



Small group discussions: Report
Dialogue by Design
September 2007

The sciencehorizons consortium would like to thank:

- all of the people who helped to publicise the sciencehorizons programme and encourage participation,
- all of the people who organised discussions and returned their responses,
- and most importantly, all of the people who took part in the discussions.

Introduction

- This report summarises the results of the sciencehorizons 'people-to-people' small group discussions held around the country in the first half of 2007. These events formed *Strand 3* of the project.
- Separate summary reports have been produced on Strands 1 and 2: the former involved two **deliberative panel meetings** in Bristol in the Spring of 2007, and the latter comprised **facilitated public discussions** around the regions in a variety of settings, such as science centres and museums.
- Strand 3 was devised as an outreach programme to people who are not necessarily interested in science and may not be able to get to an externally organised event, but who are interested in having a discussion about the future. The sciencehorizons consortium provided materials to enable groups to have discussions and provide feedback in a largely **self-managing** way.
- The report covers the following topics:
 - *The methodology used for the Strand 3 discussions;*
 - *The aims of the discussions;*
 - *The range of participating citizens and organisations;*
 - *The findings of the group discussions, by theme;*
 - *Commentary on the results*

Small group discussions: background

- The Strand 3 events involved small group meetings around the regions in a variety of settings, such as schools, community groups and clubs, 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 individuals and organisations taking part were invited to run largely self-managed small group discussions using the sciencehorizons pack and were offered advice about running the events.
- The sciencehorizons team wrote to over 7000 individuals or organisations such as community groups, environment groups, health groups, adult learning groups, discussion/debating societies, libraries and faith groups inviting them to request packs and run their own small group discussions using the sciencehorizons pack.
- Information about the scheme was also posted on discussion lists/boards, blogs etc.
- In order to encourage schools to participate, a set of notes for teachers was produced and a letter was sent to each state secondary school in the UK.

Scale of the initiative and response:

- 747 pack requests were received, and over 4,000 packs were sent out. 1,320 copies of the teachers' notes were sent out.
- 392 responses were received, 253 groups returned paper forms and 139 contributed their results directly online.
- Approximately 2,400 people participated in this strand. The average group size was 6.

Small group discussions: background

Types of group taking part in the small group discussions:

- School/College 257
- Environment Interest Groups 26
- Science/Technology Interest Group 9
- University 1
- Health Interest Group 1
- Not named 12
- Other 86

Other categories:

- Women's Institute 38
- Humanist Group 13
- University of the Third Age 10
- Scout unit 8
- Adults with Learning Disabilities 4
- Girl guiding-rangers 4
- A group of friends who meet weekly 4
- Programme for early-career researchers 3
- Mums from Toddler Group and School 2
- Women returning to science 2
- Social walking club 1
- Teacher Training Students 1
- Mother and baby group 1
- Voluntary Group 1
- Ecumenical Faith Sharing Group 1
- Women's discussion group 1
- Philosophy group 1

Small group discussions: method

- The format for the discussions was the same, although settings, group sizes and backgrounds all varied around the country. The background knowledge that people brought to the discussions also varied considerably. There were many school- and college-based groups and environmental interest groups, 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 pre-existing 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 group would address this final 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?*

Small group discussions: 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 **full 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)
- **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)
 - *Malcolm at the wheel* (sensors and computers to assist driving)
 - *Katie at the park* (security/surveillance devices, advanced textiles)

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 and virtual 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* (genetic vaccines 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** and **helping others keep track of them** :
 - *Since Alzheimer's is such a horrendous condition - we have a close friend who is afflicted - anything that improves the quality of life for sufferers is to be welcomed.*
 - *It's good for him to keep his independence for as long as possible. His wife can keep track of where he is all the time.*
- 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 **failure of the technology**, and the risks people perceived to **safety**:
 - *We feel that the technology is not foolproof. It also limits his independence. The technology he carries with him makes him more vulnerable or increases his chance to be attacked or mugged.*
 - *The technology could break - then George would not know what to do.*

Most important

- The dislikes outweighed the likes, but there was a lot of backing for the most important positive elements. The risks of **overdependence** and the **problems associated with the design** of the technology were prominent among a long list of dislikes that the groups highlighted. Against these, it was stressed that the main attractions of the technology were the scope for **increasing the independence** and overall **quality of life** of users.

