



Government  
Office for Science

# Guidance for government Chief Scientific Advisers and their Officials

**Chief Scientific Advisers and their officials: an  
introduction**

Guidance  
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## Contents

<b>1. OVERVIEW</b>	<b>4</b>
<b>2. GOVERNMENT CHIEF SCIENTIFIC ADVISER (GCSA)</b>	<b>4</b>
<b>3. GOVERNMENT OFFICE FOR SCIENCE (GOS)</b>	<b>5</b>
<b>4. ROLE OF CHIEF SCIENTIFIC ADVISERS (CSAS)</b>	<b>6</b>
<b>4.1 DEPARTMENTAL RESEARCH AND DEVELOPMENT STRATEGY</b>	<b>9</b>
<b>4.2 AREAS OF RESEARCH INTEREST (ARIS)</b>	<b>9</b>
<b>4.3 CSAS ROLE IN THE GOVERNMENT SCIENCE AND ENGINEERING (GSE) PROFESSION</b>	<b>10</b>
<b>4.4 SCIENCE ASSURANCE AND RESEARCH INTEGRITY</b>	<b>11</b>
<b>5. OTHER ASPECTS OF THE CSA ROLE</b>	<b>11</b>
<b>5.1 ADVICE IN EMERGENCIES</b>	<b>11</b>
<b>5.1.1 SCIENTIFIC ADVISORY GROUP IN EMERGENCIES (SAGE)</b>	<b>12</b>
<b>5.2 INTERNATIONAL ASPECTS OF THE CSA ROLE</b>	<b>12</b>
<b>5.3 FUTURES ANALYSIS INCLUDING HORIZON SCANNING</b>	<b>13</b>
<b>6. KEY RELATIONS AND NETWORKS</b>	<b>13</b>
<b>6.1 CHIEF SCIENTIFIC ADVISERS' NETWORK</b>	<b>13</b>
<b>6.2 CSA NETWORK STEERING COMMITTEE (CNCS)</b>	<b>14</b>
<b>6.3 CSA OFFICIALS' NETWORK</b>	<b>14</b>
<b>6.4 UK RESEARCH AND INNOVATION (UKRI)</b>	<b>15</b>
<b>7. GUIDANCE AND ADVICE</b>	<b>15</b>
<b>7.1 GUIDELINES ON USE OF SCIENTIFIC AND ENGINEERING ADVICE IN POLICY MAKING</b>	<b>15</b>

## Contents

<b>7.2 INDEPENDENT SCIENCE ADVICE TO GOVERNMENT</b>	<b>16</b>
<b>7.3 OTHER SOURCES OF EVIDENCE AND ADVICE</b>	<b>17</b>
<b>8. ROLE OF HEADS OF SCIENCE AND ENGINEERING PROFESSION (HOSEP)</b>	<b>18</b>
<b>8.1 GOVERNMENT SCIENCE AND ENGINEERING (GSE) PROFESSION AND CSAS</b>	<b>19</b>
<b>8.2 ANALYTICAL CO-ORDINATION ACROSS GOVERNMENT</b>	<b>19</b>
<b>9. CONTACT INFORMATION</b>	<b>20</b>
<b>ANNEX A – SUCCESSION PLANNING AND RECRUITMENT OF CSAS</b>	<b>21</b>
<b>ANNEX B – INDUCTION FOR CSAS</b>	<b>23</b>
<b>ANNEX C – GUIDANCE ON WRITING A DEPARTMENTAL AREAS OF RESEARCH INTEREST</b>	<b>27</b>
<b>ANNEX D – THE PRINCIPLES OF THE RESEARCH INTEGRITY CONCORDAT</b>	<b>30</b>
<b>ANNEX E – KEY DOCUMENTS AND WEBSITES</b>	<b>31</b>

### 1. Overview

**The aim of this document is to provide guidance on the roles and responsibilities of departmental Chief Scientific Advisers (CSAs) and their supporting teams (CSA Officials) and to put these in the context of the broader science advisory processes across government.**

### 2. Government Chief Scientific Adviser (GCSA)

The GCSA advises the Prime Minister and Cabinet Office on aspects of science, engineering and technology, to ensure that effective systems are in place within government for delivering, managing and using science. This often requires the GCSA to consult with and work alongside departmental CSAs and other experts.

The GCSA reports to the Cabinet Secretary. Whilst having a particularly close working relationship with the Science Minister, the GCSA also engages directly with Secretaries of State and other ministers and Permanent Secretaries across government on relevant issues. The GCSA is the head of the Government Office for Science (GOS)<sup>1</sup> and also co-Chairs the Prime Minister's Council for Science and Technology (CST)<sup>2</sup>.

The GCSA is involved in CSA recruitment and should, except where an alternative approach has been agreed with those in the department who are conducting the recruitment, be a member of the recruitment panel. CSAs who will be leaving their post should notify GCSA and the Government Office for Science in advance (ideally one year before departure).

The GCSA has a role in departmental performance management processes and in setting objectives for CSAs who are in post. The GCSA meets regularly with CSAs to identify priorities, interests and challenges and to discuss interaction with the Government Office for Science and ways of working. The GCSA also meets with Permanent Secretaries to discuss their departmental CSA's role, grade, salary and objectives as part of on-going performance management.

The GCSA, working through Government Office for Science, plays a key role in supporting departmental CSAs to develop and deliver the government science capability.

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<sup>1</sup> <https://www.gov.uk/government/organisations/government-office-for-science>

<sup>2</sup> <https://www.gov.uk/government/organisations/council-for-science-and-technology>

## Chief Scientific Advisers and their officials: an introduction

The GCSA has no formal relationship with the devolved administrations (DAs), but will advise, where appropriate, on reserved matters. The GCSA also maintains strong informal links, for example through DA membership of the CSA Network.

### 3. Government Office for Science (GOS)

The Government Office for Science supports the GCSA in ensuring that government has access to the best scientific evidence and strategic long-term thinking to inform policies, decisions, services and operations.

The Government Office for Science has a role in ensuring that government, both collectively and within departments, has the right people, resources, and scientific infrastructure for managing and using science. This includes oversight of CSA recruitment processes. The Government Office for Science should be consulted on the job description before a CSA recruitment campaign is launched.

