The Future and How To Think About It

The first part of this paper explores six key drivers of change which will impact on government over the next decades:

- Demographics
- Science and technology
- Environment
- Attitudes and values
- Economic globalisation
- Political institutions

All these drivers are interrelated and, as discussed below, none is completely outside the control of the government. But to some extent all can be seen as exogenous forces that will impose certain constraints on the future choices open to us. This paper looks briefly at each of these drivers and highlights some of the key trends. The second part of the paper draws together themes from all of the drivers, identifies key certainties and uncertainties and considers what conclusions we can draw for how government thinks about the future.
Demography

More people

World population is almost certain to continue to grow rapidly over the next decades. 90 million people are currently added to the world’s population every year. The UN median projection is that by 2050 the earth will be supporting 8.9 billion people as opposed to 6 billion today. However, rates of growth may start to decline within a few decades. Dramatic falls in fertility have already led the UN to adjust its population projections downwards twice in the past three years. The low projection is that population could peak at 7.7 billion in 2040 and then go into long term decline.

World population growth and projections
Source (both diagrams): United Nations, quoted in McRae, H, *The World in 2020*

**Population shift**

All the expected world growth will occur in what is now the developing world. By 2020 only one fifth of the world’s population will live in the current developed world, as compared with one third in 1950 and around a quarter today. The UK population is expected to be relatively stable over the next decades, peaking at 61 million in 2023 and then starting to fall. Many EU countries will face declining populations even sooner.

Source: United Nations, *World population projections*
Ageing

The world’s population is getting older. Already 14% of people in the developed world, 16% in the UK and 21% in the EU are over 65. By 2050 the proportion of over 65s in the EU is projected to have risen to around 34%. The proportion of over 80s is expected to grow even faster. By 2050 10% of the EU population is projected to be over 80, compared with 4% now. But the age structure of the UK will shift less rapidly. By 2020 the UK will be the second youngest of the G7 countries after the US.
Science and technology

"Science may be the engine of social, economic, military, industrial and intellectual change but the scientist is not in the driving seat" *The World in 1984*

"We can invent just about anything these days but we need to remember that people will turn what's invented into what's wanted" *Workshop participant MIT*

Three caveats before looking at changes in science and technology:

- There is a lot of science, invention and innovation (for example, the Engineering and Physical Science Research Council has research topics covering artificial intelligence, building design, electrochemistry, neural computing, radio communications, and many more). It would be impossible to list every new invention, and it is very difficult to say what will and won’t work, and what will and won’t have a real impact;
- How science and technologies are *used* is what really matters;
- Changes in the use of *existing* technologies - often sparked by incremental or presentational improvements, or by changes in access to technology - can be as crucial as the invention of new ones. For example, Global Positioning System (GPS) technology has been around for a while; but only with the end of the Cold War was the Western defence establishment willing to relinquish control, hence prompting firms to develop commercial technology. More futuristically, a whole host of long-predicted devices – from viable electric cars to directed energy weapons – will be made possible, and could be introduced very quickly, when and only when progress is made on a very old technology, the battery.

The discussion that follows therefore concentrates on areas - particularly information and communications technology (ICT) - where major scientific and technological advances are already taking place, where significant future advances seem highly probable and where people’s choices in how they use new technologies will be extremely important.
The Human Genome Project expects to have identified all the genes in human DNA within the next 2 - 4 years. In parallel, there is a great deal of ongoing research aimed at understanding the function of specific genes in humans, animals and plants - a much more complex and challenging process than the basic mapping of the genome.

Much of the interest in genetic research focuses on its implications for human health and healthcare systems. Potential applications include treatment of single-gene disorders; the development of new drugs; and a much better understanding of who is susceptible to which diseases. Opinions on how quickly research on gene function will deliver benefits, and on how widespread they will be, vary widely: uncertainties include technological issues (the development of effective technologies to deliver new genetic material to target cells), science (improving our understanding of how genes and the environment interact), and ethical issues (public attitudes to genetic modification, spectre of eugenics, etc). But it is at least possible that over the next 10 - 20 years we may know enough about the human genome to move from a medical system based on "diagnose and cure" to one based on "predict and prevent". This would have significant implications both for society at large and for the structure of the NHS.
Advances in genetics also have potentially significant consequences for agriculture. Pest, pesticide and disease resistant crops, nutritionally improved crops and disease resistant farm animals are all being developed; and the use of plants as "factories" for drugs could make new plant crops commercially viable. But, as is already clear, whether these technologies become widespread will depend in large part on public attitudes, driven by concerns about both health and environmental risks.

