

UK Government Office
for Science (2021)



Government
Office for Science

A brief guide to futures thinking and foresight

*Tips, advice, and guidance to help policymakers embed long-term
thinking and external insight into policy making.*



Foreword



Citizens rightly expect government policy that creates long-term benefits for society. To deliver this aim we need more than policy proposals which work well in the present context. We also need to understand what is changing beyond a policy area, how those changes might affect its impact, and how we might adapt policy proposals in response.

Futures thinking and foresight tools provide government with a structured approach to policy making that is robust and responds to long-term change. The future is inherently uncertain and complex. To deliver long-term benefits we need to monitor and make sense of possible future change, explore the dynamics and uncertainties of that change, describe what the future might be like and understand potential implications. This guide will introduce you to resources for all these areas.

I hope you find this introduction to futures thinking and foresight tools useful. It is full of tips, advice, and guidance to help you get started, alongside links to other resources to help you further develop your knowledge and skills. There are established networks and communities of futures practitioners across government. Please use this guide to make those links, find support, and start a conversation with your colleagues about longer-term thinking and bringing future possibilities into policy making.

By routinely considering how the future may unfold, and proactively and systematically incorporating our findings in our strategies and decisions, Government's policies will be more resilient and deliver long-term benefits more effectively.

A handwritten signature in blue ink, consisting of a series of loops and a long horizontal stroke at the end.

Sir Patrick Vallance

Government Chief Scientific Adviser

Government Office for Science

The Government Office for Science (GOS) advises the Prime Minister and members of Cabinet to ensure that government policies and decisions are informed by the best scientific evidence.

Within GOS, the Emerging Technologies, Futures and Projects team works to promote and embed strategic long-term thinking within government and across the Civil Service. We do this by providing resources, support, and advice. Our ambition is that all Civil Servants routinely consider future change and uncertainty in the decisions they make, the advice they provide and the investments they propose.

We know that the future can be a difficult topic to navigate and incorporate in your work, so we have created this guide to provide a brief introduction with links to a range of resources where you can learn more.



Click on a topic for the link to a resource. Some resources are internal so if a topic does not have a hyperlink please email futures@go-science.gov.uk to request the resource.

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Why think about the future?

Policies which are based on assumptions of how the world is today can limit our choices and put us in a position of constantly responding to change, rather than creating the conditions to achieve the future we want. By considering alternative plausible future worlds, based on trends, drivers, and external insight, we can develop more resilient policies with a better chance of delivering the outcomes we are seeking, whatever the future holds.

Everyone in the Civil Service has a responsibility to think about the future in the work they do. Policy decisions made today have long-term consequences. However, the future in which these decisions have an impact is uncertain and we need foresight methods to help us make decisions in the present to deliver policies with longer-term benefits.

“The future depends on what you do today.”
Mahatma Gandhi

Futures Terms

Futures: refers to different approaches to thinking about the future and exploring factors that could give rise to possible and probable future characteristics, events and behaviours.

Foresight: refers to the tools/methods for conducting futures work, for example, horizon scanning (gathering intelligence about the future) and scenarios (describing what the future might be like). ‘Foresight’ is also the brand GOS has worked under for over 25 years.

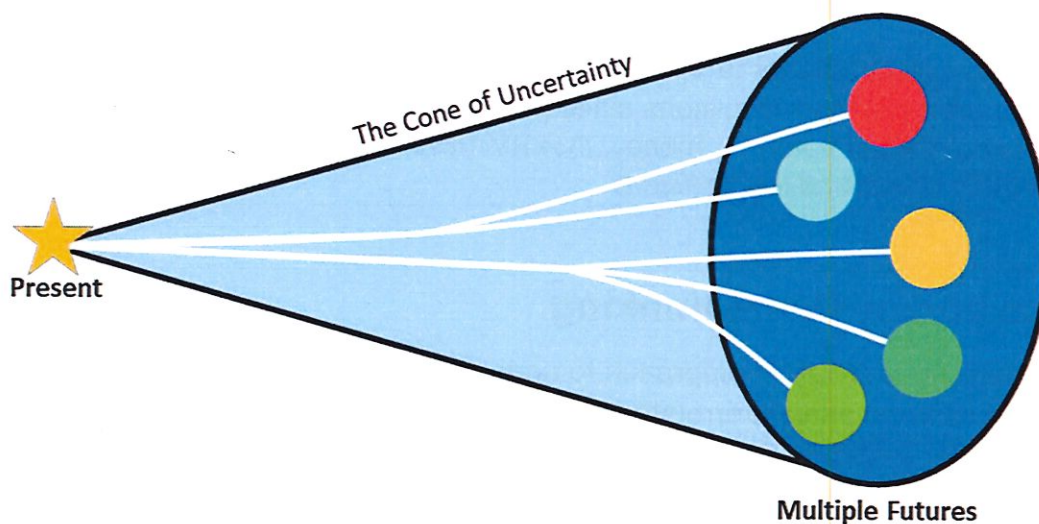
Horizon scanning: a systematic examination of information to identify potential threats, risks, emerging issues and opportunities, beyond the Parliamentary term, allowing for better preparedness and the incorporation of mitigation and exploitation into the policy making process - [Sir Jon Day review definition](#). The 2013 review made a number of influential recommendations for how horizon scanning should be conducted across government.