The Government Office for Science is responsible for:

- Giving scientific advice to the Prime Minister and members of the Cabinet, through science advice mechanisms that are efficient, effective, speak truth to power and are embedded irreversibly in Government systems
- Ensuring and improving the quality and use of scientific evidence and advice in government through both pro-active and demand-led science advice that is relevant, excellent, and delivered fit for purpose
- Supporting departmental CSAs, particularly in cross-government collaboration
- Providing the best scientific advice in the case of emergencies, through the Scientific Advisory Group for Emergencies (SAGE)
- Providing the secretariat to the independent Council for Science and Technology which provides high level advice to the Prime Minister

It also supports the CSA Network facilitating weekly meetings for CSAs chaired by the GCSA to discuss departmental science priorities and policy topics of relevance to the provision of evidence; CSA Steering Committee meetings every six weeks, an annual CSA Network conference and other CSA events - including ad-hoc meetings among subgroups of CSAs, with National Academies and UKRI and Research Councils.

The Government Office for Science houses teams that focus on science capability across government. These include:

- Scientific Advisory Group for Emergencies (SAGE) support
- The Science Systems and Capability team
- The Government Science and Engineering (GSE) Profession team
- The Futures team
- The Security, Resilience and Innovation team

## Chief Scientific Advisers and their officials: an introduction

An overview of the broader work of the Government Office for Science is provided on the GOV.UK site, and in the Government Office for Science Annual Reviews<sup>3</sup>.

### 4. Role of Chief Scientific Advisers (CSAs)

The majority of departments have a Chief Scientific Adviser. CSAs are senior science advisers, typically working at Director and Director General level within Government Departments. They are expected to be members of their departmental Executive Boards and will typically also advise the Strategic or main Board of their department.

CSAs perform an independent challenge function to their department, ensuring that science and engineering evidence and advice is robust, relevant and high quality and that there are mechanisms in place to ensure that policy making is underpinned by science and engineering. Their role is to bring scientific and engineering evidence to the centre of decision-making in government and to provide oversight and assurance of science and engineering capability and activities in their department. CSAs also oversee departmental processes for providing or commissioning science and engineering advice.

CSAs work alongside the other analytical disciplines<sup>4</sup> and with ministers and senior teams, to ensure robust, joined-up evidence is at the core of decisions within departments and across government. CSAs also work together, and with Research Councils and others, under the GCSA's leadership, to address and advise on issues which cut across government. In particular CSAs engage thoroughly with the GCSA and the CSA Network. This cross-government working group is crucial to ensuring that scientific advice in government is appropriately communicated and actioned. CSAs attend regular meetings and other opportunities with the CSA Network, at which they represent the science and research being conducted in their department.

A CSA should usually be a distinguished external scientist or engineer, recruited externally (see Annex A). They should bring deep science and/or engineering knowledge and be able to work fluently across a range of sciences. It is an advice role that derives authority from knowledge, the ability to convene respected authoritative groups, and personal standing in the scientific world. It has a clear outside-in function (understanding what is going on in the world of research and bringing the best of it into the department) as well as helping with inside-out communication (building partnerships and networks for more effective innovation). It provides challenge at the most strategic level.

To carry out this role successfully, CSAs need to be excellent communicators and collaborators. This includes operating with confidence well outside their own

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<sup>3</sup> [www.gov.uk/go-science](http://www.gov.uk/go-science)

<sup>4</sup> economists, operational researchers, social researchers, statisticians

## Chief Scientific Advisers and their officials: an introduction

discipline, and building strong working partnerships with ministers, officials, and external collaborators alike.

The CSA's role involves building bridges and relationships between government and the wider worlds of science and technology. The role of the CSA includes that of a "licensed dissident", providing challenge and leadership at the centre of the department. The role is distinct from that of a departmental Director of Analysis, whose role it is to oversee the analytical resources used in the development of policy.

All CSAs are likely to have work that impinges on sensitive security matters. Normally therefore they will be required to obtain DV clearance.

In all cases of external recruitment, the CSA is a senior science leader who brings scientific evidence to the centre of decision making in government. The precise responsibilities of the CSAs vary in different departments.

CSA responsibilities include:

- Provision of advice and challenge directly to the secretary of state, other ministers and policymakers in the department
- Performing an independent challenge function to the department, ensuring that science and engineering evidence and advice for departmental policies and decisions is robust, relevant and high quality
- Ensuring that there are mechanisms in place to ensure that policymaking and the delivery of services and operations are underpinned by science and engineering
- Assuring the operation of the 'Principles of Science Advice to Government' to all external scientific advice to their department
- Oversight of the effective operation of departmental Scientific Advisory Committees
- Working with CSAs in other departments to share good practice across government and to identify and resolve cross-departmental science issues
- Producing a departmental R&D Strategy for the department, which also considers departmental arms-length Public Laboratories
- Leading and engaging on relevant national and international science and engineering issues
- Management and/or oversight of departmental science and technology (S&T) budgets
- Working with the other analytical Heads of Profession and Departmental Directors of Analysis (DDAs) to ensure a robust and integrated evidence base underpins policy formulation, delivery and evaluation
- Ownership of the department's Areas of Research Interest (ARI) document, to be developed in collaboration with the department's Head of Policy Profession (HoPP) and Head of Analysis (HoA)

## Chief Scientific Advisers and their officials: an introduction

CSAs may be hired externally from academia, industry or the third sector, and exceptionally, from within government. As such, their level of knowledge and expertise of the working of government can vary. Officials should be sensitive to this and work to provide opportunities for incoming CSAs to engage with Senior Civil Servants and other CSAs to augment their understanding.

Key induction meetings for incoming CSAs (and see Annex B for further induction details) are with:

- The GCSA and other CSAs
- CSA's private office/support team
- The Secretary of State, key ministers and the Permanent Secretary
- Departmental board and as appropriate departmental non-executive directors
- The departmental Director of Analysis and the other analytical Heads of Profession within the departments
- The departmental Head of Science and Engineering Profession (HoSEP) if this is not the CSA
- The departmental Head of Policy Profession
- Chair of the departmental Science Advisory Council (where there is one), and of any Scientific Advisory Committees sponsored by the department
- The Chief Executive and Executive Chairs of UKRI
- The Presidents of the National Academies (the Royal Society, the British Academy, the Royal Academy of Engineering)
- Council for Science and Technology (CST) Co-chair (GCSA is one of the Chairs)
- Key GOS teams and contacts with whom CSAs will have contact

Government Office for Science can assist with the appointment of formal mentors from across the CSA Network or, more widely, through the Government Science and Engineering (GSE) community. CSAs are also encouraged to become mentors themselves. More details can be found on the GSE web pages<sup>5</sup>.

There is an extensive list of external bodies and other sources of expertise with which CSAs can engage. These include academics, national academies, advisory committees, consultants, professional bodies, industry, the third sector, public sector research establishments, Research Councils, members of advisory groups, consumer groups and other stakeholder bodies. Officials in the Government Office for Science can assist in brokering engagement as necessary.

