Fore*sight*

Tackling Obesities: Future Choices – Visualising the Future: Scenarios to 2050

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The use of scenarios

Futures scenarios acknowledge that the future is uncertain. They do not represent a 'best' and 'worst' future, nor are they 'best guess' predictions around a single theme. They are a means of exploring different logically consistent pathways in order to frame questions about the future. They are used to assess the far future – in this case, four decades ahead – and to consider developments across a broad area. Their value is in the expansion of the range of future outcomes considered in strategic decision making. Strategies that draw on their insights are more likely to be robust in a range of circumstances.

Futures scenarios cannot predict; rather, they map out a 'possibility space' to inform decisions of the present. They can also question underlying assumptions about, say, long-term growth prospects or consumer preferences and, in doing so, identify new ways to meet challenge.

Futures scenarios are used extensively by the Foresight programme, which looks beyond commercial horizons to identify potential opportunities from new science and technologies. Foresight also identifies actions to help realise those opportunities. A more detailed discussion of futures scenarios and their value can be found at www.foresight.gov.uk (Foresight Futures 2020: Revised Scenarios and Guidance).

Following this model, four alternative futures for the UK from 2010 to 2050 were developed for the Foresight Tackling Obesities: Future Choices project. The expertise, experience and perspectives of an unusually wide range of stakeholders were integrated in an iterative process over six months in 2006. During three workshops and a number of smaller group meetings, 29 drivers for change were identified and two core uncertainties agreed as the framework for the four scenarios. The scenario storylines were then developed and refined. The process is fully described in Appendix 2.

Together with the Tackling Obesities: Future Choices – Obesity System Atlas,[1] these futures scenarios provide a tool to explore appropriate and sustainable policy responses to rising levels of obesity. This process has been piloted in a qualitative modelling exercise described in the companion report,[2] Tackling Obesities: Future Choices – Qualitative Modelling of Policy Options.

The scenario framework

The four scenarios are constructed around two core uncertainties that emerged from early analysis as being critical in the future context of obesity. These uncertainties form the scenario axes shown in Figure 1.

Figure 1: The scenario axes
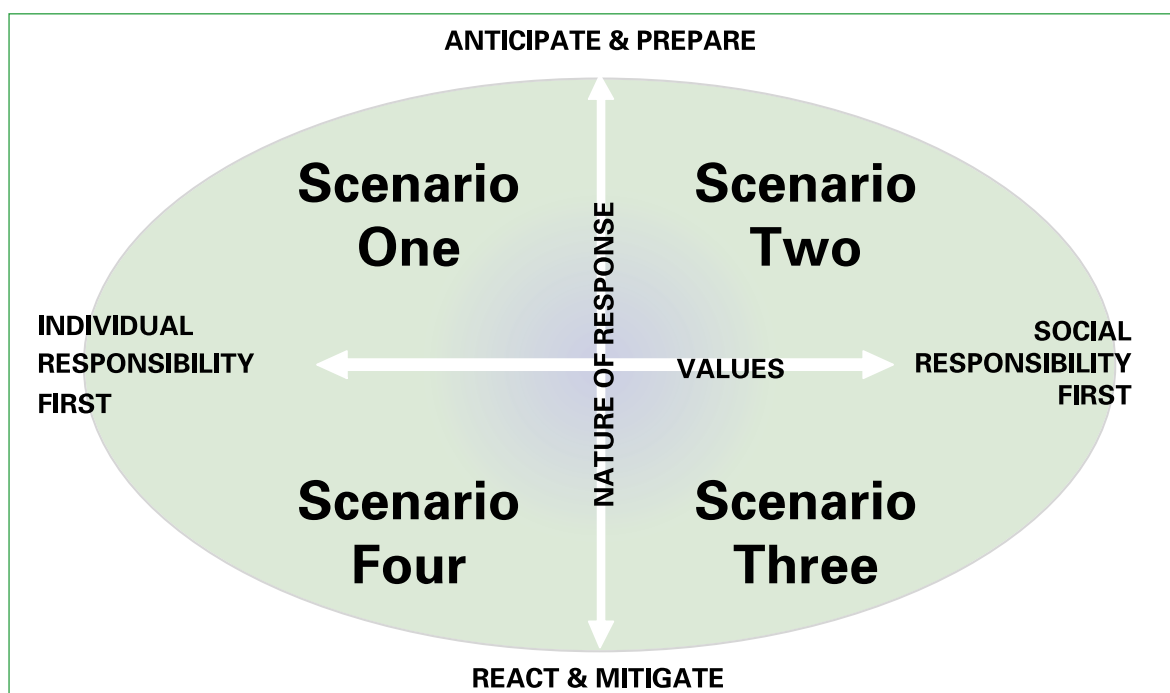
The **Values** axis shows behaviours reflecting a priority to self at one end and priority to the community and wider society at the other. This axis allows the exploration of fundamental shifts in societal values as to where the balance of responsibility lies. This is particularly useful when considering obesity, which can be viewed at the level of individual responsibility or at the level of societal responsibility.

The **Nature of Response** axis shows future resource challenges – such as water, climate change, an ageing population and obesity – and describes the nature of society's response to such challenges. This is represented at one extreme by forethought and planning for long-term systemic change, best summarised by 'anticipate and prepare', and at the other by a reactive short-termist response focusing on managing the impact of such challenges, best summarised by 'react and mitigate'.

This axis is an important one when considering a complex issue such as obesity, where response to change is likely to be slow.

Obesity and the scenarios

The scenario storylines were shaped to describe the critical dynamics of these futures. They did not include pre-determined obesity levels. Each of the futures will impact on obesity levels in different ways. Having developed the scenarios, participants were asked to score the impact of that future on obesity with regard to three key population indicators: overall population obesity, childhood obesity, and socioeconomic differences in obesity levels. Their scoring appears in Figure 2. In addition, a detailed discussion of the impact of obesity appears in each scenario descriptor.

Figure 2: Qualitative assessment of how the trajectory of obesity trends changes in the four scenarios relative to today (i.e. assessment in terms of overall population obesity, childhood obesity and socioeconomic differences)

Structure of this report

The key features of each scenario, with particular reference to health and obesity, are outlined in this document. A comparative table is also included at Appendix 1.

Scenarios must be plausible if they are to command respect as a working tool for policy makers. Each scenario has been anchored in clearly identified features of the present. At the end of each scenario summary, a section that 'looks back' to a 'series of points' to 2007 outlines the indicators that might presage such a scenario in our time.

Scenarios are not static but change with time, so a storyline covering the four decades from 2010 to 2050 has been outlined for each. These are accompanied by a fuller explanation of the two key drivers for each scenario, for instance, information and new business models in Scenario One (see Appendix 2).

Scenario One

Individual responsibility first, anticipate and prepare for challenges

Vocal consumers have set priorities in an individualistic market-driven society which invests in long-term planning to anticipate and prepare for future challenge ...

Scenario One: summary over time

2010	Individual awareness of long-term challenges: awareness of need for behavioural change	Long-term impacts and costs valued increasingly highly
	Consumers demand systemic change from business and government to address their concerns for the future	Social divides widen around access to technology, education, wealth
	Food industry a focus of new models of sustainability	High commodity and labour prices reinforce need for market action to meet long-term challenges
2020	New approach to resource management stimulates investment in sustainable infrastructure	Tensions exist between individual and wider public needs, e.g, around transport
	Some misallocation of resources due to working on incomplete evidence	
		But resource pressures continue, sustaining need for change
2035	UK remains globally competitive, with an open door policy on immigration	
		Successful resource management has meant tough choices and opportunities missed. Some duplication of effort
2050	The consumer is still king… but only if they can afford it	

Scenario One: overview

As this individualistic, forward-thinking scenario opens, individuals are concerned about the future and, in particular, the long-term challenges presented by climate change, dwindling natural resources and an ageing population.

Consumers assume responsibility for effecting change through their actions, joining together as single interest groups or in flexible transient networks. It is their purchasing patterns, as they reject the products and services of companies they perceive to be making profit at the expense of either future health or future generations, that are the most powerful drivers of change. Companies that are seen to act in the long-term interest of consumers gain competitive advantage.

For business, sustainability and the lifelong view become synonymous with profitability. By 2030, concepts about sustainability are firmly embedded in both business models and consumer priorities. This value shift begins to be seen in greatly increased investment in sustainable infrastructure. Consumers' interest in sustainability remains high and they demand the latest carbon-saving technologies as standard in new homes.

Economy and government

The economy initially fluctuates in the earlier decades, but in 2050 it is currently buoyant. Investment in the longer term has delivered success. As the scenario opens, the cost of commodities, and particularly of labour, given an ageing workforce, reinforces the need for market action to meet long-term challenge. Throughout the second and third decades, there is investment in new skills training to make better use of the older workforce. There is also an open-door policy on immigration to help fill the skills gap. There is widespread recognition that costs have to be accepted in the present if future benefit is to be assured, and there is a strong belief in the ability of the market to deliver responsibly. Reputation is all important and companies that maintain the highest stewardship of the future are rewarded by the greatest consumer loyalty. Government is 'light touch'.

But, with no strong lead from Government, the response to societal challenge is dominated by proprietary interests, leading to duplication and fragmentation. Some consumer demands drive corporate responses that are recognised by the end of the scenario to have been inappropriate, causing delays or missed opportunities. Globalisation reduces government influence and increases that of global corporations.

The food industry, under pressure from consumers and threats to supplies caused by drought in particular, becomes the focus of new models of sustainability.

Inequalities

The successful, and those with the loudest voices, set the agenda, while the less advantaged may be ignored. Markets are primed to work best for consumers who have the greatest impact on them – those who spend most. The gap between the richest and poorest in society begins to widen, hastened by unequal access to technology, education and wealth. As the years go by, inequalities become less apparent as there is a trickle-down effect from the investment in infrastructure. A feature of this booming economy is the development of philanthropic giving, both corporate and by super-rich individuals, which mitigates some inequalities through programmes focused on specific need. There is a publicly funded safety net for the very poorest.

The built environment and transport

In the middle years of this scenario, there is increasing investment in infrastructure, principally to alter resource usage, driven by both consumer desire for sustainability and the price of energy. The complexities of ownership and co-ordination makes radical change in public transport and the built environment difficult. New types of consortia and partnerships are developed to invest and sustain this long-term development. The 'walkability' of the built environment is increased and the corner shop flourishes once more. Technology is affordable and embedded. Individual devices are monitored for energy and resource consumption.

Tensions are apparent between individual and wider societal needs, particularly with regard to transport. Those who can afford frequent holidays abroad are reluctant to give them up. The desire for convenience, individual space and solutions drives increasing use of small electric vehicles for door-to-door transport by those who can afford it .

Research and science

'Blue sky' research flourishes. Major multidisciplinary research programmes concentrate on the 'big challenges' – for example, climate change – following pressure from consumers for sustainable solutions. Innovation for the future is a constant theme, as is personalisation.

The food sector

The food industry has been a change leader in this scenario. Prompted by consumer demand for change, fear of litigation and reputation damage and also increasing pressure on raw materials, the industry has led the way in sustainable, healthier products. As the decades have passed, it has regained the support of the public, who now trust it to self-regulate. Brand loyalty is a key driver. Personalised

products, functional nutrition and brands that are perceived to deliver well-being and lifestyle benefits become increasingly popular. Smaller portions with a 'healthy eating' brand command premium prices.

Education

Education is increasingly provided by the private sector, and those who can afford to pay for it are expected to do so. Education is seen as the main route to success. In particular, the ability to critically interpret the mass of available information is seen as a key skill. As the decades pass, there is an increased sense of personal responsibility for education, and lifelong learning flourishes, enabled by a diverse market and expansion in online- and technology-mediated learning. Many more children are educated at home.

Health

Attitudes

Individuals are responsible for their own health management and invest in ill-health prevention for their own future benefit. There is a strong sense of personal accountability. Individuals strive to be 'better than well'. Education is seen as a critical empowerment tool in accessing health information and services for those who are unhealthy. Preventive strategies are tailored to individual needs through genetic testing and early-life development plans. The health of pregnant women and children is a priority.

Health system

The drive for personal health by individuals is delivered by market responsive providers and retailers and facilitated by Government. There is a focus on a lifelong view and individually tailored solutions. The public turn to trusted providers to both manage and innovate in terms of healthcare delivery. Inequalities in health, always apparent, widen at first but gradually become less apparent through the course of the scenario as the advantages of the strong economy and increased investment in infrastructure are felt at all levels of society. Healthcare rationing is overt and acknowledged. The NHS is focused on acute medicine, while the private sector largely covers elective surgery and 'wellness'. The private sector focuses on the fit and healthy, leaving the poorest to be cared for by the public sector. Those most in need of 'wellness' programmes do not have access to them, although philanthropy is helping to close this gap.

Looking back from 2050 to the world of 2007, forerunners of this future are …

… recognition that long-term change is urgent for the environment and the economy

- Humans are exhausting natural resources at an unprecedented rate. As the World Wildlife Fund Annual Review of 2006 made clear: 'We are threatening ourselves and all other species with extinction. Britain is the 14th most profligate country on earth ...'[1]

- 'Our actions over the coming few decades could create risks of major disruption to economic and social activity, later in this century and in the next, on a scale similar to those associated with the great wars and the economic depression of the first half of the 20th century.' Sir Nicholas Stern (former Chief Economist at the World Bank)[2]

… businesses investing in new generations of technology to curb carbon emissions

- The Tesla high-performance car, named after the almost-forgotten father of the electricity we use today (alternating current) is unveiled: built in Britain; the battery is from Thailand; the instrument panel from South Africa; and it was designed in Silicon Valley.[3]

- DuPont, the chemicals company, estimates that it has saved $3 billion in energy costs since 1990 through measures such as using methane emitted from landfill sites to power its industrial boilers ...[4]

… businesses reacting to high oil prices

- Chrysler blames high oil prices for drop in 4x4 sales and announces: 'We finally have to bite the bullet and cut production.'[5]

… sustainable cities under development

- By the 2010 World Expo in Shanghai, developers hope 25,000 people will be living in Dongtan, rising to 80,000 by 2020. Eventually, the eco-city could have a population of 500,000. It is to be built on Chongming, an island at the mouth of the Yangtze River ... This area has already been hit hard by the impact of environmental degradation: its population has doubled in 50 years and deforestation has silted up the river ... Arups lead the design project ...[6] Such developments are a foretaste of events outlined in Scenarios One and Two, and are driven and shaped by the power of government and businesses (eco-cities and water being two major focuses in companies like Arup).

… human resource dependence

- Almost half the new NHS dentists in Britain are migrants, according to the Information Centre for health and social care.[7]

… rising consumer advocacy and its legitimacy

- Debate is developing over the legitimacy and role of the increasing number of consumer advocacy groups, in a new study by Harvard sociologist Theda Skocpol ...[8]

- 'Ten million want to quit UK' claims the *Sunday Times* headline citing ad hoc lobby group Taxpayers Alliance's poll of its 5,000 'members'. All this lobby group requires of its 'members' is an email address ... Other movements, known as net roots, such as MoveOn.org in the US, are more professionally organised.[8]

… businesses recognising the need to be more socially aware after a decade of corporate social responsibility activity

- Executives recognise the need to anticipate social pressure much more successfully.[9]

- Tesco presents its Community Plan, stressing 'This is not about rhetoric. Actions speak louder than words.'[10]

- Ethical investments are worth more than £6 billion in the UK today.[11]

1 World Wildlife Fund (http://www.wwf.org.uk/) Annual Review 2005–2006.
2 Stern Review 2006 (http://www.hm-treasury.gov.uk/independent_reviews/). Report on the Economics of Climate Change.
3 *Guardian*, 22 August 2006.
4 *Financial Times*, 2 October 2006.
5 *Guardian*, 20 September 2006.
6 *Financial Times*, 15 September 2006.
7 *Guardian*, 24 August 2006.
8 *Guardian*, 2 September 2006.
9 McKinsey Quarterly survey.
10 Inequality and the American Dream, *The Economist*, 15 June 2006.
11 Where did it all go right? *Observer*, October 2006.

Scenario One: possible impacts on obesity

The broader environmental changes in Scenario One will impact on obesity trends in a variety of ways, assuming there are no additional interventions from Government.

