:

- As with previous stories the issue that stood out for the groups was the view that the technology could prove **socially divisive and exclusively expensive**:
 - *Object to the money side of it - available only to a few;*
 - *Potential elitism - moving towards 'bionic' man*
 - *Socio-economic implications - 'two races' of the enhanced and non-enhanced.*
- There were also concerns about who would be in **control** of the technology and gain the benefits, and a sense too that **premium enhancement, as well as being divisive, is 'unnatural'**.

Most important

- Dislikes were dominant. While people liked the scope for improving **quality of life**, concerns about **exclusiveness, abuse and the unnatural aspects of premium enhancements** were picked out again.

Home and Community theme: *Paul and his love-life story*

Likes:

- The two issues that were mentioned most were the opportunity to meet people in a new way and the usefulness of the technology for specific types of person:
 - *If you don't conform, gives you a new way to meet people;*
 - *For introverted people it gives them an opportunity to meet people*
 - *Allows lazy people, or disabled people, or [those] working anti-social hours to meet more people. Or alternatively large cities without a community spirit.*

Dislikes:

- There was a cluster of issues attracting much the same level of concern from groups: the risk of **abuse and misuse** ; the fear of **isolation and loss of social skills**; the related issue of risk of **over-dependence**; and a sense that the process was too **impersonal / unreal** - lacking a real human dimension:
 - *Lack of reality, social skills, takes away experience of the real world*
 - *Dependence on technology*
 - *Not individual enough - no 'chemistry'*
 - *Losing faith in your own judgement.*

Most important

- Dislikes were dominant. While participants liked the scope for improving dating prospects for **shy people**, they focused mostly on two problems - the lack of genuine **human interaction**, and the risk of **over-dependence** on the technology.

Home and Community theme: *Malcolm and the shopping story*

Likes:

- The two issues that were mentioned most as benefits from the technology were **convenience and time-saving**, and the potential for **encouragement of healthy lifestyles**:
 - *Provides a controlled balanced regime for people who do not have much interest in food*
 - *Speedier check-outs*
 - *Potential aid to communication about what food provides a balanced diet.*

Dislikes:

- Three issues stood out. First, the scope for control of the individual's choices - leading to **lack of responsibility and real choice**. Second, the perception that this technology would be '**driven by big companies**' who had more to gain from it than consumers did. Third, and marginally most popular, there was the view that the technology could pose a risk to **privacy and civil liberties**:
 - *The technology wouldn't allow experimentation or choice when you cook, for example;*
 - *There might be a backlash against technologies to maintain, or even allow, privacy.*

Most important

- Dislikes were dominant. The topic that was emphasised in subsequent discussion was the fear that the technology would lead to **lack of individual choice and responsibility**:
 - *Totally unnecessary for consumers;*
 - *Takes away people's ability to think for themselves.*

Home and Community theme: *Emily and the robot story*

Likes:

- The most popular aspect of the story was the scope for **greater convenience and time-saving**, followed by the potential benefits for **particular types of person** - such as people with disabilities, or the sick.
 - *Labour-saving for the elderly and / or disabled is the biggest like.*
 - *Routine housework and chores can be automated.*

Dislikes:

- More dislikes were mentioned than likes. As in previous discussions, people raised concerns about **over-dependence** and **lack of genuine human interaction**.
- But the two most frequent issues raised were the **fear of robots becoming 'like humans'**, and the **environmental and energy impacts** of robots:
 - *Carbon footprint could be greater than doing the chore oneself*
 - *If genuinely like a human, could take over.*
 - *Don't want robots even to pretend to be human.*
- There were also concerns about **risk of abuse and misuse** and **unreliability** and consequences of failures.

Most important

- Dislikes were in the majority. While the scope for **convenience and time-saving** was noted again, there was reiteration of the dislike of any attempt to make robots **humanoid**.