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<sup>5</sup> <https://www.gov.uk/government/organisations/civil-service-government-science-engineering>

### 4.1 Departmental Research and Development Strategy

CSAs are accountable to the Departmental Board for the existence of a high-quality plan for their department, which clearly defines the department's science and technology system. The plan will form the basis for science and research investment.

CSAs should work with Directors of Finance (DDFs) and Directors of Analysis (DDAs) to ensure that the plan integrates proposals for the whole range of science, research, evidence and innovation within the department. The plan should be integral to overall business planning, linking science to departmental objectives and be endorsed by the department's Executive Committee.

The plan should inform Spending Review proposals and departmental budget decisions. Consistent with existing practice, consultation with the GCSA and HM Treasury should take place if there are significant deviations from planned expenditure<sup>6</sup>.

CSAs should inform the GCSA of current and planned research spend in their departments to ensure that decisions about research budgets reflect a cross-government strategic view. Departments may wish to refer to the NAO report which highlights the need for more strategic leadership and co-ordination across government in areas of cross-cutting research<sup>7</sup>.

The Office for National Statistics collects information on departments' annual expenditure on science, engineering and technology<sup>8</sup>.

### 4.2 Areas of Research Interest (ARIs)

All Departments should publish, and annually review, Areas of Research Interest (ARI) documents, which set out details of the main research questions facing their department, for external academics. These should also include information about departmental research systems, research and data publication policies; and research and development strategies. Published ARIs are linked to a collections page on GOV.UK.

ARIs are intended to increase policymakers' dialogue with academia, with a view to building greater collaboration. The aim is to encourage academics who have relevant scientific expertise and research evidence to contact the department to discuss how they can contribute to addressing the questions contained in the ARI. This should

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<sup>6</sup> [www.parliamentary.uk/documents/lords-committees/science-technology/CSAs/CSAGovtresponse.pdf](http://www.parliamentary.uk/documents/lords-committees/science-technology/CSAs/CSAGovtresponse.pdf)

<sup>7</sup> [www.nao.org.uk/report/cross-government-funding-of-research-and-development/](http://www.nao.org.uk/report/cross-government-funding-of-research-and-development/)

<sup>8</sup>

<https://www.ons.gov.uk/economy/governmentpublicsectorandtaxes/researchanddevelopmentexpenditure/bulletins/ukgovernmentexpenditureonscienceengineeringandtechnology/2017>

## Chief Scientific Advisers and their officials: an introduction

enable departments to build a stronger evidence base and engage with a wider range of researchers.

ARIs provide a platform for academic engagement and encourage extra-mural activity and the commissioning of key R&D, for each government department. They should be co-developed by CSAs, Analysts, and Heads of Policy Profession within departments; and should contribute to putting scientific thinking at the centre of departmental processes, including policy and operations.

Guidance on producing ARIs is attached at Annex C. Contact the Government Office for Science for further details<sup>9</sup>.

### 4.3 CSAs role in the Government Science and Engineering (GSE) Profession

The Government Science and Engineering Profession is a body of civil and crown servants, who have a background in science and engineering.

The GCSA is Head of the Science and Engineering Profession (HoSEP) for the whole of government. This role is supported by a central GSE team, based in the Government Office for Science, and overseen by a network of departmental HoSEPs, some of whom are CSAs. The HoSEPs are expected to attend the GSE Profession Board, which is held quarterly and chaired by the GCSA, to drive forward the Profession's priority workstreams.

HoSEPs build, support and champion their science and engineering community. They are responsible for ensuring that the scientists and engineers within their organisations have the right skills, knowledge and expertise to meet their department's business objectives, and have access to professional development schemes. For more information on the role of HoSEPs see the chapter on Role of Heads of Science and Engineering Profession.

All CSAs, even when they do not hold the role of a HoSEP, have a critical role in championing the GSE Profession, building its identity, and acting as ambassadors for science and engineering careers. For example, by improving diversity and inclusion across the Profession, hosting cross-Whitehall CSA seminars and attending GSE events. Further GSE profession information is available from Government Office for Science<sup>10</sup>.

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<sup>9</sup> [ari.comment@go-science.gov.uk](mailto:ari.comment@go-science.gov.uk)

<sup>10</sup> [gse@go-science.gov.uk](mailto:gse@go-science.gov.uk)

### 4.4 Science Assurance and Research Integrity

Scientific research funded by government should be subject to the same standards as other research conducted by academia. A key aspect of the CSA role is to ensure that, in line with the GCSA's 'Guidelines on the use of scientific and engineering advice in policy making' (see below), science and engineering is embedded into policy making and that all science advice and analysis used by their department is robust, relevant and high quality.

This is about ensuring that:

- Science contributes (as part of an integrated evidence base) to sound policy decision-making; and
- This evidence is robust, relevant and high quality

There is an expectation that the CSA provides independent challenge to the science and engineering being conducted within and for their department, raising any concerns they may have, firstly via internal reporting hierarchies; and secondly, if required, with the GCSA.

All CSAs have agreed to sign up to the principles of research integrity, as laid out in the Concordat to Support Research Integrity<sup>11</sup>, for the forms of scientific research that are undertaken in their department. The Government Office for Science provides advice for departments on how to put these principles into practice, to ensure that government research is underpinned by the highest standards of rigour and integrity (refer to Annex D for the principles).

Government research would also benefit from science specialists within departments having access to the tools or research journals that would enable them to understand, evaluate and undertake excellent, high-quality research. CSAs should work with others in their department to ensure that this access is provided.

## 5. Other aspects of the CSA role

### 5.1 Advice in emergencies

Science and engineering (alongside other evidence sources) are important in responding to many types of emergency, ranging from disease to terrorist incidents to natural disasters. When the emergency is sufficiently serious and requires central government oversight, the Cabinet Office will activate the Cabinet Office Briefing Rooms and their associated crisis management facilities (COBR).

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<sup>11</sup> <https://www.universitiesuk.ac.uk/policy-and-analysis/reports/Pages/research-concordat.aspx>

### 5.1.1 Scientific Advisory Group in Emergencies (SAGE)

If requested by the Civil Contingencies Secretariat (CCS), the GCSA may chair the Scientific Advisory Group in Emergencies (SAGE)<sup>12</sup>. If there is likely to be scientific or technical debate in COBR, the GCSA will attend. Departmental CSAs may be called upon to attend SAGE. On occasions where SAGE is not called, departmental CSAs may be asked to feed advice directly into COBR.

The role of SAGE is to bring together scientific and technical experts to ensure coordinated and consistent scientific advice underpins the central government response. Membership of SAGE depends on the nature of the emergency. It typically includes experts from within government and leading specialists from the fields of academia and industry. The group acts to review, enrich and agree the scientific advice underpinning policy recommendations before they are put to the Civil Contingencies Committee (CCC). Cabinet Office guidance on SAGE can be found on GOV.UK, as well as 'Central Government's Emergency Concepts of Operations (CONOPs)'<sup>13</sup>.