A simple numerical ranking system was used to assess the change in obesity rends relative to today:

←—— **−3** —— **−2** —— **−1** —— **0** —— **+1** —— **+2** —— **+3** ——→

Rate rising slower   **Trajectory same as today**   **Rate rising faster**
than today   **than today**

SCENARIO ONE: SUMMARY OF IMPACTS ON OBESITY LEVELS

Variable impacts

At a population level, the rate of increase in obesity levels will increase from the current trajectory (+1)

Long-term focus helps to some extent, but positive effects are countered somewhat by the wide variation in social norms, which add to obesity normalisation. The market, in this context, is insufficient on its own to overcome the fact that the human species is at odds with its environment and create a population-level effect. The built environment is still a contributing factor.

In terms of socioeconomic divides, although inequalities widen in the first decade of this scenario, the gap narrows to the degree that, by 2050, the impact on obesity levels is similar to today (0)

For childhood obesity, the trend is for rates to rise more slowly than today (−1.5)

The long-term focus on child welfare, generational issues and ill-health prevention start to pay off, but this effect is polarised in society.

The impact of systemic market change

Despite market-led systemic change, based on sustainable values, being a principal feature of this scenario, the impact on population levels of obesity is modest. While food becomes healthier in response to consumer demand, weak government and the fragmented response to changes in transport and the built environment mean that everyday physical activity levels will not be increased and may even decrease. To be moderately overweight will therefore become more normal and the market will adjust to this. However, a market-driven system could have impacts on obesity in specific areas and with specific consumer groups.

The success of the market

The emphasis on research and the pressing need for solutions for obesity will be a major impetus to pharmaceutical companies in the development of drug treatments that are likely to have a modest effect for many. Increased affordability and safety of surgical treatments such as liposuction and bariatric surgery offered by private weight loss companies would affect obesity levels in a minority. Innovations in interactive monitoring devices, which feed back consumption information and deliver exercise guidelines/instructions precisely tailored to counterbalance energy intake, could offer a new commercial model in which business could become both educator and life coach. The emphasis here, however, is very much at the level of the individual – personalised ill-health prevention programmes. Many consumers accept the need to change their lifestyle and use the commercial sector as their source of information, coaching and services.

The impact on childhood obesity

Consumers in Scenario One can be expected to place emphasis on long-term rather than short-term solutions. With evidence that intra-uterine programming and early-life events are key factors implicated in the onset of obesity, there might be increased emphasis on the pre-conception, antenatal and postnatal period by commercial companies offering a range of services and programmes for optimal child development. Such programmes would offer companies a chance to gain a 'customer for life'.

Consumers are at their most voluble in dealing with businesses that interact with children, such as those in the food, leisure and toy sectors. Consumer concern ensures that their products do not have long-term implications for obesity in children; some will actively prevent it. The switch from sedentary to physically interactive computer game technologies, already heralded by Nintendo's Wii platform, is one in a raft of new developments that could impact positively on childhood obesity levels by increasing active play.

The impact of individualism

Individualism is a hallmark of society in Scenario One. This might mean that difference was celebrated, with, for instance, increased membership of the 'fat and proud' movement seen today in the USA. However, in a scenario in which obesity levels continue to rise, a more likely outcome is, as already indicated, normalisation of obesity at the lower end of the scale, coupled with an extension of the stigmatisation seen at the upper end.

The impact on socioeconomic divide

The healthy and wealthy, or those with access to employer schemes, will benefit from market-driven solutions to obesity, wellness programmes offered by insurers and emerging technologies (see the Foresight Tackling Obesities project report on future trends in technology and their impact on obesity[3]). For the poor, unemployed, elderly and chronically (and therefore costly) ill, and for those who are excluded from an insurance-dominated system, there is less support. In Scenario One, divergence in obesity levels between the economically active would be evident (although not as severe as that seen in Scenario Four). These gaps are more exaggerated during the early years of the scenario, but signs of narrowing divides emerge towards 2050. These divides also become less apparent as trickle-down effects occur, caused by the changes in attitudes, the food industry and the built environment demanded by more vocal consumers.

It is also possible that, in a society with such emphasis given to individual achievement, those who fall behind might become more stressed and anxious, leading to greater psychological ambivalence around health and food, strengthening the need for food 'treats' and comfort eating. Obesity, especially extreme obesity, could be viewed as a very visible marker of an individual's low achievement levels, financial, social and personal, further isolating vulnerable individuals.

Another factor might be the involvement of employers. In this scenario, employers invest in the health and well-being of their staff, partly due to increasing emphasis on corporate social responsibility but also to increased productivity and company loyalty. This would impact on blue-collar workforces in particular.
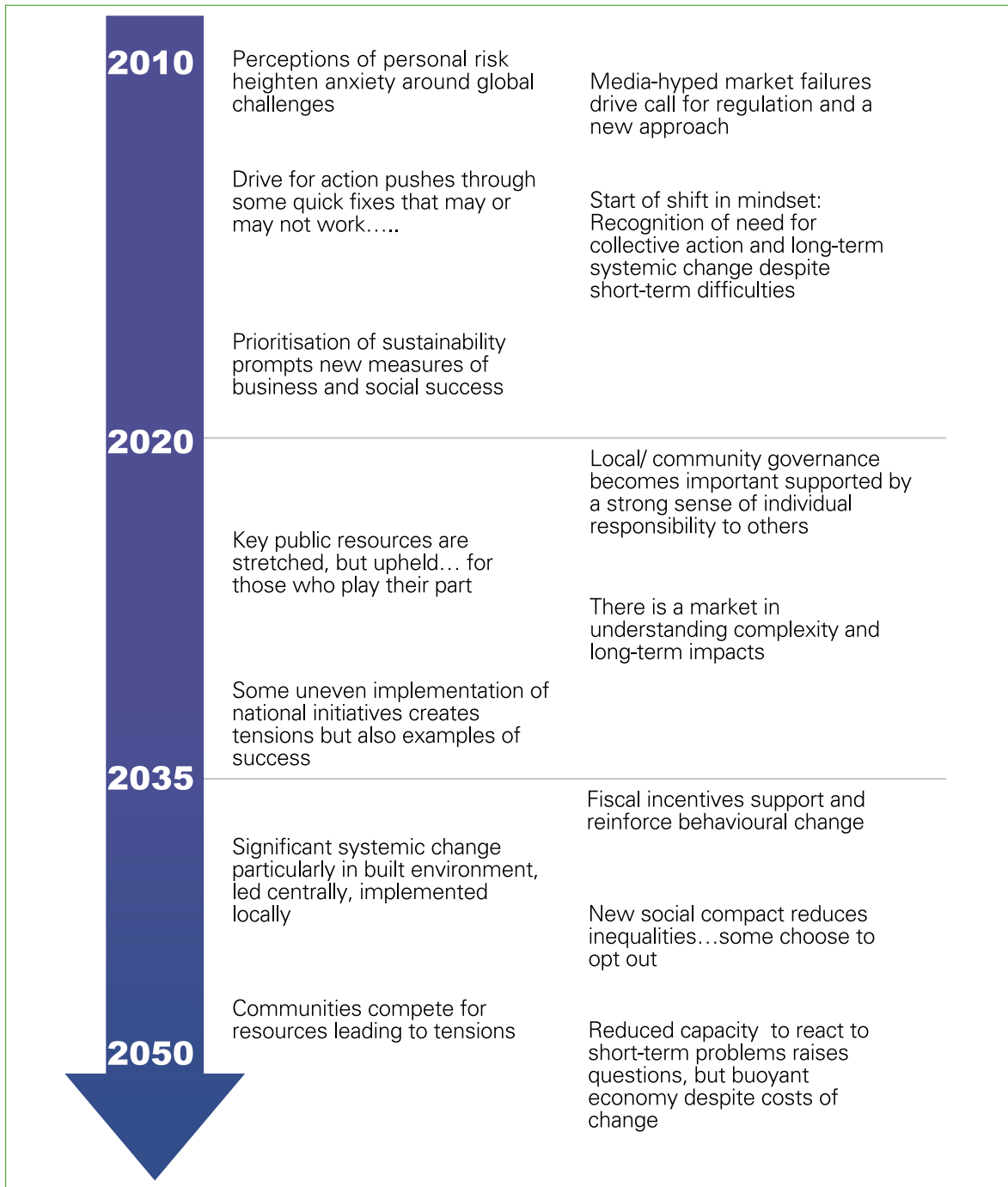
Scenario Two

Social responsibility first, anticipate and prepare for challenges

Reaction against individualism creates a growing sense of responsibility to the community ... Feelings of vulnerability to resource challenge engender large-scale, long-term planning for the future that accounts for 'externalities'.

Scenario Two: summary over time

2010

Perceptions of personal risk heighten anxiety around global challenges

Media-hyped market failures drive call for regulation and a new approach

Drive for action pushes through some quick fixes that may or may not work…..

Start of shift in mindset: Recognition of need for collective action and long-term systemic change despite short-term difficulties

Prioritisation of sustainability prompts new measures of business and social success

2020

Local/ community governance becomes important supported by a strong sense of individual responsibility to others

Key public resources are stretched, but upheld… for those who play their part

There is a market in understanding complexity and long-term impacts

Some uneven implementation of national initiatives creates tensions but also examples of success

2035

Fiscal incentives support and reinforce behavioural change

Significant systemic change particularly in built environment, led centrally, implemented locally

New social compact reduces inequalities…some choose to opt out

Communities compete for resources leading to tensions

Reduced capacity to react to short-term problems raises questions, but buoyant economy despite costs of change

2050

Scenario Two: overview

Scenario Two changes radically over the time period. It opens at a time of high anxiety about the future impact of global challenges, such as pandemics and climate change, and deep concerns about the way inequalities are seen to be driving terrorism. Individuals feel vulnerable and call for action, but their many voices do not seem to achieve change and the need for collective action is recognised. A number of market failures of high-profile companies occur before the prioritisation of sustainability and prompt new measures of business and social success. There is a drive towards community governance supported by a strong sense of responsibility to others. There are major systemic changes, particularly in the built environment. By the end of the scenario, there is competition for resources between communities, which leads to tension. There is reduced capacity to react to short-term problems, such as pandemics, but, overall, this is a scenario of success in which inequalities are reduced and citizens prosper.

Economy and government

The UK economy is competitive thanks to the development of new economic models that factor in 'externalities' – that is, all the environmental and societal costs that have previously not been included in conventional accounting practices – such as the depletion of natural resources. In this scenario, sustainability equals profitability.

The prompt for this development is the highly publicised collapse of a number of companies, including private utilities, at the beginning of this scenario. Confidence in the private sector plummets and there is demand for greater regulation and intervention by government. Drive for action pushes through quick fixes, some of which fail. There is demand for a better-planned, more long-term approach of greater local relevance. In response to this reclamation of power, Government devolves a greater level of decision making to local level. As the decades pass, local and community-level decision making becomes well established. Government provides overarching direction and co-ordinates and facilitates action locally. There is a participative approach to governance, with those who do not participate becoming isolated. E-based connectivity and local TV stations facilitate community action.

Inequalities

A theme running through Scenario Two is that of personal responsibility to others, especially locally. Communities are conscious of the need to share both costs and benefits, and inequalities between individuals decrease. Some who choose not to live a sustainable lifestyle opt out.

By the fourth decade, there is competition for resources between communities, sometimes along geographical, ethnic or economic lines, and this creates tensions.

The built environment and transport

The sustainability agenda drives major changes in the built environment and significant systemic change. By 2035, the need for individualised transport has been greatly reduced and new urban planning objectives have made it easier, safer and more pleasant to walk and cycle. Health is 'built in' during the planning process.

Infrastructure overhaul allows new initiatives, such as the efficient recycling of 'grey' water, and fiscal incentives and tough regulation from Government encourage investment in ecologically sound manufacturing and distribution. Food miles are greatly reduced and there is an emphasis on local production.

Research and science

In Scenario Two, the public sector is the main funder. The public supports the funding of research with long-term goals and accepts the need for action to support these in the absence of what all interested parties might consider to be firm evidence. Research in the social sciences sees a renaissance, and multidisciplinary involvement in research programmes is encouraged and incentivised. Locking investment into costly long-term programmes sometimes means that funds are not available for projects working to a shorter timetable, and there are gaps in the research portfolio.

The food sector

Trust in business, and especially in the food and drink industries, declines and the food sector, no longer trusted to self-regulate, becomes subject to strong regulatory pressures that encourage it to engage in rapid change to a model of manufacture that has well-being at its core. There is a greater focus on the overall nutritional quality of food, and Government uses its public sector procurement powers to increase quality. Higher standards are set for food served in publicly funded establishments such as hospitals, schools, military establishments and prisons. There is a strong focus on locally sourced products, and food miles associated with food transport fall dramatically over the time course of the scenario.

Education

The public sector is the main funder and provider of education. With social infrastructure emphasised at the local level, many schools are inspired and run by

their community, leading to some variation in what is available to individuals. There is a premium on lifelong learning, and older workers are encouraged to re-skill. The higher education sector expands to meet this demand.

The quality content of information is heavily regulated and Government is proactive in ensuring access to information for all.

Health

Attitudes

Living well is a key part of civic duty and is seen as an individual's responsibility to lead a healthy lifestyle and to encourage others to do the same. Those who opt out of this responsibility are marginalised. There is a feeling that no one should be given more than they deserve, and it is considered socially unacceptable to demand more than your 'fair share' of health resources. There is a strong focus on prevention rather than treatment and this is made easier by the 'building in' of health to many aspects of life. Participating in clinical trials is also seen as a civic duty, and the large data-gathering exercises of the previous century such as BioBank are no longer regarded with suspicion as an invasion of privacy, but are welcomed for their contribution to society. There is a sense of generational responsibility, with care for the elderly within the family prioritised and supported by the community.

Health systems

Public provision is still a priority but resources are stretched, and there is overt rationing of more expensive treatments and procedures considered to be luxuries, including all assisted reproductive technologies. There is uneven provision of treatments between communities, which leads to considerable tensions later in the scenario period. Both these factors encourage the private sector to flourish, at spiralling cost, and there is greatly increased health tourism. Far greater resources are devoted to public health measures, particularly where they are preventative in nature. Publicly funded research concentrates on developing the most cost-effective preventative measures and techniques for early diagnosis and screening.

Looking back from 2050 to the world of 2007, forerunners of this future are …

… active and growing concern over climate change and the future

- Public concern over climate change is high, with nearly half (48%) of Britons indicating that climate change is the most serious threat to the planet – 12% more than in 2002.[1]

- Sir Nicholas Stern, former World Bank Chief Economist, makes claims that a country's economic competitiveness will be damaged if action is not taken now.[2]

- The sense that current generations must take responsibility for the effects on future generations is becoming more apparent, at least through the voices of media commentators. For example, Jim Hansen, NASA climate scientist, states that: 'No court of justice or court of international opinion will forgive us for what we're doing now, because now we know the problem and we're just pretending we don't understand it. We are going to be responsible, but it will be our children and grandchildren that have to pay.'[3]

- But the 'point of no return' in terms of climate change is getting so close that today's ageing generations are also concerned: 'Global warming has accelerated from a problem that might affect our grandchildren, to one that could significantly disturb the social and economic conditions of our lifetime.'[4]

… sustainability moving from rhetoric to reality

- The 'sustainable communities' concept is moving towards mainstream thinking (at least in terms of rhetoric) as stated by John Elkington, chief entrepreneur of the consultancy Sustainability and coiner of the phrase 'triple bottom line.'[5]

- Growth in corporate social responsibility, for example, the growing number of companies looking to reduce carbon emissions.[6]

… demands for increased regulation and control over critical national challenges

- Over half of people surveyed (57%) did not believe that current rules and regulations are sufficient to address climate change. Just 14% felt confident that the British Government could adequately tackle climate change.[7]

… taking personal responsibility for society as a whole

- The sense that many of the most important public issues of the next few years – for example, the health effects of obesity, increased congestion on the roads, and climate change – will depend on whether individuals change their own behaviour.[8]

- A group has emerged called the New Puritans: 'a generation of young, educated and opinionated people determined to sidestep the consumerist perils of modern life'. They often penalise others for what the group perceives to be poor choices with regard to the benefit of society.[9]

- The opprobrium expressed by people (such as those above) is being supported by various governance approaches: for example, Teignbridge Council in Devon has set up a hotline so that residents can report their neighbours if they do not adhere to strict recycling rules.

… growth in virtual communities

- MySpace has registered its 100 millionth member: while older generations might go online to find information, younger crowds go 'online to live'.[10]

… increasing realisation of need to totally overhaul key 'social contracts'

- There is serious questioning of the viability of the pension system and, in turn, a search for alternatives.