Information and Communications Technology

"Moore's Law", which predicts that computer processing capacity will double every eighteen months, has held up since the 70s and shows no sign of weakening yet. Projections now being made suggest that this rate of change will continue at least through to 2015. When silicon technology does finally reach its limit, radical new approaches such as DNA computing and/or quantum computing could provide still more powerful problem-solving capacities.

Alongside this, wide-scale adoption of the Internet Protocol has allowed different electronic systems to exchange information in a standard way, enabling quick and cheap communication. Within 5 to 10 years it is almost inevitable that the domestic customer will have access to an "always-on" internet connection 10 to 20 times faster than the best computer modem available today. An estimated 5 million homes in the UK will have access to the internet by next year. Digital television is forecast to be in use in 15 million subscriber homes by 2005. Within 3 years up to 50% of Internet access could be from non-PC devices.

Developments in wireless networking are set to bring about further significant changes. Coupled with increasing computer performance (and diminishing size and cost) it is possible to envisage a host of intercommunicating devices embedded within household appliances and consumer goods, cars, machine tools and even clothes. This "pervasive computing" is already firmly on the agenda of major IT companies.
The growth in communications capacity coupled with advances in computing power and the development of "soft computing" (systems which can tolerate uncertainty and missing information) opens up the possibility of computers that can speak, listen and understand.

Technological progress means that relatively modest interventions – continuation of the current pressures for cheaper internet access – should ensure that most people will have reasonably high-quality internet access, if they want it. So few people will be "information poor" in principle. However, access, especially for people in relatively socially deprived or isolated groups, does not necessarily translate to use. People also need the skills and incentives to use ICT. There may be a role for government here beyond simply ensuring access to hardware.

**New applications and combinations of technologies**

Some of the most important impacts are likely to be in areas where combinations of technologies are being applied to new areas.

Two examples of this. First, developments in information technology and in genetics/bioinformatics are leading to an explosion in the volume of information that is potentially available to, and on, individuals. How this information is managed and used – through data mining, intelligent software agents and knowledge representation and management – will be key.

Second, in health, developments in remote diagnostic equipment, the portability of equipment and communications technology are combining to create a potentially dramatic increase in the provision of home-based care and services. This could have significant implications not only for the structure of the hospital system (combined also with advances in low-impact/minimal access surgery reducing hospital stays), but also on family and community structures if people are cared for at home.
Global environment

A warmer world

The scientific consensus is clear that global warming is already happening. The UN Intergovernmental Panel on Climate Change predicts that if emissions of greenhouse gases continue at anything like current rates global temperatures will rise by between 1°C and 3.5°C by 2100. This may sound small but the difference in temperature between now and the last ice age is only 5°C.

Warming may well not be linear because the climate is such a complex system – the current gradual rate of change could shift suddenly into a much faster rate or could even decline for a while. Given these uncertainties it is hard to predict what the consequences of warming will be. But there is widespread consensus among scientists that they will include: rising sea levels; changes in ocean current; an increase in extreme weather conditions; and changes in the crops and wildlife best suited to particular regions.

The UK is projected to be significantly warmer by 2050, with the South of England having a climate similar to that of the South of France today. At the same time there could be an increase in the frequency of extreme weather events with 30% more gales in Wales and Southern England, increased rain and flooding in the northwest and Scotland, and more frequent droughts in the southeast.

Adequate resources

The projections are that, despite rapid population growth, there will not be significant resource shortages in the coming decades. But pressure on both fresh water and agricultural land will grow, particularly in Africa and the Middle East.

