Scenario Planning Toolkit

The toolkit was developed for the Department for Transport by Waverley Management Consultants.

Although this report was commissioned by the Department for Transport, the findings and recommendations are those of the authors and do not necessarily represent the views of the DfT.
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The scenario planning toolkit

In 2006, Foresight\(^1\) launched the Intelligent Infrastructure Systems (IIS) project, a cross Government initiative to explore how science and technology might be applied over the next 50 years to the design and implementation of intelligent infrastructure for transport.

The project found that transport infrastructure will change radically as scientific and technological developments change what we travel on, the vehicles we travel in and the information we have about the system.\(^2\) It also found that building the kind of infrastructure the UK needs to remain competitive and provide high quality of life will not happen automatically and that government and its stakeholders will need to work together to make choices about the levels and patterns of investment required to achieve what we all want.

Making choices of this type is not always straightforward. In a world of rapid change and increasing uncertainty, it can be difficult to know what the right choices are and different stakeholders may have different priorities and ideas about what is desirable or necessary and may not have a shared view of how the future will develop.

To help clarify some of these long term issues and to provide a context to support decision making, the IIS project produced four possible scenarios that explore uncertainties about the future of intelligent infrastructure systems: future scientific capabilities, technological developments, the role of business and Government and social attitudes. The scenarios are not an attempt to predict what will happen or to suggest what the preferred future might be; they are stories which suggest various possible, even extreme, outcomes. They are designed to stimulate thought, to spell out some of the opportunities and threats we might face in the future and to inform today's decisions. The full details of the scenarios can be used to judge the risks and opportunities of policy relating to the future management of intelligent infrastructure.

The purpose of this toolkit is to provide policymakers and other stakeholders with the resources they need to explore the scenarios and use them to support their own decision making.

The toolkit is in four sections:

- **About scenario planning** offers a brief introduction to scenarios and the scenario process;
- **The IIS scenarios** provides an overview of the Intelligent Infrastructure Systems scenarios;
- **Working with scenarios** provides a suite of techniques that can be used to facilitate discussions - ranging from 75 minute meetings to day long workshops – on the scenarios;

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\(^1\) Foresight is part of the DTI’s Office of Science and Innovation

\(^2\) The full report can be found on [Foresight’s website](#)
Introduction

- **Using scenario techniques** provides a suite of scenario and futures processes - ranging from 75 minute meetings to day long workshops – that may help general strategic discussions.

The Annexes contain slides and other supporting material.

The technique sheets are designed to be accessible to those with little experience of facilitation. They are not meant to be prescriptive, but to help get things started - and experienced facilitators may wish to customise or develop them in light of their own knowledge and experience. Although the toolkit is based on the IIS scenarios all the workshop material can be used with any set of scenarios.
About scenario planning
A brief introduction to scenarios and the scenario process

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Introduction

Many organisations plan for the future – or, at least, for a future that they believe or hope will happen. Often, this future is based on ‘best’ or ‘worst’ case projections of current trends and bears an uncanny resemblance to the present. Consumers make similar choices to the ones they make now, competitors offer similar products and services, and the organisation itself does more or less the same things, with some minor changes of emphasis that reflect the trends analysis.

This approach works best for organisations that operate in stable, predictable environments – but most of today’s businesses, educational institutions and other public sector organisations are facing greater uncertainty and experiencing more change than ever before. They need an approach that helps them make sense of what is going on, spot new trends and events that are likely to affect them in future, and, perhaps, make significant changes to what they do and how they work.

Scenarios are a tool that organisations – and policy makers - can use to help them imagine and manage the future more effectively. The scenario process highlights the principal drivers of change and associated uncertainties facing organisations today and explores how they might play out in the future. The result is a set of stories that offer alternative views of what the future might look like.

Through discussion, organisations and policy makers can explore what they would do differently in each scenario. They can identify success criteria, suggest new ways of working and define new relationships. Generally, these differ in each scenario – and the discussion can help participants build a shared understanding of how the increasingly complex changes taking place in the world are likely to affect their activities.

The great strength of scenario planning is that it can be used to look at today’s challenge from a different perspective. The process of identifying and examining how current factors and trends might play out in the future helps participants focus on the likely impact of those trends on their own organisation. Quite often, participants find that the impacts are going to be bigger – or happen sooner – than they had previously realised.

Ultimately, organisations use scenario planning to help them anticipate, prepare for or manage change. As Stephen Ladyman – UK Minister for Transport – said at the launch of Foresight’s Intelligent Infrastructure Systems project in January 2006:

“We can either stumble into the future and hope it turns out alright or we can try and shape it. To shape it, the first step is to work out what it might look like.”

Who uses scenarios?

Scenarios are widely used by governments, businesses and voluntary organisations to inform strategy and policy development. They can be done on a large or small scale; as part of a wider body of work or as a discrete exercise; as a way of gathering expert opinion from external bodies and individuals or as a method to develop internal thinking.
The UK Foresight Programme

The UK Foresight programme, based in the Office of Science and Innovation, aims to improve the relative performance of UK science and engineering and its use by government and society. To achieve this the programme identifies potential opportunities for the economy or society from new science and technologies, or considers how future science and technologies could address key future challenges for society.

Foresight runs a rolling programme of projects with three and four running at any one time. A project is either a key issue where science can offer possible solutions (e.g. flood and coastal defence), or an area of cutting edge science where the potential applications and technologies have yet to be considered or articulated more broadly (e.g. cognitive systems).

Projects usually last between 12 and 18 months. Futures techniques are used to ensure current trends and currently known technologies are not simply projected forward and scenarios are normally a core part of the process. The scenarios are used to inform the recommendations for action by research funders, business, Government or others to make the most of the potential of science and technology.

The Foresight scenario methodology varies, but is largely workshop based, involving leading scientists, academics and policy experts to refine drivers and trends, to identify key uncertainties and to detail and validate the scenario sketches. Detailed storylines are developed by drawing their ideas together with the detailed research work that is commissioned as part of the process.

The National Intelligence Council’s 2020 project

The National Intelligence Council (NIC) is a centre of strategic thinking within the US Government which provides the President and senior policymakers with analyses of foreign policy issues that have been reviewed and coordinated throughout the Intelligence Community.

Mapping the Global Future, published in 2005, looks at how key global trends might develop over the next decade and a half to influence world events. The report contains large amounts of data and uses four scenarios - Davos World, Pax Americana, A New Caliphate, and Cycle of Fear - to try to capture how key trends might play out. The project process lasted about a year and NIC organized conferences on five continents to solicit the views of foreign experts on the prospects for their regions over the next 15 years. More than a thousand people participated.

The project's primary goal is “to provide US policymakers with a view of how the world developments could evolve, identifying opportunities and potentially negative developments that might warrant policy action.”
The Department for Trade and Industry

The Department for Trade and Industry has a dedicated futures facility – futurefocus@dti – which develops and uses scenarios constantly.

The first set of scenarios used in the centre – Know How to Get Ahead, m-Governance and Local Heroes (collectively known as the DTI2015 scenarios) – were regional development futures which offered different perspectives on the social, economic and political trends shaping the UK economy. The scenarios, which were developed through desk research and workshops were used constantly over a three year period to stimulate policy debate and inform new initiatives – across government and with industry partners. They were also dramatised and presented within the centre’s immersive theatre – a powerful approach to communication.

futurefocus has also produced scenarios on learning in the knowledge economy and on the future of communications and postal services. The DTI’s strategy development process now routinely employs scenario thinking.

Shell

Shell – the company who famously brought scenario planning into the business environment - has been producing Global Scenarios for more than 30 years to inform investment decisions about complex projects which are normally developed and operated over several decades.

The Shell Global Scenarios to 2025, published in 2005, describe three scenarios – Low Trust Globalisation, Open Doors and Flags - that examine the interplay between three essential forces - market incentives, the force of community, and coercion and regulation - and provide “a simple, unified context... to better understand the various conditions under which we may have to operate in different regions or in different circumstances.”

In his introduction to Shell Global Scenarios to 2025, Chief Executive Jeroen van der Veer points out the imperative for Shell to use the scenarios to “gain deeper insights into our global business environment and to achieve the cultural change that is at the heart of our Group strategy. We face real challenges in the future, we will all need to be able to respond to changing circumstances and make informed and rigorous judgements about our decisions: these scenarios and methodology will help us to do that better.”