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

Likes:

- The issue that stood out was the scope for gains in **convenience and time-saving**, for medical services as well as for patients. Some way behind in number of group responses was the scope for the technology to enable **early diagnosis and prevention of disease**.
 - *This saves time for those with a busy lifestyle. Gives information on what exactly is the problem. If there is a quicker diagnosis it is quicker to treat.*
 - *Save (potentially) millions on NHS by detecting any disease earlier.*

Dislikes:

- Two issues were picked out: the **lack of human interaction** and absence of the 'personal touch', and the view that the technology could be **costly, exclusive and socially divisive**. Many were worried also about the risk of **failure / misinformation and unreliability** (*'very reliant on the integrity and resilience of the system'*). Fears were also expressed by some about the **lack of human judgement** - linked to the concern about the loss of the human touch.
 - *The technology is expensive, many people don't trust them and it's mostly for well-off people. Most people would prefer to be seen face to face with a doctor.*
 - *We dislike that you are putting your trust in a machine. If you see a doctor you know someone is there personally caring for you.*

Most important

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

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

Likes:

- The most popular features of the technology were said to be the scope for tackling the shortage of organ donors and related anxieties about cadaver donation and organ rejection; and the related benefit of reducing time spent waiting for transplants. Groups also noted scope for improvements in quality of life and longevity.
 - *Using a new heart grown from Roy's own tissue means that there will be no immune reaction when it is implanted, hence less medical intervention will be needed.*
 - *Avoids anti-rejection drugs.*

Dislikes:

- Three potential problems stood out for the groups. First, there was the view that the technology could prove socially divisive and exclusively expensive:
 - *The inference is that it will only be available for those that pay. Only those with private insurance will get treatment. Doubt if even insurance will pay for this.*
- There were also concerns about the ethical problems with stem cells:
 - *Stem cell research and embryo research are unethical...*
- Marginally ahead of these was the concern about failure and side-effects:
 - *This is not an all-natural process as it's not grown in the human and if there was one tiny mistake or problem it could go wrong and not function properly leaving you with a bad heart...*

Most important

- Likes outweighed the dislikes. The likes focused on the scope for longer and better quality of life, and on the idea of growing one's own heart, avoiding problems of rejection. The main problem highlighted again was the risk of exclusiveness.

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

Likes:

- Three issues in particular were highlighted. One was the enhancement of **independence and individual choice**:
 - *She doesn't have to be a wheelchair user*
 - *It would create opportunities for her*
- Second was the related perception that the technology could improve **quality of life**. Third, and mentioned most often by far, was the view that the *standard enhancements* described in the story would bring disadvantaged people to a **'normal' level of health and capability**:
 - *Repairing damaged nerves and rebuilding muscles to restore normal life is a huge advance, especially for young patients.*

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**:
 - *It would be very exclusive due to the treatment being expensive.*
 - *Exclusive - survival of the richest!*
- Also outstanding as a concern was the view that **premium enhancement** would be **'unnatural'**.
 - *It would turn people into robots, making improvements on themselves until they were 'perfect'.*

Most important

- More dislikes were listed than likes. While people liked the scope for securing **normal functions** and better **quality of life**, concerns about **exclusiveness** and the **unnatural aspects of premium enhancements** were noted again.

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

Likes:

- The issues that were mentioned most were the opportunity to meet people in a new way and the scope for the systems to help find compatible people before you met them in person. There was also mention for usefulness of the technology for specific types of person, and an equal number of groups welcomed online dating technology.
 - *House-bound people or shy people can improve their social life.*
 - *Potential to provide information about possible contacts.*

Dislikes:

- The most common dislike was the risk of abuse and in particular the fact that people can lie online:
 - *It can affect the way you look at people as online they only tell you what they want you to know.*
 - *What I dislike about it is that it can be unsafe at times.*
- Also important were the two related issues of risk of isolation / loss of social skills and impersonality / 'unreality' of the dating process.

Most important

- Dislikes dominated the follow-up sessions. While participants liked the scope for having a secure place for single people to meet, they focused mostly on two problems - the lack of genuine human interaction, and the risks from lying and lack of safety and security.