What is futures thinking?

In this guide we use 'futures thinking' to cover any activity that helps us understand and make sense of possible future change or uncertainty about what might happen.

Futures work helps us:

- Spot patterns of change, emerging trends, surprises, and disruptors earlier, giving us more time to respond.
- Focus on the external context within which we deliver policy, taking account of the 'big picture.'
- Bring in alternative points of view, as futures is a collaborative process.
- Create a narrative of the future, based on structured frameworks and evidence.
- Explore multiple versions of the future. The cone of uncertainty below is used to show how there is no one version of the future but multiple possibilities. Foresight methods help us to explore and make sense of this range of future possibilities.



Don't we think about the future already?

Yes, we do. Many policies and strategies have long-term ambitions and targets. For example, the 2030 [UN Sustainable Development Goals](#) and 2050 [net zero emissions target](#).

A lot of government analysis relies on projecting the impact of different policies into the future.

However, there are many examples where plans are derailed by an unanticipated event. Trends we relied on go into reverse, or the future envisaged when policies were set does not pan out exactly as hoped. Futures thinking provides a structure for thinking how the world could change, and the implications of that for our plans.

Benefits of futures work

“We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten. Don't let yourself be lulled into inaction.”

Bill Gates, Microsoft Co-Founder

The flexibility of futures means that it can be applied in a number of ways to help policymakers:

- Deepen their understanding of the driving forces affecting a policy or strategy area.
- Identify gaps in knowledge and suggest areas of new research required to understand driving forces better.
- Build consensus amongst a range of stakeholders.
- Identify, and make explicit, difficult policy choices and trade-offs in the future.
- Create a new strategy that is resilient because it is adaptable to changing external conditions.
- Mobilise stakeholders to action.
- Support investment decisions since policy that takes a long-term view is likely to provide greater value for money. (See HM Treasury's [Green Book: central government guidance on appraisal and evaluation](#)).

Futures and systems thinking

Systems thinking is a holistic approach to analysis that focuses on the way that a system's constituent parts interrelate and how systems work over time and within the context of larger systems. We often struggle with this holistic approach, choosing instead to focus on short term immediate results, rather than complex long-term interconnected issues. To address complex interconnected issues a [systems thinking approach](#) is increasingly promoted across the Civil Service. This approach, combined with foresight methods, has been used in Foresight reports such as [Tackling Obesities: Future Choices](#) and the [Future of Mobility](#) report which considered transport as a system. (See [Defra's systems research programme](#) and learn more about systems thinking through [Open Learn](#))

“Because the future cannot be predicted with confidence, governments need foresight tools to factor such flux into governance strategies.”

Joan Moh, Former Head, Centre for Strategic Futures, Singapore

Engagement and developing capability

Stakeholder engagement

Foresight methods are, by their nature, collaborative, bringing external insights and different views into policy making. Collaboration could be across departments and policy teams or with stakeholder groups to gather horizon scanning insights or develop scenarios or visions. The thought processes, discussion and debate that go into creating foresight outputs are often as important as the outputs themselves.

Participatory futures techniques

These techniques help develop collective images of the future so that we can make better, more informed decisions. It is a way of democratising the future, moving beyond traditional engagement techniques.