Reserves of fossil fuels are not expected to be exhausted until beyond 2050. But they will be increasingly geographically concentrated. OECD and Asian countries are expected to rely increasingly on gas from Russia, Iran and Algeria and on oil from the Middle East. Reserves of both oil and gas in Central Asia could also be important. The UK is expected to become a net importer of gas between 2003 and 2009 and to be importing between 55% and 90% of supplies by 2020.

Worsening pollution in some countries

Levels of air and water pollution are linked to levels of economic development. Both types of pollution are now decreasing in the UK and in most OECD countries as a result of regulatory action. But they are still increasing in much of the developing
world. The World Bank estimates that air and water pollution are responsible for tens of thousands of deaths, millions of cases of illness and billions of pounds of lost productivity every year. Population growth and urbanisation mean that the situation is expected to get worse before it gets better.

Even developed countries are only just beginning to tackle chemical pollution. An estimated 75,000 chemicals are in commercial use today, most of them relatively new, and their potential long-term effects on both human health and the wider environment are only poorly understood. For example, only an estimated 3% of chemicals in commercial use have been tested for carcinogenicity. Even where they have, it is usually the impact of one-off large doses that has been considered, not low-level everyday exposure.
Attitudes and values

UK society and social values have changed significantly in recent decades. Since World War II, political stability, economic prosperity, mass consumerism, increased education and the welfare state have led to a shift towards so-called postmodern values. Modern values are the product of industrialisation. They include: wealth accumulation as the primary goal; respect for legal/rational authority; emphasis on the family and social obligations; allegiance to large institutions such as governments, big companies, trade unions and churches. Postmodern values have gained ground in affluent societies since 1945. They include emphasis on quality of life not just wealth, belief in individual self-expression and creativity and belief in individual value systems rather than ideologies.

How social values develop in the future will of course depend on economic and political developments. But looking only two decades forward we can be reasonably certain about some broad trends.

Increased social freedom

The history of the last decades has been a story of increasing social freedom. Traditional societies "box" people into categories, with the edges of the boxes set by education, income, gender, social class etc. Each box is associated with certain values and behaviours. In industrialised societies these boxes have grown steadily less rigid and more complex. We are now all much freer to choose which categories we want to belong to and which values to live by. This freedom can be expected to grow in the coming years as generations with more traditional attitudes die off, and as increasing affluence and education give more and more people the means to question established norms.
End of deference

Along with increasing social freedom has come a decrease in deference towards institutions of all kinds. People no longer automatically accept that government, science or even the law should guide their behaviour. They are more inclined to look to their own instincts or experience - one survey found that 68% of under 35 year olds believed that conscience is more important than the law. Symptomatic of this decline in deference has been a decline of trust in government:

<table>
<thead>
<tr>
<th>How much do you trust British governments of any party to place the needs of the nation above the interests of their own political party?</th>
<th>1974</th>
<th>1991</th>
<th>1996</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Just about always” or “most of the time”</td>
<td>39%</td>
<td>33%</td>
<td>22%</td>
</tr>
<tr>
<td>“Only some of the time” or “almost never”</td>
<td>57%</td>
<td>63%</td>
<td>75%</td>
</tr>
</tbody>
</table>

Source: British Social Attitudes Survey, 1997/98

Individualised values

One of the effects of the "unboxing" described above is that people’s values are harder to define. Rather than seeing themselves as left or right wing, traditionalist or progressive, people define their position on particular issues. So someone who is a concerned environmentalist may nevertheless be a social libertarian and work for a multinational. This fragmentation of values helps explain the declining membership of political parties - in 1960 the total membership of the three main parties was over 3.8 million. In 1997 it was less than 1 million. Instead of joining political parties people increasingly prefer to join NGOs – some environmental NGOs have more members than any of the political parties.

Continued expectations of the state

Despite the decline of trust in government, most people in Britain still have relatively high expectations of the state. In 1996, the International Social Survey Programme found that 73% of Britons favoured more spending on social services, higher than for any other nation. By contrast, only 49% elected for higher spending in Australia and Canada. Across the board, in areas such as education, health care, the elderly, unemployment and industry, Britons favoured a greater role for government than non-Europeans (the USA, Canada, New Zealand and Australia) although a somewhat lesser role than most other Europeans. At the same time, there is also a belief in the need for personal responsibility, as evidenced for example in the increase in the view that unemployment benefits should be strictly conditional on seeking work.