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

Likes:

- The two issues that were mentioned most frequently as benefits from the technology were the scope to **take the hassle out of dieting**, along with **convenience and time-saving**; people also welcomed the potential for **encouragement of healthy lifestyles**.
 - *Keeps a balanced diet. Saves time making a list. Informs you about your body's health.*
 - *It would be good for disabled people as they would not have to queue up.*

Dislikes:

- Three issues stood out. First, the scope for **lack of control** over the individual's choices - leading to **lack of responsibility and real choice**. Second, the perception that this technology would be damaging in the event of **failure** or provision of **misinformation**. Third, groups were anxious about the agenda being **driven by big companies**. There was also considerable support for the view that the technology could pose a risk to **privacy and civil liberties**.
 - *...Some of us disliked the idea of our banks being contacted to immediately deduct our bill, and saw this as loss of control over our financial arrangements*
 - *Destroys ability to think and choose.*
 - *Big Brother aspect...would like to reserve right to choose for yourself.*

Most important

- Dislikes were slightly more often mentioned than likes. The topic that was stressed in follow-up discussion was the fear that the technology would lead to **lack of individual choice and responsibility**. Also reiterated was the fear of **risks to privacy**. The benefit that was most often restated was the scope to promote a **healthy diet**.

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

Likes:

- The most popular aspect of the story by far was the scope for passing the boring chores to robots, and the linked issue of greater convenience and time-saving. There was also support for the potential benefits for particular types of person - such as people with disabilities, or the sick.
 - *It takes on the onus of everyday chores, especially when time can be better used.*
 - *It helps people with limited mobility.*

Dislikes:

- As in previous discussions, people raised concerns about the risk of failure, encouragement of unhealthy lifestyles, over-dependence and lack of genuine human interaction.
- There was also considerable support for the linked concerns about robots becoming 'like humans', and the use of Artificial Intelligence.
 - *It's kind of scary the way a robot could end up being 'human' with emotions etc*
 - *Robots as 'companions' - frightening.*
 - *We don't like robots that are made to show emotions.*
- There were also concerns about risk of abuse and misuse and unreliability and consequences of failures.
 - *The robot...could malfunction and try and kill you.*

Most important

- Dislikes were in the majority. While the scope for delegating chores and gaining benefits of convenience and time-saving was noted again, there was re-emphasis of numerous dislikes, with the problem of over-dependence and related risks being stressed.

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

Likes:

- The most popular aspect of the story by far was the scope to provide more **safety/security**. The next most frequently mentioned like was **prevention and solving of crimes**.
 - *Less crime, less police being bothered.*
 - *Makes you feel safe and secure. Good peace of mind.*
 - *Might keep burglars and bad boys away. Good that it can scan clothes for hidden objects.*

Dislikes:

- Three issues stood out. One was that the technology could be **expensive and exclusive**. There were also concerns about **risk of failure**:
 - *There could be a fault with the system and the police could be called even if there was nothing happening.*
- The most frequently mentioned issue by far was the perceived risk to **privacy and civil liberties**:
 - *It invades people's lives, because the cameras are always watching and possibly filming everything you do.*
 - *It would be like being on Big Brother inside our own house.*
 - *Too intrusive - don't want to be monitored that closely.*

Most important

- Dislikes were in the majority, but not by a wide margin. The main issue was affirmed to be the risks for **privacy and liberties**; however, nearly as many groups restated the benefits for **security and safety**.

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

Likes:

- The best liked features of the technologies were felt to be the potential for enabling people to live/work longer; the advances in cosmetic treatments; and the scope for prevention of illness and early diagnosis.
 - *We like the emphasis on prevention rather than cure, and the development of simple genetic tests, particularly as they are described as cheap.*
 - *We like the technology because it can tell you about your metabolic rate so you can stay healthier for longer.*
 - *We like the fact that people are made to feel happier and look better because of the technology.*

Dislikes:

- The two most frequently mentioned issues were the fear that the technology would encourage too much focus on youthfulness and personal appearance, and the risks from failure of the system and side-effects. Some also saw the risks of exclusiveness or regarded the technology as 'unnatural' and unnecessary.
 - *The technology in the story is bad because they shouldn't make people prettier just to make them happier and the cosmetics are very expensive.*
 - *...people may become addicted to looking good and appearance could mean too much in the future, it is very expensive, some drugs could be potentially dangerous to your health...*

Most important

- Likes and dislikes were quite balanced. The main benefit was felt to be improvement in well-being and confidence. The main dislike was the focus on youth and appearance that the technologies might encourage.

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

Likes:

- These outweighed the dislikes. The most popular features from the networking technologies in the story were felt to be the scope for **environmental benefits** - such as reductions in the need to travel, help in **building relationships** and the potential for **more flexible working conditions**:
 - *The technology gives people choice and flexibility ..it would be good for people going back to work after a break or for people with families.*
 - *It also reduces the need to travel which is good for the environment and also gives you more time.*

Dislikes:

- The most frequently mentioned issue was the risk of **reductions in face to face social interaction**. Groups also mentioned **over-dependence** on technology and the **safety risks of 24-hour workplaces**.
 - *It could make people more stressed. Workaholics!*
 - *Does not suit all, 24-hour work could create pressure, and create social isolation.*
 - *People working at all times have less contact with their families and friends.*

Most important

- There was a balance overall between likes and dislikes. The major positive feature was the scope for **reduced travel and environmental benefit**. The main concern was about **loss of social interaction**.