1 Ipsos-MORI 2006
2 http://environment.guardian.co.uk/climatechange/story/0,,1887096,00.html
3 http://www.technologyreview.com/read_article.aspx?id=17057&ch=biztech&sc=&pg=5
4 CERES report: *Corporate Governance and Climate Change: Making the connection.* March 2006.
5 John Elkington. *Cannibals with Forks: The Triple Bottom Century Business* Sept 1999 Capstone Publishing Ltd
6 The Climate Group (http://theclimategroup.org/index.php?pid=430)
7 Ipsos-MORI. *Climate Change: Hot Topic or Damp Squib?* May 2006 www.ipsos-mori.com/publications/jl/climate-change.pdf
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9 http://observer.guardian.co.uk/magazine/story/0,11913,1596540,00.html
10 'Living Online: this is your space' (http://www.newscientisttech.com/channel/tech/mg19125691.500-living-online-this-is-your-space.html)

Scenario Two: possible impacts on obesity

The broader environmental changes in Scenario Two will impact on obesity trends in a variety of ways, assuming there are no additional interventions from Government.

A simple numerical ranking system was used to assess the change in obesity trends relative to today:

−3 −2 −1 0 +1 +2 +3

**Rate rising slower
than today**   **Trajectory same as today**   **Rate rising faster
than today**

SCENARIO TWO: SUMMARY OF IMPACTS ON OBESITY LEVELS

Improved

Population levels of obesity (–2)

In a socially responsible, community-based society with support for long-term systemic change, the key features of society and environment that indirectly influence obesity levels would be changing ... Although driven by concerns other than obesity, this still impacts on obesity trends.

Socioeconomic differences in obesity levels (–1)

Inequalities are narrowing in this scenario, and this therefore has an impact on obesity-associated inequalities ... There are still groups, however, that are at higher risk, which explains the lower impact here than for overall population trends.

Levels of childhood obesity (–3)

The dynamics in this scenario, such as long-term focus, co-ordinated systemic change and interest in the impacts on subsequent generations, would lead to changes focusing in particular on long-term child health and future generations, bringing about the impact on obesity trends (children not yet born would benefit from interventions yet to be introduced.

Social responsibility to keep healthy

In Scenario Two, obesity might be viewed in two quite separate ways. At a societal level, those who are obese might be seen as victims of their condition who need all the support society can given them. On the other hand, there might be a view that, in being overweight and obese, people are demonstrating a lack of social responsibility and should therefore expect to be penalised. It is also possible that

both these views might co-exist. This dichotomy of views would be indicative of the tension between community priorities and individual needs that exist across many areas, including health and well-being, in this scenario. Older cohorts born and raised in the obesogenic environment of the 20th century might be afforded more tolerance. Those with an identified medical cause of their weight gain, such as genetic disease, would also receive more sympathy and societal support.

A changing environment

In Scenario Two, there is a strong focus on the systemic change of the built environment, particularly with regard to sustainability. The impact on obesity would probably not be felt until the latter half of the scenario period, but would alter the environmental cues found to play a strong part in the habit formations known to lead to overweight and obesity. Obesity has been linked to the growing dependency on car travel.[4] In this scenario, car use would become more limited. At first, this would be because of anxiety about the availability of oil, and then, as the scenario develops, because sustainable communities have been generated that are built around 'walker-friendly' neighbourhoods. Reductions in both street crime and traffic dangers could be anticipated as a result of this greater community focus and the focus on preventative measures, which could impact on activity levels of children in particular. However, it is important to note that the link between levels of physical activity and the built environment, as opposed to physical activity and the personal inclination to exercise, require further research and are unlikely to be deterministic.[5]

The sustainability agenda that is such a strong feature of this scenario would also impact on food access, food miles and food production, which in themselves might induce new habits that place 'maintaining health and well-being'[6] in a central role.

The nature and location of job opportunities and working patterns in this scenario will also have important effects in changing, or maintaining, the built environment i.e. through car use, potentially increasing or dampening the positive impact of environmental changes on activity levels.

Increasing focus on social cohesion

In the socially responsible, community-based society of Scenario Two, societal cohesion would be strengthened. Obesity has many determinants, including those that are steeped in self-esteem and feedback received from others (see the Tackling Obesities: Future Choices – Building the Obesity System Map report on building the obesity system map[7]). A social environment that increased these could be expected to have some impact on obesity. There is widespread consensus that combined behavioural and environment change might be the best method of tackling the obesity epidemic. This approach is possible in this scenario.

However, the impacts on population obesity levels are not yet clear and some suggest that it could have less effect than we think.[8] Nevertheless, since, in this scenario, the social norm is shifting towards greater awareness and value of health, with health and well-being having a high priority at a local level, this may serve to amplify any impact. This shift in social norms would also help reduce people's ambivalence around their food and activity choices, making healthy options the usual ones for most. Uneven local implementation and differences in local priorities seen in this scenario might confound this effect in some areas.

Demand for intervention, particularly prevention

In Scenario Two, demand for the regulation and control of external factors increases, and the emphasis on 'choice' is far less marked. The priority given to the long term produces a much greater focus on prevention. This may enable Government, local authorities, local healthcare providers and, to a lesser degree, industry (where directed by Government) to take a more interventionist approach to dietary habits and activity levels.[9] This will be particularly true for children, where it has been shown that, even today, society is prepared to see the introduction of greater interventions. As such, participants in the scenario development process felt that childhood obesity levels would decrease in Scenario Two if appropriate interventions were adopted.

The emphasis on prevention could also be expected to give new impetus to obesity treatments that would become more highly valued as a means of preventing co-morbidities such as diabetes and heart disease.

Demand for systemic change

The critical dynamic of this scenario is the drive for systemic change across a broad range of areas, from the built environment and transport infrastructure to business models and social values. This is a societal context that demands long-term benefit and accepts that there will be short-term costs. It is in such an environment that the greatest changes to prevent obesity could be made. It could also be anticipated that some change might be specifically directed at obesity reduction, rather than relying on change initiated for other reasons such as the reduction of energy use or mitigation of climate change.

Scenario Three

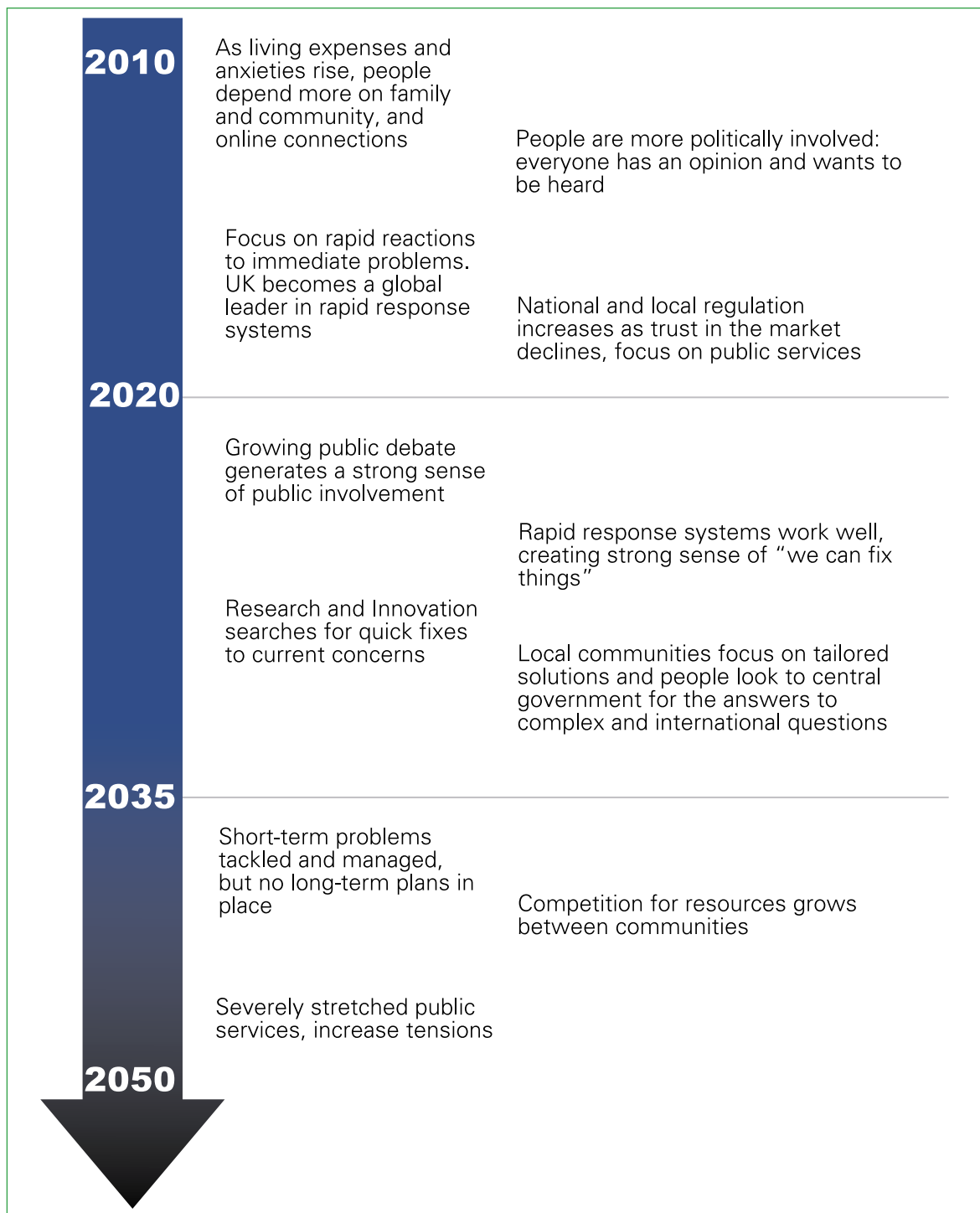## Social responsibility first, react to and mitigate challenges

A scenario dominated by inclusive debate in which challenges are met by working together in communities, but only as and when they occur ...

Scenario Three: summary over time

2010

As living expenses and anxieties rise, people depend more on family and community, and online connections

People are more politically involved: everyone has an opinion and wants to be heard

Focus on rapid reactions to immediate problems. UK becomes a global leader in rapid response systems

National and local regulation increases as trust in the market declines, focus on public services

2020

Growing public debate generates a strong sense of public involvement

Rapid response systems work well, creating strong sense of "we can fix things"

Research and Innovation searches for quick fixes to current concerns

Local communities focus on tailored solutions and people look to central government for the answers to complex and international questions

2035

Short-term problems tackled and managed, but no long-term plans in place

Competition for resources grows between communities

Severely stretched public services, increase tensions

2050

Scenario Three: overview

This is a scenario in which inclusive debate and collective decision making predominate. Challenges are met as and when they occur, primarily within communities.

The scenario opens in 2010 with an anxious nation. People have numerous concerns, including high house prices, indebtedness, lack of pension provision, and immigration levels. It is increasingly difficult to deal with the pressures of everyday life and people look to each other for support. Indeed, co-operation is essential in this difficult environment, with families remaining together largely from economic necessity. Personal motivations for co-operation broaden over the years and develop a wider focus, manifesting themselves in a revived sense of community in which ethnic and other tensions are reduced.

Government and the private sector consider engagement with the public an important means of assuaging anxieties. This is enabled by the internet and the mass media. Everyone has an opinion and demands the right to be heard, and online discussion forums become part of everyday life. This growing public debate helps generate empowerment and helps lessens inequalities, with everyone involved in seeking a path through potential difficulties.

The collapse of several high-profile companies, including some privatised utilities, prompts the public to look to government, both national and local, to impose much greater levels of regulation. A decline of trust in the market-based system further reinforces the need for, and reliance on, community. There is a strong belief that society can only meet challenges by working together. Government devolves governance regionally and locally

Community pressure groups and strong, active non-governmental organisations (NGOs) demand that Government delivers immediate action and leadership in dealing with core systemic issues and challenges such as floods or outbreaks of disease. A desire for concrete evidence, recognised by all interested parties, before committing to investment for change and the risk-averse nature of society both favour short-term reactive approaches. The successful resolution of a number of problems further drives the belief that dealing with issues as and when they occur is the best route forward. In the early years of this scenario period, the 'rapid reaction' approach is very effective. Britain develops a global reputation for rapid response.

On long-term issues, however, such as climate change, the full impact of which has not yet been felt by many Britons, the view is that the nations that make the greatest contribution to the problems should be the ones taking action. Infrastructure renewal also slips down the agenda.

While the general feeling is that all have a voice, competing interests and the need for consensus stifles action. Policies swing with fashion. Vacillating immigration policy, for instance, discourages inflow of the best people. The economy suffers from the lack of a coherent plan to address human resources shortages.

By 2050, the nation is confident about its ability to manage immediate problems. Britain is a relatively wealthy economy. But difficulties are now beginning to emerge as a result of unaddressed long-term problems. National debate now generates disillusion rather than calls for action, and there is a growing sense of concern that opportunities have been missed and that the need for major reform is real and pressing. The impact of climate change is being felt in the cost of resources, leading to the need to ration them. Each community implements its own version of rationing, leading to tensions between communities and central government and, indeed, within the individual communities themselves. Public services are also severely stretched.

Economy and government

The economy cycles through prosperity and recession without any major crisis; overall, the UK economy remains relatively wealthy. Competitiveness declines through the scenario timeframe and there is a loss of the dynamism that would keep the most entrepreneurial in the UK. There is an acute skills shortage caused by an ageing workforce. Immigration policies that might address this issue change constantly and skilled workers go elsewhere.

The pace of free-market globalisation is slackening and protectionism and regulation are becoming more acceptable. Business either accepts regulation or relocates elsewhere in the world. Trust in big business is low and there is a move away from market-led solutions. Companies that have the flexibility to exploit the latest trends succeed. A new breed of emergency response 'fix it' companies are developed, some of which become global brands.

Government is responsible for foreign policy, defence, major energy investments and national travel infrastructure, but devolves responsibility (and funding) for health and education to local communities. There is a multiplicity of governance. Public services – health, education, utilities – are highly valued. A wide variety of arrangements are put in place to facilitate public–private partnerships.

There is a rise in the number and influence of NGOs and in special interest groups of all kinds.

Inequalities

There is sustained effort to counter extreme inequalities. The climate of inclusive debate gives people a strong feeling that their voice counts and makes them feel included and empowered. There is an overall reduction in inequalities, with gaps narrowing and fewer who are mega rich.

The built environment and transport

There is no systemic or nationally co-ordinated infrastructure change. Limited local initiatives focus on repair and replacement. For instance, the whole of London's ageing sewage system is replaced, but the need for fundamental change is not addressed.

Technology is used to tackle vehicle emissions, but congestion is still problematic. 'Green' sports utility vehicles flourish.

Research and science

There is a reduction in publicly funded research. 'Big science' is no longer funded, and long-term projects, in a risk-averse society, have very low priority. Most research and development is focused on immediate solutions to specific problems. Although Britain is no longer a pack leader in terms of science, in the main, these short-term 'fixes' are successful and highly regarded globally. Research and the use of evidence is driven by the need to find a consensus. Science is seen as being answerable to the collective, and public consultation on research priorities is regarded as essential. Expertise in science becomes devalued. In online debates, everyone is an expert. Science subsequently sees a loss of influence.

The food sector

There is no fundamental change in the industry, despite intense activity from powerful NGOs. There is strong regulatory pressure for the industry to respond quickly and effectively to immediate food issues, especially those surrounding food safety, which it does, thus reducing the pressure for change on more long-term concerns. There is also increased regulation from the European Union.

There is no focus on long-term issues such as nutrition except through limited measures in schools and hospitals.

Education

There is a mix of public and private education with a strong community focus as many schools become community owned and organised. Further education does not address the skills shortage.

Health

Attitudes

Inclusivity in health opportunities is a major concern – all deserve and should receive an adequate level of healthcare – but this creates a high expectation on the part of the public and, as the scenario progresses, there are increasing tensions over the sustainability of adequate healthcare as chronic health conditions increase.

The strong sense of community service provides people with a framework within which to work towards improving the health of their communities. Individuals look to communities and peers to recommend choices in lifestyle treatment.

Attention is focused on those who already need treatment rather than those who are at future risk. A postcode lottery operates, but people relocate to get the treatments they need. The patient groups with the biggest voice (and greatest numbers) get the lion's share of the resources, while patients with rare conditions are automatically disadvantaged.

Healthcare system

There is mixed public and private healthcare delivery, but there is a strong emphasis on access for all. Government turns to communities to help implement and deliver public health policies. The focus is on the treatment of immediate health needs. Communities compete for resources from central government and those who shout loudest tend to get the largest share, which leads to tensions between communities. Public health providers turn to some of the new technologies to target resources where specific diseases are more prevalent. Towards the end of the scenario period, there is overt rationing and those wanting what are considered 'luxury treatments' such as assisted reproductive technologies or cosmetic procedures are obliged to travel abroad or pay for treatment. There is a strong emphasis on acute care facilities such as intensive care and accident and emergency, while public health and ill-health prevention are largely neglected.

