



Strand 1 Deliberative panel

Transcript Report

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Dialogue by Design

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Day One April 14th 2007 @Bristol

Agenda

- 9.00 Arrival and complete Pre-event questionnaire
- 9.30 Welcome and introductory presentation
- 10.00 Small groups → including coffee break. Brief feedback in plenary
- 13.00 Lunch
- 13.50 Introduction to afternoon
- 14.00 Theme teams - important issues/questions from each theme
- 15.30 Next steps
- 16.00 Finish

Objectives

1. To understand your attitudes to new science and technology
2. To use the findings for these events to inform governments policy on science and technology

Ground rules

- Non attribution
- Respect each other and speak one at a time
- No phones
- No smoking

Pre-event questions

- 1a. Can you think of a news story from last week, in the papers, on tv, on the radio or on the internet that you think is particularly important?
- 1b. If yes, what was it about?
- 2a. Can you think of a news story this year that included science and technology?
- 2b. If yes, what was it about?
- 3a. How interested would you say you are in science and technology?
- 3b. What aspects of science and technology are you most interested in?

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ID	1a	1b	2a	2b	3a	3b
1	Yes	Continued problems in Iraq. E.g. Deaths of 4 British soldiers. Bombing of the Parliament building. Tug boat capsizing off Shetland island.	Yes	Hand held brain scanner. Development of stem cells for use in growing organs	Very interested	Space exploration. Hand held brain scanner.
2	No		Yes	This was about the landfill sights and how they will be full up by 2010. Also the programme included information about what people can do about this and certain implications such as science and technology and how it would affect this.	Fairly	I am more interested in the technology side of things rather than the science. I am interested in technological advances of the world, but I am only interested in some of the science behind them.
3	Yes	New stem cell research - involving injecting human DNA into animal cells to produce embryos for research for a max of 14 days. This may reduce the block on completing human embryos.	Yes	Grafting of a human organically grown ear onto a mouse without inducing acute graft rejection.	Very interested	Anything involving a big leap in technology or breaking of a bottleneck.
4	Yes	Troops kidnapped in Iran	Yes	Ice melting at the poles	Fairly	Fuel power, water etc.
5	Yes	The way in which publicity was handled with regard to the kidnapping of the Royal Navy personnel	Yes	The use of stem cells for treatment / cure of diabetes.	Fairly	Medical research, computing.
6	Yes	FTO gene - obesity	Yes	The new aeroplane - A380 (Airbus)	Fairly	
7	Yes	Anna Nicole Smith's baby's dad.	Yes	Virgin TV, telephone and internet	Very interested	

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8	Yes	Release of hostages and young child who released handbrake and car rolled down the cliff.	Yes	Hand-held brain scanner, a fat gene, diabetes.	Fairly	Things that would be interesting and encourage learning for my children aged 7 and 3 and a half years.
9	Yes		Yes	Life on mars.	Fairly	Global warming.
10	Yes	Global warming.	Yes	War in Iraq.	Fairly	Computers, transport.
11	Yes	War in Iran.	Yes	Life on mars.	Fairly	Transport.
12	Yes	Story about lady fighting to use her egg from before her treatment of cancer.	No		Fairly	Space. The future and how cars will be.
13	No	Been on holiday with little news access.	Yes	The Stern Report on global warming.	Very interested	Energy & environment / global warming. Alternative energy / life style issues.
14	Yes	Sailors captured in Iran.	Yes	Stem cells used to help breast cancer sufferers.	Not very	Scientific gadgets.
15	No		No		Fairly	Environment, space.
16	Yes	15 sailors, marines in Iran.	Yes	Genetic cures for cancer.	Very interested	Natural science, genetic science, most science really.
17	Yes	The release of the British hostages from Iran.	Yes	Hand held head scanner for use at accidents.	Fairly	Breakthroughs in the treatment of illnesses and diseases. Anything that makes everyday living easier.
18	Yes	Brown met George W.	Yes	Climate change.	Fairly	Environment. Sound and Vision - TV, radio, DVD etc.
19	No		Yes	Trident replacement	Very interested	IT. Things that improve the way we live.

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20	Yes	Embryo consent thing	Yes	New particle tunnel thing in Europe	Fairly	Depends. No particular aspect. Just things that catch my eye.
21	Yes	Navy people released.	Yes	Global warming.	Very interested	Ozone layer / warming.
22	No		No	Global warming.	Not very	
23	No		No		Not very	
24	Yes	Navy Personnel released.	Yes	Global warming.	Very interested	Computers.
25	No	Recycling waste.	No		Fairly	Weather
26	Yes	New theories on global warming.	Yes	International Space Station.	Very interested	Weather, space, technology, gadgets, physics etc!
27	Yes	The war in Iraq.	Yes	Growing threats from Stem cells.	Fairly	Computer development for children's future, transport.

Session 1 - ice-breaker

What three things would you like to be able to do in the future?

- fly on a supersonic jet like Concorde
- fly/hover on board or car
- transport
- travel without impact on the environment
- instant travel to anywhere
- time travel
- affordable space travel
- space travel
- Would like to space travel / time travel. Is there anyone out there?
- Go to space
- Travel to space
- Cheap space travel
- Time travel
- Affordable space travel
- Cheaper clothes
- Win the lottery and having a massage shop
- Start trading the foreign exchange markets
- "win the lottery", retire and enjoy environment
- Be rich and do anything I want without any worry
- Live abroad in sun
- Work less hours
- Washing machine that finds the missing sock
- Robots to clean, shop and cook

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- A self driving car
- A robot that does house keeping
- A money making machine
- An appliance so that you don't need to iron
- Meal of your choice at the touch of a button
- Artificial intelligence
- Diagnose and cure health issues before they occur
- Medical
- Live longer if not healthier
- Live longer and healthier life
- Have an impact on technological advances of the world
- Instructions in plain English for technical things i.e. computers
- computers

Small Group Sessions

Black - session 1

Blue italics - session 2

* - important

1. Mind and Body

Mind and body Story Sheet 1 - George and the jogging cap

Likes	Dislikes
<ul style="list-style-type: none"> • * Microchips help people know where other people are - <i>like children</i> • <i>But maybe not on a hat - you could loose it</i> • An aid - Alzheimer's will be cured and this helps keep track of him. Its no different from a walking stick or wheelchair • * Independence for him and his wife • Helps keep body active • Keeps him safe • Fantastic technology - one of several strategies to keep him healthy • If clothes could tell if he was distressed e.g. heart rate that would be good 	<ul style="list-style-type: none"> • He is not using his own mind - the cap controls him - he's not developing his own mind • Could be more interactive to give him a choice so he would keep his independence (an improvement) • What if he lost his cap? Or broke, back up system? * • Not if it controlled his whole day / life • If it is valuable it might be a target for thieves • Could people take advantage of it? - but benefits would probably outweigh this • <i>George is over-worked - what if he over exerts himself - better if his wife were there to check this.</i> • <i>What if he doesn't understand the left/right instructions?</i> • <i>It might not work</i> • <i>Dehumanising - makes him like a robot?</i> • <i>It doesn't exercise the brain - too much focus on the physical</i> • <i>He is not in his own surroundings</i> • <i>What if Jennifer doesn't pay attention to the tracking system</i> • <i>George could be over confident</i> • <i>Traffic?</i> • <i>You would have to test the system.</i>

Mind and Body Story Sheet 1 - Ruth and the tests

Likes	Dislikes
<ul style="list-style-type: none"> • Machines can give useful information but it needs to be used as a tool - doctors can interpret it • A machine can see what's happening under your skin • Like the idea of a reliable diagnosis - send you to a doctor • Could reassure you • Could cut down on waiting times • Could be good for diabetes - the implant - but still need a way to check it • Home lab would be good - you take the results to the doctor • * Preventative measure or fine tuning a diagnosis / predict how far developed it is 	<ul style="list-style-type: none"> • losing the personal touch * • don't trust machines to work properly - what if it breaks • real doctors can take more into account - use lateral thinking e.g. mood, body language • you would not be able to ask questions • you could be overly worried - depends if you can get treatment / counselling • it should be available to everyone - free across the country • not everyone will know how to use the machine or understand the results • can only provide a snapshot

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Mind and Body Story Sheet 2 - Katie and the doctors

Likes	Dislikes
<ul style="list-style-type: none"> • Maintaining someone natural ability is ok and should be on the NHS and available to everyone. <i>It would mean she (Leah) didn't need looking after</i> • Bringing people to 'normal' ability actually could save money • Accidents - if people lose an ability they had, then they should have a *choice of using the latest technology/health developments • <i>Would it be pain free process?</i> • <i>With counselling and information involving Doctors</i> • Premium enhancement is Ok provided Doctors are not taken away from NHS or life and death situations but the person who has premium enhancement should pay for it 	<ul style="list-style-type: none"> • Premium enhancement is going too far. Thea should achieve through hard work • Katie is too pushy • Enhancement is not ok if it is just cosmetic or not medically necessary • Its not natural • People should look after themselves • There are more important things to spend time and money on - Cancer, dementia, Alzheimer's before they start introducing ' premium enhancement' - we would end up paying for it anyway via taxes • The child (Leah) doesn't have a choice* - her lifestyle would change • <i>How old are you before you can choose? Who decides? - parents, Doctors, children?</i> • Leah would probably be happy just to be able to walk • People born with disabilities shouldn't be forced to be ' normal' * (link to choice above) • <i>Will it be on the NHS - could it save money in the long run?</i> • Premium enhanced athletes should not be allowed in the Olympics - but how would you regulate? • Could lead to a bigger divide between the haves and the have-nots.