See the Nesta report *[Our Futures: By the people, for the people](#)*

Developing capability

GOS manage a programme of work which aims to develop Civil Servants' futures capability. This includes:

- Monthly introductions to futures sessions for working level and senior civil servants.
- Futures Toolkit training.
- An advisory service.
- Peer support from the cross-government Heads of Horizon scanning group which meets on a quarterly basis.

For more information on developing capability please email futures@gov.science.gov.uk

For futures experts, the [Association of Professional Futurists](#) is a global community of futurists, advancing professional foresight.

The Civil Service – success profiles

For senior leaders, seeing the big picture is about anticipating the long-term impact on the Department of economic, political, environmental, social, and technological developments, at both national and international levels and creating joined up strategies that put into practice and support the Government's vision for the future.

[Success Profiles](#) – Civil Service behaviours, March 2019

See the behaviours in the [Policy Officer Apprenticeship](#) standard, The Civil Service [Policy Profession](#) standards and learn more about the [Analysis Function in Government](#).

Futures – where to start

Explore what we already know

There are plenty of existing futures resources with trends, data, scenarios and information that you can use, adapt or expand. Existing resources are a good starting point but it's important to remember they are designed to answer a specific question about the future. Policymakers may also need to conduct their own research, gather expert opinion, and undertake further analysis to challenge organisational biases and work with information that is robust, current, and relevant to a policy area. (See section 4 for links to existing resources).

Explore what we don't know

Uncertainty is inevitable and while this makes it difficult to know exactly what the future might hold; foresight methods can help us simplify that uncertainty and identify threats and opportunities. The future is open to change; it can be shaped to achieve better outcomes.

Horizon scanning looks for weak signals of change which start off as background noise, or are new and surprising, but may become part of a significant pattern if connected with other information or viewed through a different lens. Identifying weak signals can help us respond to emerging issues faster. It also allows us to prepare for possible disruptive events (see the [horizon scanning zoo](#) for descriptions of a black swan, unicorn or red herring and learn more about complexity and uncertainty through [FutureLearn](#)).

Pathways

The GOS Futures Toolkit sets out 7 pathways designed to meet the most common needs of policymakers and describes the combinations of tools used in each pathway.

The pathways are:

1. Exploring underlying issues or causes when scoping or defining a policy area.
2. Determining a vision for a new policy area.
3. Testing options for an existing policy areas under time constraints.
4. Testing policy options for a new policy area.
5. Exploring and communicating the complexity of a situation.
6. Identifying futures research and evidence priorities.
7. Identifying and prioritising future opportunities and threats for action.

Going further - foresight tools and methods

There are well-developed methods for thinking about the future in a structured way. The methods vary in terms of the knowledge, skills and resources required. Some are straightforward, like a simple horizon scanning exercise, others require in depth futures knowledge like GOS [Foresight projects](#). The approach you take should be based on a clear understanding of the question you want to explore and how far ahead you want to look.

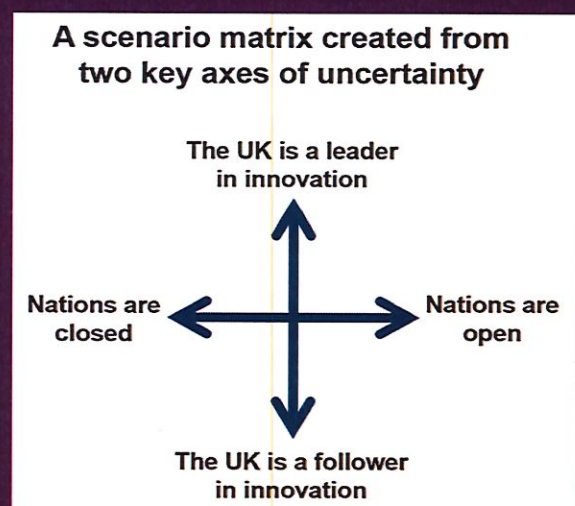
The GOS [Futures Toolkit](#) will support you in using foresight methods. It provides information on what the core tools and techniques are and how and when to use them. The toolkit features:

- **Tools** – an introduction to the various tools you can use from gathering intelligence to testing your ideas and policy recommendations.
- **How to use the tools** – in practical exercises, workshop settings.
- **Examples of foresight outputs** – sample outputs from a number of futures processes.
- **Case studies** – so you can learn how others have used futures thinking to address their policy challenges and develop future-focused responses.