Looking back from 2050 to the world of 2007, forerunners of this future are …

… people paying more attention to society

Ubuntu entered the political lexicon when Bill Clinton referred to it in his address to the 2006 Labour Party Conference. It is a Zulu concept described by the phrase 'umuntu ngumuntu ngabantu' – a person is only a person through their relationship with others.[1]

The Conservative Party called for a 'social responsibility revolution' in 2006.[2]

On Hackney's infamous 'Murder Mile', the signs have been changed from 'Thieves operate in this area' to more upbeat slogans such as 'Hackney, Hackney, keep it happy'.[3]

… a focus on community action

£50 million worth of lottery funds have been made available for village halls and other local venues in the new Community Buildings programme.[4]

Four candidates from the 'community action party' stood for election in the May 2005 Parliamentary elections.[5]

… short-term efforts on environment, more rapid-response teams

There is notable disconnect between public attitudes towards climate change – an Ipsos-MORI poll found that 1% of respondents believe there is no such thing as climate change – versus action – British sales of the G-Wiz electric car work out at about six for every newspaper article featuring the car.[6]

Seven volunteer doctors have formed a rapid-response team in Herefordshire to attend serious accidents and offer expert advice to paramedics and firefighters who are already on the scene.[7]

Regional Resilience Teams have been set up as part of the recent Civil Contingencies Act (2004).

… approval of the Thames gateway city

Planners say that a 'holistic' approach to flood prevention will ensure success, but environmental campaigners contend that if sea levels rise, these efforts will be in vain.[8]

… climate change levelling off: claims that climate change is based on exaggerated science and is not anthropogenic in nature

It is argued that if the conversion factor used in the Stern Report is applied to historical data, rather than the mean global temperature rising by 0.6 +/− 0.2°C between 1880 and 2000, as it did, the mean global temperature should have risen by 1.8–2.4°C.[9]

Sunspots to the rescue? 'Empirical observations on all timescales point to celestial phenomena as the principal driver of climate change, with greenhouse gases acting only as potential amplifiers.'[10]

… greater public–private co-operation

The Public–Private Forum on Identity Management was created to consider how public and private sectors can work together to maximise efficiency and effectiveness.[11]

… orthodox science losing ground on a growing list of issues

Forty-eight per cent of people in the UK think Darwinian evolution best explains the origins of life, against 39% who prefer creationism or intelligent design.[12]

MMR vaccination levels in Britain have dropped to 83%.[13]

Attitudes to science and how research is done/funding is allocated is changing ... and there is increasing public input into science policy and funding decisions.[14]

… virtual communities

New fans of virtual communities are being drawn together by shared interests and enabled by technological development.[15]

There are growing numbers of: people changing their name by deed poll and consciously manipulating their identity; tattoos displaying allegiance to online communities (e.g. Everquest, Hell's Angels – Yahoo chapter); anthropologists undertaking PhDs in the study of online communities; media reports of rivalries and online/networked gang warfare (e.g. gratuitous 'drive by' incidents of hacking of websites and personal details by rival communities); as well as increasing selectivity, exclusion and stratification of social ranks within networked communities and related technology products (e.g. ranking systems for Napster music downloaders etc.); and increasing identification of mysterious leadership figures online acting as gurus.[16]

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15 Technology Review. ADD DATE AT LEAST?

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Scenario Three: possible impacts on obesity

The broader environmental changes in Scenario Three will impact on obesity trends in a variety of ways assuming there are no additional interventions from Government.

A simple numerical ranking system was used to assess the change in obesity trends relative to today:

−3   −2   −1   0   +1   +2   +3

Rate rising slower
than today

Trajectory same as today

Rate rising faster
than today

SCENARIO THREE: SUMMARY OF IMPACTS ON OBESITY LEVELS

Variable impact

Population levels of obesity (−1)

The key feature here is the lack of prevention activity to improve the trajectory, partially offset by the success of an obesity lobby in keeping the issue on the agenda and maintaining a low level of action, which pays off over the long term.

Socioeconomic differences in obesity levels (−1)

Socioeconomic differences are smaller in this scenario, with the resulting effect on obesity trends ... Community-based, rather than individually focused, treatments have an impact.

Levels of childhood obesity (+1)

Increased reliance on treatment and rising parental obesity serve to increase the normalisation of obesity and consequently reduce efforts to prevent and address the problems of future generations ... There are no long-term plans to address the wider determinants of obesity.

Obesity: drowned out by the noise from other issues

Obesity is not seen as a priority in this scenario. With society in a reactive mode, other issues perceived as more pressing cause a fragmentation of priorities at a community level. Obesity is therefore 'lost in the noise' and slips down the agenda. If there is a focus on obesity, it is primarily on treatment of co-morbidities, particularly diabetes.

For those seeking to tackle obesity levels, more traction is gained by considering what second-order impacts on obesity can be generated through focus on an entirely different area. For example, if the built environment is altered to tackle congestion, health benefits may be an added bonus.

Need to exploit crises/scares to generate action

Typically in this scenario, action is only taken when a sufficiently large shock or event occurs and raises obesity up the agenda. In such a situation, it would be critical to act opportunistically and exploit any such 'scares' to bring about action and jolt people out of their short-term thinking mode. It is possible that the sheer numbers of people affected by obesity and the consequent rise in morbidities would be sufficient as a trigger, but the solution is still likely to concentrate on treating consequences, without action to stem the underlying causes. People also look to others – their communities or to Government – to take action in this scenario, rather than generating the impetus for solutions themselves, which may impede decisive action, leaving it to a determined few to push through change.

Reactivity and discussion: a cacophony of ideas

If there was a consensus on obesity, this scenario would be beneficial in terms of population obesity levels. However, with a variety of ideas and theories predominating, and with different communities initiating different policies at different levels, no such consensus can be reached. Therefore psychological ambivalence about food and activity messages[10,11] is likely to persist.

Furthermore, any regulation of the food sector or other industries relevant to obesity is likely to be disjointed, with varying levels of implementation in different communities. Participants in the scenario building process summed up this environment as one 'filled with good intentions but with nobody following through on them because society is, instead, busy reacting and mitigating the latest crisis'.

Focus on treatment not prevention

In terms of healthcare, a scenario in which long-term planning is not prioritised, concentrates on treatment and palliative care rather than prevention. So, if there were obesity clinics, their principal aim would be the satisfactory treatment of co-morbidities and other consequences of obesity. Participants in the scenario building process felt there would be no drive for systemic change and that this scenario would see the end of both public health directives and directors of public health as resources are focused on treatment.

Response measures to obesity-related diseases include developing and launching new treatments for diabetes as well as funding new anti-obesity drugs. Because of the lack of long-term vision and ineffective implementation of public health measures, however, obesity levels rise considerably in some populations, and those at the lower end of the social scale may see their life expectancy fall as a result. Nevertheless, this fall would not be as severe as the situation in Scenario Four because the support from peers and communities seen in Scenario Three tends to narrow inequalities.

Society in Scenario Three seeks 'quick fixes' that could bring about the development of a range of affordable treatments, which would remove some pressure from the obesity issue. However, the lack of focus on prevention means that increases in childhood obesity are not tackled. Since obesity is only dealt with at the point when treatment is required, it reinforces the normalisation of obesity and its treatment, which has the effect of raising levels of childhood obesity even further.

Health incentives and regulation

Limited incentives for good health behaviours are in place from some insurance companies. These are linked to lower premiums and instituted both to decrease the number of claimants but also to forestall any calls for national regulation (or community-based) regulation. Other industries taking such measures include supermarkets promoting the take-up of healthier foods through a 'points bonus programme' and commitments by media companies not to advertise their merchandise using junk food as a promotion platform.

However, businesses also promote their own health incentives – and become active players in their sector – because, in doing so, they are less likely to be the target of regulation and litigation. Businesses tailor their solutions to particular communities, reacting to their day-to-day demands. There is little incentive for long-term innovation, and companies are better off responding to immediate concerns rather than adopting strategies and investing in costly programmes that could potentially fail as demand constantly shifts.

The plethora of views that would exist in Scenario Three in terms of how the private sector ought to be involved in combating obesity means that very few of the measures adopted are effectively promoted and evenly implemented throughout the regions. They are transitory and frequently subject to changes in fashion.

Acceptability of intervention

The focus on community in this scenario favours social intervention, and people are willing to accept some restrictions on individual choice. In the later stages of the scenario period, communities start to introduce restrictions in some services, and this is accepted by the population as being necessary to deal with the current crisis and to ensure equity of access. However, uneven rationing across communities creates tensions and leads to people moving to seek the service or treatment they require. If a consensus on a path to action could be reached, this scenario might well drive some beneficial actions on obesity.
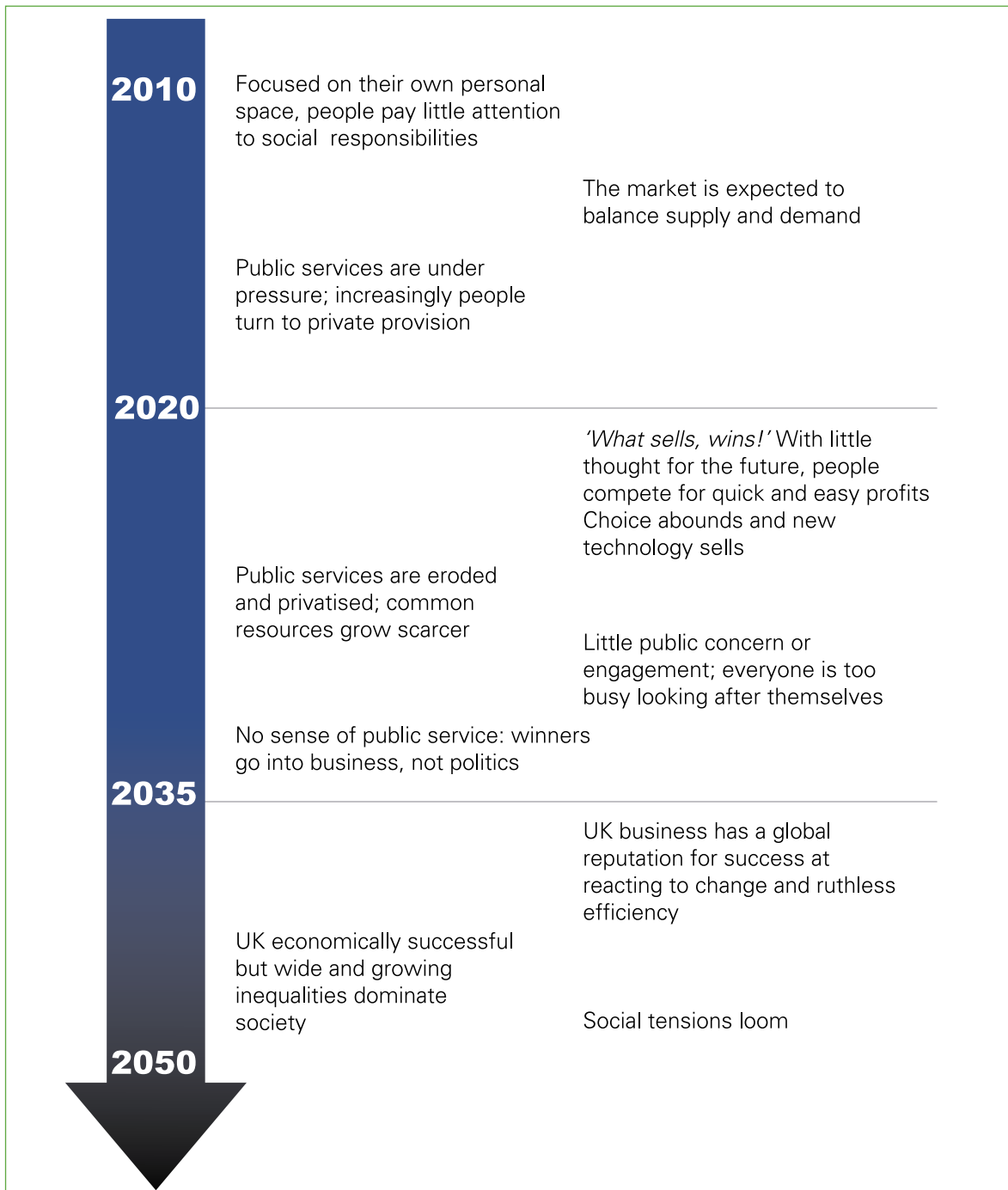
Scenario Four

Individual responsibility first, react to and mitigate challenges

A highly competitive, innovative and, in the short term. economically successful scenario dominated by short-term reaction to challenge ... Intense individualism creates a society in which inequalities become very apparent.

Scenario Four: summary over time

2010

Focused on their own personal space, people pay little attention to social responsibilities

The market is expected to balance supply and demand

Public services are under pressure; increasingly people turn to private provision

2020

'What sells, wins!' With little thought for the future, people compete for quick and easy profits Choice abounds and new technology sells

Public services are eroded and privatised; common resources grow scarcer

Little public concern or engagement; everyone is too busy looking after themselves

No sense of public service: winners go into business, not politics

2035

UK business has a global reputation for success at reacting to change and ruthless efficiency

UK economically successful but wide and growing inequalities dominate society

Social tensions loom

2050

Scenario Four: overview

End state – 2050

The UK is economically successful and UK business has a global reputation for excellence, winning many admirers for its ruthless efficiency and fast reaction to change. But behind the success in 2050 is a different story. Wide and growing inequalities dominate society and there are looming social tensions, particularly about access to natural resources that are now in short supply, such as water.

Some might say that the scenario begins with a great sense of economic promise. Opportunities are exploited by the market and immediate challenges are handled rapidly and efficiently. The market is expected to balance supply and demand, and rises to this challenge with great success. But in this climate of immediate reward, there are no long-term investments, either by Government or by industry, in systemic change. At this point, with few individuals feeling any personal impact of climate change and despite awareness of resource challenges, there is an abrogation of responsibility for external issues. People feel that it's too difficult to change things – and in any case, they say they already have enough to worry about. There is little connection with broader external change and no sense of the 'big picture'.

Individualisation intensifies throughout the scenario, with immediate reward paramount in a high-stress, highly competitive environment. Skills, talent and innovation are highly rewarded. People are expected to be self-starters and totally self-reliant. Markets explode with choice and a tidal wave of information, creating a new environment for information management companies.

By 2020, a ' live for the moment' attitude is all pervasive, with headline-seeking media constantly reinforcing the 'what sells, wins' attitude. Business and innovators are fleet of foot in responding to new challenges, and impacts are minimised. But there is no process or framework for reacting to change outside those areas regulated by market forces, such as water. There is no appetite among the public for the restriction of resources. Indeed, conspicuous consumption, especially by the wealthy, in private gated communities, is the rule. In parallel, technology delivers new fixes – better desalination plants, for instance.

In 2010, public services are under considerable pressure. As the scenario period progresses, people turn increasingly to private provision. By the middle years of the scenario timeframe, most public services have been eroded completely, and safety nets for the unfortunate poor have all but disappeared. By the end of the scenario period, social unrest is growing at the same time as technological fixes have run their course in terms of response to challenge. The lack of investment in prevention, whether in the environment, health or personal security, is creating difficulties. The number of people needing care for chronic conditions caused by obesity, for instance, has risen dramatically. Emerging resource issues are

highlighted by the increase in frequency and extremity of natural events, leading many to question the economic and global sustainability of the British model.

Economics and government

The incentive for short-term profit and reward is paramount. At the beginning of the scenario. the UK is globally successful, competitive and efficient. The skills shortage suggested in the 2006 Leitch Review does not come about as education (largely private-sector-funded) generates a skills profile based on immediate business need.

There are a myriad market opportunities delivering successful and highly innovative solutions. There is a rapid turnover of businesses and a focus on personalised technologies and information delivery. But there is economic volatility, caused in the main by the high cost of oil.

The role and influence of Government shrinks and there is a radical decline in political participation, with electoral turn-out sinking to all-time lows. High-flyers choose business as a career, not the Civil Service, and there is no sense of public or civic duty. The private sector is expected to deliver and, increasingly, across health, pensions and transport, it does. Government regulations focus solely on coping with market excesses. Power is fragmented, with industry and very rich individuals competing for influence.