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

Likes:

- The most popular aspects of the technology in question were the potential for less stressful driving, and, by a wide margin in front, the scope for **improving road safety** (including the ease of monitoring bad drivers):
 - *I like the way that any bad driving will be noticed and corrected...*
 - *It's something for our own safety and it makes it easier to avoid crashes.*
 - *Automated Driver Assistance Systems - because it is safe. Automated vehicles because it gives the driver a break.*

Dislikes:

- There was a fairly even spread of dislikes. The two most frequently mentioned problems were: a) the risk of **system failures** - and the related issue of the scope for risks such as people driving more dangerously because they are distracted; and b) the **environmental impacts**, resulting from the technologies encouraging people to use their cars more. There was also considerable mention of the risk of **overdependence**.
 - *If it goes wrong the whole car will break or you will start driving dangerously.*
 - *We're perfectly capable of driving ourselves - if it dysfunctions it could be disastrous.*
 - *People may become lazy and drive everywhere - not walking.*
 - *Bad for the environment and doesn't encourage walking.*

Most important

- The major positive issue highlighted was the scope for **improved road safety**. The dislikes repeated were about **environmental impacts**, and the risk of **failure/malfunction**.

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

Likes:

- The most common like was the scope for **healthier lifestyles**. Next came improved **personal safety** and just behind that was scope for improving **social life**.
 - *It would make you feel safer and you could make new friends. It shows how healthy you are and it leads to a healthier world, it helps you understand how your body works.*
 - *Sensible and secure and safe clothing.*

Dislikes:

- Appreciably more responses focused on dislikes than on likes. There was most concern about the risk of the technology affecting **personal safety**:
 - *Because random people could ask her to run and they could be dangerous.*
 - *You don't know the personality or potential dangers of the person picked up on the network.*
- Also there were anxieties about the risks of **loss of privacy and civil liberties**. An equal number of responses focused on how the technology 'complicates life'.
 - *People can track her, even if she doesn't want them to.*
 - *Can be spied on all the time, we are getting into the Big Brother scenario.*
 - *Crime levels may increase, e.g. stalking*
 - *Makes going for a run more complicated.*

Most important

- The positive issues noted were the **encouragement of healthy lifestyles** and **improved personal safety**. The negative issues noted most often in the discussions were about **lack of personal safety** and the risk to **privacy and civil liberties**.

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

Likes:

- By a wide margin the main positive feature for the groups was the idea that robots could take over **dangerous and boring jobs** from people. The next most frequently mentioned like was the scope for **helping particular kinds of person** - such as the elderly and ill.
 - *Robots could help with domestic work / could care for you 24/7, wouldn't need a break...*
 - *We liked the idea of robots providing the routine needs of the elderly and infirm, leaving humans to provide the emotional requirements.*
- *Dislikes:*
- There were three main concerns. First, about the **lack of human interaction and emotion** and second, about the related concern that **robots should not be used as to care for people**. By a wide margin, the main concern was about **loss of jobs** to advanced robots.
 - *We don't like it that robots could look after elderly people.*
 - *It will make humans less active and they will soon replace the human touch.*
 - *Would not want too many unskilled/semi-skilled jobs taken over by robots.*
 - *There would be no low pay jobs available.*
 - *It will leave lots of people under-employed.*

Most important

- Dislikes outweighed the likes. The ability of robots to do **dangerous work** was reiterated as a benefit, and some still stressed the scope for provision of care to the elderly and unwell. Otherwise all the dislikes above were highlighted, along with the risks of exclusivity. The main problem highlighted was once again **the potential loss of jobs**.