Mind and Body Story Sheet 2 - Roy and the new heart

Likes	Dislikes
<ul style="list-style-type: none"> • Less transplants would be needed • As individual we would probably want it especially if it was for our children • [Access to this treatment] depends on whether you have looked after yourself - have to earn it. <i>Some agreement - but is this practical?</i> • <i>No rejections [of transplants]</i> • <i>Less need for expensive treatment</i> • <i>Anything to make people's lives better</i> • <i>Choice should be available</i> 	<ul style="list-style-type: none"> • *Gut reaction is its not natural - but maybe the next generation will feel differently • Would it work? - its risky • Would extend peoples lives too much - should there be an age limit? - <i>Impact on pensions?</i> • *Where do you stop? • We don't know enough about it yet. • If its expensive it would only be for the well-off or people with company insurance • What if phoney Doctors started developing it? - Quality control? • Why can't we solve the organ donation problem first? • <i>Would it be cost-effective if it was available to everyone? (link to pensions)</i>

Mind and Body Theme team - afternoon session

Issues
<ul style="list-style-type: none"> • Ruth- availability and cost • Choice - who decides? Not just individual • Caring for older people or people with disabilities (cost-savings)

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Story	More information
Roy	<ul style="list-style-type: none"> • heart - cost, time, would it be rejected • Operation - risks - how far could it go? • Eyes → medical expert - heart specialist, transplants, surgeon • Stem cells - what happens if it goes wrong → new illnesses? - Research.
George	<ul style="list-style-type: none"> • Alzheimer's (and other old age diseases) specialist • what technology is available • Microchips - how they work? - range and benefits • forward planning - resources • Will it work? - will Alzheimer's people really respond • Other uses? - Mass production, burying the cost down. • What else could be done to help people with dementia
Ruth	<ul style="list-style-type: none"> • GPs opinion on the tests - how much? • Preventing spread of diseases or work-related illness → <u>cheaply?</u> • Roy will go for his eye scan and tell us about it • Local government? - health → different parties • Tony Blair? • Someone to explain how they will use the information from us • Healthcare system
Katie	<ul style="list-style-type: none"> • Someone born with a disability • Someone who has had an accident that has made them disabled • Does it give false hope? If it doesn't work?
Who decides?	<ul style="list-style-type: none"> • experts will go towards their agenda • health ombudsman - deciding on threats and research - independent → advisors from technology, health and economic - lots of ethical scares, ethical, MPs • How do we prioritise where money gets spent?

2. Work and Leisure

Work and Leisure Story Sheet 1 - Henry at the cafe

Likes	Dislikes
<ul style="list-style-type: none"> • Innovation (like power generating clothing) that reduces environmental impacts • Flexibility and access • Being able to work from home • <i>Using technology to overcome barriers between people - but maybe mean people don't learn to interact properly</i> • <i>Technology that makes working life easier</i> 	<ul style="list-style-type: none"> • Not knowing how to use computers etc - and what could go wrong • Technology can inhibit imagination and activity outdoors etc • Work invading the home; isolation • Ability of government to monitor communications • <i>Technology displacing jobs</i>

Work and Leisure Story Sheet 1 - Jennifer and the Salon

Likes	Dislikes
<ul style="list-style-type: none"> • <i>Improve health and appearance</i> • <i>Keep people healthier longer is OK</i> • <i>Using technology to diagnose disease effectively</i> • <i>Cosmetics not just about vanity - important for people's self esteem</i> • <i>Technology to prolong life is ok <u>providing</u> health is monitored</i> 	<ul style="list-style-type: none"> • Concern that don't know enough about genes • Need to deal with existing problems first • Health issues should be addressed before cosmetics and vanity • Delaying ageing so people are healthy longer is ok; artificially prolonging life is not • How genetic information might be used • New technology of this kind needs to be carefully

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	<p>controlled and regulated to control quackery - <i>and people</i></p> <ul style="list-style-type: none"> • <i>Need to be properly trained how to use it</i> • <i>Marketing information on packaging in place of scientific evidence and information</i>
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Work and Leisure Story Sheet 2 - Malcolm at the Wheel

Likes	Dislikes
<ul style="list-style-type: none"> • Technology forcing people to drive better • Improving safety • Driverless public transport • Economic savings and safety of automated transport • Security is more important than convenience 	<ul style="list-style-type: none"> • Worried about technology going wrong - better to be self reliant • Technology that stops people thinking for themselves <i>and making their own choices</i> • Public transport without people to ensure security of passengers and help disabled and elderly • <i>Not being able to 'punish' mistakes</i> • <i>Viruses and faults</i> • <i>Nagging machines</i> • <i>Removal of individuality (a lot of individuality is cosmetic e.g. ring tones)</i>

Work and Leisure Story Sheet 2 - Katie at the park

Likes	Dislikes
<ul style="list-style-type: none"> • Technology that enhances safety and security is welcome • But has to be balanced against 'Big Brother' fears • Technology kept under <u>personal control</u> is ok - including giving permission to receive information from others. i.e. people must be able to choose to opt in or opt out without being discriminated against 	<ul style="list-style-type: none"> • Feeling of being watched all the time • Technology could be used to discriminate against people who do not use it • Technology as a substitute for real solutions - more police, more doctors etc - government hiding behind technology • Technology controlled by others is not ok • <i>Not knowing about technology until it is foisted on us</i> • <i>Technology that turns us into robots, all working and behaving the same and enabling government to monitor and control us</i>

Work and Leisure - Issues

Issue 1: technology masking the real issues	
Questions	<ul style="list-style-type: none"> • Who decides what technology gets developed? • Why does money get spent on things like CCTV rather than addressing the causes of ASB?
Further info	The development process for new technology Who benefits How demand is created
Person	A very scientific sociologist
Responsible	The public

Issue 2: Affordability and access (danger of excluding some people from benefits of new technology)	
Questions	<ul style="list-style-type: none"> • What is the definition of 'affordability'? E.g. money? Need? For new technology? • How to ensure people are not excluded by not understanding technology?

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	<ul style="list-style-type: none"> • Definition of access - who decides? • Who has the right to make decisions about things that really matter i.e. new drugs rather than consumer matters
Further info	Facts about access to new drugs, costs, who regulates them How are decisions about access to new drugs made? How new technology is priced and distributed
Person	Drugs company representative to talk about how new treatments are developed and paid for? E.g. someone from NICE

Issue 3: control	
Questions	<ul style="list-style-type: none"> • Who decides / controls information held on databases? • Who has access to files on me held by my doctor? Police? Taxman?
Further Info	Info about data protection
Person	Wouldn't trust anyone on this
Responsible	individuals

Issue 4: substitution of technology for human relationships	
Questions	<ul style="list-style-type: none"> • How to decide whether or not technology is of real benefit or not?
Further info	Research evidence into how certain technologies have created benefits - or not
Person	Researcher
Responsible	public

Issue 5: health - genetic technology	
Questions	<ul style="list-style-type: none"> • How easy is it to test for things like cancer? • Does it provide a complete picture?
Further info	How does advance knowledge affect people? Will it speed up the process of diagnosis and treatment? Will it be available to third world countries free? Where is it going? What new areas are being researched? Are there people available to use the technology being developed? How is genetic information stored? Is it possible to correct genes causing criminality?
Person	Someone to explain about it and who can link into the ethics of it
Responsible	Government - because they will hold the purse strings

3. Home and Community

Home and community Story Sheet 1 - Malcolm and the shopping

Likes	dislikes
<ul style="list-style-type: none"> • Wonderful idea • Really good for health conscious people <ul style="list-style-type: none"> → Control of obesity? → <i>Balanced meals and nutrition</i> → Good for calories counting → Only for some people • People might become more adventurous with their food choices • the technology could be used to tag / watch criminal • is useful if you are chipped and have an accident • <i>budget control would be very good</i> • Really important to have control of the systems → it has to follow <u>your</u> choices <ul style="list-style-type: none"> → Budget 	<ul style="list-style-type: none"> • What happens when system malfunctions? - Reliability? • Would you brain go to sleep? → people stop having to think about food / shopping / cooking • Computer thinking for you → loose control / boring • Tagging technology - do we want to know where everyone is at all times? • Relying on computers too much / loose our ability to do things ourselves • Vulnerable to attack / viruses • Pushing out small shops and market traders ★ • Likely to cause a lot of debt - young people are vulnerable • Older people will find transition difficult • <i>All benefiting supermarkets</i>

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<p>→ Food preferences</p> <ul style="list-style-type: none"> • Supermarkets have scanners already - does it make you spend more/less? → you become more aware therefore spend less 	<ul style="list-style-type: none"> • <i>Local trader opt in</i>
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Home and community Story Sheet 1 - Paul and his love life 1

Likes	Dislikes
<ul style="list-style-type: none"> • Doesn't waste time • In control of who he meets • Can browse away from what you normally look for • It is fun to meet people and chat to people you have things in common with but wouldn't normally meet • <i>Good for older people / those who cant meet people as easily</i> • <i>Cheaper than and 'introduction agency'</i> • <i>Convenience</i> • <i>Anonymity can be a good thing</i> • <i>'friendships' online can be beneficial but cannot be used as a substitute</i> • <i>Just have to be careful who you talk to</i> • <i>But you can have more control than in real life situations</i> • <i>It can work - some people meet spouses online</i> • <i>A secure 'opt-in' feedback system / secure checking system would be good</i> 	<ul style="list-style-type: none"> • Meeting people online, they might not be who they seem • <i>Can pretend to be someone you're not - adultery?</i> • Easier = cop-out • No chemistry / spark / <i>body language</i> • Ethics - 'shopping' for mates • 2nd life - wouldn't have time for it / it could take over your life • Has become a generation issue → many youngsters now networking / socialising online • <i>Compatibility test obviously didn't work with Paul because they broke up</i> • <i>Actually takes away control</i> • <i>Relationships take time - cant be instant</i> • <i>Loss of social skills</i> • <i>Misrepresentation *</i>