Inequalities

The numbers of mega rich rise. There are significantly widening inequalities and there is limited support for those less well off. Survival of the fittest is the maxim by which this society lives, and very little is provided in the way of support for those unable to compete. The pervading ethos of self-help shrinks safety nets and welfare services even further and, in this society, as in the former USSR, longevity among the disadvantaged sees a significant decline for the first time. However, with luck, effort and talent, individuals are able to cross the divide opportunistically. Despite the premium placed on success, failure is tolerated, provided only that it is a springboard to subsequent success.

The built environment and transport

No systemic change is instituted to the built environment, but repair and replacement occurs when necessary.

There is little public transport, and private transport is focused on individual 'pods' or vehicles. Convenience and door-to-door transportation are the main drivers.

The home becomes the focus of all services, such as the home gym, online shopping, online socialising.

A major feature of this scenario is the rise of gated communities for the wealthy that secure priority access to scarce resources. These are crime-free enclaves, thanks to the private security guards who patrol them 24 hours a day.

Research and science

There is an expectation that science will deliver solutions. There is virtually no publicly funded research but Government has a role in defining standards. Industrial links with universities are strengthened and the role of research and development within industry assumes greater importance. Research is highly commercially focused and there is strong intellectual property protection. There is great interest in new technologies and personalised gadgets.

Research tends to be media- and fashion-driven, with rapid results demanded from investment and a fast turnaround of new technologies.

In health, the pharmaceutical industry is responsible for the majority of research and development and is driven by potential markets and anticipated profit. This means that the development of anti-obesity drugs receives high priority.

The food sector

The food sector is buoyant throughout this scenario. With individual choice paramount, the food and drinks industry responds with innovative products. The industry is supremely flexible, constantly developing new products as fashion – and consumer demands – change. There is a continued supply of cheap food, with an increased drive for convenience. There is also a large premium market and a burgeoning interest in functional foods. It is up to the individual to make the 'right choice'. More and more people choose to eat out and there is an enormous variety of restaurants, cuisines and price ranges for people to choose from.

Regulation is light touch, with Government only stepping in to correct market abuse.

Education

Private education in Britain, across all age groups, is among the best in the world, for those who can afford it. It is globally competitive and there is an emphasis on business skills. The education sector exploits the opportunities of the knowledge economy, often supported by the private sector, which increasingly takes a much more integrated role in education as a whole, with expansion of employer-led academies.

As in Scenario One, individuals use information and education to empower them. There is a strong drive by parents to help their children achieve through education, and appreciation of the value of learning and teaching sees a renaissance.

Health

Attitudes

Good health is a symbol of status, as is appearance. Appearance is integral to an individual's identity. There is high personal responsibility, either through savings or insurance, to fund personal healthcare, and self-reliance is the key driver for all social services. There is a focus on treatment and managing the consequences of individual actions. While obesity is highly stigmatised in most groups, mental health problems have become so common that they are no longer the subject of stigma.

Personal enhancement is a growth area with a strong market for cognitive enhancers and drugs previously seen only in sports abuse such as steroids and growth hormone.

Employers increasingly offer access to gyms and healthcare facilities as part of their employment packages, as well as medical treatments and life management classes in an effort to attract the best employees.

Health system

The healthcare service becomes increasingly privatised as Scenario Three progresses, although there is some initial reluctance to surrender the ideal of health as a right. The richer an individual, the better the quality of care received and the more personalised it is. For the wealthy, there is a wide range of effective medications to prevent weight gain, but these have to be taken for life, which is extremely profitable for the pharmaceutical industry and drives greater innovation and research in this area. There is a growing self-help culture facilitated by communications technologies and services that guide consumers through healthcare decisions and the high volume of available information and advice.

Government is largely removed from the policy and delivery of healthcare, which is dominated by the large insurers. Only the poorest receive the bare minimum healthcare package provided by Government. Those on this level of care have a passive attitude towards health, accepting a lowered life expectancy and chronic ill health. While considerable amounts of information are made available, little active help is offered to people.

Looking back from 2050 to the world of 2007, forerunners of this future may be …

… fragmentation of family and community

- UK census figures suggest that 30% of the adult population of England and Wales have never been married and that 30% of households are single residents (although pensioners currently account for nearly half of these).[1]

- British adults fear 'youngsters', with more than 1.5 million Britons thinking about moving away from their local area due to young people hanging around and about 1.7 million admitted to avoiding going out after dark as a direct result of youths gathering in the streets.[2]

… political indifference in the younger generation

- An Ipsos-MORI poll in April 2004 suggested that only 24% of 18–24-year-olds, or 44% of 25–34-year-olds, were absolutely certain to vote. Nationally, 58% of adults and 71% of over-55s said they were certain to vote.

- 'More people voted on *Big Brother* and *Fame Academy* than in the 2005 General Election,' with 6,363,325 votes cast during the 2004 live final of *Big Brother 5* and 8,250,000 for the BBC's *Fame Academy* and roughly 5,696,907 votes cast by 18–34-year-olds (however, these statistics do not account for multiple voting: a great proportion of young people voting for *Big Brother* or *Fame Academy* placed more than one vote – some placed up to 100 votes).[3]

… a short-term societal mindset

- Contemporary consumers are 'modal – their individual actions being determined over the course of a day, a week, or a year by the specific circumstances of the moment'.[4]

- The UK population 'wishes to live well but often lacks the time or energy to recycle, reconnect, campaign or even shop for more ethical products'; for example, in 2005, more than half of the UK population felt too low in energy by the evening to do anything other than sit down.[4] Perhaps as a result, the average time taken to prepare a meal has dramatically reduced from 60 minutes in the 1980s to just 19 minutes now, and it is predicted to shrink to eight minutes by 2010.

- The use of convenience foods is growing. Between 1999 and 2000, purchases of convenience foods rose by 24%; 25% of respondents to the 2003 Consumer Attitudes survey said they regularly used some form of fast-food or takeaway outlet.[5] The consumption of prepared meals in Europe and America was $29 billion in 1999 and is forecast to exceed $40 billion by 2009.

… responsibility of the individual

- 'If fat people want to be fat – let them – only don't expect the rest of us to pay': an example of the views expressed on BBC News Online (28 August 2006) in response to the release of government predictions of increases in obesity levels. There was a sense from many of the 3,356 comments that the obese should expect to look after themselves.

… the belief that man-made climate change is unproven and unfounded

- Exxon Mobil and General Motors remain active in rubbishing climate change.[6]

- Cooler Heads Foundation formed 'to dispel the myths of global warming by exposing flawed economic, scientific and risk analysis.'[7]

1 2001 Census www.statistics.gov.uk

2 Institute for Public Policy Research (http://www.ippr.org.uk/pressreleases/?id=2388).

3 Is *Big Brother* really more popular than the election? BBC News Online, 31 May 2005.

4 Harrison, M. 2006. Learning lessons from the past, in *2025 What Next for the Make Poverty History Generation?* London: Fabian Ideas. p619.

5 Department of Health. 2003. Food and Health Action Plan.

6 Brown, P. 2006. *Global Warning: The Last Chance for Change.* London: Guardian Books and A&C Black Publishers.

7 http://www.globalwarming.org/about.htm

Scenario Four: possible impacts on obesity

The broader environmental changes in Scenario Four will impact on obesity trends in a variety of ways, assuming there are no additional interventions from Government.

A simple numerical ranking system was used to assess the change in obesity trends relative to today:

–3   **–2**   **–1**   **0**   **+1**   **+2**   **+3**

Rate rising slower than today   **Trajectory same as today**   **Rate rising faster than today**

Scenario Four: summary of impacts on obesity levels

Worsening

Population levels of obesity (+3)

The rise in obesity levels increases dramatically … Younger generations die before their parents as the focus on treatment and its normalisation, coupled with widening social divides exacerbates trends.

Socioeconomic difference in obesity levels (+3)

Significant widening in inequalities is reflected in obesity trends. Body shape is a status symbol and people rely on costly treatments to attain the desired shape … The economically disadvantaged have little access to treatment or prevention, thus widening divides.

Levels of child obesity (+1)

People remain concerned about children, so action is still taken on their behalf as knowledge and awareness increases …

Obesity divides

Society is highly polarised between 'haves' (with access to money, education, choice and opportunity) and 'have nots'. Given that evidence of the link between lower socioeconomic status and higher levels of obesity is already strong in the UK, it is likely that there would be increasing division between those who maintain a healthy weight and those who become increasingly overweight and obese in this scenario.

The increase in gated communities may be significant. This type of physical separation would be beneficial, in health terms, for the 'haves' who can afford to live there. The increase in the perceptions of safety, with regard to both traffic and crime, might enable increased daily physical activity 'within the gates'. The food

made available may also have higher nutritional quality, with choices made to exclude supply from retailers associated with unhealthy products. It would be a different story for the 'have nots'. Health inequalities will be exacerbated by the physical environment of the 'have nots' (poor housing and diet) but the obvious disparity in relative social status should not be overlooked as a causative factor in obesity. Perceptions of status impact on self-esteem and eating patterns, which in turn reinforce the divide between the wealthy (and healthy) and the rest.[12]

For those with a high disposable income, there will be many new technologies, functional foods, pills, surgery and information to keep them healthy and svelte. The food industry would find a large and growing market for functional foods among the more affluent and 'worried well', although fashions would change quickly.

Despite the likely demand by the wealthy for 'health', increasingly an indicator of status in this scenario, there is not likely to be a significant trickle-down effect as there was in Scenario One due to the nature of the solutions adopted – for example, the focus on gated communities rather than public spaces in general, access to motorised transport, the perception of and exposure to crime. It is also likely that the extent of internet and communications technologies available in Scenario Four will mean that society will shift to a far greater amount of everyday life being organised from the home.

Importance of status signals: weight as status

All participants in the scenario development process felt that status would be a critical personal dimension in Scenario Four and indicators of status would therefore be important. Being – and remaining – thin is likely to have high status value, a reversal of that seen historically, where to be fat was a sign of wealth and status. However, as wealth is the critical factor, money would still trump body mass index (BMI).

A celebrity culture would continue to prevail, with individuals, particularly those of lower socioeconomic status, living vicariously through celebrities whose appearance and lifestyle they deemed to be the most aspirational. This contributes to individual circumstances becoming less important, particularly with the additional extent of the rise in interaction via virtual environments. This would contribute to the normalisation of obesity in these groups.

Stigmatisation versus normalisation

In Scenario Four, there is likely to be increasing tension between the normalisation (particularly among those in lower socioeconomic groups) and stigmatisation of obesity. In a sense, with overweight becoming a clear indicator of lack of wealth, not being obese would become part of the way the wealthy differentiate

themselves from others. In less wealthy groups, a sense of inevitability would become apparent. This would need to be given particular attention when considering fiscal measures that might increase the stigmatisation of the obese, while also reinforcing the normalisation process seen in particular sections of society.

Furthermore, as demographics alter with an ageing population, being overweight may become statistically more commonplace since those aged 40–79 are about three times as likely to be obese as younger people (although this could shift as the current generation ages). This will add to the normalisation of overweight and obesity.

Stress and pressure

In this scenario of short-term thinking, intense competition, stress and high pressure are to be expected. In parallel with this would be an increased demand for indulgence and reward (the 'because I'm worth it' effect), increasing psychological ambivalence around health behaviours. The food sector would cater for this demand for convenient, indulgent comfort food, enhancing the force of less-healthy dietary habits.

The individual would be subject to conflicting demands at work, being expected to deliver efficiently and effectively within a competitive environment while at the same time being expected to adopt the healthy lifestyle demanded by some employers.

Increasing levels of stress and possible mental health illness could also affect obesity levels. Research has suggested a link between psychopathology and obesity.[13] It is possible that if, as is likely in Scenario Four, treating mental health becomes a priority (with the rise in the number of those affected), some of the trigger factors for obesity may also be dealt with. However, some pharmaceutical treatments for psychiatric illness increase weight gain.

Individualised, virtualised sport

One interesting effect of the short-term, individualised, fast-changing world may be the increase in the desire for adrenalin rushes, or 'highs'. This would translate into an acceleration of the interest in extreme sports. However, sports such as sky diving do not include much physical activity. Increased numbers of people involved in 'sport' may therefore not have much effect in slowing the number of those becoming overweight or obese.

Already in 2006, a burgeoning co-existence between extreme sport participation and increasing levels of obesity suggested that the two phenomena are not mutually exclusive.[14]

There may also be an increase in virtual sport participation, partly as spectators but also as the brain–computer interface improves and these 'sports' become more sensory and engaging. This would enable people to take part in activities that they would otherwise not have the opportunity to enjoy.

A world of 'couch athletes' and sky divers' could be envisaged where either people participate in virtual sport or become extreme sport enthusiasts, both using their spare time to indulge in select and novel activities, while finding more everyday activity less rewarding.

Health attitudes and systems within the four scenarios

Scenario One

Wellness sells

A view of the future of health attitudes and the health system in an individualistic society with long-term horizons

In the market-driven world of Scenario One, individuals expect the corporate world to both to manage and innovate healthcare and its delivery. There is little expectation of Government.

The private sector dominates the health industry. Consumers make their opinions clear as to the areas they feel should be of concern to pharmaceutical companies and private health insurers. No matter how contradictory these opinions might be, the market is obliged to listen or risk alienating their customer base. Transparency is expected of pharmaceutical companies and health insurers and reputation is critical to ensuring continued sales growth. Consumers strongly believe that perfect health and appearance is possible and expect industry to deliver it through innovative research.

The fear of litigation is a powerful driver in determining research priorities, in particular the need for long-term surveillance and monitoring: if future pitfalls are missed, a class action suit will follow. There is little room for failure in this world.

The need to optimise well-being reflects the attitude prevalent in this scenario that good health is not merely the absence of disease, but a key part of individual identity. Living healthily is the only way to live. New ways to achieve this, whether it is through programmes tailored to an individual's genome or diagnostic procedures aimed at the earliest possible detection of ill health, are marketed constantly.

People aspire to well-being throughout their lives: the connection between past, present and future health is much better evidenced. There is an imperative to act now if well-being is to be assured long into old age. Individuals are acutely aware of the possible impact of their actions or lifestyle on the health of their children and grandchildren. Prenatal care becomes a major industry as evidence shows that a woman's weight and what she eats, even during adolescence, can have an impact on the metabolism and health of children yet to be born. Parents do their best to create a healthy environment for their children. Those who neglect this risk their children being removed.

Private health insurers offer reduced premiums to those who can demonstrate regular activity, who buy food from 'health-designated aisles' in supermarkets or who take part in clinical trials of preventative medicine.

However, society's obsession with being youthful and the omnipresent fear of developing any disease, even those commonly associated with ageing, become a major source of stress and anxiety.

People who do not adopt a health-focused attitude do not find support from the health industry or Government. On-demand information means there is little sympathy for poor health choices. This is a world of health for those who seek it or for the lucky ones who have the right genes or environment. As a result, inequalities between groups, especially in terms of health, widen substantially: the 'haves' enjoy the fruits of their success ever more by investing in long-term prevention while the 'have nots' have less and less disposable income to spend on increasingly costly and sophisticated healthcare (unless they 'volunteer' to be part of a clinical trial or longitudinal study). Government and philanthropic forces may try to offer some publicly funded state health insurance coverage to those who are most in need, but the gulf between them and the '*über* healthy' continues to widen.

Scenario Two

The ascendancy of public health

A view of the health system in a socially responsible, long-term-thinking society

The drive towards sustainability and healthy living, coupled with the rejection of a market-driven society, has led to a scenario where healthcare is firmly in the hands of Government. Health is evaluated through the framework of population health. Resources are used following a cost–benefit analysis to improve the health of the population as a whole and to guarantee equal access to healthcare for all.

To achieve these goals, the focus is on developing long-term benefits to society and research, which is publicly funded and therefore largely geared towards ill-health prevention and improving diagnostic methods. There is an increase in the number of companies linking universities and industry with community in their research. More 'blue sky' research is undertaken under pressure from Government.

Numerous longitudinal studies are carried out to bring better understanding of disease progression within certain populations and across the life course, and are welcomed by the public. Concerns about privacy are secondary as the public considers such studies to make an important social contribution. Treatments are available to those who need them, but the majority of healthcare policies are focused on preventative behaviours. These help the population adopt healthier lifestyles so that there will be less reliance on costly palliative measures. There is, in fact, a general move away from treatments, with an emphasis on developing the most cost-effective and sustainable preventative measures. Indeed, treatment is viewed largely as a measure of last resort. 'Best practice' models are developed for all areas of life, and community groups are instrumental in helping to implement these at the local level: how to eat, what foods to buy, how to cook, how much to exercise. Not only is the community actively involved in the healthcare of its residents, but it is seen as the civic responsibility of each individual to lead a healthy lifestyle and to encourage the same in others.