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

Likes:

- Groups mentioned a wide range of likes, for example the environmental benefits from the technologies in the story. The main positive features were **renewable energy** in general and specific technologies such as **solar**. There was also liking for **variety in energy sources**.
 - *Opportunity for local energy generation.*
 - *We like the way the technology uses all the Earth's available resources to combat the change in climate.*

Dislikes:

- Concerns about technologies focused mainly on **nuclear energy**, more so than about **renewable energy** - although wind and solar power were also a concern to some. Nuclear concerns were about waste, cost and safety.
- More group responses mentioned **confusion** and how to make a **choice** (e.g. about which renewable system to buy or which supplier to go for):
 - *We dislike the fact that there is a large variety, which makes it difficult to choose. Also, you would have to do a lot of researching to make sure that you are choosing the right energy provider and that it won't rip you off...*
 - *Masses of information - too complicated to understand.*
- The most important dislike concerned **cost** of alternatives to fossil fuels.
 - *We disliked the way it is expensive and don't like the way that you don't really know which option is most environmentally friendly.*
 - *A lot of alternative energy schemes will initially be very expensive to implement.*

Most important

- The positive aspects outweighed the negatives. People stressed benefits to the environment and liked increased use of **renewables** and **less reliance on fossil fuels**. The main dislike was the risk of alternative energy systems being **expensive, exclusive and socially divisive**.

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

Likes:

- Two aspects were highlighted by the groups about this story of personal carbon credits. First, scope for more **equality and benefits to the poor** :
 - *We liked the way that there is a limit on the number of carbon credits a person can get, and also the rich have to buy credits from the poor, which makes the poor a little better off.*
 - *Good that you are getting rewarded for being kind to the environment.*
 - *Would help with distribution of wealth.*
- Second, and comfortably ahead in the frequency of group responses, there was the potential of credits to help **progress in reducing carbon emissions**:
 - *We like the way it helps to lessen carbon emissions and makes people think more economically.*

Dislikes:

- More dislikes were mentioned than likes. The main objection was that the credits system could be **inconvenient and restrictive** of personal freedom. There was also support for the concern that the system would be **unfair and divisive**. Slightly fewer mentions were made of the fears of **abuse / misuse and impracticality**.
 - *It isn't fair that people should have a limit on what they do.*
 - *If you need to get somewhere and you have sold all your carbon credits you can't get there.*

Most important

- The main positive element, mentioned more than other other like or dislike, was the scope to make **cuts in emissions**. The next most frequently mentioned benefit was the **encouragement to individuals to save money**. The two main dislikes were about the **impracticality** of the system and the concern about **inconvenience and restriction of choice**.

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

Likes:

- The groups mentioned a wide range of positive elements in this story about genetic vaccines for diseases in developing countries. The most frequent support was given to the scope to **prevent / eliminate some infectious diseases**. Groups also liked the potential of the technology to enable safer **international travel**. There was also liking for the scope for **benefiting people at risk in developing countries**.
 - *Gives people the opportunity to be safe. Gives people a chance to go places where they might never go ever before.*
 - *The opportunity for tourists to be vaccinated because it will stop spread of disease.*
 - *The fact that we will be able to get the DNA vaccines to poorer countries that need them.*
 - *A reduction in the amount of people affected by the disease.*

Dislikes:

- Two dislikes were highlighted in the group responses. First, there was concern that the technology could be **exclusive, expensive and socially divisive**:
 - *You have to pay, and people often can't afford to have them*
- Related to this, and most frequently raised, was concern that the vaccines might not be **available in developing countries**.
 - *That you have to pay for it so the poor local people of Zambia might not receive treatment when they are most at risk.*
 - *Unfair it's offered to someone in England who might not need it as much as others.*

Most important

- Groups emphasised among their likes the scope to **eliminate some diseases**. The main concern was still about **availability** of the technologies to developing countries.

Small group discussions: 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 health and quality of life*
 - *Scope to increase choice and flexibility*
 - *Early detection / preventive care*
 - *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*
 - *Gains in health/quality of life*
 - *Flexibility/choice*
 - *Safety and security*
- As with the Strand 2 groups, then, several 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 service providers, for example doctors) and improving their protection against risks - via early diagnosis, prevention of diseases, and prevention of crime.
- There is a mix here of gains that largely benefit the individual (more choice and flexibility) 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, DNA vaccines could be good for tourists but offered most to people in poorer countries, and this was also true of the Strand 1 and 2 discussions.

Small group discussions: 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:
 - *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 expense/ exclusiveness/social division*

These are close to those recorded for the Strand 2 groups.

- The negative features identified across three or all of the themes were:
 - *Loss of social interaction/human touch*
 - *Anxieties about loss of control / loss of choice*
 - *Risks of failure / impracticality*
 - *Fears about exclusiveness/social division*
- As with the results from the Strand 2 group discussions, 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 care work and take away jobs and skills. The participants in both strands showed acute awareness of such interactions and tended to be biased towards dislikes and consciousness of risk.