General - Paul and his love-life

- *Can't restrict / limit it too much (for adults!)*
- We're losing control → the more technical it gets, the more control we loose
- We do have the choice to use the technology or not (currently)
- Children are much more technology minded - although the negative is that they aren't using their brain → if they don't join in they might get left behind
- Opt out? - not much of an option
- *Paul's story is more about our social state than the technologies*

Home and community Story Sheet 2 - Emily and the robot

Likes	Dislikes
<ul style="list-style-type: none"> • Being freed from household chores * → no need for a wife • <i>Free up time for better things / hobbies *</i> • A computer that understands and does what it's told • Don't have to pay the robot - prefer robot to human? Trust? Doesn't have rights as such so don't have to treat it well • Frees up time can spend with family • Good for people with illness / disability * • Good if you can have a choice of levels that the robot can do • Robot dogs? - no pooper-scoop • <i>Could be useful for security</i> 	<ul style="list-style-type: none"> • Machines thinking for themselves - take over, <i>artificial intelligence *</i> • Robots cant necessarily think for themselves • Not learning anything / robot doing it all • Robots taking over role of parents • Makes you lazy - no satisfaction • Like to cook / clean in own way - jobs wouldn't be done as well • Dangerous to attribute human qualities • Taking away jobs - or just changing skills sets • <i>Passing down skills through families - social aspect</i> • <i>Would the robot have rights? - if yes then very dangerous</i> • <i>Feelings in robots - sounds impossible</i>

Home and community Story Sheet 2 - Henry and the cameras

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Likes	Dislikes
<p>Feel safer with CCTV * → less crime</p> <p>Scanning clothes for concealed objects = good idea in schools / clubs</p> <p>Outside CCTV has advantages and disadvantages</p> <p>Better scanning for airports * and other public places is very good</p> <p><i>Can introduce security measures in degrees according to the risk</i></p> <p><i>In theory linking to the police is good - but reaction times would let the system down</i></p> <p>Security - mix scanning technology with robotics</p> <p><i>Scanning at football matches</i></p>	<p>Big brother</p> <p>Don't like the idea of scanning for emotions → <i>it could go too far</i></p> <p>Cameras in home, linked to police → could be easily abused / exploited *</p> <p>Invasion of privacy * - especially in own home</p> <p>How far to we go with information gathering</p> <p>Don't like the idea of seeing through clothing</p> <p><i>Would it even work?</i></p> <p><i>The more security measures you put in the less secure you feel → creates paranoia / isolated / irrational fears</i></p> <p><i>People have become immune to sound of alarms - will it make any difference?</i></p> <p><i>Only people who will benefit are the private security firms</i></p> <p><i>CCTV isn't even combating petty crimes at the moment - is only used for major crimes</i></p>

Home and community - important issues / themes

Malcolm and the shopping	<p>Ethical issues - manipulation by the food industry is a serious consideration → we have a <u>choice</u> here</p> <p>General consensus is positive towards the idea if small producers / retailers involved</p> <p>→ becomes a weapon of consumer choice</p> <p>→ <u>corporate control vs. civil liberties</u></p>
Paul and his love life	Down to personal choice as long as certain groups are protected
Emily and the robot	<p>As a cleaner - robots have very positive response, beyond that the issues become more complicated</p> <p>Robots in military - ethical / cost issues</p> <p><u>Needs to be nothing more than a machine → why would you ever want to robot to have feelings / experience pain</u></p>
Henry and the cameras	<p>'big brother' and paranoia</p> <p>Ultimately again has to be personal <u>choice</u></p> <p>Don't spend money on security, instead attempt to tackle the causes of crime</p>
	Worried that "we are going from freedom of choice to freedom of choice"

Home and community - further information

Question	Who?
<p>Would like specifics on how far robot technology has gone so far - and likely future timeframes</p> <p>→ Possible to have a demonstration of a robot? How far we have come - where going? - Where is the line going to be drawn?</p>	Robot scientist
Data protection / civil liberties with respect to cameras / CCTV → where will control be → state of current and future possible regulation	Politician / civil servant?
Security - police explain need / use /future benefit of advanced security systems → is it working at the moment?	Police
Shopping - likelihood of involving small businesses / locals and guarantee of fairness	the person who is developing the technology
Safeguarding of data → likelihood of government legislating around data protection	OFT, Dti, Data Protection, government body responsible for information, business, corporates who are interested in technologies

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Someone to justify why they are doing the technologies → and how it might benefit	Scientists
Consumer representatives	Which?

4. People and planet

People and Planet Story Sheet 1 - Roy and the Robots

Likes	Dislikes / concerns
<ul style="list-style-type: none"> • The ideas of robots doing dangerous and dirty jobs. - such as mine detecting • For some industries robots are very good idea, precision industry, and medical uses like surgery. • People will still be needed to operate the robots. • Robots will be integrated with lots of technologies, like phones, e-mail and TV etc. 	<ul style="list-style-type: none"> • Robots could be used for crime • Have concerns about unemployment, it may be more affordable to use robots but at the expense of jobs. It's just another way to lose jobs, eastern Europeans are already performing these roles, this would just make it worse. • What happens if the machines break and we don't have the skills or workers to step in to provide the service • Fear of loss of skills 'we become a lazy species' • Can't imagine it would be good to use robots in a care environment. You wouldn't want machines doing this kind of work. Even the cleaner talks and interacts with people. It runs the risk of increasing isolation and depression. • This feels like a loss of a caring society, • Concerns about loss of social interaction, less community engagement • I don't want my kids not working, not supporting each other and not using their minds • This is really an extension of never talking to a real person on the phone

Questions

- What about instructions and how to use them, Are they safe? (I-Robot) who repairs them?
 - What about robots with human faces? Will they have emotions or feelings?
 - This feels like it is a long way in the future - but 'I believe it is viable because so much as changed in the last 100 years.
 - How much will it all cost? Who gets the robots? Are they accessible to all or only the wealthy?
 - Where does the robot live? What are the storage issues? Do robots have rights?
 - How accessible will they be? How much will they cost?
 - Would like to hear from a government person who can give some sense of how to make robots accessible to all - social policy
 - Some one with robot expertise.
 - How realistic, what is the time frame?
 - Non-government person, someone independent or an investor.
 - Commercial person (Richard Branson type)
 - Some one who will speak plain language
 - Independent scientists
 - Sociologist - how these things may affect society.
 - What kind of sectors will robots be used in?
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- A strong sense that we have no choice, all of this is being done to us and we are fed information in bits.
 - Our society tends to accept things, we don't stand up and fight for our beliefs anymore and we don't get asked anymore.

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People and Planet Story Sheet 1 - Cynthia and the gas bill

Likes	Dislikes
<ul style="list-style-type: none"> • Agree that we need to focus on adapting to climate change • I would like to be able to generate electricity and sell it to the national grid. • Agree we need to do something because worried about having to rely on supplies from other countries. • We should be self-sufficient in the UK • All houses should have solar, tidal and hydro options - we should be able to sell electricity back to the grid. • Equipment should be affordable • More information - this needs to be the truth and should stop conflicting. Information. • I would like to see surveyors or assessors providing services to tell me what I needed, but I want to know they are independent. • Need to think about how much electricity we are using, make homes more efficient and insulated. • We have to find alternatives, we want our kids to have a future 	<ul style="list-style-type: none"> • I agree there are too many choices, it is too complicated and don't know which is best. • I would like to challenge that CO2 is the cause of climate change. • I object to government pushing energy efficiency, encouraging us to buy equipment but not providing funds - we shouldn't have to pay. • People should get support; even those who are able to get a grant don't get all the money for the equipment. • Why don't energy companies incentivise you to join them by giving you the kit to generate energy at home, they could then take any left over energy to sell to others.

Questions

- What action is government taking on climate change?
- Carbon emissions what are they doing?
- More about alternative energy sources - bio-diesel and tax breaks.
- Energy companies - what are they doing?
- Viability of local small scale renewables
- What about selling energy back to the grid, is it viable?

People and Planet Story Sheet 2 - Rajpal and the relatives

Likes	Dislikes
	<ul style="list-style-type: none"> • Challenge vies that global warming is caused by CO2. (it is caused by the sun) • It is an excuse to tax us • We are being sold a lie • But there are lots of ways we can take responsibility, we can recycle and be more energy efficient. • We need more grants and support. The installers take advantage of the grants that are available and don't pass them on to the users • We are given mixed messages about global warming. Why aren't houses being built to higher standards • Why don't we have the Severn barrage • Alternative fuels like biofuels are not necessarily good, e.g. palm oil. • Wood is carbon neutral, why are we not using more? • Governments need to lead from the front, governments should restrict flight. They are telling us we should travel less but are allowing more and more flights and airports are being built. • I want to see much more money being put into researching and developing sustainable industries.

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	<ul style="list-style-type: none"> • We feel there is a 'global warming' industry that some people are making lots of money out of. • We are doing our bit in the UK but it's other countries that aren't e.g. China, the USA and Russia • Business should do more, less travel, video conferences, e-mail and should lead by example. • It is open to abuse and will it make any difference to carbon in the atmosphere? • You should be able to earn extra credits by recycling, walking rather than driving etc. • Carbon credits - sends wrong message, you can just go out and buy more • It seems very open to abuse. • Are we moving to a society where carbon is restricting our choices rather than money?
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Questions

- We need to know whether CO2 contributes to global warming, otherwise feeling that these policies are based on a lie? If it is happening to what extent?
- Hear from someone from the department of transport
- Independent scientists taking different views - balance.
- More about carbon credits or other tools, who is doing it? What are they doing? How have people thought through how to do it and minimise fraud, abuse etc.