Communities based on choice

Increased social freedom means increased freedom to choose which communities to belong to. Increasingly people in the UK see themselves as part of communities of like-minded friends of their own age (who may be geographically dispersed) rather than part of more traditional communities based on where they live or on the extended family.
Choice about communities includes choice about who to live with. Increasing numbers of people in the UK are choosing to live on their own or with friends. The number of one-person households in the UK has increased from around 3.3 million in 1971 to around 5.8 million today. Over the same period the total number of households has increased from 15.9 million to 20.2 million. This growth is projected to continue, with the number of one-person households projected to rise to 8.5 million (or around 15% of the population) by 2021 and the total number of households to 24 million.

It is not clear that this increased choice means that communities are weakening. Robert Puttnam has argued that civic engagement in the US is declining because given the choice people would rather spend their time pursuing individual activities such as watching TV. Many commentators decry the fact that children now spend their time playing computer games rather than interacting socially and that membership of community organisations is declining. But one study has found that even children who spend a lot of time playing computer games would rather be out playing with their friends if given the choice. And another found that people get more pleasure out of volunteering than any other leisure activity.

**Increased international awareness**

In parallel with the increase in economic flows between countries the last decades have also seen a huge increase in inter-cultural contacts of all kinds. The foreign born, immigrants and ethnic minorities make up a substantially larger proportion of the population in Europe and the US than they did immediately after 1945 (although rather less than they did in the US at the turn of the century). Holidaying abroad has gone from a luxury available to a small proportion of the population to a more or less universal pursuit in less than a generation. Studying and working abroad are becoming increasingly commonplace. Many more of us work for foreign-owned companies. Events around the world are relayed to us in real time on TV. As a result people in developed countries are much more knowledgeable about foreign countries than ever before and increasingly likely to feel that events abroad are of direct concern to us.

**National identity**

The other side of this increasing internationalism has been a general decline in feelings of national identity. The British Social Attitudes Survey has found the highest levels of national pride amongst older generations and the least educated. This may reflect the fact that major war is an increasingly unlikely prospect, and many more people feel part of an international economy or society. There are obviously positive aspects to this, as more internationalist attitudes are likely to accompany a reduction in racism and xenophobia. But it also raises questions and challenges. In the UK, values and institutions - like the NHS - are a source both of national pride and of a unifying national identity; the task for government will be to continue to develop and modernise that identity.
**Generation gap?**

Almost all the observed shift in values since the Second World War can be explained by generational change. There has been only a small shift in values within age cohorts.

Data on British young people’s attitudes suggests that their views are not radically different from those of older generations. On most issues their views are similar to those of their older brothers and sisters: only slightly more tolerant of differences, more suspicious of government and generally more postmodern. For example:

- Most young people in Britain do not expect much from government nor do they want it to be involved in their lives;

- As a result, almost three-quarters of young people believe that voting will have no impact on their lives and are uninterested in politics. They have comparatively little respect for the law and even less for government officials – one survey found only 1% interested in a career in the civil service;

- In contrast many young people express an interest in individual political issues such as animal rights. A third of 15-21 year-olds claim to have been involved in protests on animal rights, and over a quarter sympathise with such protests even if they risk causing damage to buildings or other property;

- Young people want work that is both interesting and highly remunerated. Rather than having a job for life, almost half aspire to owning their own business.
Economic globalisation

Some common themes emerge in most discussions of likely economic trends over the next decades.

Further growth in world trade and capital flows...

Since 1975 trade flows as a proportion of world GDP have risen from a little over 20 percent to just under 30 percent. But more dramatic than the increase in trade in goods and services has been the increase in private sector capital flows. World gross private flows have more than doubled since 1975, from about 5 percent of GDP to nearly 13 percent. And related to – but distinct from – the increase in capital flows has been the increase in the size of capital markets. For example, turnover on world foreign exchange markets has now reached $1.5 trillion a day, equating to more than 15 times gross world product.