### 5.2 International aspects of the CSA role

The global nature of research and innovation means that strategic international engagement is an important aspect of a CSA's role. This could involve collaboration with international partners, working to address shared challenges or representing the UK government in international forums.

The International Science and Innovation Directorate in BEIS oversee much of the work to ensure that international engagements on science are as effective as possible and should therefore be made aware of CSAs' international travel plans. The Science and Innovation Network (SIN)<sup>14</sup>, run jointly by BEIS and FCO, is the main point of contact within overseas embassies for CSAs. The officers in this network have unique insight into the science and innovation landscape in their countries and work to promote collaboration with the UK. By working closely with SIN, CSAs can maximise the value of their international trips.

The International Research and Innovation Strategy (IRIS) sets out how the UK will develop its international research and innovation partnerships. CSAs have been involved in its development and implementation. IRIS sets out the UK offer as a global partner and CSAs can work with the Science and Innovation Network to ensure their international outreach aligns with the goals of the Strategy<sup>15</sup>.

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<sup>12</sup> <https://www.gov.uk/government/groups/scientific-advisory-group-for-emergencies-sage>

<sup>13</sup> <https://www.gov.uk/government/publications/the-central-government-s-concept-of-operations>

<sup>14</sup> <https://www.gov.uk/world/organisations/uk-science-and-innovation-network>

<sup>15</sup> <https://www.gov.uk/government/publications/uk-international-research-and-innovation-strategy>

### 5.3 Futures Analysis including Horizon Scanning

CSAs should ensure that adequate Futures Analysis (including Horizon Scanning) is available to support policy and strategy development. This includes identifying trends of which departments should be aware, and supporting policymakers in making sense of implications, opportunities and challenges. CSAs should ensure that departmental futures activities consider science and engineering evidence and advice; and that this is acted on where appropriate. CSAs, with Strategy Units where they are active, need to champion futures activities in government.

The Heads of Horizon Scanning (HoHS) group, run by the Government Office for Science, is a peer support community of over 300 members working on futures in government and beyond. It includes several officials from CSAs' teams. It aims to help futures practitioners support each other, build momentum and create a culture of thinking about futures and uncertainty. It meets quarterly and has a shared resource library and discussion forum.

The Government Office for Science can provide futures advice, examples and, in some cases, further support<sup>16</sup>.

## 6. Key relations and networks

### 6.1 Chief Scientific Advisers' Network

The Chief Scientific Advisers' Network is a network of trusted senior science leaders who bring scientific evidence to the centre of decision making in government and champion the Government Science and Engineering Profession.

The network advises on cross-cutting policy issues relating to science and engineering. It consists of the GCSA (Chair) and departmental CSAs or their equivalent from the devolved administrations. Depending on the issues under discussion, the chief scientists of some other government agencies and organisations may attend. The CSA Network:

- Provides collective advice to ministers
- Discusses and facilitates implementation of policy on science and engineering
- Identifies and promulgates good practice in science and engineering including use in government decision making, particularly in the context of policy making
- Facilitates communication on particular, high-profile science, engineering and technology issues and those posing new challenges for government

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<sup>16</sup> <https://www.gov.uk/government/groups/futures-and-foresight>

## Chief Scientific Advisers and their officials: an introduction

- Provides a forum for departmental CSAs to share good practice across government and maximises the collective expertise of the CSA network to identify and resolve cross departmental problems
- Provides a two-way communication channel with the GCSA and the Government Office for Science and their stakeholders within and outside of government

The CSA Network has weekly meetings chaired by the GCSA. The network meets regularly with UK Research and Innovation (UKRI, see below) and Chief Executives of Research Councils.

### 6.2 CSA Network Steering Committee (CNSC)

The CSA Network Steering Committee is a sub-group of the CSA Network that focuses on delivery of the network's objectives. The CNSC is chaired by the Government Chief Scientific Adviser. Its membership comprises five representatives of the CSA Network and one senior official from the Government Office for Science. CSA members serve on the Group on a rolling basis, for a maximum of 18 months each. A secretariat is provided by the Government Office for Science.

The CNSC duties are:

1. Meet every six weeks, ideally in plenary
2. Provide strategic and evidence-based guidance and support to the operations of the Network
3. Review, evaluate and prioritise issues faced by the Network and actions identified at CSA Network meetings
4. Ensure accountability for the Network through follow-up of actions and monitoring of progress (using an action tracker)
5. Organise CSAs, experts and organisations into sub-groups on a case-by-case basis and according to need for specific time-bound pieces of work
6. Monitor and assess the overall performance of the Network in line with its annual commitments, as decided by the wider Network

### 6.3 CSA Officials' Network

CSAs are supported by a team of officials, who provide the initial contact for queries and issues addressed to CSAs and their teams, relating to the use and management of science in their department. The CSA Officials' Network acts to support the CSA Network, discuss current concerns or upcoming events, and regularly share news and information.

## Chief Scientific Advisers and their officials: an introduction

The Government Office for Science organises regular meetings of the CSA Officials' Network and informal one-to-one catchups between individual CSA offices and the CSA team at the Government Office for Science. A weekly newsletter to both the CSA and CSA Officials Networks is provided by the Government Office for Science, and Officials are encouraged to use the newsletter to share updates across both networks.

Most government departments have a Deputy CSA at Senior Civil Service level. Deputy CSAs work to support their departmental CSAs and have their own network which holds separate meetings.

### 6.4 UK Research and Innovation (UKRI)

UKRI was established in April 2018 and brought together the seven Research Councils, Innovate UK and Research England. UKRI works to create the best possible environment for research and innovation to flourish. It operates across the whole of the UK and provides funding for research and related activities.

The GCSA meets the Chief Executive of UKRI regularly. The CSA Network works closely with UKRI to identify governmental priorities for the Strategic Priorities Fund (SPF) and other UKRI initiatives.

Research Council governance councils include a CSA member as a representative of the whole CSA Network. CSAs sitting on Research Councils share priorities regularly at weekly CSA Network meetings.

## 7. Guidance and advice

It is essential that an effective science management and advisory process exists in Government. This should allow decision-makers access to high-quality and wide-ranging research and evidence, both within and outside government.

### 7.1 Guidelines on use of scientific and engineering advice in policy making

The GCSA's 'Guidelines on the use of scientific and engineering advice in policy making'<sup>17</sup> address how scientific and engineering advice should be sought and applied to enhance the ability of government policy makers to take better informed decisions. The guidelines are a key document with which CSAs should be familiar.