People and Planet Story Sheet 2 Emily and the vaccines

Likes	Dislikes
<ul style="list-style-type: none"> • We need a world body to support programme. • Research cheap and effective tools • Emily has a responsibility not to bring disease back, we live in a world with lots of global movement and this suggests the need for more vaccination. • Tax the drug companies and utilise the money to develop drugs etc in the third world. There is a potential to eradicate many diseases, this will be a benefit to all of us. • Increasing the material divide will have a long term threat to security, excluding people increase conflict. • Will enable vaccinations programme to be delivered much cheaper? • Travel spreads distribution of wealth. • How do we persuade all countries that they should prioritise healthy populations? 	<ul style="list-style-type: none"> • Many illnesses in the third world are now treatable, but infrastructure does not exist. • It's an unfair world - celebrity fundraising is doing more than governments. • It is our responsibility in the developed world to help others. • There are political barriers, corruption in many countries. Greed stops the desire to give; the money does not end up with the people.

Questions

- New DNA vaccines, how effective are they? Are there side effects
- Would government consider giving companies choice of tax or making drugs or patents for drugs freely available for others to use. What are the medical opportunities?
- Links between disease control and population control.
- Would like to hear from someone from one of the poor counties about where the money goes.
- Hear from a charity, Oxfam, or government department.

Plenary before lunch

- Growing a heart - scary to start with

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- Devices for Alzheimer's sufferers → a big surprise - people like that need 24 hour care
- Developing group ideas - like individual choice
- Food and menu would be great
- Robots with feelings, why?
- This should happen more - bringing out our creative / caring side
- People feel detached from government and this helps to enthuse us
- Global warming - still not convinced
- Science is put in a very positive light → good to hear about new developments
- Good to hear different perspectives and make you think

Day Two 12th May @Bristol

Agenda

9.30	Welcome and reminder
10.00	1. Cyber security - Stephen Crane
10.45	Break
11.00	2. Carbon credits and climate change - Simon Roberts 3. Genetic testing and DNA databases - Hilary Newiss
12.30	Lunch
1.15	4. Robotics - Alan Winfield
2.00	Break
2.30	Discussion Debrief Evaluation
4.00	End

Welcome and reminder

What issues stuck in your mind from last time we met?

Participants were asked to discuss this in twos and threes and to write on post it notes which were collected and grouped at the front.

- Can we trust the experts? (Have they an agenda?).
- Robotics
- The fact that robots will replace humans
- Robot
- Robots
- Robots
- Robots
- Robots - how far is the technology?
- Robots in the house
- Robots with emotion
- Tagging
- Computerised clothing
- Health
- Health screening
- Microchips to help illnesses
- Health
- The growing of the heart
- Stem cells
- Growing stem cells (heart)
- Growing of hearts
- Cloning of body parts

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- Designer body parts (growing to order)
- Growing hearts- cloning

- Computer systems and the problems that can happen
- Database details
- Data protection
- Misuse of CCTV and data

- Cameras with emotion detectors

- The talking car. What is there is a system crash just as a mother is crossing the street with her baby?

- Climate change
- Climate change
- Climate change - how can we adjust back to save levels for the future?
- Carbon credits the new sterling?
- Climate change - carbon credits another form of tax. Greenhouse theory to Greenhouse fact

Plenary discussion

Did you talk to anyone about the things we discussed last time?

- Talked to friends and family
- People were very interested
- Good discussion in the pub
- People had views about all the issues
- My granddaughter took the information into school - she was much less doubtful and cynical
- My granddaughter took it to discuss in her school science club, they were all very positive about new technologies
- Concern about robots doing everything removing the motivation to get up in the morning
- Children discussed the issues with their friends
- We might engage with politics more if there were more discussions of this sort
- Discussed the issues at work - much cynicism about the use of CCTV etc.
- Discussed climate change theory - found there was a mixture of believers and non-believers

Did anybody try to find out more?

- Started noticing newspapers stories about robotics and tagging for elderly
- Saw film "i-robot" - put me off robots!
- Saw IPCC report on climate change and use of technology to prevent it
- Heard new report suggesting nuclear power as a way forward to combat climate change
- Saw news story about Portuguese solar power collector
- Read report about space-based solar harvesting system
- Read up my wife's study of stem cells after last meeting.

Discussion following presentation from Steven Crane Cyber Security

Q and A session with Steven Crane

Q Is action taken by Hewlett Packard to deal with future/trust issues?

A: We try and think about future e.g. developing an alternative to paper. We are aware that technology could change the world - for good or bad - if forced on people. We can provide technology that allows people to hide online - but then we have to ask - what about terrorists?

We produced CDs and they allow people to copy music, and we were caught out by copying problems.

Q: Who decides?

A: Decisions are made at HQ with discussion with affected parties

Q Who is responsible for all the information that is copied and stored? Would we have to pay you to store and retrieve information?

A: The question is who has access to the information and what do you store?

Q: I can give you an example of a good idea that didn't work. I needed to get a copy of a marriage certificate. I had to pay for access to the information but it was not available. The paper records are there but it is not on the digital system which made it look like my parents had never been married! What about more important information like medical records?

A: the technology generally works, but it isn't always used well

Q: You haven't said what Hewlett Packard is doing to give us 'cyber security' Can we have more details?

A It's not just HP alone...

Q: but you must consider the ethical implications/side effects of new technology or are you more interested in money?

A: We do- on ID theft for example - you could be anonymous but then you might not get access to services. Technology can allow you to get services without having to identify yourself. You can now specify how you want data to be used - you can express preferences - but it will always depend on the integrity of the organisation that uses it. We are developing trusted technology - so that you know your identity will only be used the way you want it to be.

Q: What is the relationship between companies making decision and government / demand from people?

A: The pull comes from citizens for example for online services and the convenience of new technology - people are willing to take risks if they see a benefit.

Q: The issue is control being taken away from individuals. I am worried that this will become more common and you will be forced to release more information than you want to in order to receive services. For example chip and in - it used to be that if it didn't work you could sign - now this is not an option. The financial institutions have dictated that we have to have it whether we want it or not. You can't use cheques either now.

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Q: The people in charge of technology have stopped listening. Children are becoming indoctrinated at a young age and using computers and so on too much. This will leave people unable to do anything themselves.

Q: What is the motivation behind generating databases? I see three questions; Who will have access?

What is the information?

What is the purpose of collecting it?

.There is no clear answer to these questions. I think we need an independent organisation to monitor it.

A: Organisation don't currently offer enough control and it is possible for us (HP) to change that. For example organisations should not be able to offer incentives to encourage people to give away details.

Q: It could be the job of the information commissioner. Can they/we manage the issues and technological development? Public concern and government policy are feeding into corporate providers.

A: there are tensions between these different players

Q: CCTV - could have been useful to find the missing girl in Portugal. If you are doing nothing wrong you should not mind being filmed.

A: but would you let me come and watch you in your house? You have nothing to hide but what about your private space?

Q: I don't think you would want to watch me unless you had a hidden agenda.

Q: In the film minority report, they scan the people's eyes - is this technology already here?

A: We do have number plate recognition in London. Security places already scan your eye, e.g. airports. People like it to an extent - but not when it brings up details about you before you have had a chance to introduce yourself (example of trial of this in Nationwide Building Society - recognised people, database brings up information on them, their transactions etc before they reach the counter.)

Small group discussions

Group A - Pippa

How do you feel now about the technologies/ issues?

- Who makes the decisions?
 - Like the idea of it being complex and understanding lots of people's needs - not just one decision maker
- Still significant concerns about privacy and access etc. i.e. Hewlett Packard and others acknowledge concerns but are continuing
- It will always be a challenge to hack in to the system

Concerns

- Selectively taking to citizens
- Extent of government being bale to override security
- Choice taken away - we want to have the option of taking risks
- Young people won't even question all this
- Feeling we are being 'told' e.g. smoking
- Open to corruption by different interests

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Positives

- Computers are only as clever as the programmer (at the moment)
- Acknowledge really goods technology - washing machines, microwaves etc. that parent didn't have but I have a choice to use them or not
- We use the convenience e.g. of online banking, shopping, can see this would be valuable for my life.

On balance would you support government investment in this technology or not?

- Yes, they work for us and solving issues of security is their problem
- Must work on trust
- Must be open, even to the point of referendums, all should be transparent
- Feeling we are kept in the dark
- Feeling people are corrupt
- They don't live in the real world

Group B - Andrew

How do you feel now about the technologies/ issues?

- Scary
- Orwellian
- Any technology can be abused
- Depends how it is used

Concerns

- What will be done with the information?
- Not having control over what other people know about you
- Dangers of misinformation and government having wrong information
- Technology can be a substitute for human presence e.g. police officers
- Who benefits and whether there are enough safeguards
- Technology makes people lazy
- Stops children playing, learning and thinking for themselves

Positives

- Adds efficiency and security
- Can make you feel safer
- Quick access to medical records in an emergency
- Solving rime - finding people
- Provides employment
- Gets around oppressive regimes - can get info about outside world
- Speed up bureaucracy
- Catch benefit cheats

On balance would you support government investment in this technology or not?

- Yes because we have no choice - it's the way the world is going
- Yes- but with stringent controls and penalties when it goes wrong
- It would be Luddite not to support it
- Government should spend lots of money on data protection etc and safeguards, and tell us what they are doing
- And on clear personal accountability - who is in charge of what and people

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should be sacked when things go wrong

Group C - Ben

How do you feel now about the technologies/ issues?

- Frightening - data access and control manipulation
- No more informed than previously - wrong person?
- How will information be used and how to opt out
- What is the motivation
 - Security? For government
 - Business and profit?
 - Products for problems for ever - future markets
- More on tagging please
- Security and personal tagging

Concerns

- Control - I can switch off my phone if I choose to but I can't switch off CCTV
- Access to services denied with info access
- Drugs companies telling lies (no trust)
- Selling databases with no ethics in business
- Making money before ethics
- Data as a commodity/resource for them

Positives

- Catching criminals - smallish benefit
- Severity of crime determines level of effort - only for serious crime
- Trace missing persons
- NHS as collector of data benefit to them and you
- Social services share with NHS
- Schools
- Government Agencies - joined up
- At risk register

On balance would you support government investment in this technology or not?