Comparisons have been drawn between the current era of globalisation and that of the period leading up to World War I. It is true that net capital flows in that period were comparable to those today. However, two important differences should be noted. First, gross capital flows and capital market turnover today far exceed those seen at the end of the 19th century. Second, immigration was hugely greater in the previous period, with one in seven of the world’s population emigrating in the half-century before 1914.

All the main international economic institutions (IMF, World Bank, OECD and WTO) project that current trends are likely to continue, with developing countries expanding their share of world output, trade representing a greater share of world output, and a continued rapid expansion of capital markets and capital flows.

…driven by reduced transaction costs

The increase in global economic flows (as well as the cultural flows described above) has been driven by dramatic falls in transactions costs. Further falls are likely as a result of:

- **Continued trade liberalisation.** Successive rounds of global trade negotiations have led to substantial reductions in tariff and non-tariff barriers. The focus of international trade negotiations has now shifted to other forms of trade barrier (product standards, health and safety regulations etc) and if these are reduced significantly in the coming years, world trade could be further boosted;

- **Falling price of telecommunications.** In the postwar period, the real price of telephone services has fallen by about 2 percent per year on average and this trend looks set to continue until costs are close to zero;

- **Falling transport costs.** Increased efficiency and deregulation has reduced the cost of transporting both goods and people;

- **Global standardisation.** Common standards in areas as diverse as language (where English now dominates business), software operating systems and mobile phones will facilitate global communication, business and trade;
• **EMU.** The introduction of the euro means a one-off reduction in the cost of cross-border transactions within Euroland – eliminating both conversion costs and the need to hedge against currency fluctuations.

**Competition or monopoly?**

There are two competing hypotheses about the effects of globalisation and technological change on industrial structure and competition:

• Globalisation reduces transaction costs, hence intensifying international and domestic competition. The effect of technology is to reduce barriers to entry and the information asymmetries that create imperfect markets. So *competition will increase in speed and vigour.* The result will be lower profits and speedier entry and exit of firms. An example of this type of effect is online booksellers, which have clearly lowered prices and increased competition; but have yet to make any profits;

• In a world where physical production and transportation costs are falling steadily, non-tangible, knowledge or information-based goods will be increasingly economically important. Just as manufacturing replaced agriculture, software, creative goods and financial services will replace manufacturing. But the economic significance is that such goods have zero or declining marginal costs of production and distribution - the cost of producing software or (electronically distributed) media is fixed, with the production and distribution of extra copies costing close to zero. *Such goods are thus natural monopolies.* Moreover, in particularly economically and socially important cases, monopolies in such goods may be subject to technological lock-in, produced by network externalities and/or consumer inertia. Windows is of course the most obvious example.

**Dispersed or concentrated firms?**

There are similar competing hypotheses about what firm and industrial structures will look like:

• Globalisation means *location and firm structure become increasingly irrelevant.* More and more "knowledge workers", at least, will become self-employed and/or short-term contractors or members of short-term project teams. Since remote working will be easy, they will choose to live in relatively pleasant and uncrowded places. Cities will shrink and market forces will reduce congestion problems, although there will be problems both with the socially and economically depressed cities that remain, and with increasing pressure on environmentally attractive areas.

• The importance of knowledge-based industry means that people and firms will require more, rather than less, proximity, to generate creativity and to ensure a properly functioning labour market. The result will be the *growth of industry clusters,* where firms and individuals congregate to take advantage of the externalities of proximity – shared ideas, temporary cooperation and competition, and the creation of social networks. While such clusters may sometimes start in relatively undeveloped areas, they will very quickly run into the same traditional congestion problems that successful cities face.
**Increased inequality?**

There are a number of reasons to believe income inequalities within developed countries will increase:

- "Skill-biased" technological change is generally agreed by economists to have been behind most of the substantial rise in inequality in the US and UK over the last 20 years. The increased importance of the "knowledge economy" – products based on information or creativity – means that this trend is likely to continue;

- Freer trade and capital flows are likely to lead to lower wages for low-skilled workers in tradeable sectors (although those in some non-tradeable service sectors, such as health and elder care, may see demand grow);

- Globalisation may make it more difficult for individual national governments to pursue redistributive policies.