Greater Pollok Development Company

Greater Pollok, located five miles southwest of the Glasgow city centre is primarily residential, with a small economic base of several industrial and retail centres. It is a young, friendly, and civic-minded area, with a rising population and a growing range of service groups and community initiatives – but there are high levels of
unemployment as well as a high percentage of economically active aged people who are not working.

Greater Pollok Development Company (GPDC) was founded in 2001 to help the people and companies of Greater Pollok successfully compete in the global economy. GPDC – now known as Equip - is entrusted with promoting the area’s economic regeneration. It's task is to help ensure local people and businesses fulfill their potential and that Greater Pollok is an asset to the city of Glasgow, contributing fully to its economic and social life. To that end, GPDC runs programmes and initiatives aimed at helping local people and companies improve their current economic standing and their future prospects.

In 2005, the Board and senior management team of GPDC undertook a scenario planning exercise to inform their long term strategic plan. The exercise – which took five days – alerted them to a number of political and economic developments which they had not noticed before. It allowed them to explore how their products and services might need to change with changing economic circumstances and has fed directly into the development of a new strategy for the company and for Greater Pollok.

**Overview of the scenario process**

Scenario planning is a flexible process that can be tailored to different circumstances and different needs. While there is no “definitive” scenario process, most exercises fit within a four stage structure:

- **Stage 1**: identification and analysis of change drivers
- **Stage 2**: identification of predetermined elements and critical uncertainties
- **Stage 3**: construction of the scenario matrix
- **Stage 4**: construction of the scenario narratives.

**Stage 1: Identification and analysis of change drivers**

Change drivers are factors which are shaping the future contextual environment. Some change drivers are highly visible now, but others are less so; and while it may be possible to determine the effects of change drivers on the present and the near future, it can be less easy to determine their effects in the medium to long term.

It is therefore important during this stage of the scenario process to identify a broad range of drivers and to consider which will be most important in the future – rather than to focus solely on which are most important now.
Typically at this stage, therefore, drivers are prioritised according to their future importance to - or impact on - the policy area.

**Stage 2: identification of predetermined elements and critical uncertainties**

Once drivers have been prioritised, the next step is to consider how the important ones might play out in the future. In some case, drivers will be predetermined elements – that is, their outcome will be quite clear – and in other cases drivers will have uncertain outcomes. It is important during this stage of the scenario process to identify and characterise both types of outcome. For uncertain drivers, it is essential at this stage to identify the nature of the uncertainty and the range of possible outcomes. It is also important to explore the dynamic interplay between drivers over time.

The critical output from this stage is a number of ‘axes of uncertainty’ which describe the range of uncertainties for the future, together with the range of possible outcomes. The uncertainties are used to define the scenario space and to shape narrative production; predetermined elements define strategic issues that need to be addressed across all the scenarios.

**Stage 3: Construction of the scenario matrix**

The scenario matrix is a 2x2 schematic that defines the main parameters of the scenarios. It is constructed by juxtaposing the two axes of uncertainty that reflect the most important uncertainties, offer the most insight or provide the most intriguing glimpse of the future.

Matrix construction is an art rather than a science and the final 2x2 is often decided through negotiation, intuition and testing.

**Stage 4: Construction of the scenario narratives**

The scenario narratives are constructed within the logical framework provided by the scenario matrix. The narratives draw on all the material in stages 1 and 2 and also on wider research. The narratives can either describe ‘end states’ – what the world looks like in the future, without any sense of how that future evolved – or ‘timelines’ – a description of how the future has evolved from the present day. The narratives should present the perspectives of different stakeholders in order to provide a sense of the different priorities and issues that exist in each future.

Wherever possible, stakeholders should be involved in testing and exploring the emerging scenario narratives.

**Further information**

Further information on scenario planning and other futures techniques can be found in DfT’s *World of Futures* paper, in Foresight’s strategic futures planning toolkit *Suggestions for Success* and in the *Strategy Survival Guide* at the Prime Minister’s Strategy Unit.
The IIS scenarios
An overview of the Intelligent Infrastructure Systems scenarios

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Introduction

To help clarify some of the long term issues and to provide a context to support decision making, the IIS project produced four possible scenarios that explore uncertainties about the future of intelligent infrastructure systems: future scientific capabilities, technological developments, the role of business and Government and social attitudes.

The scenarios are not an attempt to predict what will happen or to suggest what the preferred future might be - they are stories which suggest various possible, even extreme, outcomes. They are designed to stimulate thought, to spell out some of the opportunities and threats we might face in the future and to inform today’s decisions. The full details of the scenarios can be used to judge the risks and opportunities of policy relating to the future management of intelligent infrastructure.

The scenario matrix

The IIS scenarios are set along two axes of uncertainty.

The vertical axis **Accepting of integrated intelligent infrastructure ↔ Resistant to integrated intelligent infrastructure** describes social attitudes. At one extreme, the digital native generation, which has grown up using technology and is confident that it will continue to deliver and protect. Personal data and identity are protected; continuous investment in physical and IT infrastructure allows development of systems that are flexible, adaptive and integrated. Businesses take advantage of the integrated intelligent infrastructure to form wide-reaching networks.

At the other extreme, intelligent infrastructures are in place, but are not integrated. Terrorism, viruses, identity theft and fear of disruption and instability mean that people are mistrustful of intelligent systems. Economic uncertainties add to their risk aversion. People rely on legacy infrastructure – or even bypass it where possible. Groups of businesses, and the affluent, use private networks and services.

The horizontal axis **High impact transport ↔ Low impact transport** describes the consequences of transport on the environment, economy and society. At one extreme, high levels of carbon emissions, a continuing dependence on oil, and a significant waste footprint all contribute to high environmental impact. Social impacts - noise levels, land take and lower social and community cohesion - are prevalent. At the other extreme, cleaner fuel technologies have reduced carbon emissions, the waste footprint has shrunk and product longevity is emphasised because of resource constraints. The social and community impact of faster transport, however, remains equivocal and segments of the community may still be excluded because of uneven access to transport.
Overview of the scenarios

The key elements of each scenario are described in the following section. Annex 1 provides a summary of all four scenarios which can be printed out for workshop participants.

Perpetual Motion

A raft of ICT and intelligent transport developments throughout the 2010s and 2020s have helped to fuel the ‘always on’ society of the last fifty years. Intelligent positioning systems, encryption technology, real-time tele-presencing and a shift towards a low carbon economy have all played their part in driving the rampant consumerism which shows few signs of abating.

Demand for travel and transport has remained strong in this ‘always on’ world – transport is now well-connected, semi-automated and (mostly) friction-free. However, with new technologies – which combine low or zero emissions with energy “vectors” which ensure efficient energy capture and storage - ensuring that environmental curbs on car use are unnecessary, traffic management remains a critical problem. Motor manufacturers’ success in developing hydrogen-fuelled vehicles has helped to meet the desire for more cars, but they are not cheap (and neither are the sustainable housing developments which also utilise hydrogen storage of energy). Use and benefit remains as polarised as it was at the end of the 20th century.

Whilst technology has enabled some individuals to move out of the city centres – away from the constant buzz of life – this has left some urban centres vulnerable. Inhabited by the highly-stressed and affluent, but also those outside mainstream society who survive largely by stealing, or as they put it, sharing, the identity of others, they have seen a rise in criminal attacks and violent behaviour. Some have moved to the “whitespaces”, the remote rural areas beyond the electronic network, and preach the virtues of self-sufficiency.

As a society, we are richer than ever, more than twice as affluent as we were in 2005, and one consequence is that there are different attitudes to the value and purpose of work among some. It is increasingly hard to fill jobs which involve working anti-social hours. Even when migrants can be hired who have the language skills needed in the service sector, they stay only for a few weeks or few months before moving on. With fewer people needing the pay from such jobs, and a growing realisation of the social costs of such work on family life and social relationships, many service deliverers have been forced to put in place sophisticated auto-delivery systems in order to continue to provide the levels of service and frequency of delivery their customers have come to expect.

Urban Colonies

Four decades after the UK decided to put clean environmental practice at the heart of economic and social policy, the country has been transformed. New housing has been built within existing cities, on brownfield sites and through intelligent re-development, rather than through new housing on city edges and beyond. Planning rules have changed to ensure that all developments are mixed use.