- Technology benefiting individuals not companies
- We are paying - so we want rights to our information. Government should not have sole access, companies should not have access. Make it illegal for companies to pass on information
- Governments change, but civil service stays
- Need better information AND better information management and collaboration between agencies
- More openness please
- Accountability for companies who move data without permission

Group D - Amy

How do you feel now about the technologies/ issues?

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- Databases make people too reliant on data and we receive less personal service because organisations, like call centres can use less qualified operators
- Feel more concerned
- Misuse of data is still a concern
- The more you hear, the more concerned you are
- But honest information helps you make more informed decisions
- Now we will ask more questions about what will happen with our info (e.g. iris scans) then after the last meeting.

Concerns

- Technology is running away and won't work
- You have to trust the people holding the data
- Criminals will always find a way around new security initiatives, for example with chip and pin, criminals now take you to the cash machine and force you to give them money
- We need more protection against technology
- Developers are not considering the other uses of the technology/data, companies are not looking at the wider picture
- Money is the motivation for developing technology - not individuals demanding technology
- Data will be sold on to other companies, for example on forms you are given a data protection opt-in rather than an opt-out, but the data gets used anyway for junk mail and spam
- Incentives are used to encourage people to give more information e.g. discounts for entering information online.

Positives

- It's good that someone at Hewlett Packard is thinking about "is this right?"
- The security uses are positive

On balance would you support government investment in this technology or not?

- No—companies should pay for it - taxpayers money should not be used, especially if the purpose of developing the technology is for a company to make money
- But if the technology is for the benefit of the UK, for example security, maybe the government should get involved
- We are paying for some things twice- for example airport taxes have increased due to security costs, but we have also paid for investment in the technology used to combat security breaches (e.g. iris scanning)

Discussion following presentation from Simon Roberts

Climate Change and Carbon Credits

Q & A Session with Simon Roberts

Q. Where does the "90% of scientists certain about climate change" come from?

A. Modelling, evidence etc.

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- But scientists can barely predict the weather 24 hours ahead.

Q. Are they 90% certain about global warming, or 90% certain humans are responsible for it?

A. The latter.

Q. Most scientists would concede the modelling is a guess. There are other scientists saying that it isn't happening e.g. climate didn't warm in the 50s and 60s.

A. The 90% comes from looking at historical data; human impact is the only answer that fits all the data.

Q: It could be a natural phenomenon.

A: Natural effects have been taken into account.

Q. We are really questioning whether we can trust the scientists?

- I believe in climate change - but I understand why there is public scepticism.
- Because there has been no credible public debate. This needs to be done.
- There's no point us doing it when countries like China are not.

A. Individuals alone can have little effect

- China's CO2 emissions are giving us consumer durables - but someone needs to make that first move, and that time is coming. UK, US and EU are responsible for most of it and it is therefore morally right that we should do it. The burden of cutting carbon has to be shared.

- This is the first time I have heard the arguments put clearly. If this information was put clearly people would respond to it - must be put in language people understand.
- Still cynical because scientists are making money out of global warming. I believe climate is changing but it is not down to man.

Q. Don't carbon credits discriminate against the poor? Why aren't there more alternatives available?

A. Carbon credits - poor people use less carbon. A carbon credit scheme will involve the rich giving money to poor people who use less carbon. There is a lot going on to help the fuel poor.

- Because we are not all on benefits - but we have no spare cash - we don't get any help. There is a huge community of people in this position.

Q. But the costs are unaffordable.

A. A lot of people think that insulation is expensive and time consuming - it isn't, it will save you money.

All the energy suppliers have been told they have to say energy - but maybe they don't tell you that they are subsidising some of these initiatives.

Small group discussions

Group A- Pippa

How do you feel now about the technologies/ issues?

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- Scientists have caused problems - by developing technology that needs more electricity
- More production is a result of advertising
- We are encouraged to consume to help develop the economy - how does this work?
- New innovation is driving consumerism
- 'Greed' only interested in selling
- It was very good to hear clear views

Concerns

- Carbon credits seems complicated
- Seems simple
- If credits are not transferable we will reduce CO₂ quicker
- Fine for those who can afford it
- Using carbon for work and business
- Impact on flying- effect on economy
- Still unsure about the solution on a global level

Positives

- Yes - clearer
- Got to understand the problem
- Trusted him
 - He believes it
 - Not for profit
 - Personal integrity
 - [came from the] Local community
 - Knowing the organisation
 - Down to earth
 - At our level
- We want to do what's best but need to know how

On balance would you support government investment in this technology or not?

- Yes, and be more joined - must work out how to make it affordable
- Take more control over the science that is done, do it with a thought through process and consider what will be the long tem benefits
- Listen to the people and take action
- Link to world development

Group B - Andrew

How do you feel now about the technologies/ issues?

- Government not serious about climate change. If they were, they'd switch off city lights and build the Severn barrage. Carbon credits are just another tax.
- We connect to environmental issues through personal things like waste and recycling

Concerns

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- A lot of devices depend on being on stand by
- I don't benefit personally from doing things like insulation and double glazing. The government isn't really interested
- Scientists are making money out of climate change - it's a license to print money
- Reputable scientists have got it wrong before.
- Over-packaging etc. uses electricity as does MacDonald's packaging- link between everyday issues like waste and bigger issues like climate change
- How will how much carbon you use be measured?
- Government would abuse carbon credits to their own benefit

Positives

- Micro-generation should be encouraged
- Carbon credits - like electricity metering - make a direct link between what you use and what it costs.

On balance would you support government investment in this technology or not?

- Government should put more money into telling us what they are doing and what we could do
 - In plain language
- There should be more interest-free or low interest loans to support insulation, small wind turbines, solar panels etc. and alternative fuels.
- Government - central and local should remove obstacles - such as planning- to doing things like wind turbines on houses
- Invest into public transport

Group C - Ben

How do you feel now about the technologies/ issues?

- Climate change is happening
- We are a small island - do we make a difference
- If USA did it [cut emissions] we would
- International Cooperation is needed
- Manufacturing moved from here to there
- Nukes for developing world?
- Rainforest depletion

Concerns

- It is slowing the problem not solving it
- Building regulations are not tough enough
- Credits allow use of energy at expense of others
- Infrastructure is too complex
- Bad luck to the rich
- Rich and poor - middleman will buy up cheap and exploit
- Don't trade excess carbon
- Sell unused carbon onto government and do not redistribute.
- Too complex and hard to access
- Executive travel -why not use technology instead?
- New houses should already be insulated
- Home Information Packs - ordinary people are paying

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Positives

- I like it - trading for unused carbon would be good
- We will think more about waste of energy

On balance would you support government investment in this technology or not?

- Tougher building regulations please
- Should the world bank act as a broker/market to fix prices
- Avoid exploiting the poor for profit
- Government act to reduce carbon not spread responsibility down to citizens
- Focus in companies
- Don't like bureaucracy
- Better public transport
- Why can't we neutralise atmospheric CO₂
- Householders too small to make a difference
- I object to reorganising my whole lifestyle - find alternatives we can use easily
- Reduce government use of cars

Group D - Amy

How do you feel now about the technologies/ issues?

- Having heard about benefits to the poor of carbon credits - maybe now I am a bit more interested
- Still believe climate change is man made (2 people said this)
- Know more about carbon credits
- Did think climate change was 50:50 caused by nature: humans, now I feel it's more like 70:30. Now I will try and do my bit
- I am interested in how carbon credits scheme would work and be policed
- We have passed production/industry to other countries but now chastise them for producing carbon - 25 years ago the government should have been honest about why manufacturing went to other countries.
- Still not convinced climate change is man-made,

Concerns

- How will we cut down on carbon emissions - it will belike going back 50 years and will make life hard
- Carbon credits system could be abused on an individual and national scale
- Businesses are moving to countries are less stringent
- Other countries may have different rules
- The proposed solutions, like nuclear power cause different problems
- Still too expensive for householders to make changes like solar power, insulation - these need to be cheaper or allow us to save money on our bills sooner
- This is a global problem - will other countries follow?

Positives

- People are addressing the issues - or trying to

- Good that we are being told about it

On balance would you support government investment in this technology or not?

- Government should invest in low carbon technologies
- Make hybrid cars cheaper - more attractive
- Introduce free public transport
- People need incentives to change behaviour
- The government will still want to make an income from taxes , e.g. encouraging car driving to get tax form fuel
- Government should lead form the front, by example
- Focus on industry first before targeting public
- But maybe at some point they will just have to tell us we have to do it [reduce emissions]

Discussion following presentation from Hilary Newiss

Genetic testing

Q & A Session

Q. Concern about testing all babies and the government using the information to decide on budgets etc → could be used to discriminate.

A. Positive uses e.g. tests are now useful for specific things but discrimination is more about how people / society views people with different conditions - this is changing now.

Q. Health insurance = a right, but wont be open to people with certain diseases?

A. Recommended insurers have to offer a level of insurance without a test - but under review → could go like car insurance (pool) - needs to be dealt with.

Q. Legislation - are there going to be provisions for people who don't want to know and refuse to be tested - to prevent discrimination.

A. Equal rights organisations are now pooled and it will be an issue for that body to consider.

Q. Genetic profiling of children - illegal testing using saliva on coffee cups → how can you prevent discrimination in the workplace, e.g. not being employed as you are a smoker.

A. Pilots can't be colour blind, could provide information that is useful. But much more about valuing diversity.

Q. We are approaching it the wrong way - start by finding cures and then test so you can treat. Don't just test for information → could ruin your life - could be wrong.

A. If you could do something like change your lifestyle would you want to know?

- no - wait until you have illness
- lifestyle changes are too uncertain
- resources are targeted at cures.

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- Who controls information? Your health information is accessed by government already for public health reasons.