If what you need is beyond your capacity to deliver, or particularly complex, you can commission the services of commercial providers via the [Futures Procurement Framework](#). This consists of 27 suppliers capable of supporting a range of government departments and public bodies to help them think about the future.

Example of a futures tool: exploratory scenarios

- Exploratory scenarios describe plausible future worlds.
- Scenarios should be developed collaboratively and incorporate knowledge about current and future trends.
- A scenario matrix (see right) is created with two axes of uncertainty which act as the framework. More axes can be used for more nuanced scenarios.
- Understanding how policies or strategies fare under different scenarios can help make them more robust to future change.



Find out more

What follows is not an exhaustive list of futures resources nor should it be taken as an endorsement of any particular approach or organisation. This section aims to provide you with information to get you started.

a) Trends, scenarios, and narratives

- Civil Servants can access, via the Heads of [Horizon Scanning Knowledge Hub](#), GOS futures resources such as a trend deck, mega trends report and School of International Futures report Features of systemic foresight in governments around the world (*see help and support below*).
- The UK's Ministry of Defence [Global Strategic Trends](#) and related [YouTube content](#).
- The UK's Office for National Statistics [website](#).
- The US Director of National Intelligence [Global Trends report](#).
- Policy Horizons Canada [The Next Generation of Emerging Global Challenges](#).
- Singapore's Centre for Strategic Futures [Driving Forces Cards 2035](#).
- Arup [Drivers of Change](#) and related [YouTube content](#).
- Ipsos [Global Trends – understanding complexity](#) and related [YouTube content](#).
- Deloitte [Beyond the Noise, the Mega Trends of Tomorrow's World](#).

b) Topic specific reports and reviews

- GOS [research, Foresight and Blackett reviews](#).
- UK Parliament [briefings](#), [notes](#), [inquiries](#) and [POST](#).
- [World Economic Forum research](#) and related [DAVOS YouTube content](#).
- Finnish Innovation Fund [SITRA reports](#).

Help and support

- Email the GOS Futures Team on: futures@go-science.gov.uk
- Civil Servants can access the Knowledge Hub by emailing HoHS@go-science.gov.uk.
- Explore futures capability within your department (through your [Chief Scientific Adviser](#) and their office, your central analysis, insight or horizon scanning teams).

c) Networks and collaboration

- Heads of Horizon Scanning network (*see help and support text box, page 10*)
- UK Government [Future Policy Network](#).
- University of Cambridge [Centre for Science and Policy](#).
- Collaboration and citizen participation:
 - UK Research and Innovation [Sciencewise](#) programme.
 - Centre for Strategic Futures [participatory foresight](#).
 - Nesta [crowd predictions](#) / [collective intelligence](#) and [Future Curious](#) podcast.
 - Dubai [Museum of the future](#).
 - Finnish Innovation Fund SITRA [100 ways to be smart and sustainable test](#).

d) Methodology, tools, and techniques

- GOS [Futures toolkit](#).
- European Commission [Strategic Foresight Primer](#).
- EU [Foresight Platform](#).
- OECD [overview of futures methodologies](#).
- UN Development Programme [Foresight Manual](#).
- Scottish Environment Protection Agency [Horizon Scanning toolkit](#).
- Public Health Wales [3 horizons toolkit](#).
- Future Motions [Introduction to Strategic Foresight \(e-book\)](#).
- Toolbox, toolbox [curated list of toolboxes](#).
- Save the Children [The Future is Ours: strategic foresight toolkit](#).

e) Uncertainty, discontinuity, and disruption

- The cross government [Uncertainty Toolkit for Analysts in Government](#).
- EY [What's after what's next? The upside of disruption](#).
- RAND [Discontinuities and distractions – rethinking security for the year 2040](#).
- PWC [the dynamics of disruption](#).

Futures newsletters/websites

There are a number of future focused newsletters and websites which publish future research and innovations. These include:

- Thinking Futures - <https://thinkingfutures.net/newsletter>
- Futurity - <https://www.futurity.org/>
- Futurism - <https://futurism.com/>
- The conversation - <https://theconversation.com/uk>



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