One of the main aims of policy is to reduce energy consumption, and eliminate waste. Transport is permitted if it is “clean and green”, but not otherwise. People
travel, but not as far, and often by foot or cycle. Local electric vehicles are ubiquitous, and light rail schemes are common.

Materially, fewer goods are consumed than in 2005, but more services. And people also value possessions which will last more than they did then, not least because the tax system has been fundamentally redesigned so that people are taxed principally on the resources they use up, rather than the money they earn or what they spend.

Although intelligent infrastructure is widely deployed, it is not integrated. There have been too many system failures, too many network crashes. Privacy has been breached too many times. The result is that in a world where technology systems are treated with some suspicion, it is a source of competitive advantage if yours is self-contained, and therefore less likely to fail because of failures elsewhere. In any case the experience of integration has not been happy; sometimes it has failed simply because the systems are too complex for our ability – human, mathematical, technical - to process them.

Globally, most economic value resides in "knowledge hubs", which emphasises the importance of attracting the best people to learn, and to work, in your city. Competition between cities is about quality of life. In this respect, Europe has done well, developing its cultural resources and social philosophies to create cities which are envied everywhere. The judiciously applied migration policy, of free movement within Europe, with a proportion of “investment visas” for those from elsewhere, has helped to manage its ageing population while attracting the best young talent from the countries of the South and East.

The story in rural areas is mixed. There is more agricultural work than there was in the 20th century, and more people are employed on the land. But it is still poorly paid, and few want to do the work. Rural areas also suffer from poorer communications. Generally, it is expensive and inconvenient to live in the countryside and work in the city, unless the regional government is one of the few which has invested in light rail links. The ‘new landed gentry’, who have made money in the city and moved out, are widely disliked. The rural poor remain poor but not very happy.

**Tribal Trading**

It is two generations since the Great Disruption stripped the veneer away from civilisation, and made us realise how thin it had been and how dependent we were on cheap energy.

The world now is more local than it was and lifestyles have changed accordingly. People still travel, but more slowly and not so far. Work is closer to the home; indeed, in some places, living patterns have reverted to the pre-industrial, with the home and the workplace being the same. People – certainly in Europe and the United States – are colder and hungrier than they were 50 years ago. But more appropriate building design has compensated for some of the cold, and diet is better. Less energy means that there is more physical work to be done, so people are fitter too.

Carbon emissions have contracted, mainly because far less energy is used than in the later 20th century, although coal is burnt again for heat and some power at least where it can be recovered.
Vehicles for local use combine human power with electricity, for those who desire such luxury; the fastest vehicles on the road are steam powered; although there are precious few of those, they are well-suited to the wide if battered roads which remain from the later 20th century.

This is a world in which the ‘energy cost’ of everything, goods or services, has to be paid for. People own less than they used to, and they repair more than they used to. Waste is minimal, not out of ideological concern but simply because it is a luxury; when things reach the end of their functional lives, they are re-used or recycled. People also trade less than they used to; however, they do trade the things they can't make locally.

Localism also makes for diversity in political and economic systems, even if the fizzing experimentalism of the second quarter of the century has diminished as some local social systems have shown themselves to be more robust than others. But the other side of this is the recurring local conflicts over resources. As the population levels have settled these conflicts have become less intense, but those communities blessed with good local energy sources and good agriculture are still vulnerable, even if they are also the communities most able to afford the manpower to defend their boundaries.

**Good Intentions**

After half a century of contention, the “road wars” which have dominated transport policy since the early part of the century finally seem to be over. The largely unrestricted personal mobility that people enjoyed in the early years of the century is now a distant memory. A tough national surveillance system means that people only travel if they have sufficient carbon quotas – and these are increasingly tightly rationed. Traffic volumes have shrunk hugely, and will fall further as the carbon ration continues to be reduced.

Regions and local authorities have followed the lead of their governments and run local initiatives to reduce travel demand; and very few governments have opted out of the international Contraction and Convergence Agreement to reduce global emissions. Political and economic sanctions are imposed through the United Nations on those rogue states which do not comply.

At a national level, much of the implementation is based on satellite surveillance which can monitor every car on the road, if need be. This is coupled with a carbon credits smart card which is needed by any citizen who wishes to use any kind of carbon resources, from having a shower to driving to eating out to listening to a digital music system. Those who are short of credits have to buy them; those who have changed their lifestyle sufficiently and have credits to spare, or who are financially poor and who have little need for travel, have prospered by selling their excess credits. Since the individual carbon level continues to be cut each year, there are always willing buyers, at increasingly attractive prices.

One of the biggest incentives to change behaviour and reduce carbon consumption was the change in the tax system, which started to have a significant effect from the early 2030s. Instead of being taxed mostly on earning and spending, as under the old income tax and VAT systems, most tax is now raised against resource consumption. The EU led the way by replacing VAT with RUT (a resource use tax). The result has proved to be far more progressive, with far greater distributional effects, than the old system ever was, and far easier to police.
But despite such environmental enforcement, the scientific community remains pessimistic. Antarctica continues to shrink, and there are new stories, constantly, about carbon released into the environment as the ice retreats in the north. The sustained unpredictability of global weather patterns continues to have huge social and economic consequences.

The Carbon Clock is still ticking closer to doomsday, or so the scientists say. CHASM, the organisation of Concerned Humanists, Artists and Scientists for Mankind, sets it every year depending on the rate of change of damage to the atmosphere. The parts per million are continuing to rise, ever closer to the critical levels which could take us into uncharted and unpredictable climatic territory. At a news conference in Paris, the organisation’s global chairman announces that the clock has just ticked on to 2 minutes to midnight. The world of the cold war and nuclear threat never felt as ominous as this…

**Presenting the scenarios**

Annex 2 contains a set of slides which provide an overview of the scenarios. The scenarios appear in the report in a particular order – *Perpetual Motion, Urban Colonies, Tribal Trading and Good Intentions* – and are generally presented in that order too. A full set of slides is available from ers@dft.gsi.gov.uk.

Annex 3 contains a set of slides that provide a broad description of scenarios and their purpose and which can be useful during the introduction to a workshop.
Working with the scenarios

A suite of techniques that can be used to facilitate discussions - ranging from 75 minute meetings to day long workshops – on the scenarios

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Working with the scenarios

Plausibility matrix

This is a good exercise for

- getting groups talking to each other
- identifying different opinions on where you are going and where you should be going

It (almost!) never fails to reveal differences of opinion, tensions between current plans and preferred futures and strategic dilemmas. You can use the outputs to feed directly into other discussions or simply use the exercise to start people thinking.

The steps

1. Introduce the scenarios and present the first scenario (*Perpetual Motion*).
2. Ask the group to spend 10 minutes discussing what they like and don’t like about the scenario.
3. Spend 5 minutes noting likes and dislikes on a flip chart.
4. Repeat steps 1-3 for the other three scenarios.
5. Draw the matrix below – without the column headings – on a flip chart. Invite the group to vote by a show of hands. Only reveal the question as you get to each column.
6. Consider the results and invite the group to reflect on what they mean for the team’s activities and strategy.

### Participants

Any team or group

### Time

90 minutes

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<th>Most Plausible</th>
<th>Most favourable for citizens</th>
<th>Most favourable for business</th>
<th>Most favourable for your organisation</th>
<th>Closest to now</th>
<th>Closest to the future you personally aspire to</th>
<th>Closest to the future your organisation is knowingly or unknowingly pursuing</th>
<th>Closest to the future government policy is knowingly or unknowingly creating</th>
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3 Participants should focus on what they like and don’t like about the world described in the scenarios at this point, not on how believable or plausible the scenarios are – that comes next.
Futureproofing

This is a good exercise for

- helping participants to focus on team or strategic objectives
- testing the robustness of objectives
- exploring when and how they might need to be modified

Participants explore whether objectives are robust, redundant or in need of modification. The exercise can either be done on its own or followed by the plausibility matrix.

You can use the outputs to feed directly into other discussions or simply use the exercise to start people thinking.