Q. How accurate are the tests? - Pre-disposition, is there a limit on how accurate they can be used by public?

A. Yes - the kit has to do what it says on the tin - whether it works - but it doesn't look at how useful the info is - advertising and trading legislation applies here but it is a bit of a mess.

Q. Genetic engineering of children - are you in favour of reproductive choice - designer babies?

A. Its going the right way but it's a hard line to draw between what is a health risk and what is just cosmetic. E.g. choosing not to have a baby with a pre-disposition to breast cancer - they may not have developed it.

Q. How is it decided which conditions can be 'eliminated', e.g. blue eyes vs. cystic fibrosis sex selection?

A. Public attitudes change - have to continue a dialogue → case by case basis. Baby gender monitor is available in the USA → but some have sued because it didn't work.

Early screening for Down's syndrome - can tell the sex of a baby as a 'by-product'.

Q. Who is making decisions?

A. Groups of individuals who look at society views - experts, e.g. HFEA do consult and can be criticised for not listening more to scientists. Consultation is important - e.g. with young people as it will affect them.

Small group discussions

Group A- Pippa

How do you feel now about the technologies/ issues?

- It was quite difficult to understand - more difficult to follow
- Feels like scientists are developing 'stiff' then thinking about how we can use it - i.e. not developing for purpose
- Questions over being able to 'sell' products which may or may not have been [tested /approved]
- We trust doctors and need them to be part of the mix, they help you with what to do next

Concerns

- Insurance is an issue
- Do we trust internet sales? - not a tangible organisation
- The internet is accountable - we need to trust the internet more
- Access to services - cost
- Right to life regardless of disability or disease - society picks up the bill and supports handicaps
- Human rights issues
- Just let nature take its course

Positives

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- Choice is good
- Doing something at birth - why wait until you can chose?
- Find a cure first, then screen, not the other way around
- Focus on prevention
- Tests that diagnose are good - how far do you go?

On balance would you support government investment in this technology or not?

- Yes
- Not just government
- We need government to make decisions on our behalf
- What is in the public interest?
- Government should have a regulatory role

Group B - Andrew

How do you feel now about the technologies/ issues?

- Positive
- It would be wrong to remove the human element from the diagnosis of serious conditions
- Another step on the road to reducing human individuality and increasing government control
- "its not right and natural" [to get serious information from a test/chemist rather than the doctor -i.e. the removal of a human dimension reduces trust in the process]

Concerns

- Data protection
- Finding out about something you could do nothing about
- Accuracy of tests
- DIY tests could produce false results if not idiot proof
- Having test without medical support if test positive
- Could cut doctors out of diagnostic process

Positives

- Convenient
- Takes strain off health service
- Can be more personal
- Would prevent people wasting doctors' time with imaginary illnesses
- Getting advance warning of illnesses
- Peace of mind

On balance would you support government investment in this technology or not?

- Mixed views
 - Yes - for all the positive reasons
 - No- concerns about 'taking people's jobs away'

Group C - Ben

How do you feel now about the technologies/ issues?

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- Could be open to abuse
- Do not support unless 100% accurate
- Educate people about the level of risk and role of the genes involved
- It could be good- you could change your lifestyle if you know - respect your body more
- We need clarification of what can be done
- I would rather not know - I would not buy tests
- Confidentiality is an issue
- Pregnancy [Hilary used this as an example of something with a big impact that is tested using over the counter tests] is not an illness and there are choices - screening for chronic illness if different

Concerns

- Companies can promote advice and products on your screening results
- Sex selection and abortion could result from tests
- Screening for illnesses without a cure
- Information might be used to discriminate for example employment, insurance
- More sensitive than normal data
- Use experience from data protection in this area

Positives

- You could screen for Cystic Fibrosis
- Step from findings to curing diseases and better care
- Info before you start family and use IVF if needs be simple blood test prior to starting
- OK for things that compromise living in society - but social circumstances may differ
- Bowel cancer tests for adults
- Role for patient support groups

On balance would you support government investment in this technology or not?

- Yes - for incurable diseases
- Assess quality of life
- Testing needs a counselling environment, possibly a Doctor, and needs to be confidential
- No release to courts
- No release to anyone who can discriminate
- Our differences make us human -don't want to lose that diversity

Group D - Amy

How do you feel now about the technologies/ issues?

- Not sure about over the counter tests - but gender testing could lead to abortions, other tests could lead to refusal of health insurance and discrimination
- Don't think you should tell someone they have a potential to develop something until there is a cure
- Still quite open to it for personal use - it is good to have the choice [whether to use the test or not]

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Concerns

- Insurance companies / mortgages might use the information
- Could lead to discrimination
- If there is no cure - don't test
- If you tested negative you might not look after yourself
- Would suicide rates increase if people identify a disease with no cure
- Sometimes its better not to know
- There could be a lack of support and counselling - there would be no answers to your questions. I would rather have the information from a doctor
- Could lead to rationing of treatment - they might refuse treatment to people who they know are likely to die of something else soon
- People might be refused health care if they know but did not do anything, or who refused to take a test
- Would it lead to budgets for an individual in their lifetime OR it could go the way of the USA - private health care.

Positives

- It would be good to know e.g. if you had breast cancer
- Getting the all-clear would be a good feeling
- You might feel paranoid - always looking for symptoms of the disease you are predisposed to - but it might make you act
- Screening might lead to tailored treatments and cures - could work out cheaper for the NHS
- Health credits - people with few/no problems who did not need lots of medical attention could trade their credits with people who had problems

On balance would you support government investment in this technology or not?

- Investing in treatments should be the priority
- Regulate pharmaceutical companies that sell tests - they make money from the tests so might ' oversell' them
- GPs prescribe tests - the way this is done is ok at the moment, but we need more GPs
- Use tests efficiently - maybe test people while they are being treated for something else, rather ha making a separate appointment.

Discussion following presentation from Alan Winfield

Robots

Q & A Session

Q. Could these robots be adapted for medical purposes?

A. Robots now used to do certain types of surgery. Can imagine nanobots being injected into the body and finding, for example arteries to unblock - in about 50 years time.

Q. How close are we to robots doing domestic tasks?

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A. You can already buy a robot vacuum cleaner and also robot lawn mowers. Problem is that they're not very good yet. In 5 or 10 years time may be better than manual cleaners.

Q. Can you see robots being used for public transport?

A. Robot technology is already used - for example for driverless trains at airports. Robotics does not really solve information problem.

Q. Could you adapt robots as autonomous vehicles?

A. This is happening in Japan. If all vehicles were driverless could whiz around safely. → if they were all going in the same direction you could join them together and call it a train.

Q. Where does man fit into a robotic society?

A. We are already a technological society. The introduction of robots is not really such a big change. But it is right to be concerned that the introduction of robots does de-humanise society, there are real moral concerns around, for example, the use of robots to care for the elderly. Technology is not inevitable - society can decide whether or not to accept it. Democracy means we can make choice about the technology we accept.

Q. But don't we have to develop new things?

A. Almost all science and technology has potential for good or bad. New technology goes nowhere unless there is a market for it - and companies won't make things if people won't buy them.

Q. Wouldn't defence industry invest in robots?

A. There is little research being spent on military uses of robots in the UK. US military is developing robot devices - say that they want 30% of ground forces to be roboticised by 2015. Worried about this, we can't afford it.

Q. Who funds you?

A. EPSRC - government body.

Q. What sort of society do you envisage there being robots in 10-15 years?

A. Japanese expect robots doing simple tasks in 10-15 years, e.g. luggage carrying or litter picking. Japanese much more welcoming to such technology. We will have them but less visibly.

Q. How long till human looking robots?

A. already has a head that can replicate human expressions. Humanoid robots will be pretty rare; they will come in all shapes and sizes to fit function. Robots that look after people are likely to look like people because we will feel more comfortable with that.

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Small group discussions

Group A- Pippa

How do you feel now about the technologies/ issues?

- Feel better
- Not so advanced as we thought
- [robots designed to do] Single tasks
- [the speaker] Was a scientist but shared our concerns
 - Felt he was upfront with the issues
 - Answered our questions
 - Showed us where the technology was
 - Local

Concerns

- Concerns about military use
- Who polices the scientists? - they receive public funding, and have peer review of activity. As time goes by we may need to get ethical approval - we don't now
- Concern about private sector developing stuff - does it address a social need?
- European robot ethics road map
- Concerns about robots thinking for themselves - be like humans 100s of years because brain is so complex

Positives

- Medical uses feel good. Really very positive
- Feel much better about machine-like robots, to provide a single function rather than human-like and multifunctional robots

On balance would you support government investment in this technology or not?

- Yes - the government control what research happens
- Medical research e.g., nanobots for surgery, would like sufficient resources to develop this i.e. more than there is now
- Must be good for mankind
- Link between environmental issues and robots
- Join up all these technologies and focus on the environment.

Group B - Andrew

How do you feel now about the technologies/ issues?

- Feel quite positive about robots
- Seeing them more as tool like other tools - with human backup
- Fact that robots are not humanoids is reassuring

Concerns

- Would worry about robots doing things making people lazy
- Caring tasks and personal things
- Lack of information from government about what is being developed
- Availability of military robots might make it easier to start wars

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Positives

- Understand it better - can now see what a robot really is
- Happy for robots to do some things
- Free people up from housework
- Robot might be preferable in some care homes - programmed to be kind
- Range of possible applications and roles
- Military use could save exposing own side (and also mine clearance etc.)

On balance would you support government investment in this technology or not?

- Yes
- Trusted what we heard
- Would like to see public investment in health applications and environmental clear-up and search and rescue

Group C - Ben

How do you feel now about the technologies/ issues?