Those who choose not to or are unable to live what has been defined as a 'healthy' lifestyle tend to be marginalised for their lack of contribution to society. Equally, access to newer and often more expensive treatments is denied. Limited resources, a focus on population rather than on the individual and, above all, equity of provision mean that no single group can be seen to profit at the expense of others. The richer members of society go abroad for expensive care, especially for any kind of cosmetic enhancement.

The tensions that arise between communities as they compete for government resources to fund their own public health programmes and the uneven implementation of health measures across the country become more apparent towards the end of the scenario. However, during the first half of the timeline, regions are less concerned about obtaining public funds and are allowed slightly more independence in choosing how they deliver healthcare services and what these services should include. Certain controversial procedures (such as bariatric surgery or botox injections) are available early on in some places, where communities have agreed to pool their resources. But these regional differences are eroded as demands on the health system increase. Such procedures become even rarer when it becomes clear that regions that have devoted their budgets to prevention policies have achieved the greatest success.

Scenario Three

Immediate healthcare for all

A view of the health system in a socially responsible, short-term-thinking future

In this scenario, healthcare remains the responsibility of the public sector, even though private provision exists for those who can afford it. Government is increasingly turning to communities to help implement and deliver public health policies. The priority is management of immediate health needs and the development of rapid-response strategies, processes and treatments. Community-based clinics and groups are empowered to decide what is best for their particular region and respond directly to the challenges affecting them. Implementation is uneven and provision varies in quality, reflecting capability but also the needs of the majority in a particular region.

This also leads to competition between communities, all of which are trying to attract as much government funding as possible. The rivalries between health boards creates tension and resentment as certain groups feel permanently disadvantaged when it comes to healthcare. Maps of morbidity and mortality rates across the UK reflect these regional inequalities. To alleviate some of the disparities, public health providers make use of some of the new technologies to target resources where specific diseases are more prevalent. However, the lack of a long-term focus means that inefficient use of resources and inefficiencies remain. Attention is focused on those who already need treatment rather than those who are at future risk.

Although the quality of healthcare services varies tremendously, the general attitude towards health is one of inclusiveness – all deserve and should receive an adequate level of healthcare. Most people agree that a socially responsible society should provide its citizens with, albeit rationed, access to healthcare. Some aspects of rationing do not seem fair. For instance, communities with the most proactive and well-organised individuals, as measured by the number of online blogs, receive more government funding because of their increased visibility. In addition to certain communities receiving preferential treatment, it is the patients and special interest groups that 'shout the loudest' that are able to gain access to the best treatments. Those who suffer from 'orphan' conditions – illnesses with very low prevalence – are automatically disadvantaged. Furthermore, the strong sense of community service provides people with a framework within which to work towards improving the health of their communities. People depend on each other and gravitate towards those communities or groups they feel will look after them best. Instead of moving to a neighbourhood for the schools, people routinely move to the towns and cities that offer the care they need. Charges of a 'postcode lottery' remain, though as people feel they have some control over the services delivered in their area and

can move to another one, it is not considered a fatal flaw in the system. Clearly, not everyone approves of some policies and, in a world where short-term thinking dominates and where crisis management is the dominant ethos, there is bound to be disagreement on the best way forward.

Access to healthcare is deemed a right and, despite the short-termism of Scenario Three, the potential exists for good population health. With limited resources and planning, there is, however, little for those people who need expensive new medicines or treatments. People wishing to receive such treatments travel abroad, where personalised healthcare is available. The rich go to China, India or even the USA for specialty 'high-end' procedures. The internet is also widely used to buy drugs for expensive chronic conditions and for non-funded options like fertility treatments. The latter are seen as unnecessary and inappropriate. Assisted reproductive technologies are bundled with cosmetic treatments and deemed healthcare 'luxuries', considered a waste of medical time and a drain on government funds.

However, despite fragmented opinion and a constant clamour for resources on behalf of a myriad communities, healthcare does get delivered and most people – unless there is a crisis – fare pretty well. The UK is not at the forefront of technology or science as the lack of long-term investment in science and research forces many academics and research and development departments to relocate abroad. However, quick thinking and creative responses to particular outbreaks or threats lead some UK start-up companies to become global leaders. It is very much a 'case by case' business model. Indeed, the flexibility and ability of the private and public sector to respond and adapt quickly is highly regarded globally and is the hallmark of this scenario's success. The 'quick fix' treatments and services (in accident and emergency departments) that are developed in this scenario are available to people in all regions. Most communities seem moderately content with the way things stand, at least in terms of health. Fortunately, no major epidemic hits the UK but the periodic emergence of animal-based diseases outside the UK and the appearance of extreme drug-resistant strains of tuberculosis across the EU keep people vigilant. Contingency plans exist for some of these public health threats but not all, and it is not clear that, if faced with a completely novel crisis, the UK would manage to cope, particularly as it depends on communities as its primary loci of response.

Scenario Four

Retail therapy

A view of the future of health attitudes and the health system in the short-termist individualistic society of Scenario Four

Self-reliance is the mantra of Scenario Four. Despite some resistance between 2010 and 2020, the health system was subject to increasing privatisation. The majority of people flock to private health clinics where, depending on the extent of their insurance cover, they receive an array of treatments for their physical and mental health. The richer a person is, the better the quality of care they receive. In a competitive world, getting the best treatments and specialists (and there are plenty to choose from) is seen as a necessity.

In addition to private medical care, there is a growing self-help culture, facilitated by communications technologies that guide people through their own healthcare decisions, enabling them to self-medicate. There is a plethora of new remedies and medical technologies designed for individual enhancement. Clinical trials may not be conclusive or even to have run for very long, but such exciting and novel ways to better one's health get guaranteed media headlines. For the rich and the aspiring middle classes, who want to look and feel like the global celebrities seen on every hoarding, there is certainty that you can never be too rich or too thin. For those who can't afford personalised treatments, the most popular route to bariatric treatment or liposuction is taking part in one of the many medical reality TV shows.

In this scenario, appearance is all important. Treatment for obesity is not about health, but about appearance and status and is funded by the individual. For the better off struggling with their weight, effective medications can now treat almost all overeating disorders, no matter what their origin or type. People need to stay on such medications for life to prevent relapses, which makes them an enormously profitable market for the pharmaceutical industry. The health service focuses on managing complications as a result of obesity, most particularly type 2 diabetes.

Business and industry benefit from new markets as people focus on looking healthy and young throughout their lives. Some companies have covert HR policies in place to restrict the number of workers with a BMI over 30 in the hope that, as employers, they will become more attractive to future employees. Reducing the number of employees with higher BMIs is perceived to benefit companies as fewer people need to take days off work for obesity-related complications, thereby raising overall employee productivity. The advantages of having a healthy workforce has already been translated into HR policy by some companies. Global bankers, Goldman Sachs were at the forefront, introducing a 'wellness exchange' and 'wellness fairs' for busy employees, which offered

information and seminars about health, as well as gym access. All are available on company premises so that employees can incorporate 'healthy living' into their working day without having to leave the office.[15] Companies use a share of the profits obtained through maximising productivity to further invest in obesity treatments and life management classes for their employees. This is a popular method of attracting and retaining talented people. However, there is also pressure on employees to use the company wellness centres – on top of their long working days: taking sick leave is frowned on.

The healthcare system is, similarly, geared towards money and profitability. There is a looming fear of litigation that is driving medicine to become increasingly 'defensive'. Some doctors are reluctant to take on the care of obese patients for fear of being sued.

The pharmaceutical industry drives the health system, and is responsible for most research and development. The nature of research and development is dictated largely by the potential market and anticipated profit. It is pharmaceutical companies that guide hospitals on the delivery of medicine and treatments targeted at the well off and insured. Government is largely removed from both policy and delivery of healthcare, except when it comes to the 'have nots' – those who can't afford private healthcare or costly insurance premiums. For people who have fallen by the wayside, through their own incapability, lack of education or simple bad luck, Government provides a core package of healthcare and access to the few generic drugs still on the market. The less fortunate are resigned to receiving the bare minimum in terms of healthcare, with lowered life expectancy, chronic ill health and – perhaps of equal concern in this scenario – not being able to look one's best part. This is part and parcel of being in the lower socioeconomic classes. In this scenario, the excluded adopt, for the most part, a passive attitude towards health – they are provided with ever more information (on billboards and in pamphlets) but little active support is offered to help them change. It is assumed that every individual has the opportunity to get themselves out of ill health, all they need to do is summon up the necessary energy and motivation.

Attitudes towards perceived health permeate every single aspect of society – looking well, defined in this scenario as being thin, toned and glowing – is essential to an individual's identity and acts as a key indicator of social status.

Appendix 1: Scenario comparison table, showing the key features and drivers for change

	Scenario One	Scenario Two	Scenario Three	Scenario Four
Direct relevance to obesity				
Healthcare overview	• Focus on being 'better than well', particularly for children and future generations • Prevention prioritised by the individual • People take a 'responsible' attitude to health: irresponsible behaviour is marginalised • Healthcare insurance and the private sector predominate; the public sector supports the less well off • There is overt health rationing, with the public sector largely focused on acute emergencies; the private sector is increasingly discriminatory as to those they will insure	• A new broad approach to public health arises, with a focus on ill-health prevention. Health is 'designed into' many aspects of life • Public healthcare for all is still a priority but resources are stretched; there are restrictions on the availability of certain treatments, a focus on ill-health prevention (health tourism grows). There is uneven implementation of regulation and treatment between communities • It becomes a social responsibility to look after your personal health. Healthcare is there for those who 'deserve it': it is considered socially incorrect to demand in excess of need • The private sector flourishes but at a spiralling cost; probably unsustainable throughout the scenario period	• Affordable treatment is the focus • Inclusivity in health opportunities is a priority. There is mixed public and private healthcare delivery but still an emphasis on access for all • Individuals look to communities and peers to recommend choices in lifestyle and treatment • There are finite resources, both financial and human, but high expectations from the public, with increasing tensions about the sustainability of adequate healthcare across all sectors of society as levels of chronic conditions increase • Sizeable lobby groups obtain new treatments, smaller 'orphan conditions' may not be acknowledged	• Health is a symbol of status • The focus is on treatment and managing the consequences of individual actions rather than on prevention • There is a high personal responsibility to fund/insure healthcare – self-reliance is the key driver for all social services • For those who can afford them, there are excellent innovative private services; but limited public offering • There is a marked rich/poor divide in access to treatments

Appendix 1: Scenario comparison table, showing the key features and drivers for change (*Continued*)

	Scenario One	Scenario Two	Scenario Three	Scenario Four
Education, information and the media	• Private education dominates • Individuals use the media and education as a route to power and status • There is a wealth of accessible information but it requires the ability to interpret it • There is co-creation of media ('blog heaven')	• There is an emphasis on public provision of education • Government is proactive in ensuring access to information • Information quality and content are heavily regulated • E-based connectivity facilitates community action	• There is a mix of public and private education • There is easy access to multiple opinions and active community-based debates take place • The extent of open debate identifies responsibilities but stifles action	• The private education market is top quality and internationally competitive across all age groups. There is an emphasis on business skills • Individuals use information and education to empower • The media are highly fashion- and trend-led
The built environment	• There is some systemic change driven by the market in response to consumers • There is active use of the environment, and perceptions of safety dominate the agenda • Insurers withdraw cover for buildings on flood plains • Complex public–private ownership and co-ordination difficulties limit what can be achieved	• Systemic change is driven by local and central government • New standards are set in the planning process to meet environmental and social objectives. Health is 'built in'. • Infrastructure is overhauled to incorporate new systems such as recycling 'grey' water • Government bans building on flood plains	• There is no systemic or nationally co-ordinated infrastructure change, and limited local initiatives focus on repair and replacement	• There is no systemic change, just repair and replacement when necessary. • The home is the focus of all services • Gated real estate booms
Transport	• Conventional car use is limited by energy costs and congestion but there is a rise in individual hybrid fuel 'pods' • The infrastructure favours pedestrians and cyclists	• There is a much-reduced level of individual transport and a focus on public transport • Cycling and walking are encouraged by changes in the built environment	• Technology is used to tackle vehicle emissions but congestion is still problematic	• There is little public transport • The number of individual 'pods' rises

Appendix 1: Scenario comparison table, showing the key features and drivers for change (*Continued*)

	Scenario One	Scenario Two	Scenario Three	Scenario Four
The food sector	• Consumers and resource pressures force change across the industry • Self-regulation is effective • The levers in addressing the problem of food perceived to be unhealthy are demand from consumers and the need to sustain their trust in the industry, and the perception that sustainability will bring long-term profits • Functional products and brands deliver well-being and whole lifestyle services, including outsourcing the control of diet; premium prices are paid for small portions • Brand loyalty is a key driver	• The industry is forced to consider public impact • The sector is not trusted to self-regulate. There is strong overall regulatory pressure as trust in business declines • There is a focus on nutrition, well-being and public health, particularly in public sector procurement and in schools, hospitals and prisons • The number of food miles is reduced and local sourcing becomes a key driver for retailers	• No fundamental change takes place in the industry • There is regulatory pressure to respond very effectively to food safety scares. The EU role in regulation strengthens • There is no focus on long-term issues such as nutrition except through limited measures in schools and hospitals • NGOs are very active • Local sourcing is a key driver	• Individual choice is paramount • Government only steps in to correct market abuse • There is continued supply of cheap food, with an increased drive for convenience • There is innovative response to changing consumer demands, a large premium market and interest in functional foods • More people are eating out
Inequalities	• There is a widening gap at first but this narrows with the trickle-down effect of systemic change later in the scenario period • Government and wealthy individuals provide some support for the less well off	• Overall reduction in inequalities takes place • Gaps are narrowing within communities but inequalities between some communities become important • Support for the less well off is provided, as long as people take personal responsibility	• An overall reduction in inequalities occurs, with the gaps narrowing and fewer 'super rich' • There is sustained effort to counter extreme inequalities • People feel included and empowered by open debate	• There are significantly widening inequalities, with a rise in the number of 'super rich' • The individual can cross the divides opportunistically • Limited support is available for those less well off; the attitude is that everyone must look after themselves

Appendix 1: Scenario comparison table, showing the key features and drivers for change (*Continued*)

	Scenario One	Scenario Two	Scenario Three	Scenario Four
Baseline obesity figures (compared to today's trajectory)	• Population levels are a little worse • There is an initial increase in the socioeconomic divide in obesity levels, but the long-term perspective affects behaviours • Support from wealthy philanthropists balances the impact, resulting in a neutral impact in the long term • Improvements are seen in levels of child obesity	• Population obesity levels decrease • The rate of divide lessens between rich and poor • Significant improvements in child obesity come about	• The trajectory towards reduced population obesity levels improves • Social divides are less • Child obesity is getting a little worse	• Population levels are increasing rapidly • The rate of divide between the rich and poor is increasingly marked • Child obesity is worsening but not as rapidly as adult obesity or socio economic differences in obesity levels.
Generic themes				
Attitudes, values and perceptions of risk	• Responsibility and motivations are focused on the individual • There is a focus on the precautionary principle (i.e. prepared to suffer the costs now for future benefit)	• People have a personal responsibility to the community • The future is valued highly • There is an acceptance that action may be required despite the absence of evidence	• There is a drive for inclusive debate • People are risk averse: action is built on conclusive evidence and consensus • There is a belief that society can only meet challenges by working together	• There is intense individualisation: financial success is paramount • A 'survival of the fittest' exists • Failure is accepted, as long it is a springboard for success thereafter
Leadership/ power/ governance structures	• Consumers and the market are the major scenario governors • Consumers come together through flexible, transient networks and exert pressure on industry • Government facilitates industry action with 'light touch' regulation • Globalisation reduces still further the influence of the UK Government	• There is confidence in devolved community power • Government co-ordinates and facilitates action at the local level. Implementation is dependent on local delivery • There is a participative approach to governance: those who don't participate become isolated	• There is a multiplicity of governance: powerful local governance, taking action on some issues; the public look to central government to take responsibility for core systemic issues and the 'big picture' • NGOs' influence grows • Competing interests affect decision-making speed and outcomes	• The role of government shrinks • There is a radical decline in political participation • Government regulation focuses solely on coping with market excesses • Power is fragmented among individuals and industry

Appendix 1: Scenario comparison table, showing the key features and drivers for change (*Continued*)

	Scenario One	Scenario Two	Scenario Three	Scenario Four
Business models/ economics	• Sustainability is seen to lead to profitability • The market incorporates critical externalities • The economy remains strong • New types of consortia and collaborations are needed to invest and sustain long-term partnerships	• The private sector is heavily regulated. Tax incentives encourage innovation • Externalities are included in development • The economy suffers at times when new opportunities are missed, but long-term plans show benefits • Some companies relocate to avoid regulation	• There is a complex mix of bilateral deals and some multilateralism • The pace of free-market globalisation slackens: protectionism and regulation become more acceptable • Smaller companies thrive with the flexibility to exploit the latest societal focus; some business moves abroad	• The profit motive dominates • The UK is globally successful, competitive and efficient: innovation is high and key to success • Economic volatility occurs in response to global economy • There is rapid turnover of organisations
Family structures	• It is a parental responsibility to ensure the well-being of children and future generations • Households are shrinking and becoming less complex	• There is a sense of generational responsibility – towards children and the elderly and extended family • New definitions of family and community evolve	• There is more vertical integration of family • The power and influence of the child grows	• There is a strong drive by parents to develop achieving children • There are high numbers of single households and dispersed families
The research environment	• Research is sponsored by wealthy individuals or corporate foundations • 'Blue sky' thinking is encouraged, with a focus on long-term research and 'big challenges' • Multidisciplinarity is encouraged	• The public sector is the main funder • Government is willing to fund long-term research, based on inconclusive evidence • Public support exists for long-term funding • Some gaps in the research portfolio exist where expensive long-term commitments squeeze funding • Multidisciplinarity is encouraged • Public sector research is restructured to reflect the above	• The amount of publicly funded research decreases • There is a focus on quickly meeting short-term needs. Successful solutions weaken pressure for systemic change. Research and the use of evidence is driven by a need to find consensus • Science is answerable to the collective: public consultation on science and research is essential • Expertise is devalued	• There is virtually no publicly funded research, but Government has a role in defining standards • Industrial research and development and links with universities are strengthened • Research is uncoordinated and not mutually reinforcing • Intellectual property rules are very strict • There is an expectation that science will deliver solutions • A great interest in new technologies and personalised gadgetry develops

Appendix 2: Building the scenarios
Methodology, change drivers, timelines

Building the scenarios

There were seven key stages in scenario development: identifying drivers of change, research, structuring the four scenarios, developing them, testing them, refining them and finally using them as a tool to test policy responses. The workflow is outlined graphically in Figure 3. All development took place during 2006.