The steps

1. Describe scenarios and their purpose.
2. Divide participants into four groups. Give each group a summary of one scenario.
3. Ask each group to discuss the strengths and weaknesses of their scenario. Allow 15 minutes.
4. Remind participants of the team/group/strategic objectives. Invite each group to test the objectives against their scenario. They should
   a. Imagine that the world is as it is described in the scenario
   b. Decide whether – for this world – each objective is
      i. Robust
      ii. Redundant
      iii. In need of some modification
   c. Be prepared to explain why they have made their decision
   Allow (say) 15-20 minutes

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4 …or the slides for…
5 each group gets a different scenario, so that all three scenarios are being worked on at the same time
6 the exercise works for any level. You may need to provide a handout or put objectives up on a slide to remind people
5. Bring all groups back to plenary and capture the results on the following matrix:

<table>
<thead>
<tr>
<th></th>
<th>Perpetual Motion</th>
<th>Urban Colonies</th>
<th>Tribal Trading</th>
<th>Good Intentions</th>
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<tbody>
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<td>Objective 1</td>
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</table>

6. Consider the results and invite the group to reflect on what they mean for the team’s activities and strategy.
Looking for signals

This is an good exercise for

- getting groups talking to each other
- getting people to look at newspapers and magazines in a different way from usual

Participants discuss the scenarios and then look for newspaper or magazine articles that point towards one or another of the scenarios starting to emerge. They often find this exercise quite surprising, in that they can find articles that represent many of the trends in the scenarios.

There is also an option to extend this exercise by 30-45 minutes by inviting people to discuss the relevance of some of the newspaper clippings.

This exercise requires some advance preparation. Facilitators should bring a number of newspapers and periodicals to the event (an average of 1.5 per delegate). They should also provide some way for participants to stick or glue newspaper cuttings onto flip chart paper.

Before starting the exercise, stick 4 sheets of flip chart paper onto the wall and draw up the scenario matrix.

The steps

1. Introduce the scenarios and present the first scenario (Perpetual Motion).
2. Ask the group to spend 10 minutes discussing what they like and don’t like about the scenario\(^7\)
3. Spend 5 minutes noting likes and dislikes on a flip chart
4. Repeat steps 1-3 for the other three scenarios
5. Stick 4 flip chart sheets on the wall
6. Hand out the newspapers and magazines and ask participants to
   a. Look through them for articles that point towards any of the scenarios
   b. tear the articles out
   c. stick them onto the matrix in the relevant scenario quadrant
   Allow 15-20 minutes

---

\(^7\) Participants should focus on what they like and don’t like about the world described in the scenarios at this point, not on how believable or plausible the scenarios are – that comes next
7. Debrief the group by asking for their reactions. Is there anything surprising? Does one scenario seem more likely than others?

**Additional exercise**

This additional exercise builds on the cuttings and is an intriguing – and effective – way of getting the groups to consider the strategic implications of the news articles.

1. Divide participants into groups of 4-6
2. Invite everyone to collect (take off the wall) one or two of the articles they found that seem to be important to the Department or the team
3. They should begin by telling each other about the articles and why they think they are important or interesting
4. They should then build clusters – or groups - of articles. The basis for clustering is to spot some kind of connection or signal that is emerging from them
5. They should use the [Looking for signals task sheet](#) to help them record the discussion
6. Allow 30 minutes then hold a short debrief to gather the ideas.

This exercise can form a bridge into the main part of a team event.
Reverse engineering

This is a useful technique for identifying events that are certain to occur and that will have a high impact on the team or the department. It uses the scenarios as a stimulus for discussion, but by the time participant get to step 5, they no longer use them.

Typically, this exercise will yield a number of short term threats, opportunities and issues that need to be addressed - as well as numerous medium to long term issues to track.

The group is split into 'scenario teams', each of which works on one of the scenarios.\(^8\) You therefore need three or four flip chart sheets pinned to the wall, or three or four flip chart stands.

**Part 1: identify and map events**

1. Describe scenarios and their purpose.
2. Divide participants into four groups. Give each group a summary of\(^9\) one scenario\(^10\)
3. Ask each group to discuss the strengths and weaknesses of their scenario. Allow 15 minutes.
4. Ask everyone to think of 5 events that need to occur if their particular scenario is to happen. They should write the events on post-its (one event per note).
5. Invite people to pair up and discuss their events\(^11\). Allow 10-15 minutes for steps 4 and 5.
6. Each scenario group should now map the events on the matrix shown on page 2. Set up the matrix for each scenario group using flip chart sheets tacked to the wall or on a flip chart stand. Don't draw up the whole matrix at once; instead,
   a. Draw a line down the centre of the flip chart
   b. Write ‘High impact’\(^12\) at 3 o'clock and ‘Low impact’ at 9 o'clock

---

\(^8\) This exercise works best if there are at least 4 people in each scenario team; if the group has only 10-12 people, it might be better to split into two teams and ask each to do the exercise with two scenarios
\(^9\) …or the slides for
\(^10\) each group gets a different scenario, so that all three scenarios are being worked on at the same time
\(^11\) Staying within the scenario groups
\(^12\) impact on the department, your team, or a particular project.
7. Ask the groups to discuss each event that they have identified and decide which side of the line it would sit if it were to happen...

8. Once they have completed the task - in 15-20 minutes, say – draw up the rest of the matrix by adding the horizontal axis and writing ‘certain to occur’ at 12 o’clock and ‘not certain to occur’ at 6 o’clock. 

9. Encourage the group to explore differences of opinion and to work towards consensus. Don’t allow events to sit on the lines!

10. Allow 20 minutes for this step.

Part 2: Identify opportunities and threats

1. Focus each group on their top right quadrant. These are events which are certain to occur and which will have a high impact. Ask the group to identify
   a. whether these events are likely to occur in the short, medium or long term
   b. whether the impact is positive or negative
   c. what - if any - indicators might signal that the event is imminent
   d. how the department, the team or stakeholders need to respond

2. Capture and discuss.

---

13 “not certain to occur” is not the same as ‘certain to not occur’
14 You can split each scenario group into two at this point and have them work in parallel on top and bottom right quadrants
3. Focus the group on the bottom right quadrant and identify
   a. whether the uncertainty is high, medium or low
   b. whether the impact - if they do occur – will be positive or negative
   c. whether the department, the team or stakeholders are prepared if the event does occur
   d. what indicators you should track to monitor whether the event is going to occur

4. Capture and discuss.

5. The output from these exercises can be used to inform strategic planning or to set an agenda for operational activities designed to capture opportunities and mitigate threats.
Policy brainstorm

The policy brainstorm exercise is useful for teams who cannot commit a day to working with the scenarios but who want to use the scenarios to stimulate thinking about new policy development.

The workshop is used to generate as many new ideas as possible – teams will need to consider the ideas further at a later date.

**Agenda**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.30</td>
<td>Introduction</td>
</tr>
<tr>
<td></td>
<td>• Describe purpose and agenda</td>
</tr>
<tr>
<td></td>
<td>• Brief introduction to scenarios</td>
</tr>
<tr>
<td>9.45</td>
<td>Presentation: <em>Perpetual Motion and Urban Colonies</em>&lt;sup&gt;15&lt;/sup&gt;</td>
</tr>
<tr>
<td>10.00</td>
<td>Discussion:</td>
</tr>
<tr>
<td></td>
<td>• Split into two breakout groups</td>
</tr>
<tr>
<td></td>
<td>• What do you like about your scenario? Not like?</td>
</tr>
<tr>
<td></td>
<td>• Assume that you are living in your scenario and that you have been</td>
</tr>
<tr>
<td></td>
<td>asked to make recommendations to the Secretary of State for Transport</td>
</tr>
<tr>
<td></td>
<td>on government policy. Identify</td>
</tr>
<tr>
<td></td>
<td>o no brainers&lt;sup&gt;16&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>o creative recommendations</td>
</tr>
<tr>
<td></td>
<td>o heroic recommendations</td>
</tr>
<tr>
<td>10.25</td>
<td>Feedback</td>
</tr>
<tr>
<td></td>
<td>• Capture feedback from the <em>Perpetual Motion</em> group first.</td>
</tr>
<tr>
<td></td>
<td>• Write the ideas on flip charts – don’t allow critiquing</td>
</tr>
<tr>
<td></td>
<td>• Once all the ideas have been captured,</td>
</tr>
</tbody>
</table>

<sup>15</sup> Hand out copies of the scenario slides and/or summaries

<sup>16</sup> No brainers are obvious policy recommendations (obvious to state but not necessarily easy to achieve)
open up the brainstorm to everyone and capture additional ideas

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>10.45</td>
<td>Coffee</td>
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</table>