- Fascinating
- Eva [a robot that has a human-like face and facial expressions] was a bit scary
- Fantastic - useful
- Saw robots as people who push vacuums [but now see that they are not]

Concerns

- Useful for mundane tasks - but do they take over more and more and society becomes dependent?
- What happens to our abilities? Will human diversify further?
- Take over manual jobs
- Road sweepers etc. lose jobs
- Money spent on silly things like robots
- When the robots woke up [reference to robots brought in to session - started to move in response to sound] - use for surveillance

Positives

- New Industries and new jobs
- Use for public transport
- Easiest to be positive
- Benefits outweigh misuses
- Like computers - could result in increases employment
- Nanobots for medicine
- Prefer research money to be spent on this than Trident
- Definition of 'Living' and 'rights'
- Military robots could be used to keep public order for crowds - better to hit a robot than a person.

On balance would you support government investment in this technology or not?

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- Don't take things too far
- Why build robots?
- Robo-politicians - no sleaze
- Is it bad that Japan is the dominant force in robots
- How far will it go?
- More support for environment and health and safety, medicine and military (bomb disposal) uses.
- Less support for robots as vacuum cleaners, monitoring or caring for people and in jails or hospitals
- [Could be used to help] People with disabilities/

Group D - Amy

How do you feel now about the technologies/ issues?

- Still not keen on robots - but its ok for others to use them
- Less worried about losing my job as a cleaner - people will still want the personal touch
- They are ok as long as we can switch them off and chose whether to have them or nit
- Robots won't look like human - this is new knowledge for us
- Surprised about what it being done at the moment

Concerns

- There could be less jobs - robots used in factories work better that people to some extent so jobs are taken away from people
- The group do not want robots to be used to care for older people
- Robot soldiers are worrying - but perhaps there might be a situation like nuclear deterrents - a stand off so no actual fighting
- Concern that terrorists could use them

Positives

- Robot pets are ok
- Robot mine detectors would be safer that using people but could this lead to people making mines that are harder to find?
- Positive used of robots include medicine , collapsed building, sewers
- Jobs, flying driving cars could all be done more accurately and safely - provided they are controlled / programmed by humans and you can switch them off.

On balance would you support government investment in this technology or not?

- Depend on the use that they are being developed for:
- Government should not invest in domestic robots, but medical life-saving robots are needed
- The money should come mostly form business as they are the ones who will profit

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Participants were asked to complete a short questionnaire asking whether their views had changed on any of the technologies that experts speakers had talked about.

Having heard from Steven Crane (about information technology and privacy), have your views about the science and technology discussed changed? If so how?	
ID	Answer
001	YES – I don't believe that once you give any information (personal) to an association that it will remain just between you and the association. Other companies will get the information by paying for it or hacking.
002	My views haven't changed.
003	No. I think there's a lot more going on than what is told to us.
004	I will have to know more about this before I am convinced.
005	I still find this confusing, not knowing how to use computers but the security factor, i.e. giving bank details would worry me.
006	Even more concerned about safeguarding my privacy from government and corporations.
007	Not really convinced enough is being done to protect our privacy and identity. My view has not really changed.
008	(HP) Good use of technology (iris) detection at airport. Stop the "wrong" people entering / leaving the country. Knew this was in place. View hasn't changed.
009	The technology is advancing quite rapidly. I do have concerns that people in high place can access info, however I am a law abiding citizen so I don't really need to worry. I would like to think that the technology can be used to help reduce and eliminate bad things in the world, like criminals as they can be traced and caught using the iris technology etc. My view is more relaxed as I feel I have learnt more about what is really happening, not what I thought, as a lot of speculation is not actually correct.
010	More positive on the technology side and if privacy is respected even more positive. However a named person or persons should be in charge to take the fall if anything goes wrong.
011	No, still a bit bothered.
012	Definitely yes. More concerned about the reasons behind the collection of data and its possible misuse. Would advocate that data should be accessed / used for national government and not for marketing. Although slightly worried also about the "security" uses of data.
013	Yes, we were told but I'm still concerned about where information ends up.
014	No, my views have not changed.
015	No, I am still unsure on confidentiality issues.
016	No change – still positive about this but concerns remain the same. Still feel legislation will play 'catch up' o technologies.
017	Science and technology is good if there is reassurance it will not be misused (not guarantee). No change in view.
018	Not much, I feel he didn't talk about the subjects that I thought he would, no mention of tagging etc.
019	I didn't think that Steven really advanced our initial concerns / questions all that much. He touched on the issues but did not go far enough into re-assuring us. So I guess my views / concerns have not changed that much.
020	My views remain the same.
021	My views are still about the same but it was pleasing to hear Steven ask the question about whether it was right for every aspect of our life to be monitored, recorded, reviewed etc and made open to anybody, or whether it should be only done for a reason.
022	Still not keen because often time they say the information you give will be confidential and it not. Take chip and pin for example, people are still stealing people are still stealing people chip and pin number and identity.
023	Not really no. If you've nothing to hide, then there is no worries of being on camera.
024	Jury is still out on this particular matter. Found the speaker interesting but still having problems grasping the fundamentals. 5/10
025	No change.
026	No, I still have causes for concern.
027	Didn't feel I had enough information to form an opinion.

Having heard from Simon Roberts (about carbon credits and climate change), have your views about the science and technology discussed changed? If so how?

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ID	Answer
001	YES they have changed. I am now certain that carbon emissions have a negative effect on the ozone layer and that changing the way we live will now stop this but will slow it down.
002	No, I try to do my bit to reduce climate change, but it needs to be worldwide. Carbon credits not a fair system.
003	YES. I don't know whether enough is being done worldwide to cure the situation.
004	Yes, very much so. Having heard of different ways of saving energy, I found this very interesting.
005	My views have changed, explained to us and now I understand things a lot better.
006	Not convinced about the causes of climate change. There was an agenda. Funding for Simon's organisation is dependent on climate change being down to man.
007	Information was very well presented. Would like to see some of the suggestions implemented sooner rather than later. I.e. carbon credits or something similar. I feel it is very important to make everyone aware of the damage to the environment.
008	Explained clearly. Made it clear what individuals can do today to help make changes. Climate change needs more backing from government to make public aware. Carbon credits are a new and beneficial to rich and poor.
009	I was very impressed with the information given. It was accurate and informed. I feel now I have an insight and feel more confident to try to do my bit and would like to see the information given to people like myself as I believe the information does not come down to 'joe public'. My views are more positive and have confidence in the local organisation and I believed what he was saying before I was less trusting but also less informed and felt that a lot of schemes were financial gains rather than for the good of the world.
010	Have suspicions that this would be used as another tax. Not too sure man is fully responsible for CO2 emissions. Nature plays a bigger part. However I do believe that climate is changing and I find it positive that man is trying to help out.
011	No, I agree with it.
012	No. I still believe that global warming is a fact and that it is mainly caused by people's overuse of resources. Do <u>not</u> agree with carbon taxes as it is a market driven concept and would be offset by the cost and energy of running it. Believe more in government driven change i.e. better building regulations and better public transport (subsidised).
013	I feel each individual should be responsible, but the government should be stricter with industry and not pass to another country.
014	I found it very interesting to cut the climate change, but I think people should look into it more, only 60% look into it.
015	I think Carbon Credits are a good idea; however I am unsure on how this process will work.
016	Slightly more positive. Still don't agree on causes of climate change however more positive on strategies to aid greener lifestyle. More info needed for general public.
017	No change but interesting, need more info on how it would be managed.
018	Yes, I didn't really understand it before but after Simon explaining I do now, but not sure any of us as a country making a difference when there are so many bigger countries doing nothing to help.
019	Simon's input was excellent. He covered the topic at the right level and made it fairly simple to understand. As an engineering technologist in the energy area I was already up to speed on the topic, so no change for me. It did (obviously) further reassure me!
020	My views are still the same; everyone must do what one can do, to the best of their ability.
021	I still have a very open mind on the level of responsibility of mankind of Global warming and climate change. Over the history of the earth it has undergone many quite severe climate changes, some resulting with average temperature rise of over 9° in about 100 years. All this even before man existed. However I do believe we add to the problem and a global effort is needed. Carbon credits are a good way of doing this.
022	The information was more clearer and yes there can be carbon credits once there is someone to monitor it right it will benefit us in the future.
023	Yes, I agree with carbon credits, but I still think we do quite a lot for the environment (recycling etc). In some things we are already using carbon credits – electricity keys, gas cards etc.
024	Very, very informative. Found him extremely knowledgeable and passionate about his subject. 8.5/10
025	My views haven't changed but I just don't see how carbon credits could be a fair system.
026	Yes because of the message he delivered, he was open, honest and helpful.
027	The ordinary householder wouldn't make much difference. It's the big manufacturers that need to be targeted.