Figure 3: Scenario development process workflow

Identifying Drivers of Change → Research → Scenario Structure → Scenario Development → Testing Scenarios → Scenario Enhancement → Policy Responses

Identifying drivers of change

The scenario-building process began with a two-day expert workshop attended by a cross-section of stakeholders from academia, Government and business. A critical output of this work was the identification of drivers of change that might impact on the development of obesity in the UK during the period 2010 to 2050. In a three-step process, the participants first identified the many issues that might shape the future, clustering these into 29 main drivers of change (Figure 4).

Figure 4: Drivers of change that might impact on the development of obesity in the UK during the period 2010 to 2050

Health		Science and technology	
1	Attitudes to obesity	**16**	Attitudes to science
2	UK health system	**17**	Science and technology breakthroughs
3	Value of health	**18**	Breakthroughs in the social sciences
Leadership		**Education and information**	
4	Trust in leadership	**19**	Access to information
5	Who's in charge?	**20**	How we learn
6	Balance of geo-power		
The shape of society		**Values and behaviour**	
7	Ageing	**21**	How we associate
8	Social diversity	**22**	Time horizons long-term versus short-term mindsets
Resource constraints		**The economy**	
9	Environmental crises	**23**	Changing economy distribution of income and employment patterns
10	Environmental limits to growth	**24**	Psychological impact of economic instability
11	Energy dislocation change from a carbon to a non-carbon economy	**25**	New business models profit may not be the maximiser of the future
Food production and retail		**Our living environment**	
12	The role of food including sustenance; health; social status; social interactions; parental role of food; emotional role of food	**26**	The built environment
13	Agricultural system	**27**	Mobility
14	Consumer choices	**28**	Future of the home
15	Changing shape of the food industry	**29**	Localism

Five drivers were then identified as having particular significance in terms of obesity:

i **Environmental impact**: pressure to reduce resource use so as to minimise the negative impacts of human activities on the environment

ii **How we associate and who's in charge**: increasing individualism and a reduction in trust of people in positions of responsibility

iii **The built environment**: developments in transport technology and the built environment that increase and/or reduce the need for physical activity

iv **New business models**: alternative models for measuring the success of a business and use of technology to allow customised service

v **The agricultural system and the changing shape of the food industry**.

Subsequent to the workshop, the project team clustered the 29 drivers into ten themes, which were explored in more detail for possible inclusion in scenario construction.

Scenario structure

The first project workshop concluded by developing some initial ideas for possible scenarios to be included in the next stage of selecting the scenario structure. Using the 29 key drivers identified as a foundation, and building on the ideas from the first workshop, the project team then developed eight potential structures. A wide range of scenario logics were considered, including normative, intuitive, thematic, timeline/path-dependent, classic matrix and wildcards, with a view to exploring which structure would prove most useful. After this analysis phase, two core uncertainties emerged as being of particular importance to obesity, the *nature of response* and *values*. The matrix framed by these axes (as shown in Figure 5) best encompassed all the key drivers for change.

Figure 5: The scenario axes
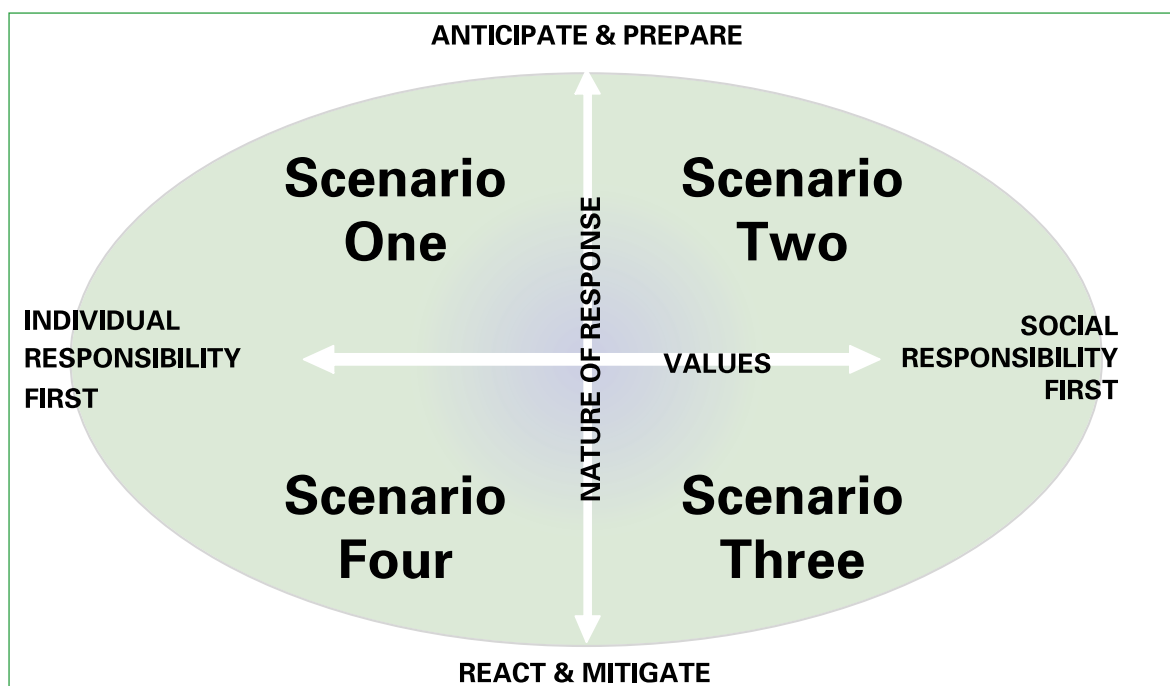
1 The **Values** axis shows behaviours that reflect a priority to self at one end and priority to the community and wider society at the other

2 The **Nature of response** axis shows future resource challenges – such as water, climate change, an ageing population and obesity – and describes the nature of society's response to such challenges. This is represented at one extreme by forethought and planning for long-term systemic change, best summarised by 'anticipate and prepare', and at the other by a reactive short-termist response focusing on managing the impact of such challenges, best summarised by 'react and mitigate'.

During the workshops, a number of additional considerations were highlighted that were taken into account in the final shaping of the scenarios:

- The dimensions of inequality and trust, in terms of both individual and societal behaviour, should be included.

- The attitude to and pursuit of health in each scenario should be identified.

- The scenarios should be able to be used to help explore the balance between the prevention and treatment of obesity.

- The scenarios should not rely on an external shock (for instance, pandemic flu or the collapse of the energy supply) but on the underlying change drivers already identified.

Scenario development

The project team then developed a set of four scenarios based on the selected structure, drawing on the designated drivers of change and the Foresight short science reviews.[11]

It is essential that scenarios are plausible. An exercise was undertaken by the project team in which early indicators of each scenario were sought within today's world. The four exercises, which 'look back' to today are included in the scenarios summaries.

Some drivers have a particular resonance within one scenario, becoming a dominating force for change. These were identified and are shown in Table 1.

Table 1: Drivers becoming a dominating force for change in particular scenarios

Scenario One	Scenario Two
Changes in the food sector Education, information and media	Economics and business The built environment
Scenario Three	**Scenario Four**
Attitudes to science and research Governance and distribution of power	Inequalities Attitudes to health

Change drivers: detailed analysis

Scenario One

New models of business for the food chain – a more globalised and concentrated food industry

Scenario One sees a further concentration of power within the food sector. In 2005, food and drink was the largest UK manufacturing sector, accounting for some 15% of manufacturing[16,17] and becoming far more integrated internationally.[18,19] In 2005, the UK produced only 60% of its own food, a reduction from the 73.8% of 1995.[16] In 2006, the UK was the third largest net importer of grocery products in the world.[20] Concentration at the retail level is already apparent, with 110 supermarket buying desks mediating between Europe's 3.2 million farmers and its 160 million consumers.[21] In the UK, the four largest supermarkets hold about 80% of the market, and two, Tesco and Walmart-owned Asda, are global companies. The food retailers are likely to continue to be the key players in the food sector, in the UK and, increasingly, globally. In Scenario One, it is industry that is likely to lead change. In Scenarios One and Four, Government supports the market and individually driven change, but does not actively lead. In contrast, in Scenarios Two and Three, Government plays a stronger role, intervening and incentivising the drive to change, and controlling and correcting business.

The consumer shapes the food chain

Since 1950, the share of the average household budget devoted to food eaten at home has fallen from 30% to 9%. For the highest earners, this figure is just 5%, for the lowest earners, it is close to a third.[22] Britons spend far less time preparing food, and now prefer convenience foods and eating out. They demand healthier fare: in a 2006 poll, over 80% in the UK thought it was important or very important to improve their health through diet.[23] Globally, 18 of the 24 fastest-growing food-retailing categories and 6 out of 7 categories growing at double-digit rate are related to consumer perceptions of health and wellness.[24] Organic farming is one of the few growth areas in retailing (30% growth in 2005). Nearly two-thirds of consumers consciously buy organic food, including more than half of those in the most disadvantaged social groups.[25] In the short-termist world of Scenario Four, supermarkets may decide to continue charging a premium for healthy foods rather than bring them into the mainstream, as might occur in Scenario One.[16,26] In Scenario One, we are likely to see an increase in the current trend of large firms buying up small producers of healthy foods.[27]

New holistic 'lifestyle and well-being' products

Health and lifestyle are likely to blur in Scenario One as the sectors offering food, insurance, healthcare products and information merge to offer 'whole lifestyle products'. In this future scenario, we can imagine that supermarkets such as Tesco, ASDA and Sainsbury's will have succeeded in attracting a substantial number of their customers to take up the health insurance plans, which some are already offering today.[28] In addition to insurance policies, consumers are likely be able to take advantage of supermarket lifestyle options offered by in-store advisers. These might range from automatic selection of products tailored to an individual's nutritional needs and, in worlds like those of Scenarios One and Four, 24-hour access to GPs, offering the ultimate in convenience and perfectly suited to a fast-paced world.[29] Many health insurers also prefer in-store clinics since patient visits and treatment costs are far less than those of traditionally located health services.[30] Supermarkets will offer the most complete supply of nutraceuticals – an industry that would grow exponentially in this future (in 2004, it represented $7 billion annually[31]). 'Functional foods' would probably be highly profitable; the majority of consumers will have changed their eating habits to ensure a healthy diet. Convenience and health are the two fundamental drivers of food in Scenario One. The majority of premium vending machines now offer probiotic foods and vitamin drinks in response to consumer demand. Consumers select brands to manage multiple aspects of their life. The choice of brand becomes highly significant and will be used as a means to reflect 'identity'.

Education, information and the media

Scenario One sees the individual increasingly able to access and use the flood of information now available. The 'informational advantages' of experts has dwindled.[32] Just as in the 18th century there was great competition in Britain between publications all calling themselves *The Annual Register*, so there are multiple competing Wikipedias. In this scenario, it is unthinkable to consult a doctor without prior online research. Doctors expect patients to give them a full briefing on their expectations and management choices. This is a step up from the extensive use of the internet by patients in the early part of the 21st century.[33]

This scenario also sees increasing numbers of consumers acquiring skills to interpret information. Personal responsibility for education is a trend, with origins at the start of the century. The prediction in the Leitch Report that 350,000 children would be educated at home by 2011 is overtaken long before this scenario starts and has reached 3.5 million and features much younger age groups. Increased private funding of universities (in part based on major endowment) has successfully kept Cambridge in the top ten universities of the world (though, by 2050, universities in Asia are strong competitors, and the actual location of education has broadened as brands have been extended worldwide. Universities are no longer dependent on the state, and there is fierce competition for the best

students.[34] The trend of globalised education is spreading to the education of younger children, where parents can choose to access the best education online from a combination of sources anywhere in the world. Employers are driving this change as much as individuals. They require a wide spectrum of skills. The observation in the Leitch Report that meeting the 'ambitious' government 2020 targets for reform will not satisfy employers or society is already apparent. The strong economy creates the wealth to fund the expansion of private initiatives. Education is seen as a route to success, but it creates divisions for those who do not or cannot access it.

The media revolution continues. People are making their own news reports, showing less trust in traditional networks[35] and use technology to report personally in a world of 'citizen journalism'. The 15,000 images of the 2006 Buncefield explosion sent in 13 minutes to the BBC is cited as a landmark in this trend, just as important as the event itself.[36] This is a world of co-creation of the media, multiple MySpaces.[37] The media business sees how urgent self-regulation has become and acts quickly to protect integrity, just as Reuters realised it had to react quickly to the doctoring of its photos in 2006 if it was to protect its trusted reputation.[38] In a world where trust is critical, the cost to reputation drives the rationale for self-regulation. The information revolution also accelerates reaction time: in this scenario, it would not take years for warnings to be issued about the prevalence of HIV among African-Americans. Society is no longer dependent on official warnings as news will already be circulating.

The role of Government in the regulation of education, information and the media is limited in Scenario One and in Scenario Four. In contrast, in Scenarios Two and Three, Government leads through regulation and providing access across society. The mix of public and private provision of education varies across the scenarios in line with the overall mix of public and private responsibilities. In all scenarios, people have more access to information as a result of the development of the e-world. The scenarios differs in how they use and regulate new media. The key to success is in learning to interpret information and use the new technologies that support interpretation.

Scenario Two

Economics and business models

Stresses in the economy are prime candidates for change and it is in Scenario Two where new economics comes to the fore, with much stronger attention paid to 'externalities' – all the environmental and social costs that hitherto haven't been accounted for in simple financial accounts. High levels of consumer debt and personal bankruptcies will reinforce a drive towards this particular future – pensions may be a particularly important factor, with individuals forced to think in the long term and change their behaviour today. There is a realisation that the past

freedom to spend has a serious downside. In addition, the Anglo-Saxon reliance on the market model is discredited when some high-profile privatised firms fail. Globalisation is already a major challenge for the future of the UK economy: pressure on energy and other resources and the need for higher skills are listed by the Government as two of the six economic dimensions that might cause difficulties, and both are key features of Scenario Two. The UK has become an energy importer and this generates anxiety over security of energy supplies, especially in this scenario. Economies with outdated models cannot compete in a globalised world.