- Repeat for Urban Colonies

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>11.00</td>
<td>Presentation: <em>Tribal Trading</em> and <em>Good Intentions</em></td>
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</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<tr>
<td>11.15</td>
<td>Discussion:</td>
</tr>
<tr>
<td></td>
<td>• Split into two breakout groups</td>
</tr>
<tr>
<td></td>
<td>• What do you like about your scenario? Not like?</td>
</tr>
<tr>
<td></td>
<td>• Assume that you are living in your scenario and that you have been asked to make recommendations to the Secretary of State for Transport on government policy. Identify</td>
</tr>
<tr>
<td></td>
<td>o no brainers(^\text{17})</td>
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<tr>
<td></td>
<td>o creative recommendations</td>
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<td></td>
<td>o heroic recommendations</td>
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<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>11.25</td>
<td>Feedback</td>
</tr>
<tr>
<td></td>
<td>• Capture feedback from the <em>Tribal Trading</em> group first.</td>
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<tr>
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<td>• Write the ideas on flip charts – don’t allow critiquing</td>
</tr>
<tr>
<td></td>
<td>• Once all the ideas have been captured, open up the brainstorm to everyone and capture additional ideas</td>
</tr>
<tr>
<td></td>
<td>• Repeat for <em>Good Intentions</em></td>
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</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.40</td>
<td>Review</td>
</tr>
<tr>
<td></td>
<td>• What policies appear across all futures?</td>
</tr>
<tr>
<td></td>
<td>• What policies appear in only one future?</td>
</tr>
<tr>
<td></td>
<td>• Are there other policy issues that the scenarios suggest?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.15</td>
<td>Close</td>
</tr>
</tbody>
</table>

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\(^{17}\) No brainers are obvious policy recommendations (obvious to state but not necessarily easy to achieve)


The fifth scenario

The purpose of describing a ‘fifth scenario’ is to build a preferred future – or vision – that draws on the content from an existing set of four scenarios. The approach allows policy makers to present a ‘customised’ scenario in which they have taken action to minimise threats and maximise opportunities.

Process overview

1. Agree the policy or operational area that the fifth scenario is being built around. This is normally done in advance of the workshop.
2. Present and discuss the scenarios.
3. Use the plausibility matrix to identify which scenario is closest to the future the group aspires to.
4. Describe a fifth scenario that improves on this scenario by:
   a. building on its strengths
   b. overcoming its weaknesses
   c. drawing on positive elements from other scenarios
5. Agree the steps and tasks needed to deliver the fifth scenario.

Participants are split into two groups for step 2, each of which works with two of the four scenarios. Groups work in parallel.

There is a detailed agenda on page 2. The process is supported by three task sheets (fifth scenario task sheet 1, fifth scenario task sheet 2 and fifth scenario task sheet 3).
## Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.45</td>
<td>Introduction</td>
</tr>
<tr>
<td>10.10</td>
<td>Presentation: <em>Perpetual Motion and Urban Colonies</em></td>
</tr>
<tr>
<td>10.25</td>
<td>Discussion:</td>
</tr>
<tr>
<td>10.45</td>
<td>Feedback</td>
</tr>
<tr>
<td>11.10</td>
<td>Coffee</td>
</tr>
<tr>
<td>11.30</td>
<td>Presentation: <em>Tribal Trading and Good Intentions</em></td>
</tr>
<tr>
<td>11.45</td>
<td>Discussion:</td>
</tr>
<tr>
<td>12.10</td>
<td>Feedback</td>
</tr>
<tr>
<td>12.30</td>
<td>Plausibility matrix</td>
</tr>
</tbody>
</table>

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18 Hand out copies of the scenario slides and/or summaries
19 Record the discussion on [Fifth Scenario task sheet 1](#)
20 Record the discussion on [Fifth Scenario task sheet 1](#)
<table>
<thead>
<tr>
<th>future</th>
<th>Lunch</th>
</tr>
</thead>
</table>

21 See Plausibility Matrix
<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.30</td>
<td>Review</td>
</tr>
<tr>
<td></td>
<td>• Present the preferred scenario again</td>
</tr>
<tr>
<td></td>
<td>• Ensure everyone has copies of the scenario slides/summary</td>
</tr>
<tr>
<td></td>
<td>• Share out photocopies of the appropriate task sheet as filled in during the morning</td>
</tr>
<tr>
<td>1.45</td>
<td>Describing the fifth scenario</td>
</tr>
<tr>
<td></td>
<td>• Group brainstorm</td>
</tr>
<tr>
<td></td>
<td>- Which parts of the preferred scenario <strong>must</strong> happen in the future</td>
</tr>
<tr>
<td></td>
<td>- Which parts of the preferred scenario <strong>must not</strong> happen in the future</td>
</tr>
<tr>
<td></td>
<td>- Which parts of the other scenarios would you like to happen?</td>
</tr>
<tr>
<td>2.15</td>
<td>Creating the fifth scenario</td>
</tr>
<tr>
<td></td>
<td>• Form three breakout groups<strong>22</strong></td>
</tr>
<tr>
<td></td>
<td>• Group 1 identify – and map on a timeline - the 10 key steps or events required to ensure that the 'must happens' occur</td>
</tr>
<tr>
<td></td>
<td>• Group 2 identify – and map on a timeline - the 10 key steps or events required to ensure that the 'must not happens' do not occur</td>
</tr>
<tr>
<td></td>
<td>• Group 3 identify – and map on a timeline - the 10 key steps or events required to ensure that the 'would likes' occur</td>
</tr>
<tr>
<td>2.45</td>
<td>Feedback</td>
</tr>
<tr>
<td>3.15</td>
<td>Coffee</td>
</tr>
<tr>
<td>3.30</td>
<td>Next steps</td>
</tr>
<tr>
<td></td>
<td>• Form three new breakout groups<strong>23</strong></td>
</tr>
<tr>
<td></td>
<td>• Group 1: Who is responsible for the must happens? What must they do now? Who should be involved?</td>
</tr>
<tr>
<td></td>
<td>• Group 2: Who is responsible for the must not happens? What must they do now? Who should be involved?</td>
</tr>
<tr>
<td></td>
<td>• Group 3: Who is responsible for the would like to happens? What must they do now? Who should be involved?</td>
</tr>
<tr>
<td>4.00</td>
<td>Feedback</td>
</tr>
<tr>
<td>4.20</td>
<td>Review</td>
</tr>
</tbody>
</table>

**22** Record the discussion on [Fifth Scenario task sheet 2](#)  
**23** Record the discussion on [Fifth Scenario task sheet 3](#)
| 4.30 | Close |
Gaming workshops offer a rich perspective on the policy challenges facing government and other actors. The outputs from gaming workshops generally highlight a number of significant policy challenges and risk issues that need to be addressed in the near future.

**Process overview**

The gaming approach is a method which replicates the discussions used to generate the scenarios. Following a presentation of each scenario, participants

1. carry out a SWOT analysis of the first scenario from the perspective of one of (say) three stakeholders (government, citizens, industry are all suitable candidates);

2. use the SWOT discussion to determine the extent to which each stakeholder likes living and working in the scenario and identify what they want government or the market to do in order to maintain or improve their level of satisfaction;

3. step out of role and - imagining that the scenario is an accurate representation of the future – make a number of recommendations for current policy. These recommendations should re-inforce the elements of the scenario which participants believe to be beneficial to the UK and should address those elements which are likely to be less beneficial;

4. repeat steps 1-3 for the other three scenarios;

5. compare the results of the different scenario discussions to identify robust policy challenges (ones which appear across all or most of the scenarios) and scenario specific challenges;