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Having heard from Hilary Newiss (about genetic testing and the ethics of new developments in medicine), have your views about the science and technology discussed changed? If so how?	
ID	Answer
001	YES – because I don't think it's good to find out the sex of your baby at six weeks this will lead to abortions. Great that you can find out that you will be at high risk of getting illness, only if by changing your way of life will prevent / fight against it.
002	Good for detecting diseases, not for sex selection, that's playing with God.
003	No. I think genetics should be governed very closely, and only to be used to be beneficial to certain people.
004	No, I would like to know more about it.
005	I am really not sure still, some good and in favour of.
006	Feel positive about some aspects but concerned over issues, particularly discrimination. Regulation of genetic testing to make sure results are 100% accurate and reliable. Advice given over results of test.
007	I feel this is such a complex subject I haven't had enough time to evaluate the information. There were some things that on first hearing of them sounded good but really need much more thought and discussion.
008	Buy over counter tests are good / convenient. Views have been explained.
009	I feel more comfortable with the developments in medicine as I believe there to be governing bodies that do look at ethics and as long as research is to benefit the human race, morals and life in a positive way I do not have a problem, my concern will always be the people that develop the technology with no sense or purpose in a positive way.
010	Genetics is the future but we must be safeguarded. Positive.
011	No, I am still a bit concerned.
012	Do not really feel I can comment as my knowledge of subject still quite limited. Don't believe in genetic screening without first having genetic causes on hand.
013	Money should be spent on resources in cure, so my opinion hasn't changed.
014	No, not at all, still the same.
015	I think testing is only beneficial for people if illness can be cured.
016	No change – still positive about this. I think that issues around concerns will be dealt with.
017	No change. Money should be spent on cure before someone is told they will get an illness.
018	I found this interesting, I didn't realise the amount of info going into the testing of babies.
019	Hilary's input was adequate but I was still left a bit concerned that the off-the-shelf health testers were not subject to some form of control / strong "health warning" as to their effectiveness. My views were confirmed in that I believe this area is a vast and very complex one.
020	My views have changed, being able to understand what good can come from in the medical developments.
021	To me there is one golden rule, if it can't be cured then why bother to know its going to happen? Why find out you may suffer from a disease in years to come that is untreatable and have it totally affect your life when in reality it may not even happen.
022	Very good for people who want to know it. As for me life is too short to be worrying about what might be ten year time and by the time we get there it was not even true in the first place. And for babies there will be more abortion and more pressure on those nations who only want boy for the first born.
023	No. Didn't like the idea of this at all. So impersonal and I don't believe we need to know what is wrong with us until we have some symptoms.
024	Very knowledgeable about he subject. Quoted statistics; governing body information. 7/10
025	I am more positive towards finding out about possible conditions (health) before birth and adults so you can change your lifestyle and help fight future diseases.
026	I will never agree with genetic testing as it is contravening the laws of nature.
027	It's made me feel more positive about health issues. Feel I would be more in control over my own health. Horried that people can buy a kit that determines the sex of unborn child. Open to abuse.

Having heard from Alan Winfield (about robots), have your views about the science and technology discussed changed? If so how?	
ID	Answer
001	YES – because robots that can perform things that humans cant like crawling through veins and fixing problems are great. Bomb searching robots are great because they take away any human danger.
002	Yes, robots are good for medicine and operations, shouldn't be used to replace humans as in home care.

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003	Yes. I am happier that robotics is not as advanced as I earlier had thought.
004	Yes. I know have a very different idea of robotics.
005	More in favour, I don't feel as threatened but don't like the thought of doing military work. Biobots definitely to help medical is a positive.
006	Feel very positive about the use of robots. See them more as a tool, less as a person having seen practical examples. Definite positives for taking away mundane, dirty or dangerous jobs from humans.
007	YES – surprised robotics not as advanced and therefore not as frightening as I have been thinking. Really enjoyed and was enthralled at the way the information was imparted.
008	Good positive uses. Helping disabled. Household chores, more time with family. Don't want to loose the human factors. Views have been widened and information given was new and exciting.
009	I was very impressed with the presentation, comforted that the research is local, the technology is no where near as advanced as I had envisaged and feel the projects that are current are for positive medical and have purpose to help resolve issues and not cause issues. I felt he shared the same ethics and morals as 'joe public' and this gives me confidence that humans, and not mad scientists are ruling the world.
010	Really positive, they are very useful tools.
011	Yes. I understand what they can do now.
012	Yes... really in favour. Would like to see more government funding... especially in the medical and public safety areas (e.g. water, gas and energy).
013	Robots are very useful and will continue to be for many years.
014	Robots have bought me a lot of interest into robots for the future.
015	A good idea for undesirable jobs – sewers etc, not in favour of healthcare robots.
016	No change – still positive about this – I like robots.
017	YES – robots have to be developed to save lives in natural disasters etc. Need to be careful not to go too far (military personnel or caring.)
018	Yes, I saw robots that clean your house as being like a human that pushes vacuums around etc, but the were talking about the vacuum being the robot. Good for medicine etc.
019	Alan was great! He reassured me that robots were not so high tech as I thought. Advances in the medical area are thoroughly justified but I was concerned about military research and development e.g. in USA.
020	Robots will come in all kinds of forms in the near future, lets hope it will be for the good of man.
021	This was fascinating and actually made me realise that we were not as far forward in either development or financing than I thought we were. I believe there are areas that robotics can have a great effect, but in others such as the robot soldier I think the risks and consequences to civilisation as a whole are too high.
022	Again very good for medical. Claplop building to find people alive, but personally I would like to be doing my housework as long as I can carry on doing it and I would not like it to be so advanced that if I live to be old, they have to care for me. A human to do it will be fine by me.
023	Yes. I now think the robots are a very good idea. I was under the impression that they would be human like and that's what put me off. But seeing and hearing the robots from Alan has changed my views completely. The world will not be taken over by robots – but the robots will do very good work in all areas.
024	With continuing support and funding my views and opinions have changed significantly. The speaker was informative and knowledgeable about his chose subject. 8/10
025	Good for medical, types of surgery. Feels like manual jobs will be taken off humans.
026	Yes – like Simon he was open and honest even going so far as voicing his own concerns regarding certain areas of robotics.
027	Too much money being wasted on robots. Would be better spent elsewhere.

Final Plenary

What issues are most worrying you now?

- Genetics - where it might end?
- Would like to understand it in more detail
- A lot to take on board - other subjects easier due to amount about them in the media already.
- Easier to relate to other subjects in everyday life.
- You've got to get a lot deeper to discuss genetics.

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- Cyber security too.
- Genetics is a new science - a lot of good - but a scientist would have been better than a solicitor.
- Discrimination around pre-selection of babies and being denied opportunity because of own genome.
- Concern about dividing lines of moral and ethical issues.

What is most exciting?

- robotics
- Power of people discussing things - not assuming public too thick to discuss such issues.
- Hearing people talk about these issues - up to date information.
- Global warming - obvious that we've all got to do a lot more.
- Would be more convinced if government led by example.
- Depressed by government's attitude to global warming. Carbon credit institution will create as much carbon as it prevents.

What would change you minds about the things that most concern you?

- a change of government might offer a clear lead.
- Checks and controls being evolved alongside new technology and finding out what people think of it and how they will be affected.
- Continual evaluation of what is happening.
- Ensuring individuals are always in control of what is going on and who is doing it.
- More public debate.
- More control over who is accessing data.
- More declaration of who is using data that has been collected.
- Identify named individuals with whom the buck stops, accountability.

Comments on this process

- if every MP had something like this 2 times a year it would help to build trust. If this process could link up with MPs and become part of their job so that issues could be thrashed through.
- Governments pretend to listen to people but it's just a cover-your-arse measure - rubber stamping existing intentions.
- Feel more engaged and enthusiastic about science and technology and more caring about what is going on in the world. Should be more!
- why should PM and ministers take part in more public fora.
- But still excludes many people. Events like these are better at involving people who would not otherwise be engaged.
- Need to talk to people in their own environment - go to them, don't expect them to come to you.
- Things like the Downing Street website forum should be encouraged.

What makes you trust someone?

- The way it's presented.
- The person - can tell if they are honest
- The person

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- If they are in front of you.
- Honesty on all the things they say / do.

Who would you trust to tell you about science and technology?

Participants were asked to discuss this in twos and threes and to write answers on post it notes which were collected and grouped at the front.

- 'watchdog' groups e.g. OFCOM etc.
- Consumer info groups e.g. Which?
- non-profit organisation
- an individual with integrity
- only someone who has no money invested in it.
- Someone who isn't going to make a profit.
- Non profit
- An expert who isn't funded by someone who has a financial interest in the findings.
- An independent governing body not motivated by profit or government.
- People who don't gain financially.
- People who have no financial gain on matters affecting the public.
- Independent company.
- Independent (non-profit) body.
- people in the profession
- The hands on person who is doing the job.
- Knows what they are talking about
- Doctor / medical
- Family man / woman scientist.
- Independent scientists.
- Scientists, independent.
- Teacher (1 out of 3 of the group)
- You should trust the government?

At the end of the day participants were asked to fill out the evaluation forms. The first two questions are shown below.

What did you find most exciting about the new developments in science and technology that the panel discussed?	
ID	Answer
009	The effect we can have on climate change on a day to day scale i.e. turn telly off, insulation etc. The medical benefits of genetics and diseases.
019	The fact that ethical and moral issues are (hopefully) being addressed.
?	Robotics.
023	Robotics.
010	Up to date and put simply.
?	Robotics.
?	Computer technology.
?	The way forward. The future for our children and their children.
?	Robots.
?	Improvement in health issues.
017	Being used to save lives and make life easier.
?	Advances in medical science.
012	Robotics.

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018	Robots and genetics.
005	Robots and global warming.
?	Robots.
006	Robotics and genetics.
022	Global warming.
026	The fact that experts explained new developments in a way I could understand.
008	Information about climate change and how we can make a difference.
016	I thought most of it was exciting. It is hard not to be enthusiastic about things that will benefit society.
004	Robots for medical science.
?	Robots.
007	The medical implications.
?	Robots.

What concerned you most about the new developments in science and technology that the panel discussed?	
ID	Answer
009	Cyber security. I still have concerns on who, where and how much info is gained and stored on an individual, and can it be used negatively against this person.
019	Issues like cyber security and genetics need much more monitoring / security. Robotics for the military i.e. war offensive – <u>very disturbing</u> .
?	Employment may drop.
023	Trust.
010	Data protection.
?	Test yourself medically.
?	Genetic technology.
?	Are they being policed properly.
?	
?	Nothing in particular.
017	Misuse of technology.
?	Confidentiality.
012	Genetic screening.
018	Data protection.
005	Robots and global warming.
?	Gene technology.
006	Misuse of technology, lack of trust.
022	The carbon credit.
026	Genetic development.
008	Lack of info the public are given on genetic / stem cell growth etc.
016	Lack of personal control. Distrust politicians etc. Legislation not keeping pace with developments. Issues regarding impartiality of developers / government. Enthusiastic about technology but not about the people / companies who fund it.
004	Genetics.
?	Designer babies.
007	Data protections.
?	Data bases.