The economic 'model' is also being shaped by the concept of 'fairness', a core HM Treasury aim back in 2005, and supported by the rising consciousness of the UK's relative richness compared to the mass of global poverty. Strong demand for Fairtrade products is one small sign of this developing trend, as is Amex's new Red Credit Card. Externalities become more apparent from the debates over the true costs of the current economic model: should excessive use of fossil fuels be supported by the rise in cheap flights? Should goods that can be produced locally be imported from abroad even if that benefits developing economies? 'Externalities' may sound like economics jargon but it is increasingly understood in a practical sense; pricing them into the model is the way economics responds to this social call. This is mirrored in the world of business by the drive of corporate social responsibility, with companies looking to adopt a real triple bottom line. It is these social dimensions of economics and business that may hold the biggest seeds of change in the next 40 years. Consumer groups, for instance, have rising influence, and the market for ethical and environmental consumer investments is growing (for example, ethical consumerism in the UK increased by £3.5 billion in 2004, to reach a total of £24.7 billion.[39] In Scenario Two, companies that do not keep pace with this shift in mindset and do not overtly invest in ecological or sustainable developments are left stranded (or leave the country) – punished by fines, taxes and consumer opprobrium. Where corporate social responsibility requires economies of scale and scope to be successful, this may be an advantage for larger companies. However, some businesses do leave the UK for more free-market climes but their options are more constrained as global changes to the business model (driven by global challenges) see the new economics adopted and enforced internationally (almost as fervently as the wave of privatisation that swept the world in the late 20th century). The World Trade Organisation becomes a watchdog.

A closer examination of how people make decisions will also influence this scenario. By drawing on the field of psychology, pioneering behavioural economists – such as Nobel Prize-winner Daniel Kahnemann and his collaborator, Andrei Tversky – have undermined the assumption of the rational utility-maximising economic actor that underpins neo-classical theory. In short, people do not always behave in a rational self-interested manner e.g. they may avoid slight risks but choose to take large gambles, or people may overly disregard the

importance of future events. This undermines a market-driven approach to policy and, with the focus on the long term and society as a whole, such insights would be likely to be prevalent in Scenario Two and influence policy making.

In Scenario Two, new economic business models are driven by: (a) the need to think very differently in order to address long-term challenges (e.g. pensions in an ageing society and depleting resources), where the old economic models fail, and to devise a more sustainable model; (b) market failures; and (c) the switch to more community-based solutions to support the individual as well as to regulate. The economy will suffer at times when new opportunities are missed, but long-term plans show benefits.

The built environment

A key part of modern life is how children and adults interact with the built environment – which encompasses everything from people's living spaces and transportation systems to schools and restaurants. In 2005, the Government's chief architectural adviser suggested that Britain's buildings and public spaces were encouraging obesity and public health problems and demanded that new developments be designed to improve the nation's fitness.[40] Although the impact of lifestyle and the built environment on health is not well understood,[41] its importance as part of a person's 'therapeutic environment'[42] is central to the thinking in Scenario Two.

In this scenario, the link between well-being and the wider environment is strengthened in a society that tends to look outwards, beyond the immediate and personal sphere, in a more holistic way. This is likely to lead to greater community involvement in the design and planning of building projects, as well as changes in attitudes. A typical example might be that the 'walkability' of a neighbourhood would become a selling point because of its clear health benefits (although the focus at the beginning of the scenario might view walkability as a means of reducing reliance on oil). Similarly, in new commercial and public buildings, staircases would take prominence in design terms over lifts or escalators, and investment in green space would be increased, reversing the trend of previous years. The sustainability agenda would be uppermost in people's minds and would be reinforced, accelerated and prioritised in Scenario Two by the drive at the local level for sustainable communities. Nationally, the focus would be on implementing significant change, with overhaul of both urban and rural planning, rather than incremental adjustments (such as introducing water recycling systems rather than imposing hose-pipe bans). Planning regulations would take account of wider issues as part of the standard approach (e.g. health impact assessment, environmental impacts, social impact assessment). Supermarkets would be required to locate new branches in low-income neighbourhoods and to offer support for community gardens to regenerate local neighbourhoods. With awareness of climate change, Government would strictly ban building on flood

plains. Regulations for development would be one aspect of a wider view that regulation, even if incompletely enforced, sends clear messages about what is acceptable, thereby encouraging wider change.

Such significant changes in infrastructure require time, especially with initiatives likely to see uneven implementation across the UK. Finance and investment would also be an issue, such that Government, and potentially business too, would have to consider additional debt in order to deliver longer-term gains. It is therefore the long-term view prevalent in this scenario that is essential to maintaining its momentum, plus the willingness of the individual and the state to bear the cost and inconvenience of such systemic change, in view of its potential future benefits. Differences in societal attitudes to the long-term view would lead to different built environments in the other scenarios – with the shorter-term futures (Scenarios Three and Four) restricting the scale of change that can be generated.

Scenario Three

Attitudes to science

Attitudes to science are shaped by three main factors: the public attitude to science, the social context and the scientific context.

First, public attitudes deeply influence the scope of scientific activity and the acceptance of technology. In Scenario Three, a sea-change occurs. Although 70% of Britons still trust scientists, the authority of science and its attendant influence and freedom to operate face challenges which the scientific community seems ill prepared to address.[43] People feel science is remote and expect scientists to 'listen more to what ordinary people think'.[43] Trust is issue-specific. While being generally supportive of scientists advancing medical or information technology, public concerns and minority scientific opinion have overwhelmed the views of mainstream researchers in areas like GM foods and cloning.[44]

Second, the social context also influences researchers' own interests. For example, societal challenges that are amenable to a short-term technological solution frequently provide a focus for research, whether commercial or academic. Big science finds it hard to get funding unless there is a strong incentive (as the US space programme provided) and society also recognises and accepts that some may fail spectacularly (as seen in Japan's Fifth-Generation computer project).

Third, scientific and technological advances occur in a scientific context. Throughout the scenario time period, the promise or otherwise of areas such as nanotechnology, biotechnology, neuroscience, material science and information technology can take science and society in multiple directions. The society of Scenario Three is one that rewards immediate results, for instance, new materials that can be seen and touched, and those who can provide quick solutions that

avoid circuitous debates. This approach further attenuates demand for longer-term solutions and lessens pressures for systemic change. Those seeking funding for 'blue sky' research are unlikely to receive it.

In Scenarios One and Two, long-term research is highly valued and promoted, as is the drive for sustainable solutions. Grand challenges and projects with a clear long-term payoff are funded and their potential failure accepted. In Scenarios Three and Four, however, research is focused on what is most likely to deliver short-term results. The corporate agenda and personalisation are major drivers in both Scenarios One and Four (especially Four).

Governance and distribution of power

Scenario Three witnesses a changing balance of power between four broad 'camps' with their own subdivisions: consumers and NGOs, business, government (national to local) and global government.

Critical to these changes, especially with respect to how people feel, is a transformation in the power of the consumer through the groups and communities to which they are affiliated and the extent to which the latter trust other groups and sectors with power. Since the 1990s, more than 100,000 new citizen's groups have been established around the world. Even in China the number of social protests, orchestrated by such groups, increased six-fold between 1993 and 2003.[45] At the same time, trust in business has been seriously damaged by scandals such as that of ENRON, which had greater significance because of the way ENRON had previously been hailed for its corporate responsibility programme. The continuing influence of the internet empowers groups to organise and connect, locally and globally. Social networking sites such as YouTube and MySpace[46–48] form the vanguard of 'people power' and are accorded even greater endorsement by their value at initial public offering – one way that markets give value to such new phenomena. Governments endorse these new powerbases by creating their own online communication spaces, such as the UK's eDemocracy home page.[49] And it is the NGOs that consumers trust more than governments, global companies or even the United Nations.[50]

In Scenario Three, this consumer and NGO power is a driver of multiple debates, where citizens aim to create change from the bottom up rather than just relying on other businesses or authorities. Also in Scenario Three, communities play a strong role in these debates, there not necessarily being one solution to suit the whole nation. Debates are open but still have to respect relevant codes of conduct and regulations. The ideal of complete free speech on the internet is, as Lawrence Lessig has commented, at best naive.[51–53] The original net code will slowly be disabled by regulation and also by the need to develop appropriate business models, as seen in the Napster story. Open debate also has to be secure – people require privacy, and information needs to be held in confidence. Scenario Three in

part uses communities to monitor their own codes, using cultural understandings to tailor what can or cannot be said. In multicultural Britain, such debates can threaten to be explosive, as seen in the 2006 veil debate.

The interplay between these governing actors also drives, in Scenario Three, the shaping of the public/private mix of the economy. In all scenarios, public services are likely to have to deal with the challenge to become more 'customer friendly'.

A global driver for Scenario Three is the ongoing debate on governance structures without revolutionary reform. The EU remains a community of nations, with subregional and other communities interacting. The UK is well placed to work within this multiplicity of approaches, the concept of uniformity across the EU having died in the first decade of this scenario after the failed constitution and the increased diversity brought about by further widening to the east. Global governance still works through the overarching institutional structure of the UN, alongside other groups. The failed Doha trade round marks the time when the world recognised that power had shifted, when rich countries could no longer dictate or finesse developing country opposition through negotiation. The global debates now engage all four camps: consumers and NGOs, business, government (national to local) and global government.

The market is more powerful in Scenarios One and Four, with Government in a 'light touch' supporting role. Consumers are powerful in different ways; through the market in One, through their own actions in Four, and via communities in Two and Three. Communities are powerful and effective in Scenario Two, like Scenario Three, with a somewhat stronger role also for central government in Scenario Three. Globally, Scenario Two sees a revival of multilateral institutions in the drive to engineer real change.

Scenario Four

Inequalities

Since 2000, disposable income has increased by 20% in the UK. Yet social mobility is remarkably low compared to other developed countries. Researchers at the London School of Economics rank Norway top but the UK and the USA bottom in terms of social mobility in a league table of eight industrialised countries (Norway, Denmark, Sweden, Finland, Germany, Canada, UK, USA). Children born to poor families in Britain are less likely to fulfil their potential than in other developed countries. In fact, according to Richard Wilkinson,[12,54] a level of development has been reached beyond which further rises in absolute living standards no longer reduce social problems or add to well-being – rather, the opposite. The effects of relative, not absolute, deprivation and poverty are now being felt. Statistical analysis reveals that in societies where income differences between the rich and poor are small, not only is community life stronger and people much more likely to trust each other, but there is also less violence, health

is better, life expectancy longer, prison populations are smaller, birth rates among teenagers are lower, levels of educational attainment among school children tend to be higher, and there is more social mobility. In all cases, where income differences are narrower, outcomes are better.[12] This data suggests that when the opposite occurs, as in Scenario Four, and inequalities widen, the impacts on society will be widespread and more negative. Interestingly, it is the people in the lower socioeconomic groups (C2, D and E) who are more likely to opt for a greater individualistic stance than more affluent citizens would, thus leading to a self-reinforcing cycle of individualism and inequality in this scenario.[55] In Scenarios Two and Three, with likely reductions in the socioeconomic divides, there is more likely to be a virtuous cycle between community-mindedness and future reductions in income inequality. The 'vicious' cycle of greater individualism and growing inequalities in Scenarios One and Four may also generate a greater vulnerability to 'social-evaluation anxieties' (threats to self-esteem or social status). This is particularly likely in a society where life challenges are being faced alone, and Scenario Four would see a rise in individuals living alone, along with a decline in marriage, with almost 40% not expected to marry by 2021.[56] Some commentators suggest that social anxieties drive the consumption cycle and that purchases are a source of comfort (similar to 'comfort eating') that provide a sense of well-being not gained from society.[12]

While average economic well-being may be greater in the more market-orientated Scenarios One and Four, the effects of relative-income differences on individual well-being would be likely to generate extreme differences in these scenarios. In Scenarios Two and Three, with less-prominent divides, the economic bar may be lower overall but standardised to a greater effect across society. Therefore without reductions in inequality, the functioning of the market is likely to be skewed and dysfunctional. The question for Scenario Four is: would this create unsustainable instability?

The family structures will also vary across the scenarios, with differing attitudes to co-location and generation differences.[56,57]

Attitudes to health

The degree of government involvement in healthcare provision depends on society's values and ethics. Therefore, in Scenario Four, healthcare is likely to be largely privatised with 'those most at risk' being the primary focus of limited public services. So there is even greater pressure to take personal responsibility for health, and many subscribe to costly insurance programmes. People turn to self-medication and alternative treatments to cope with the stresses of everyday life and the pressure to attain 'perfection' in an environment of great competitiveness. Mental health problems increase and become a burgeoning investment priority in this scenario. Mental health issues become normalised to an extent (much as Attention Deficit Hyperactivity Disorder is in 2007), with the majority of individuals

taking some form of medication to treat an array of symptoms from anxiety to insomnia.

Responsibility for health is already developing in 2007. People are used to filtering medical information and searching for their own diagnoses and treatment options (typing 'medical information' into Google yields 1,280,000,000 results). The abundance of information in Scenario Four combined with individualism brings a risk that public health messages will be rejected. Signs of this are apparent today, for example, the MMR debate and people's refusal to let their children be vaccinated on the basis of a later-to-be-discredited scientific study and the subsequent plea by doctors for parents to participate again in the MMR programme.[58] In addition to being weary of public health advice, patients look to increasingly mechanised methods of delivering healthcare, without the pre-counselling and decision making usually dispensed by a physician, possibly through perceived lack of time. In a 2006 study in the *Journal of General Internal Medicine*, researchers found that if asked to administer a vaccine with some risk, people would act quite differently depending on whether they were the physician, the patient or a family member. The knowledge that humans, doctors included, can't be 100% objective in their advice leads people to pay large fees for a consultation they feel can be trusted or to opt for a decision made on the basis of a complicated statistical risk analysis run by a computer. However, in Scenario Four, there will also be those who will pay to have a necessary decision made for them or may follow a particular fashion, celebrity or other peer endorsement.

By the end of the period in Scenario Four, the demand for healthcare by the 'have nots' is getting too great for the state to manage alone. The growing numbers of immigrants; the burgeoning older population needing palliative care; the numbers suffering from 'modern' illnesses such as addictions, multiple chemical sensitivities and claimed immune disorders is multiplying. There is simply not the money to provide welfare for everyone. The inequalities between socioeconomic groups that were on the rise at the beginning of the 21st century continue to grow, consequently further worsening health. These disparities go unchecked while those who can afford the latest treatments and diagnostic services are healthier than ever. The attitudes to health inequality would be quite different in the more socially minded worlds of Scenarios Two and Three.

Testing the scenarios

First, scenario drafts were tested and enhanced at a workshop attended by stakeholders from academia, Government, business and consumer groups. The workshop focused on the flow and consistency of the scenarios, and on identifying and filling any gaps in relation to the actors and stakeholders. Participants also began an exercise in which possible policy responses to obesity were explored within each scenario context.

A second workshop of further refinement followed, at which participants were also asked to consider how obesity levels might change in each scenario, assuming there was no further government intervention (the baseline obesity level). There was general agreement that levels would continue to rise in all four scenarios but that there would be a difference in the rate of increase from one scenario to another. Participants were therefore asked to qualitatively score the degree by which the increasing obesity trajectory would improve or worsen, providing separate scores in three specific areas:

• overall population levels of obesity

• socioeconomic differences in obesity levels

• levels of childhood obesity.

A simple numerical ranking system was adopted, as shown in Figure 6.

Figure 6: Numerical ranking system to indicate changes in obesity trajectory
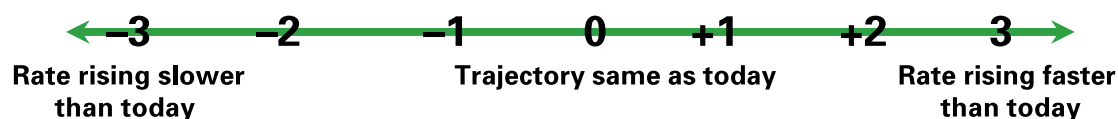
The results obtained are given in Figure 7.

Figure 7: Qualitative assessment of how the trajectory of obesity trends changes in the four scenarios relative to today (i.e. assessment in terms of overall population obesity, childhood obesity and socioeconomic differences)

A number of policy responses to obesity across the scenario futures were identified to add to the ideas generated in the previous workshop. Further details of the qualitative analysis of responses to the obesity challenge can be found in the Foresight Tackling Obesities project qualitative modelling report.[59]

Enhancement

The project team then extrapolated from the summary positions identified for each scenario, developing futures for each, over three decades, 2010–2020, 2021–2035 and 2036–2050. These futures are included at the end of this document. Key concerns were consistency within the development of each and that the plausibility established by the 'looking back to 2007' exercise was maintained.

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