Home and Community theme: *Henry and the cameras* story

Likes:

- The most popular aspect of the story, mentioned twice as often as the second placed one (the closely related issue of **safety/security**) was the scope for **prevention and solving of crimes**:
 - *Potential for enhancing security for women, especially in cities*
 - *Prevention of or deterrent against crime*
 - *Outside cameras generally good - wired to the police is good as is being able to look outside from inside*

Dislikes:

- Three issues stood out. One was that the technology could create **worry and mistrust**:
 - *Sad statement of present-day life that these devices are needed*
 - *Loss of trust within and without the family can alienate family, neighbours and friends*
- There were also concerns about **risk of failure**:
 - *How reliable would face recognition be? What if someone looks like you?*
 - *Criminals will find a way round each bit of technology*
- The most frequently mentioned issue was the perceived risk to **privacy and civil liberties**:
 - *No preservation of personal identity. Getting 'found out' for quite innocent yet private things.*
 - *No privacy - constant feeling of being watched.*

Most important

- Dislikes were in the majority. The main issue was affirmed to be the risks for privacy and liberties:
 - *Intrusive nature of surveillance. Potential abuse of power.*

Work and Leisure theme: *Jennifer and the salon* story

Likes:

- The most popular aspects of the story were felt to be the potential for **tailored and targeted** treatments, and the scope for **prevention of illness and early diagnosis**:
 - *The way you could see if you have a disease early on and treat it before it gets too bad. The fact they can pinpoint the area of disease and treat it.*
 - *Useful to have information on genetic make-up to design tailored treatments and how each individual can best stay healthy..*

Dislikes:

- Slightly more dislikes were mentioned than likes. The two most frequently mentioned issues were the fear that the technology would encourage **too much focus on personal appearance**, and the question of **who controls** the cosmetic standards and the genetic and personal information in question:
 - *Cosmetics - who decides what is cosmetically desirable - shifting standards...what about mistakes? What about people changing their minds?*
 - *It's more important to change attitudes towards old people than to try to change the outward signs of it. It would be essential to bring privacy/confidentiality measures into force to control how genetic information is used and accessed.*

Most important

- Dislikes were in the majority. While the scope for improving quality of life was mentioned, participants focused on risks relating to obsession with **appearance**, to **privacy** and to **social divisiveness and exclusivity**.

Work and Leisure theme: *Henry at the cafe* story

Likes:

- The most popular aspects of the story were felt to be the potential for **environmental benefits** - such as reductions in the need to travel, and the scope for more **flexible working conditions**:
 - *Flexible working conditions are beneficial.*
 - *Environmental benefits from reducing the need to travel. Good for building healthy communities and networking.*
 - *Good for people with disabilities and limited mobility.*

Dislikes:

- Slightly more dislikes were mentioned than likes. The two most frequently mentioned issues were the risk of **overwork and stress** being increased by the technologies, and the related problem of **reductions in face to face social interaction**.
 - *Could be difficult to switch off and finish work.*
 - *Work and leisure become blended . Those working at home can become socially isolated. VDU screens not always best medium for reading information. Could lead to a monocultural, homogenous world. Night working is unhealthy.*
 - *May feel he has to work all day because he can be connected anywhere and anytime.*

Most important

- There was an even split between likes and dislikes. The major positive element emphasised by the groups was the scope for **flexible working**. The groups nonetheless restated their concerns about **loss of social interaction** and scope for more stress and overwork.

Work and Leisure theme: *Malcolm at the wheel* story

Likes:

- The most popular aspects of the story among the groups were the potential for **reducing congestion on the roads** and even more so the scope for **improving road safety**:
 - *Limited aspects of driving to be controlled to enforce safe driving.*
 - *Reduce speeding, reduce opportunity to drive badly.*
 - *Make the roads safer as will help to reduce accidents- if the road is controlling the car there is limited room for error. Also even when people are driving manually they will be more aware of the road as they will know that someone is watching them all the time.*

Dislikes:

- Slightly more dislikes were mentioned than likes. There was some concern about the risk of **over-dependence** on the technology and consequent **loss of skills**. The two most frequently mentioned issues were the risk of **system failures** - including the scope for perverse outcomes, with people acting more dangerously because they feel safer ; and the drawbacks relating to **loss of privacy and risks to civil liberties**.
 - *People take more risks when cars feel safer. Privacy issues raised if car movements tracked. Too much information when driving is distracting and potentially dangerous. Vulnerable to hackers and other computer problems.*
 - *Politically unacceptable - loss of civil liberties.*
 - *Big Brother knowing where you are and when.*

Most important

- There was an even split between likes and dislikes. The major positive issue emphasised was the scope for **better road safety**. The dislikes repeated were about **privacy and loss of civil liberties**, and the question of **who is in control**.

Work and Leisure theme: *Katie at the park story*

Likes:

- The feature of the story that stood out for the groups was the scope for **prevention of disease and for early diagnosis**. Other points mentioned related to potential for **improving quality of life and healthier lifestyles**.