6. carry out – if required - a plausibility and favourability vote and explore what the results mean for future policy activity.
## Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.30</td>
<td>Welcome, introduction and purpose</td>
</tr>
<tr>
<td>9.40</td>
<td>Presentation: introduction to scenarios</td>
</tr>
<tr>
<td>9.50</td>
<td>Presentation: <em>Perpetual Motion</em></td>
</tr>
<tr>
<td>10.00</td>
<td>Discussion:</td>
</tr>
<tr>
<td></td>
<td>• Split into three breakout groups, each representing one stakeholder: government, business or citizens&lt;sup&gt;24&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>• Each group discuss what the scenario is like for their stakeholder by carrying out a SWOT analysis from the stakeholder’s perspective</td>
</tr>
<tr>
<td></td>
<td>• What are the main issues you want government to tackle on your behalf&lt;sup&gt;25&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>• Stepping out of role and – imagining that the scenario is an accurate representation of the future – what recommendations would you like to make on strategy or policy?</td>
</tr>
<tr>
<td>10.45</td>
<td>Feedback</td>
</tr>
<tr>
<td>11.15</td>
<td>Coffee</td>
</tr>
<tr>
<td>11.40</td>
<td>Presentation: <em>Urban Colonies</em></td>
</tr>
<tr>
<td>11.50</td>
<td>Discussion:</td>
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<td></td>
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<tr>
<td></td>
<td>• What are the main issues you want government to tackle on your behalf&lt;sup&gt;26&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>• Stepping out of role and – imagining that the scenario is an accurate representation of the future – what recommendations would you like to make on strategy or policy?</td>
</tr>
<tr>
<td>12.30</td>
<td>Feedback</td>
</tr>
<tr>
<td>1.00</td>
<td>Lunch</td>
</tr>
</tbody>
</table>

<sup>24</sup> Where possible, ask workshop participants to role play a different stakeholder to themselves

<sup>25</sup> The government group should identify the main challenges facing them

<sup>26</sup> The government group should identify the main challenges facing them
<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.40</td>
<td>Presentation: <em>Tribal Trading and Good Intentions</em></td>
</tr>
</tbody>
</table>
| 2.00 | Discussion:  
  - Split into two breakout groups, each focusing on one scenario  
  - Within each breakout group, participants should organise themselves into government, business or citizens roles  
  - Each sub group discuss what the scenario is like for their stakeholder by carrying out a SWOT analysis from the stakeholder’s perspective  
  - What are the main issues you want government to tackle on your behalf?  
  - Stepping out of role and – imagining that the scenario is an accurate representation of the future – what recommendations would you like to make on strategy or policy? |
| 2.45 | Feedback |
| 3.30 | Coffee |
| 3.45 | Plenary Discussion  
  - Run the [Plausibility Matrix](#) and discuss the outcomes  
  - What are the robust policy or strategy options that need to be tackled across all futures?  
  - What are the risks to government (or your organisation) that need to be managed in pursuing these options? |
| 4.30 | Review |
| 4.45 | Close |

---

27 The government group should identify the main challenges facing them
Using scenario techniques

A suite of scenario and futures processes - ranging from 75 minute meetings to day long workshops – that may help general strategic discussions

STEEP Analysis .......................................................................................................... 31
Visioning...................................................................................................................... 33
Issue Trees................................................................................................................... 35
Predetermined elements and critical uncertainties..................................................... 37
Stakeholder analysis................................................................................................. 39
Creating Scenarios................................................................................................. 41
STEEP Analysis

STEEP analysis is a good technique for

- structuring a brainstorm session at the start of a strategy or futures exercise;
- helping groups to focus on what is driving change in the external environment.

The approach is based on the ‘3 circles model’ -developed by Colin Eden and Kees van der Heijden at the University of Strathclyde - which describes three aspects of an organisation’s business environment:

- the internal organisational environment, where decision making is largely focussed on operational issues and resource management;
- the external transactional environment, where an organisation’s customers, competitors, suppliers and external stakeholders sit. Their behaviours and choices shape the transactional environment and challenge the organisation to respond. When decision makers analyse what is happening in this environment, however, they generally look at the recent past, the present and (at best) the near future – in order to make short term reactive decisions designed to optimise short term performance;
- the wider contextual environment. Trends and events in the contextual environment are not – by definition – of immediate relevance to the organisation. These trends (drivers) are, however, shaping development of consumer and competitor behaviour in the transactional environment.

Typically, drivers are categorised as Societal, Technological, Environmental, Economic and Political.

The purpose of STEEP analysis is to look at the contextual environment, to characterise the drivers that are operating – and then consider what – if any – effect they might have on the organisation’s future activities.
The steps

a. Invite participants to work in twos or threes

b. Discuss what is driving change (introduce the STEEP concept)

c. After 5-10 minutes, invite participants individually to write (say) 5 drivers on post-it notes

d. In twos and threes again, ask participants to cluster the post-its

e. Identify the name of each cluster

f. Identify the pivotal – or most significant/high impact driver in each cluster

g. Discuss the likely impact and implications of the cluster on your activities
Visioning

Visioning is a good exercise for

- getting groups to focus on what success looks like
- diagnosing how close the organisations is to the group’s ideal
- setting an agenda for forward action

Participants use a number of questions to describe a future where the organisation is highly successful – then identify how the current reality need to change to ensure success.

**Step 1: The future**

Imagine it is five years from today. Your team has successfully created the organisation you most want to create. Your task in this session, as a team, is to describe what it looks like as if you could see it around you.

Use the following questions as triggers give everyone the opportunity to contribute and capture the conversation on flip charts. Try and speak in the present tense – it will help you to imagine you are in the future.

1. Who are our stakeholders? How do we work with them? How do we create value for them?
2. What are the major socio-economic trends that are influencing what we do?
3. How are we perceived by our customers and stakeholders?
4. How do we add value/generate income?
5. What kind of people work here? Why do they choose to work for us?
6. What kind of leaders and decision making processes do we have?
7. How do we manage the good times?
8. How do we handle difficult times?
9. What are our values? How do people treat each other?
10. How do we reward people?
11. How do we measure progress and success?
12. How does the organisation learn from its successes and failures?
Step 2: Current reality

Now come back to the present day and explore a related set of questions:

1. How close are we to our vision?
2. What aspects of our organisation and our systems do we need to change to achieve the vision?
3. Is our people’s experience of change positive or negative? How do we manage the change process to ensure they come with us?
4. What do we need to do now to get started?
Issue Trees

This technique is a good one to use

- at the start of a project when thinking through the overarching question that the project is attempting to answer
- to deepen your understanding of the issues involved

The key to building a successful issues tree is to constantly ask questions and to keep adding layers until the group believes it has built a fully comprehensive tree.

There is an example of an issue tree (developed at the start of the IIS project) on page 2.

The process

1. Write an opening question that relates to the project’s aims.
2. Move onto the next layer (layer 2) and set out the key questions that need to be answered in order to answer the opening question (layer 1)
3. Repeat stage 2 for each of the questions in layer 2.

…and so on until you feel you asked the fundamental questions at the heart of the project. You can now use the issue tree to organize the project work.
Predetermined elements and critical uncertainties

This is a good technique for

- Identifying whether the organisation is prepared for future change
- Setting a scanning agenda

The approach mimics the start of a scenario planning exercise and can therefore be used to test some scenario issues. It starts in the same way as STEEP Analysis.

The steps

1. Invite participants to work in twos or threes
2. Discuss what is driving change in society (introduce the STEEP concept). Keep this stage much wider than the project area or topic that the group is looking at – they can filter out irrelevant drivers at the next stage.
3. After 5-10 minutes, invite participants individually to write (say) 5 drivers on post-it notes
4. Collect the post its and map them on a 2x2 matrix according to whether
   a. The driver is important for the project under consideration
   b. The outcome of the driver (the impact it will have) is certain
5. Focus on the top left quadrant – drivers which are important and have a certain outcome. These are predetermined elements. Discuss
   a. what the outcome of each trend will be
   b. whether its impact on your work will be positive or negative
   c. whether your organisations is prepared to capitalise on the opportunities or respond to the threats
   d. whether there is anything else you should do

6. Now look at the top right quadrant - drivers which are important but which have an uncertain outcome. Discuss
   a. what the alternatives outcomes might be
   b. what the possible impact on your work might be
   c. the possible timescale of the uncertainty
   d. what you should track or scan for to monitor the driver’s development
**Stakeholder analysis**

This is a useful technique for exploring which stakeholders have most influence on a group’s actions.