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<sup>17</sup> <https://www.gov.uk/government/publications/scientific-and-engineering-advice-guidelines-for-policy-makers>

## Chief Scientific Advisers and their officials: an introduction

Key messages are that departments and policy makers should:

- identify early the issues which need scientific and engineering advice and where public engagement is appropriate
- draw on a wide range of expert advice sources, particularly when there is uncertainty
- adopt an open and transparent approach to the scientific advisory process and publish the evidence and analysis as soon as possible
- explain publicly the reasons for policy decisions, particularly when the decision appears to be inconsistent with scientific advice
- work collectively to ensure a joined-up approach throughout government to integrating scientific and engineering evidence and advice into policy making

### 7.2 Independent science advice to government

Many departments secure science advice from people who are independent of government, i.e. who are not civil servants. All such advice should be in line with the 'Principles of science advice to government'<sup>18</sup>. Published in March 2010, the principles set out the rules of engagement between government and those who provide independent scientific and engineering advice.

The Principles apply to ministers and government departments, all members of Scientific Advisory Committees and Councils (the membership of which often includes statisticians, social researchers and lay members) and other independent scientific and engineering advice to government. They do not apply to employed advisers, departmental Chief Scientific Advisers or other civil servants who provide scientific or analytical advice, as other codes of professional conduct apply.

CSAs are expected to be familiar with the Principles and to ensure they are respected by all independent science advice to their department. CSAs are responsible for monitoring and evaluating the effectiveness of their independent science advice. CSAs are also the first port of call for independent scientific advisers concerned about the application of the principles. If the matter of concern cannot be effectively resolved or is especially serious, CSAs should approach the Government Chief Scientific Adviser (GCSA), who will liaise with the Science Minister to examine, and attempt to resolve, the issue. This route is also available to individual advisers if departmental arrangements have failed to resolve a potential breach of the principles.

A number of mechanisms exist for departments to secure independent advice. These mechanisms include independent Science Advisory Councils and Science Advisory Committees, both terms abbreviated to the umbrella term SAC. Government Office

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<sup>18</sup> <https://www.gov.uk/government/publications/scientific-advice-to-government-principles>

## Chief Scientific Advisers and their officials: an introduction

for Science published a review in 2013<sup>19</sup> of how Science Advisory Councils interact with the government departments that they advise. If departments do not have a Science Advisory Council and would like to establish one, the GCSA and Government Office for Science can offer advice and support.

Published by Government Office for Science, the 'Code of Practice for Scientific Advisory Committees (CoPSAC)'<sup>20</sup> amplifies the 'Principles of scientific advice to government' and sets out good practice in respect of bodies which provide independent science advice to government. The Code also contains good practice for engagement between CSAs and such bodies. Initially published in 2001, CoPSAC has undergone public consultation, updating and re-publication three times.

Government Office for Science supports departments in working more effectively with independent science advisers. This includes arranging events at which good practice can be shared. Government Office for Science has also published guidance setting out good practice for the secretariats to Scientific Advisory Committees (SACs)<sup>21</sup>.

### 7.3 Other sources of evidence and advice

Within government, CSAs can access the expertise of Science Advisory Councils and Committees, including those in other departments, if relevant.

Much expertise also resides within Public Laboratories, also known as Public Sector Research Establishments (PSREs), which draw together internal and external capability. They lead outstanding directed research and development and can contribute to increasing science capability within government. CSAs have a role in: raising the profile of Public Laboratories in government; ensuring that they receive sufficient funding support; providing access to excellence-based funding competitions; and protecting, maintaining and exploiting the valuable scientific assets and intellectual property they hold.

There is an extensive list of external bodies and other sources of expertise with which CSAs can engage. These include academics, national academies, advisory committees, professional bodies, public sector research establishments, Research Councils, members of advisory groups and stakeholder bodies. Government Office for Science can assist in brokering engagement as necessary<sup>22</sup>.

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<sup>19</sup> <https://www.gov.uk/government/publications/science-advisory-councils-review-2013>

<sup>20</sup> <https://www.gov.uk/government/publications/scientific-advisory-committees-code-of-practice>

<sup>21</sup> <https://www.gov.uk/government/publications/scientific-advisory-committees-sharing-good-practice>

<sup>22</sup> [CSAnetworks@go-science.gov.uk](mailto:CSAnetworks@go-science.gov.uk)

### 8. Role of Heads of Science and Engineering Profession (HoSEP)

The Government Science and Engineering (GSE) Profession across government is being developed with strong central leadership by the GCSA in his distinct role as Head of Science and Engineering Profession (HoSEP). The focus here is on the people, their skills and capabilities - scientists and engineers across government - rather than the provision of advice.

The GCSA is supported in this role by a network of departmental HoSEPs. In some cases, departmental CSAs have chosen personally to accept both CSA and HoSEP roles because of the synergies between them. In others, HoSEP responsibilities fall to another individual, with whom the CSA should have a close working relationship. It is for departments to decide how best both functions can be delivered within the context of their department.

The role of the departmental HoSEP is to build, support and champion their science and engineering community, both within their department and in associated agencies. A cross departmental network of HoSEPs helps ensure a coordinated approach to professional issues across the civil service. HoSEPs oversee the continuous development and evolution of GSE Profession products and services in their capacity as members of the GSE Profession Board, and Chairs of various GSE profession Working Groups. Furthermore, HoSEPs adapt and embed the Profession's products and services at a local level, ensuring they support their department's science and engineering capability requirements and the needs of their GSE members. Examples include supporting GSE members' career pathways, learning and development, and other professional issues, as well as supporting business planning and talent management. HoSEPs are expected to act together to support the GCSA by providing information, advice and guidance on government science and engineering capability issues. More information about, and resources for, the role of heads of profession in government is available at GOV.UK<sup>23</sup>.

HoSEPs meet regularly with the GCSA. The secretariat for HoSEP meetings is provided by officials from Government Office for Science, with support from other officials in the Profession for specific projects. Further information can be obtained by emailing the Government Office for Science<sup>24</sup>.

In addition to his HoSEP role, the GCSA also supports the development of analysts with horizon scanning and futures roles in government. The Futures and Foresight team provides training, a suite of resources including a toolkit, trend cards and emerging technologies database, and advice to teams running their own futures projects. It also maintains the cross-government Heads of Horizon Scanning peer support network.

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<sup>23</sup> <https://www.gov.uk/government/organisations/civil-service-government-science-engineering/about/our-governance>

<sup>24</sup> [GSE@go-science.gov.uk](mailto:GSE@go-science.gov.uk)

### 8.1 Government Science and Engineering (GSE) profession and CSAs

CSAs have a role in championing the GSE Profession, whether or not they also occupy the departmental HoSEP role. CSAs should understand what the Profession provides and work to build its identity.

