

## Scientific advice for policy-makers in the European Union

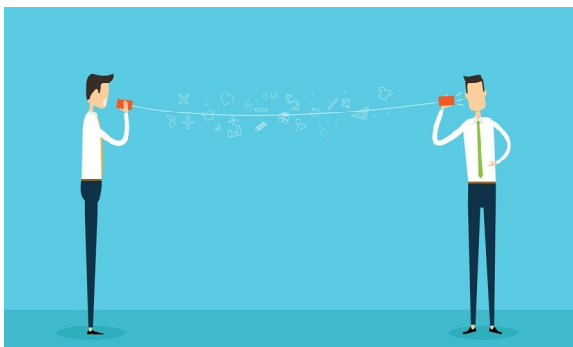
### SUMMARY

Scientific knowledge has become a key element in the policy-making process, alongside societal values and political considerations. As a consequence, stronger science advice systems have been developed to provide timely and useful scientific advice to policy-makers in both legislative and executive bodies.

Such systems for the provision of advice integrate various institutions and structures in order to address adequately the specific needs of policy-makers: providing strong scientific expertise in an accessible format; informing the development of long-term policies as well as providing advice during emergencies and crises; and providing advice proactively through foresight activities and reactively at the request of policy-makers.

Global challenges put additional pressure on science advice systems, requiring them to address issues that are both multidisciplinary and multijurisdictional. The improvement of cooperation between science advisory bodies across geo-political borders has been recognised. Experts also call for the definition of common guidelines and principles for the production of science advice.

In the European Union, systems are evolving at national level as well as in the EU institutions. Following the abolition of the position of Chief Scientific Adviser to the President of the European Commission in 2014, a new Science Advice Mechanism (SAM) consisting of a 'High Level Group' and a unit in DG Research is expected to be established in Autumn 2015. The SAM aims to improve the coordination of the science advice system within the European Commission and the interaction with the science advice systems of Member States.



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## General framework for science advice

In an environment which is constantly becoming more complex,<sup>1</sup> ministers, members of parliaments and other policy-makers are expected to consider scientific evidence alongside societal values and political judgement when designing new policies.

The concept of 'science advice' covers all the processes and structures aimed at providing scientific knowledge and information to the attention of policy- and decision-makers. It should be clear that this concept of 'science for policy' – covered in the present briefing – is different from the concept of 'policy for science'. This distinction is not always clear as both processes may have an impact on each other, while some institutions can perform activities related to both.

In order to provide scientific advice to policy-makers, various structures and institutions exist or have been established at national and international levels. This diversity reflects the different cultures, traditions and political contexts of policy-making.

This variety of structures on the supply side of science advice is also a requirement to address the needs of the demand side in a timely manner. From long-term policy development to short-term emergencies and crisis management, science-advice systems should be adapted to the different rhythms of the policy-making processes and the expectations of policy-makers and decision-makers.

### Activities of science advisory bodies

Throughout the policy-making process, science-advisory structures act as intermediaries between scientific communities and policy-makers. Their task consists of aggregating and synthesising scientific evidence and framing it in a format that is both accessible and useful to policy-makers.

Science advice can be provided or required at different stages of the policy-making process. Foresight studies and horizon-scanning activities aim at identifying emerging issues and anticipating future policy needs. Advisory structures can help benchmark different policy options and provide expertise on technical and regulatory issues.

### Structures and institutions providing science advice

The structures and institutions providing scientific advice can be classified in three categories (see table 1) depending on their ties to the executive or legislative bodies they advise.

#### *External bodies: Academies, learned societies and research organisations*

Institutions representing scientific communities are important actors in most science-advice systems. As independent academic bodies, usually covering a wide spectrum of expertise, they mainly deliver advice for long-term policy developments on self-identified topics through a proactive process. Nonetheless, they can also consider specific requests from executive or legislative bodies.