None of this is inevitable, however; governments, individually and collectively, have a number of levers at their disposal to counter these trends.
**Political institutions**

International institutions, sub-national entities and the courts all have their own dynamic over which national government has only limited influence. Looking to the next twenty years a number of institutional developments seem likely.

*Devolved administrations*

Britain has for a long time had a notably centralised system of government. There is a strong argument that this has stifled policy innovation. Devolution (and changes at the local government level) offer new opportunities; but it is already a cliche to say that devolution is a process not an event. No democratic system ever reaches a permanent equilibrium: state/federal relations in the US are continually evolving, as are lander/federal relations in Germany, and as will devolved administration/central government relations here. In ten and even twenty years time devolution will still be unfolding.

Some issues that are likely to arise over the medium term include:

- pressure from devolved bodies for *more flexibility* in the way services are delivered (although in many areas there are also strong pressures for national government to promote equality of service provision across the country)
- finance - both spending and revenue - is likely to be a continued focus of debate, with devolved bodies wanting more flexibility and the centre concerned about maintaining national standards and limiting deficits;
- Regional economic development, with devolved bodies competing, at least implicitly, to attract inward investment;
- Devolved bodies may wish to develop direct relations with international institutions, especially the EU.

*A rights culture*

The other significant domestic constitutional reform which will still be unfolding in 20 years time is the incorporation of the European Convention on Human Rights.

A rights culture in which administrative acts are routinely subject to challenge in the courts has been developing in Britain for some time – judicial review has grown rapidly and the courts can increasingly use EC law to review administrative acts. Incorporation of the ECHR is expected to reinforce this development. It is likely to become much more common for courts to challenge both Ministerial decisions and parliamentary legislation.

*An enlarged EU*

Developments in the EU will have a big influence on the policy options open to the UK over the next decades. Likely developments include:

- *Enlargement* to around 21 countries in 2004/5 and a further enlargement taking membership to 25 or more by 2010. Enlargement will bring obvious benefits in terms of a bigger single market and a more stable and prosperous Central Europe. But it also risks making EU decision-making much more
difficult, both because of the sheer number of member states and because interests will be so diverse;

- Continued development of *single market* law. Already much detailed economic and environmental legislation stems from Brussels;

- Gradually strengthening *economic policy coordination*. There is likely to be increased coordination (although not necessarily harmonisation) of policy, through such means as benchmarking;

- Similarly, moves towards greater coordination on *criminal justice and home affairs* issues;

- Construction of a genuine European *foreign, security, and defence policy*.

*Developing global institutions*

Looking to 2020, a number of global institutions are also likely to be playing an important role in policy making, driven by an increasingly globalised economy:

- The expansion of the *WTO* to cover international investment and competition policy is already under discussion. It is possible that within the next decades national governments will also want to use the WTO machinery to set international standards in various areas. The creation of an international trade court is also possible;

- The *IMF* may be given a greater role in the supervision of financial services and possibly in international tax;

- The various international *environmental* agreements may form the basis for a permanent global environment body.

*The role of national government*

In economic language, subsidiarity – the concept that government powers should reside at the appropriate levels – can be stated as the view that government powers should reside where economies of scale and scope are maximised. In Europe, from the Treaty of Westphalia to World War II, those economies were thought to reside at the level of the nation state for most of the policies discussed above. This is no longer the case.

Take, for example, our discussion above of competition and firm structure. If we believe that the economy of the future will be highly dispersed and competitive, there is little role for economic development and competition policy. If we believe that there will be important global natural monopolies, then there is likely to be a role for global regulation. And if we believe that local clusters will be very important, then there is likely to be a strong role for local and regional planning of land use, transport and housing. The role of national government, however, is likely to be rather different from the past; it may relate more closely to the need, discussed above, to create a sense of national identity based on shared objectives, values and responsibilities.
Where the drivers might lead in future

The drawback of looking at drivers of change separately is that it does not provide a complete picture. What would the future look like if some combination of these developments occurred? As the above discussion shows, although there is broad consensus about some likely future trends, the cumulative effect of even small uncertainties means that the range of plausible future worlds is very large. The next section tries to present a coherent picture both of what we think we know, and where the key dimensions of uncertainty lie.