**Part 1: Map stakeholders**

7. Brainstorm a list of stakeholders. Write each stakeholder down on a post-it note.

8. Draw the following matrix on a flip chart and discuss where each post it goes. Map the stakeholders according to

   a. whether their **interest** in the project is high or low

   b. whether their ability to **influence** the project outcomes is high or low

![Stakeholder Matrix]

**Part 2: Stakeholder management**

1. Focus on the high-high quadrant and discuss

   a. whether each stakeholder’s influence is potentially helpful or unhelpful to what you are trying to achieve

   b. the extent to which you need to engage with each of these stakeholders and involve them in the project
c. how you propose to manage stakeholders who could be unhelpful to what you are trying to achieve

2. Look at the High Interest-Low Influence quadrant and discuss
   a. whether it is possible for any of these stakeholder to acquire more influence
   b. whether it is desirable for them to acquire more influence
   c. whether you have any role to play in helping them acquire more influence
   d. how you propose to engage them in the process

3. Look at the High Influence-Low Interest quadrant and discuss
   a. whether each stakeholder’s influence is potentially helpful or unhelpful to what you are trying to achieve
   b. whether it would be helpful to the project if they acquired a higher level of interest
   c. whether you have any role to play in helping them acquire more interest
   d. how you propose to engage them in the process

You can extend this exercise by repeating part 1 and – if it useful – part 2 with a futures perspective. The technique is the same, but the group should brainstorm who stakeholders will be in the future – once, say, the project is completed. They should then be mapped onto the matrix according to their future interest and future influence.

Often the changes emerging from the futures mapping are quite small – but quite significant.
**Creating Scenarios**

This exercise is designed to create a set of scenarios. It is an ideal way to help groups

- think about the changing business environment
- create multiple futures
- rehearse strategic decisions

**Running a scenario workshop in one day is challenging. Use an experienced facilitator.**

**Process overview**

The workshop begins with a brainstorm of key uncertainties. Participants list ideas on post its and then group related post its into clusters (Figure 1). They then name the clusters and identify the critical uncertainty in each one (marked with a red dot in Figure 1).

Participants use the critical uncertainties to create axes of uncertainty to create of uncertainty - two clearly defined poles on an axis that describe alternative ways the uncertainty might play out (Figure 2).

Once all the axes have been described, participants should vote for the two they would like to form the scenario matrix (Figure 3). In the second part of the workshop, participants

- describe the four scenarios
- test their strategic objectives against them
- test their own strategic fitness using the plausibility matrix
- examine the consequences for strategy and policy
**One day workshop**

9.15 Welcome and Introductions

9.30 Agree key objectives for *the venture*

9.50 Brainstorm: What are the key uncertainties surrounding the future of *the venture*?
  - Discuss in pairs
  - Capture on post-its

10.30 Sort: group post-its into related clusters

11.15 Coffee

11.30 Name clusters and identify critical uncertainty in each

12.15 Describe axes of uncertainty

12.45 Agree scenario matrix
  - Vote and test

1.00 Lunch

1.30 Develop scenarios
  - 2 break out groups
  - Each group develop two scenarios
  - Describe each scenario in 10 bullet points and name it
  - wind tunnel the key objectives
  - the big challenge facing *the venture* in the scenario is…

3.15 Presentations and discussion:
  - Which is most plausible?
  - Which is most favourable?
  - Which are we planning for?

3.45 Tea

4.00 Group Discussion
  - What does this mean for our strategic objectives?
  - What do we need to do differently?
  - What are the key messages to take back to the office?

5.00 Close
Annex 1:

IIS Scenarios Aide Memoire
### Economic Performance

- Global economic growth in a highly connected and competitive world
- Work is intense and intensive: the 24/7 society is here for everyone
- High levels of affluence and innovation create rampant consumerism
- Much activity is concentrated in urban hubs, but older, higher earners tend to move to rural areas and use technology to remain connected
- Growing home working and telepresencing have not reduced levels of travel

### Economic Performance

- Most economic value resides in knowledge hubs within cities
- Cities compete on the basis of quality of life, cultural assets and education
- Sustainability and long termism are key guiding principles for success. Business is viewed with scepticism
- Higher consumption of services, but lower consumption of goods - people value things which are well made and which last.
- There has been a shift towards local production

### Economic Performance

- The collapse of the global economic system destroyed millions of jobs - they have never been recovered
- High levels of employment now in local food production and distribution
- Barter - of goods and services - is an increasingly important form of trading with its own basket of currencies
- Regions with diverse skills and strong local culture do reasonably well
- Work is - inevitably - closer to home
- There is little money for investment; innovation comes out of necessity

### Economic Performance

- High levels of employment, investment and innovation
- More homeworking for knowledge workers
- GDP growth continues despite less travel - leading to suggestions that the two activities are decoupled
- There has been significant redistribution of wealth as a result of new tax regimes - and the market for carbon credits
- The greatest opportunities lie in the cities; rural areas offer employment, but little chance of development

### Environmental Performance

- Increased nuclear capacity and development of renewable energy sources have reduced dependence on carbon-based fuels
- Extensive deployment of hydrogen fuel cells in cars means road use causes less environmental damage
- The constant volume and speed of traffic, however, create noise and stressful physical spaces
- Aviation remains carbon intensive and high impact
- Continued consumption means Europe's environmental footprint is unsustainable

### Environmental Performance

- Policies focused on reducing energy consumption and eliminate waste
- Energy supply is distributed. Microgrids generate over 50% of household electricity in the cities
- New housing is built on top of existing developments or on brownfield sites. City edges are protected. All developments are mixed use
- Consumers are taxed on the resources they use up rather than what they spend or what they earn
- Everything gets recycled
- Electric vehicles and biofuels are common

### Environmental Performance

- Huge increase in distributed power generation using sun, wind and water - regions with access to natural resources are better off
- Some - but limited - contribution to the national grid
- No nuclear power - government failed to invest in it when it could afford to
- Carbon emissions have gone down
- Buildings are highly energy efficient
- Extensive re-use and recycling of products waste is minimal

### Environmental Performance

- Governments collaborate on policies to reduce the global impact of travel
- The G10’s International Contraction and Convergence Agreement has resulted in a reduction in emissions
- …but carbon levels in the atmosphere are still rising.
- The UK’s Carbon Entitlements programme has been introduced to ration travel
- Icecaps are shrinking and global weather is unpredictable; environmentalists believe the world is moving into unknown territory
### Perpetual Motion

**Social Parameters**
- The technology from birth generation are happy with ID cards, pervasive computing and always on technology
- High levels of empowerment. Many individuals take control of their own education and careers - so many thrive
- Lower paid service sector workers earn well but are forced to work long and anti-social hours.
- Growing acceptance drugs to aid individual competitiveness and to combat stress - a pervasive issue
- A growing sense of the need to stop and smell the roses

### Urban Colonies

**Social Parameters**
- Policies focussed on social equity and mobility rights
- Transport systems are designed to be accessible for everyone
- Free migration of people across Europe; the UK is an attractive location
- Cities have strong identities and offer a stronger sense of community; people are more compassionate.
- On street crime has stabilised. White collar crime is endemic.
- There is an uneasy divide between rural and urban areas

### Tribal Trading

**Social Parameters**
- Trust is low - groups of tight knit communities that are wary of outsiders
- There is a strong spirit of self help
- Strong communities do best; weaker communities find it hard to build social cohesion
- Big cities are heavily policed; towns and rural communities feel safer
- More physical work and less indulgent lifestyles mean that people are fitter and healthier

### Good Intentions

**Social Parameters**
- Government’s approach seen as ‘too much, too late’ - but despite some early disruptions and widespread protest, society accepts the need to act
- Carbon entitlements (CEs) have become a second currency. Many cash poor are CE rich - and trade with those who are cash rich and CE poor
- Many middle income families have changed their lifestyles significantly, travelling and consuming less
- High carbon users (air passengers, for example) are vilified by society

### Transport Activity

**Perpetual Motion**
- Modes are highly interconnected; travel systems are highly adaptive
- On-board driver assistance is used to support and enhance decision making
- Automated highway systems and new energy sources greatly increase traffic volume, speed and distance traveled
- The rail network is expanding – most new investment is in long distance travel. Short journeys dominated by light rail, taxis and train
- Air travel is severely curbed
- Recreational travel is popular. Long haul journeys are by train or night rider

**Urban Colonies**
- Different organisations run different bits of the infrastructure – integration is poor
- People travel less - and only if transport is clean and green.
- Walking and cycling have increased; public transport systems are based on light rail and electric vehicles
- Private vehicles utilise renewable energy and biofuels
- Long distance travel is harder, more expensive and less common
- Aviation is environmentally costly - and used sparingly

**Tribal Trading**
- Energy efficiency matters more than speed
- Low value freight is moved by water; high value freight by rail
- Cross (regional) border travel incurs a tariff - a major source of income
- Remaining are powered by steam and used mainly for commercial purposes
- Regions with access to renewable power and good storage devices are able to run limited public transportation systems
- Local transport is mainly by horse