There are estimated to be 13,000-15,000 scientists and engineers in government, including those working in science and engineering policy and those with a science and engineering background. About 5,000 of them are members of the GSE profession. The profession is generally diverse and inclusive and building on this remains a top priority.

Benefits of GSE profession membership include: a dedicated career development pathway; reward and recognition through an Employee Value Proposition package; an appropriate remuneration package; and access to linked professional bodies. There is also a Science and Engineering Fast Stream (SEFS). Further GSE profession information can be obtained from the Government Office for Science<sup>25</sup>.

CSAs oversee the GSE profession and contribute to the community by acting as ambassadors for science and engineering careers and establishing professional development schemes for scientists and engineers within their department. They should also contribute to the cross-government GSE agenda, for example, by hosting cross-Whitehall CSA seminars and attending GSE events.

### 8.2 Analytical co-ordination across government

The Analysis Function Board provides leadership to all analysts in government. It champions first-rate analysis across government to ensure policy and delivery of government services is as effective as possible. Membership of the Heads of Analysis group is as follows: the Government Chief Scientific Adviser, the National Statistician, the Head of the Government Economic Service, the Head of the Government Social Research Service, and the Head of the Government Operational Research Service. It is chaired by the Permanent Secretary of HM Treasury.

The Analytical Coordination Working Group (ACWG) consists of officials drawn from the support units of each of the 5 analytical professions: Government Economic Service (GES), Government Operational Research Service (GORS), Government Social Research Service (GSR), Government Statistics Service (GSS), and the Government Science and Engineering community (GSE).

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<sup>25</sup> [gse@go-science.gov.uk](mailto:gse@go-science.gov.uk)

## Chief Scientific Advisers and their officials: an introduction

The ACWG aims to coordinate the activities of the analytic support units to promote the development of more effective joined-up analysis and analysts across government; and jointly respond to the persistent barriers to the effective use of analysis and evidence.

Its objectives are to:

- Support the Heads of Analysis group
- Share learning across the analytical professions
- Join up on key challenges and issues facing all analytical professions
- Identify and make efficiencies of scale where possible

Government Office for Science represents the GCSA and the Science and Engineering Profession on ACWG.

The Departmental Directors of Analysis Network (DDAN) is a network of the most senior social scientists from each department. It has a departmental, rather than discipline-specific, focus which it brings to bear on key challenges facing government. Its aim is to share learning across departments, identify key common challenges and solutions, and to bring these issues to Heads of Analysis. It provides a senior collective voice for departmental cross-government working on the social sciences. A senior Government Office for Science Official sits on DDAN to make the links between DDAN and the CSA Network.

## 9. Contact Information

Please contact the Government Office for Science with any queries or requests for further information<sup>26</sup>.

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<sup>26</sup> [CSAnetworks@go-science.gov.uk](mailto:CSAnetworks@go-science.gov.uk)

# Annex A – Succession Planning and Recruitment of CSAs

## CSA Succession Planning and Notification

Departments should, where possible, undertake succession planning for the CSA post a year prior to the departure of the current CSA. This is necessary because the departing CSA should be involved in inducting a newly appointed CSA.

Officials should notify their departmental HR before they start a CSA recruitment process. Officials will need to apply their own departmental approval process before an external recruitment can begin. The external recruitment process is set by Civil Service HR and reflected in individual departments' processes.

The following engagement with GCSA and the Government Office for Science is also necessary to ensure consistency from a CSA Profession perspective:

- Departments should notify the GCSA and The Government Office for Science ahead of starting to recruit a CSA
- The department's Permanent Secretary should discuss the nature of the CSA role with the GCSA and The Government Office for Science before starting the recruitment process
- GCSA should also be invited to discuss the role with Civil Service HR and the external consultancy involved in the recruitment process
- The recruiting official should engage with the Government Office for Science CSA Network team, to discuss salary, job description and process, to ensure consistency

CSAs are normally in post for a period of 3 to 5 years.

## CSA Attributes and Competencies

- Externally recruited CSAs should be distinguished scientists or engineers. They should have a deep science and/or engineering knowledge and be able to work across a range of science and engineering; including operating with confidence outside of their own particular discipline.
- CSAs need to provide visible leadership, set direction and provide strategic planning for all science and engineering-related matters in their department. This may require them to retain some independence and to offer strategic challenge
- CSAs must be able to understand how the hierarchies and power networks operate within the civil service, and how to have impact within them. They also need to identify the levers within their own department, such as the incentives that will really excite policymakers and officials about an idea
- CSAs need the ability to build partnerships and networks and build respected authoritative groups. They should be excellent communicators and collaborators, building strong working links with senior people across government

## **Chief Scientific Advisers and their officials: an introduction**

- Have had experience of representing an organisation and the capability to take part in discussions/negotiations, including at international level
- CSAs need an understanding of what is going on in the world of research and bring the best of it into the department
- Have experience of management and administration and responsibility for overseeing a science and research budget
- CSAs need to be able to identify innovative, entrepreneurial and business development opportunities; and to exploit the assets produced as a part of their work, for societal and economic gains
- CSAs need to understand the use of futures and horizon scanning techniques, to identify upcoming science, engineering and technology of interest to their department

### **Advertising**

It was agreed by government in 2018 that all CSA positions should be advertised externally. Advertising should endeavour to reach a diverse range of potential applicants. The Government Office for Science can advise on suitable media for advertising posts.

### **The appointment process**

GCSA should be involved in the appointment of CSAs including membership of the selection panel. Departments should put in place appropriate procedures to facilitate this.

### Annex B – Induction for CSAs

#### Key induction meetings

Incoming CSAs should meet with:

- The GCSA and other CSAs
- CSA's private office/support team
- The Secretary of State, key ministers and the Permanent Secretary
- Departmental board and as appropriate departmental non-executive directors
- The departmental Director of Analysis and the other analytical Heads of Profession within the departments – HoSEP particularly important
- The departmental Head of Policy Profession
- Chair of the departmental Science Advisory Council (where there is one), and of any Scientific Advisory Committees sponsored by the department
- The departmental Head of Science and Engineering Profession (HoSEP) if this is not the CSA
- The Chief Executive and Executive Chairs of UKRI
- The Presidents of the National Academies (the Royal Society, the British Academy, the Royal Academy of Engineering)
- Council for Science and Technology (CST) Co-chair (GCSA is one of the Chairs)
- Key GOS teams and contacts with whom CSAs will have contact

#### Mentoring and buddying

The Government Office for Science can assist with the appointment of formal mentors or “buddies” from across the CSA network or, more widely, through the Government Science and Engineering (GSE) community. CSAs are also encouraged to become mentors themselves.