Things we can be relatively sure of
• The population of the developed world will stabilise and grow older. The population of much of the developing world will continue to grow rapidly;

• The proportion of the population with further or higher education will also grow rapidly, both in the UK and worldwide;

• The world will on the whole get richer – even pessimistic forecasts assume 3% growth, but regional disparities will remain;

• The world will become more interconnected both economically and culturally;

• There will be a huge expansion in the amount of information available and the ability to process it; and a greater proportion of economic output will be based on information and knowledge;

• Technological innovation will continue at its current rate or faster;

• Effective political power will be more dispersed between a number of different levels of government; but

• Human nature will remain basically the same.

Some dimensions of uncertainty

Cohesive, networked society

Individualistic, atomised society

Will increased prosperity and individual freedom allow us to build social cohesion and find new ways of living together, or will society become increasingly fragmented and conflict-riven as people pursue their own interests at the expense of others?

Sustainable development

Environmental degradation

Will we find effective ways of managing the environmental pressures that could emerge from untrammeled capitalism, or will the world become increasingly polluted and difficult to live in?

Inclusive world development

Global inequality

Will the global economy benefit all parts of the world or will some countries remain poor and unstable?
Shocks

By definition shocks are not predictable. But low-probability events which could throw some or all of our predictions off course include:

- Major financial market crash
- Appearance of a new and deadly disease
- Use of weapons of mass destruction by a rogue state
- An economy-changing technological breakthrough
- A rapid shift in fertility rates
- Major environmental disaster

And while we have no particular reason to believe any of these to be imminent, it is highly probable that one or more will occur over the next two decades.

To provide a more coherent basis for long term thinking many futures exercises take this approach one step further, using the dimensions of uncertainty to construct scenarios – internally consistent pictures of possible future worlds. Some scenarios created by other groups within and outside government are summarised at the end of this paper. The PIU has not produced scenarios as part of this project because, when looking at the future as broadly as we have done above, the number of dimensions is very large. As a consequence, the number of plausible scenarios multiplies unmanageably. Scenario analysis is more useful when examining a particular issue or policy area.

The pivotal role of government

Several themes emerge from the above discussion. First, government itself has a very important role in shaping the future. Which way the uncertainties discussed above
play out will depend to a large extent on how effective governments are at tackling particular issues. Government can have a critical impact not only through the traditional tax, public expenditure and legislation/regulation tools, but also in how it chooses to present its objectives, the issues it chooses to highlight, and the way it chooses to frame policy debates.

It was striking that this message came particularly from the business people we talked to. Rather than trying to predict the future and then thinking through how government might respond, they argued that government should decide what it wanted the future to look like, and then go out and make it happen. Their main concern was that government should be clear and consistent in its vision.

Second, the importance of the social and economic context. Trying to predict the future can by its nature encourage people to look at novel and exciting potential developments. And it is very easy to be seduced by scientific, technological, demographic or environmental projections – prophecies of doom or utopia - and to use this as the basis for prediction. But it is the social context within which these changes take place – how people respond, react and adapt to change - that is most important.

The final theme concerns the limitations of and dangers inherent in any government exercise aimed at predicting the future. Predictions are usually wrong, often misleading and sometimes positively counterproductive. The really important problems are often the old and intractable ones, relating to institutional and organisational failure rather than technological limitations (compare the New Scientist predictions about advances in economic modelling with the findings of the recent PIU Analysis and Modelling project).

None of this is to say that governments should not try to think long term - on the contrary. But:

- The process of thinking about the future may be more important than the result (a key lesson from scenario exercises - the process of building scenarios is where the real learning comes, not reading the end-result). This has important implications for how this paper is used across and beyond Whitehall;

- It is important to realise that looking at "challenges" – introducing government, politics and society into the equation - makes this project a very different task from that of projecting economic or technological trends. Looking at trends is necessary in elucidating and illuminating challenges; but the nature of politics and society means that many of the policy challenges for the future are similar to the current agenda;

- Institutional and organisational issues are just - if not more - important as specific policy challenges. This is both because they are so often the source of policy failure, and because, given the limits of prediction, what government
needs most is the generic skills and qualities required to respond rapidly and effectively in an uncertain world.