Dislikes:

- Notably more dislikes were mentioned than likes. There was some concern about the risk of the technology **distancing people from real life** ; and there were anxieties about the risks of **exclusivity and social divisiveness** and the risk of **abuse/misuse**. The most frequently mentioned issue was perceived risks of **loss of privacy and civil liberties**.
 - *Once again it's the Big Brother issue, having someone able to track your every move. If someone could hack the system they could find out where you live, where you run, and everything else you do.*

Most important

- There was close split between likes and dislikes - the negative aspects just outweighed the positives. The positive issues noted were the **encouragement of healthy lifestyles, specific uses and improved personal safety**. The negative issue raised in this discussion most often related to perceived 'unnecessary' nature of the technologies sketched in the story:
 - *Only beneficial for people needing health monitoring. For everyone else it is unnecessary, a personal security risk and a loss of privacy.*

People and Planet theme: *Roy and the migrants story*

Likes:

- There were four positive elements that scored in double figures in the group responses. First, people liked the scope for **time-saving and convenience** from advanced robots doing a range of jobs:
 - *24/7 availability of robots beneficial particularly in terms of care.*
- Second, they liked the scope for helping **particular types of people** such as the elderly and felt that robots could in some settings and roles be **more reliable than people** ('take away human error'). The main attraction for the groups, however, was the idea that robots could take over **dangerous and boring jobs** from people - such as bomb disposal, menial jobs and '*jobs that humans can't do*'.

Dislikes:

- More dislikes about robots were mentioned than likes. There was some concern about the **environmental impacts**, as has already been mentioned in relation to the *Emily and the robot* story, and an equal number cited the risk of **system failure** as a problem. Nearly as many mentions were made of the risk of **over-dependence**. Attracting twice as many responses as these, however, were fears about the **lack of human interaction and emotion** and about **loss of jobs** .
 - *Dehumanisation of care and service industry - it is an important part of the social world;*
 - *Small number of people who would want to be cared for by a robot.*
 - *The unemployment caused by robots and our own loss of control when doing things and completing tasks. Our loss of skills as we get robots to do things for us.*

Most important

- Dislikes greatly outweighed the likes. The ability of robots to do **dangerous work** was reiterated as a benefit. Otherwise all the dislikes above were emphasised, principally **lack of human interaction**.

People and Planet theme: *Cynthia and the gas bill* story

Likes:

- There was a wide range of likes, for example the encouragement of energy efficiency, general environmental benefits and the scope for new micropower technologies to give choice to the individual. The main area of support was for renewable energy and microgeneration (generating renewable electricity in the home and selling surplus to the Grid), taken together as a category:
 - *All in agreement - like the ideas of utilising renewable sources of energy, living more sustainably.*

Dislikes:

- Slightly more dislikes were mentioned than likes. There was a degree of concern about the risk of nuclear technology, more so than about renewable energy - although the latter was also a concern to some. Nearly as many responses mentioned the cost of alternative energy sources. Equal with nuclear power as a cause for concern was confusion about the issues and information overload from too much choice:
 - *Can find information - but how to sort it and understand it?*
 - *Too much choice. Would prefer not to have to choose. Confusing.*

Most important

- There was close split between likes and dislikes. Five responses said the group was unable to decide:
 - *It was difficult for the group to agree because there appear to be lots of complex issues, which are often in contradiction/tension. .. environmental, economic, energy security, choice and information.*
- Overall the positive aspects outweighed the negatives. People stressed the increase in individual choice and responsibility and the greater use of renewables. The main category for dislikes was lack of leadership and progress - reflecting some participants' sense that policies are not urgent or coherent enough in relation to climate action.

People and Planet theme: *Rajpal and the relatives* story

Likes:

- Three aspects stood out for the groups from this story about personal carbon credits. First, the potential for more **equality** :
 - *Income inequality could be reduced through this kind of scheme*
- Second, groups mentioned scope to raise awareness :
 - *Internalises problem - encourages personal responsibility.*
- Notably ahead of these in first place was the potential that credits were felt to have to make **progress in reducing carbon emissions**:
 - *Carbon credits are a strong tool for making us use less carbon.*

Dislikes:

- Appreciably more dislikes were mentioned than likes. Against those who saw the biggest gain in the scope to cut emissions, some felt that the system **would not reduce emissions of carbon overall**. Related to this was the feeling that the scheme would be **impractical to implement** and would be open to **abuse or misuse**:
 - *Too complex to make it work / administer at an individual level (possibly even at a macro level)*
 - *Worried about the monitoring and fraudulent use of trading.*
 - *Many countries would not properly administer the system.*
 - *Black market.*
- The main objection was that it could be **inequitable and divisive**:
 - *Makes poorer people less mobile - have to sell credits for income*
 - *Financially poor people might lose out by selling their credits with a detriment to their lives*

Most important

- The main positive element was the scope to make **real cuts in emissions**, while the main dislike was the **problem of implementation**. Expressions of dislike were clearly in the majority.