#### Courses and learning resources for new CSAs

##### For new Senior Civil Servants

- **Senior Civil Service base camp** recommended by Civil Service HR (particularly for external appointments). Departments may also have their own induction arrangements
- **Corporate Development schemes** organized by Cabinet Office for newly recruited Director Generals or Directors, e.g. High Potential Development Scheme
- **Corporate Induction programme** from Civil Service Learning (CSL) – see the Civil Service corporate induction website:  
<https://www.civilserviceinduction.co.uk/login>

## Chief Scientific Advisers and their officials: an introduction

- Informal Guide for new members of the Senior Civil Service, on its culture <https://civilservicelearning.civilservice.gov.uk/learning-resources/informal-guide-new-members-senior-civil-service>
- 1-to-1 buddying support for joining Deputy Directors or Directors; arranged by your department <https://civilservicelearning.civilservice.gov.uk/learning-resources/your-guide-your-buddy-support>
- Coaching sessions for a joining Director General or Permanent Secretary; e-mail the Cabinet Office Permanent Secretary Appointments Team (eleanor.white@cabinetoffice.gov.uk)

### Leadership courses

- Leading Without Authority from CSL: exploring how to lead effectively in a matrixed and collaborative environment. Particularly useful for CSAs who lead without always having line-management control
- [Learning events calendar](#) and the [Immersive learning series](#) offered through the Civil Service Leadership Academy (CSLA), further details via: [CSLA](#)

### Parliamentary and Committees

- On demand parliamentary training: bespoke training to develop knowledge of Parliament, covering select committees, working with the Lords etc., from Civil Service Learning
- Parliamentary Insights from CSL: lunchtime seminars for senior civil servants covering: Introduction to Parliament; Primary Legislation; Delegated Legislation and Select Committees

### Communications

- **Creating a Powerful Personal Presence:** RADA workshop on investigating your personal impact - <https://civilservicelearning.civilservice.gov.uk/learning-opportunities/creating-powerful-personal-presence>
- **High Impact Communication:** aimed at participants who want to gain more control over how they are perceived, learn new techniques to express ideas with clarity and confidence, make a bigger impact on others. Provider: CSL.
- **Advanced Media Skills:** CSL 1-day course giving the advanced media skills needed to navigate interactions with the media with sensitivity, while maximising personal impact, working with experienced BBC journalists and media trainers <https://civilservicelearning.civilservice.gov.uk/learning-opportunities/advanced-media-skills>.
- **Cabinet Office guidance on use of social media by civil servants:** <https://www.gov.uk/government/publications/social-media-guidance-for-civil-servants/social-media-guidance-for-civil-servants>.

## Chief Scientific Advisers and their officials: an introduction

### Science-policy interface

- **Science Policy Primer:** Royal Society course aimed at researchers but open to CSAs, on the UK's rapidly changing policy landscape and how scientific research helps to shape, and is shaped by, government policy.  
<https://royalsociety.org/grants-schemes-awards/science-policy-primer/>
- **Policy Fellowships:** Royal Academy of Engineering fellowship, providing links to leaders in industry and using a systems perspective to improve policy development and operational delivery. Contact RAEng: 020 7766 0600.

### Useful contacts

- For advice on all topics
  - Patrick Vallance (GCSA)
- On Select Committees
  - Chris Whitty (DHSC CSA)
  - John Aston (HO CSA)
  - Charlotte Watts (DfID CSA)
- On Science Advice in Emergencies
  - First point of contact: the Government Office for Science SAGE team ([SAGE@go-science.gov.uk](mailto:SAGE@go-science.gov.uk))
  - John Aston (HO CSA)
  - Charlotte Watts (DfID CSA)
  - Chris Whitty (DHSC CSA)
- On developing a Science and Evidence Strategy and ARIs
  - The Government Office for Science CSA networks team ([CSAnetworks@go-science.gov.uk](mailto:CSAnetworks@go-science.gov.uk))
  - Guy Poppy (FSA CSA)
  - Trevor Huddleston (DWP CSA)
  - Charlotte Watts (DfID CSA)
- On developing relationships with ministers
  - John Loughhead (BEIS CSA)
  - Trevor Huddleston (DWP CSA)
- Spending Review
  - Phil Duffy (HMT CSA)
  - Chris Whitty (DHSC CSA)
  - John Loughhead (BEIS CSA)
- On international science and science diplomacy
  - Carole Mundell (FCO CSA)
  - Mike Short (DIT CSA)
  - Charlotte Watts (DfID CSA)
  - Angela McLean (MOD CSA)

## Chief Scientific Advisers and their officials: an introduction

- Eoin Parker (DExEU CSA)

### Annex C – Guidance on writing a departmental Areas of Research Interest

The 2015 Nurse Review of Research Councils recommended that government, across the full range of departments, needed a more strategic approach in relation to its research and development programs. This included developing a more sophisticated dialogue with academia and providing a document that sets out the most important research questions confronting each department. The Areas of Research Interest (ARIs) will act as a platform for engagement with academics and funding bodies to encourage collaboration with government departments.

#### The aim of ARIs

ARIs will improve the evidence base for policy-making. They will:

- Provide an opportunity to align the academic and scientific community behind the issues government cares about, improving the provision of evidence for policy making
- Provide value for money by helping departments access a wider range of suppliers and get better engagement and collaboration with researchers
- Support industrial strategy themes, including effective public procurement and initiatives such as Small Business Research Initiative (SBRI)

#### What to include in your ARIs

##### Introduction

This will include:

- An outline of the research functions within your departments
- High level questions your department is addressing
- If appropriate, reference to the single departmental plans and strategy
- A clearly identified mechanism to contact your department

##### Core research questions that confront your department

Research questions are high level and high priority. These could be expressed in overarching themes and priorities with the addition of context in sub-themes and sufficient context to aid debate.

##### Contents of an ARI Annex

An ARI Annex will contain:

- A statement of policy in relation to the publication of research, datasets and research data, to improve transparency and access for research purposes
- A statement that ARIs are not intended to be a list of projects and contract tenders
- Links to documents providing details of departmental research strategy and activities.