#### *Mandated bodies: Permanent or ad hoc advisory structures*

Advisory structures with independent status can be established and mandated by executive or legislative bodies in order to provide scientific advice. Governmental agencies play a key role in providing advice on technical and regulatory issues. Their advice is often requested in emergencies or crisis situations. Permanent advisory committees and councils are established to provide expertise and advice on specific topics, usually for long-term policy development. To answer a specific need, an ad hoc committee can be created with a clear remit and on a limited time basis.

*Internal bodies: In-house expertise structures and individual scientific advisers*

The executive and legislative bodies can also rely on fully embedded advisory structures. These bodies can be either internal research centres producing knowledge on demand or expert-based structures collecting and analysing evidence to provide in-house science advice. The proximity between these structures and policy-makers allows the transmission of advice through formal as well as informal channels. In-house research services for members of parliaments or parliamentary committees exist for example in [France](#), [Germany](#), [the United Kingdom](#), [Poland](#) and Hungary.

Individual scientific advisers are another internal source of scientific advice. As individuals, they are usually seen as a main contact point between the suppliers of science advice – either external, mandated or internal structures – and the policy-makers. They operate mainly in an informal way, identifying the need for and supervising the use of science advice in different steps of the policy process. Their remit may include a key role in emergencies or crisis situations. [Ireland](#), the Czech Republic and the [United Kingdom](#) are the only three Member States in which the position of Chief Scientific Adviser (CSA) exists. In Ireland the CSA role is filled since 2012 by the Director General of [Science Foundation Ireland](#). In the Czech Republic, the position is currently vacant. In the UK, [departmental CSAs](#) have been established recently in all ministries. Even if not defined as a CSA, senior civil servants in a given ministry, or the President of the National Academy of Sciences, can fulfil a similar role (for example in Denmark and Poland).

**Table 1 - Characteristics of the structures and institutions of science-advice systems**

Type	Advisory body	Format of advice		Timeframe		Mode of production		Expertise	
		Formal	Informal	Long term	Crisis	Proactive	Reactive	Scientific	Translational
External	Academies, Learned Societies, Research Centres	✓✓✓		✓✓✓		✓✓✓	✓	✓✓✓	✓
	Ad hoc committee	✓✓✓		✓✓✓			✓✓✓	✓✓✓	✓
Mandated	Permanent Committee	✓✓✓	✓	✓✓✓		✓	✓✓✓	✓✓✓	✓
	Agency	✓✓✓	✓	✓✓	✓✓	✓	✓✓	✓✓✓	✓✓
Internal	In-house structures	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓✓
	Individual advisers	✓	✓✓✓	✓	✓✓✓	✓	✓✓✓	✓	✓✓✓

Data Source: [OECD](#), [Wilsdon](#)      ✓ Existing Feature      ✓✓ Important Feature      ✓✓✓ Strong Feature

A comprehensive system of advisory structures exists in order to cover the various dimensions of the science-advice process. External and mandated structures and institutions offer a source of in-depth scientific expertise, whereas the strength of an individual adviser, who has limited expertise, is to be able to translate and transfer the advice of scientists directly to policy-makers. In order to carry out their mission efficiently, science advisory bodies need appropriate administrative and technical support in the form of a dedicated secretariat.

## Developments and challenges

### *Interdisciplinarity issues*

In order to provide sound advice on issues related to global challenges, science advisory bodies require input from a wide range of disciplines, from natural to social and economic sciences. Individual experts in science advisory bodies usually have in-depth knowledge of a specific domain. Integrating knowledge and perspectives from various disciplines is then the challenge for the advisory body.

### *Multijurisdictional issues*

Climate change, food security and pandemics have an impact that crosses geo-political borders. Hence, international organisations are also setting up science advisory bodies. The [Intergovernmental Panel on Climate Change](#) (IPCC) created in 1988 under the auspices of the United Nations (UN) is a well-known example. The Scientific Advisory [Board](#) of the UN Secretary-General established in September 2013 is a more recent one. Science advisory bodies working on these multijurisdictional issues at different scale are expected to collaborate in order to avoid confusion and potential divergences.