**Good Intentions**
- Unrestricted personal mobility is a distant memory.
- Home working creates high demand for local low carbon transport infrastructure. Biofuel buses are popular
- In-car technology shows economic and environmental costs of travel. Road use is charged on a pay as you drive basis
- Real time management systems direct vehicles via the lowest impact route
- Trains are environmentally friendly but the network is stretched to capacity
- Air transport is heavily taxed and restricted
<table>
<thead>
<tr>
<th>Perpetual Motion</th>
<th>Urban Colonies</th>
<th>Tribal Trading</th>
<th>Good Intentions</th>
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<tbody>
<tr>
<td><strong>Health impacts</strong></td>
<td><strong>Health impacts</strong></td>
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<tr>
<td>- Economic growth drives health improvement but masks significant inequalities</td>
<td>- Physical activity through active travel has resulted in a healthier, less obese population</td>
<td>- Declining health across society, at its worst in deprived groups, with widening inequalities</td>
<td>- Marked reductions in socio-economic inequalities (globally as well as locally) with consequent health benefits</td>
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<tr>
<td>- Access to goods and services is excellent for most people but poor for disadvantaged groups</td>
<td>- Localisation provides convenient access to goods and services for urban population, but access is poor for those in rural areas</td>
<td>- People lead active lifestyles, with high levels of physical activity and low levels of obesity; without this health status would be even lower</td>
<td>- Reduced vehicle speeds, coupled with technology, have led to lower levels of traffic injuries</td>
</tr>
<tr>
<td>- Few opportunities for physical activity, including through walking and cycling; high obesity levels continue to rise</td>
<td>- Clean and pleasant environment with low levels of pollution</td>
<td>- Violent society with increases in both deliberate and unintentional injuries</td>
<td>- Growth in active travel has increased levels of physical activity, although this has been partially offset by increased (sedentary) home working</td>
</tr>
<tr>
<td>- In-vehicle safety highly developed but at the cost of increased danger for pedestrians and cyclists</td>
<td>- Prominence given to active travel modes has improved road safety and reduced transport deaths and injuries</td>
<td>- Poor access to goods and services, especially for people with mobility problems</td>
<td>- Extreme weather has significant impacts on health, exacerbated by carbon constraints on energy for adapting to it through heating or cooling</td>
</tr>
<tr>
<td>- Cleaner and quieter vehicles, but increased traffic volumes have offset some of the gains, with continued air and noise pollution in urban areas</td>
<td>- Strong local social networks promote healthy communities</td>
<td>- Extreme weather is common and communicable diseases are increasing</td>
<td>- Rural areas face an uncertain future</td>
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<tr>
<td>- High stress environment with limited opportunities to escape to the few remaining peaceful rural areas</td>
<td>- Reductions in health and social inequalities in urban areas but persistent rural deprivation and isolation</td>
<td>- Environmental degradation leads to problems such as threats to water security</td>
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<tr>
<td>- Hypermobile society weakens social networks</td>
<td></td>
<td>- Poor healthcare services with limited resources and capacity</td>
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Annex 2:

Slide set: Overview of the IIS Scenarios
The IIS Scenarios: Overview

- Accepting of Intelligent Infrastructure
  - Good Intentions
  - Perpetual Motion
- Resistant to Intelligent Infrastructure
  - Tribal Trading
  - Urban Colonies
Overview

- Instant communication and continued globalisation have fuelled strong economic growth in a highly competitive environment.
- Consumption is high; demand for travel remains strong.
- New cleaner fuel technologies are increasingly popular; road use causes less damage - even though volumes and speed of traffic remain high.
- Aviation - which still relies on carbon fuels - is expensive and increasingly replaced by telepresencing and rapid train travel.
- Increased nuclear capacity, switch to hydrogen economy.

Perpetual Motion

Overview

- The drive for economic advantage - coupled with the need to change lifestyles in order to reduce emissions - has led to an urban renaissance.
- Population, housing density and employment in the big cities are rising faster than before.
- Planning policies, technology development and investment are primarily focussed on minimising environmental impact. Cities are more compact.
- Transport is permitted only if green and clean. Car use is restricted. Public transport - electric, low energy - is widely used.
- Travel within cities is efficient - integration of wider infrastructure systems is poor.
- Rural areas have become more isolated, effectively acting as food and bio-fuel providers for the cities.

Urban Colonies
Overview

• The world has been through a sharp and savage oil shock
• The global economic system is severely damaged; infrastructure is falling into disrepair
• For many, the world has shrunk to their own communities
• Local food production and services have increased
• There is very little long distance travel
• Local transport is mainly by bike or by horse

Tribal Trading

Overview

• Following decades of inactivity over global warming, governments have been forced to act to prevent further carbon emissions
• People’s lifestyles are determined by a strict and enforced scheme of carbon consumption control
• Biofuel is the primary alternative form of energy
• Cars are lighter, smaller and more fuel efficient, Traffic volumes have fallen and mass transportation is used more widely
• Businesses have adopted energy-efficient practices; distribution and logistics is highly sophisticated
• There remain major concerns about whether the world has done enough to avert a major crisis

Good Intentions
Annex 3:
Slide set: Scenarios and their purpose
Scenarios and their purpose

*We can either stumble into the future and hope it turns out all right or we can try and shape it. To shape it, the first step is to work out what it might look like.*

*Stephen Ladyman, January 2006*
Scenario Planning

**Scenarios**

- Stories that describe how things might be in the future
  - what's different from today
  - what we need to do to be successful
- Based on an analysis of change drivers
- Not predictions or forecasts
- Help decision makers imagine and manage the future
  - identify what's in their control
  - identify what isn't
  - identify what needs to change to ensure future success
- Simplify some of the apparent complexity in the world

**A six step process**

1. Identify what is driving change
2. Decide which change drivers are critical and uncertain
3. Construct a scenario matrix
4. Develop the scenarios
5. Identify the strategic issues which emerge from the discussion
6. Incorporate those issues into the strategic planning process
• Focus on how science and technology might be applied to infrastructure over the next 50 years
• A consultation process with experts from the research community, business and public sector to identify key drivers and uncertainties
• Four scenarios
Annex 4:

Working with the scenarios: task sheets
Everyone in the group should collect – from the scenario matrix on the wall - one or two of the articles you found that seem to be important for your area of work or for your team

Tell each other about the articles and why you think they are important or interesting

Build clusters – or groups - of articles. The basis for clustering is to spot some kind of connection or signal that is emerging from them

For each cluster of ‘abstracts’ that you generate

- Record the title of the cluster
- List the abstract (titles and sources) in your cluster
- Record any emerging futures issue
- Identify one or more ‘research topics’ for each
Cluster Title

Article Titles/Headlines

Emerging futures issues

Research Topics
Cluster Title

Emerging futures issues

Research Topics
Fifth Scenario Task Sheet 1

1. Which scenario are you discussing__________________________

2. What do you like about the scenario? Not like?

LIKE

NOT LIKE
3. What are the strengths and weaknesses of the scenario for transport. What are the opportunities for your policy area that you need to capitalise on? What are the threats you need to mitigate against?

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<tr>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
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<tr>
<th>OPPORTUNITIES</th>
<th>THREATS</th>
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4. What are the key challenges and issues for you and your stakeholders in this scenario?
Fifth Scenario Task Sheet 2

Which group are you?

π Group 1

π Group 2

π Group 3

Group 1: identify – and map on the timeline – the 10 key steps or events required to ensure that the 'must happens' occur

Group 2: identify – and map on a timeline - the 10 key steps or events required to ensure that the 'must not happens' do not occur

Group 3: identify – and map on a timeline - the 10 key steps or events required to ensure that the 'would likes' occur
Fifth Scenario Task Sheet 3

Which group are you?

\[ \pi \] Group 1
\[ \pi \] Group 2
\[ \pi \] Group 3

**Group 1:** Who is responsible for the **must** happens? What must they do now? Who should be involved?

**Group 2:** Who is responsible for the **must not** happens? What must they do now? Who should be involved?

**Group 3:** Who is responsible for the would like to happens? What must they do now? Who should be involved?
1. Who has responsibility?

2. What needs to be done now?

3. Who else needs to be involved?