## Chief Scientific Advisers and their officials: an introduction

### How to write your ARIs

ARIs must:

- Use language that is aimed at the general reader
- Be kept high-level but as comprehensive as possible, in order to provoke effective debate

### Suggestions (based on feedback from academia)

- Include a letter of endorsement from your CSA
- Structure of DWP ARI has received good feedback: Objective, Context, Research Questions. A more uniform format / structure will enable easier engagement for academic institutions.
- Think how you frame your questions – work with academics to help ask questions in a useful format. This may vary for different disciplines.
- Also consider who you get input from in your department: analysts, statisticians, heads of profession, scientists, economists, policy makers etc. Could include section about how the questions were generated.
- Be explicit about
  - How research is done in dept
  - How evidence-based policy is made by dept
  - What sort of evidence depts are interested in?
  - What methodologies are depts interested in?
  - What sort of engagement are depts wanting?
- Include a timeframe for which you envision your ARIs will apply – this helps researchers when planning their programs of research. To include both short-term and long-term priorities.
- Include a contact email and encourage engagement – be explicit about what sort of engagement you would find most useful to help guide academics.
- Consider linking to data sets which related to ARI topics – access to data is highly valued by academics.
- Include departmental branding on your document.
- Refer to “Areas of Research Interest” only, not Statement of Need.

### How to publish your ARIs

ARIs are owned and published by departments.

Once cleared by ministers, you should seek a grid slot for your *first* ARI publication.

You should upload them to individual departmental web pages on GOV.UK in an accessible format (for example, HTML, accessible PDF or CSV formats). They should then be linked to a Cabinet Office collection page to provide a single point of engagement <https://www.gov.uk/government/collections/areas-of-research-interest>  
<https://www.gov.uk/government/collections/areas-of-research-interest>.

Consider how to publicise your ARI – GO Science can act as point of contact for advice and can connect you with relevant people to engage with, for example DWP

## Chief Scientific Advisers and their officials: an introduction

has engaged extensively around their ARI.

### Feedback on ARIs

Your ARIs should have a clearly identified feedback mechanism. Departments and the Government Office for Science will be expected to monitor and consider any feedback received.

### Refreshing ARIs

You should aim to refresh your ARIs annually, in conjunction with the departmental R&D Strategy; and in consultation with the Government Chief Scientific Adviser.

### Who should work on ARIs within departments

People across a number of roles will help to develop your ARIs including, but not limited to:

- Departmental research leads: Work across research, analytical and policy professions to research any evidence needs.
- Departmental Chief Scientific Advisers and Departmental Directors of Analysis: Lead the project (in collaboration, where both roles exist in departments). They should work closely with the relevant departmental lead for the Policy Profession to ensure an inclusive approach.
- Work closely with departmental press offices and special advisers to align ARIs with existing policies and publications, and to minimise risks around publication.
- Identify the person of contact for researchers who want to engage with your department - should monitor contact email address.

### Further help

The Government Office for Science can help on cross-departmental issues and any further guidance - contact [ari.comment@go-science.gov.uk](mailto:ari.comment@go-science.gov.uk).

## **Annex D – The Principles of the Research Integrity Concordat**

All CSAs have agreed to sign up to the principles of Research Integrity for the forms of scientific research that are undertaken in their departments. These principles are:

1. Upholding the highest standards of rigour and integrity in all aspects of research
2. Ensuring that research is conducted according to appropriate ethical, legal and professional frameworks, obligations and standards
3. Supporting a research environment that is underpinned by a culture of integrity and based on good governance, best practice and support for the development of researchers
4. Using transparent, timely, robust and fair processes to deal with allegations of research misconduct should they arise
5. Working together to strengthen the integrity of research and to review progress regularly and openly

For Government departments implementation of these principles requires practical and legal interpretation. GO-Science will provide separate guidance to help departments put the principles of the concordat into practice. The full Concordat can be viewed on-line<sup>27</sup>.

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<sup>27</sup> <https://www.universitiesuk.ac.uk/policy-and-analysis/reports/Pages/research-concordat.aspx>

### Annex E – Key documents and websites

Responding to emergencies: The UK central government response Concept of Operations [www.gov.uk/government/publications/the-central-government-s-concept-of-operations](http://www.gov.uk/government/publications/the-central-government-s-concept-of-operations)

Scientific Advice Group in Emergencies [www.gov.uk/government/groups/scientific-advisory-group-for-emergencies-sage](http://www.gov.uk/government/groups/scientific-advisory-group-for-emergencies-sage)

Civil Service Code [www.gov.uk/government/publications/civil-service-code](http://www.gov.uk/government/publications/civil-service-code)

Code of Practice for Scientific Advisory Committees

[www.gov.uk/government/publications/scientific-advisory-committees-code-of-practice](http://www.gov.uk/government/publications/scientific-advisory-committees-code-of-practice)

Council for Science and Technology [www.gov.uk/cst](http://www.gov.uk/cst)

Cultivating community: Sharing good practice across SAC secretariats

[www.gov.uk/government/publications/scientific-advisory-committees-sharing-good-practice](http://www.gov.uk/government/publications/scientific-advisory-committees-sharing-good-practice)

Freedom of Information Act [www.gov.uk/make-a-freedom-of-information-request](http://www.gov.uk/make-a-freedom-of-information-request)

Government Office for Science annual report 2017-2018

<https://www.gov.uk/government/publications/government-office-for-science-annual-report-2017-to-2018>

Government Office for Science: Foresight

[www.gov.uk/government/collections/foresight-projects](http://www.gov.uk/government/collections/foresight-projects)

Government Science and Engineering [www.gov.uk/government/organisations/civil-service-government-science-engineering](http://www.gov.uk/government/organisations/civil-service-government-science-engineering)

Guidelines on the Use of Scientific and Engineering Advice in Policy-Making

[www.gov.uk/government/publications/scientific-and-engineering-advice-guidelines-for-policy-makers](http://www.gov.uk/government/publications/scientific-and-engineering-advice-guidelines-for-policy-makers)

Principles of Scientific Advice to Government

[www.gov.uk/government/publications/scientific-advice-to-government-principles](http://www.gov.uk/government/publications/scientific-advice-to-government-principles)

Review of Science Advisory Councils 2013

[www.gov.uk/government/publications/science-advisory-councils-review-2013](http://www.gov.uk/government/publications/science-advisory-councils-review-2013)

Science and Innovation Network [www.gov.uk/government/world/organisations/uk-science-and-innovation-network](http://www.gov.uk/government/world/organisations/uk-science-and-innovation-network)

Seven Principles of Public Life [www.gov.uk/government/publications/the-7-principles-of-public-life](http://www.gov.uk/government/publications/the-7-principles-of-public-life)

Universal Ethical Code for Scientists [www.gov.uk/government/publications/universal-ethical-code-for-scientists](http://www.gov.uk/government/publications/universal-ethical-code-for-scientists)

Concordat to Support Research Integrity <https://www.universitiesuk.ac.uk/policy-and-analysis/reports/Pages/research-concordat.aspx>