People and Planet theme: *Emily and the vaccines story*

Likes:

- A range of 'likes' was given prominence in discussions concerning this story about genetic vaccines for diseases in developing countries. Groups liked the potential for **affordability** of the vaccines. They welcomed the scope to **eliminate some infectious diseases**. They approved of the potential for **benefiting people at risk in developing countries** - *'liked the idea of people being encouraged to subsidise vaccine programmes'*. The largest single group of responses concerned the scope for **improved treatment and reduced side-effects**:
 - *It protects people from tropical diseases without side-effects.*

Dislikes:

- Three issues stood out. First, there was suspicion of **'big business'** motivations and profit-driven approaches. Second, there were concerns about the **risk of side-effects**, and closely related to this was fear of **'altering DNA'** and of other unintended problems, such as **resistance**.
 - *Dealing with DNA could cause rough mutations ... could be fatal.*
 - *Risk of damaging the immune system.*
- The main objection, just ahead of this cluster on health risks, was that it could be **exclusive, expensive and socially divisive**:
 - *The product has not been made available worldwide so people who really need it can get it.*
 - *Global marketing of vaccines in story does not take into account global inequalities and greatest need.*

Most important

- The likes were outweighed by the dislikes. Groups returned to two positive points in particular - the scope to **help people in developing countries** and to **save many lives**. But there was a reinforcement of concerns about **who will fund the investment** and suspicion about **'profit-driven'** development of technologies by corporations.

Facilitated public events: concluding comments on the cross-cutting issues

Cross-cutting issues: positive features

- Aspects of the technologies and developments that were seen as the **most important positive features** in at least two of the themes were:
 - *Scope for gains in quality of life*
 - *Scope to increase choice*
 - *Early detection / preventive care*
 - *Increased independence*
 - *Time-saving and convenience*
 - *Better safety / security*
 - *Benefits for specific types of person*
- The positive features identified across **three or all** of the themes were these:
 - *Time-saving and convenience*
 - *Better safety / security*
- So numerous aspects of the technologies and developments in question made particular appeal to people's desire for enhancing key features of quality of life: increasing choice, saving their time (and the time of hard-pressed service providers, for example doctors) and improving their protection against widely feared risks - via early diagnosis, prevention of diseases, and prevention of crime.
- There is a mix here of gains that largely benefit the individual (more independence) and those with wider advantages for others and for the community as a whole (safety, security). People often made the connection between these categories - for example, early diagnosis kits could save time both for individuals and take some of the load from GP services etc, thus producing a wider collective good. And this was also true of the Strand 1 and 3 discussions.

Facilitated public events: concluding comments on the cross-cutting issues

Cross-cutting issues: negative features

- Aspects of the technologies and developments that were seen as the most important negative features in at least two of the themes were:
 - *Worries about costs*
 - *Fear of abuse/misuse*
 - *Overdependence*
 - *Risks to privacy/civil liberties*
 - *Loss of social interaction/human touch*
 - *Anxieties about loss of control / loss of choice*
 - *Risks of failure / impracticality*
 - *Fears about exclusiveness/social division*
 - *Fears about 'unnatural' developments*
 - *Technology as unnecessary / technical 'solution' to social problem*
- The negative features identified across **three or all** of the themes were:
 - *Fear of abuse/misuse*
 - *Overdependence*
 - *Risks to privacy/civil liberties*
 - *Loss of social interaction/human touch*
 - *Anxieties about loss of control / loss of choice*
 - *Risks of failure / impracticality*
 - *Fears about exclusiveness/social division*
- The pervasive concerns focus on unwanted side-effects of some of the benefits identified: with more security can come risks to privacy; with more technologies for prevention of risk and harm come risks of failure, side-effects and over-dependence; with convenient robots for housework come alarming robots who might dehumanise social care. The participants showed acute awareness of such interactions and tended to be biased towards dislikes and consciousness of risk.