### *Science Advice in emergencies and crisis situations*

Emergencies and crisis situations put science-advice systems under stress. Policy-makers often need to react quickly as stakes may be high, whereas information on the situation can be scarce. In these [situations](#), the 'adviser' can become 'decision-maker'. Experts suggest establishing protocols, relying on existing science advisory bodies, which can be triggered in an emergency. The identification of a trusted individual acting as a reference point or spokesperson to the executive bodies then appears essential.

### *Principles and guidelines*

The [OECD](#) recommends that governments define clear and transparent guidelines for their science advisory processes. The [UK](#) has adopted such guidelines. Experts have proposed [others](#), insisting that science advice should hold a privileged place among other sources of knowledge on which policy-makers base their decisions. In the guidelines, it is recommended to:

- clearly define the remit, roles and responsibilities of the advisory bodies;
- certify their independence and autonomy;
- ensure the transparency and openness of their processes;
- stress that advisory bodies act as honest brokers,<sup>2</sup> not advocates;
- recognise the limitations to interpret and use scientific claims;
- underline that the advice given should be sound, unbiased and legitimate.

## Science advice for EU institutions

### **European Commission**

The European Commission defined [guidelines](#) in 2002 for the use of expertise and advice throughout all stages of the policy-making cycle. Commission departments are asked to behave as an 'intelligent customer' with respect to science advice, relying on in-house expertise as much as possible and seeking external advice only when needed.

### **Responsibilities and liabilities**

The earthquake in L'Aquila caused the death of 309 people in Italy in 2009. The members of the Major Risk Committee, who had concluded before the disaster that the occurrence of a big earthquake was unlikely, [were charged](#) with manslaughter. This raised questions on the [liability](#) of scientific experts participating in the activities of science advisory bodies. To avoid confusion and scientists' reluctance to participate, the [OECD](#) suggests clarifying the roles and responsibilities of experts participating in science-advice activities.

*The Joint Research Centre (JRC)*

The [Joint Research Centre](#) was created in 1957 as a common nuclear research centre. It has evolved to become the Commission's in-house science service providing – in some areas – independent, evidence-based scientific and technical support to the institution. Its seven [institutes](#) employ 3 000 staff performing research in the fields of measurement standards, environment, energy, health and security. Its [objective](#) is to become a leading organisation in the practice of transforming scientific knowledge into evidence to support policy-making.

*Expert and advisory groups*

The different departments of the Commission rely on expert groups and committees, some which provide scientific advice. The [Register of Commission Expert Groups](#) lists these consultative entities since 2005. The [framework](#) organising the activities of these expert groups was updated in 2012. Other advisory groups providing science advice for Commission departments may not be included in the register, for example the [Economic Advisory Group on Competition Policy](#).

*Individuals*

Only a few individuals can be found in Commission departments with a science advice mandate, for instance the [Chief Competition Economist](#) in DG Competition.

**European Parliament**

The [Scientific Foresight \(STOA\) Unit](#) of the [European Parliamentary Research Service](#) (EPRS) builds on the expertise of the secretariat of the [Science and Technology Options Assessment](#) panel established in 1987. This unit analyses emerging policy issues and trends in these fields, and assesses options for MEPs. The science advice it provides to the European Parliament may be the result of Members' request or proactive.

Committees, inter-parliamentary delegations and other parliamentary bodies can also ask for expertise, analysis and research, mostly carried out externally, from the Policy Departments of the Directorates-General for [Internal](#) and [External Policies](#).

**Council of the European Union**

There are no internal structures providing science advice to the Council at EU level. The representatives of the Member States who participate in working parties and committees therefore rely on their national institutions and structures for science advice.

**Other sources of scientific advice at EU level***EU agencies*

Similarly to what is found at national level, the [EU's decentralised agencies](#) carry out technical, scientific or managerial tasks that help the EU institutions make and implement policies. They also play a role in EU cooperation between the national institutions. A [common approach](#) on EU decentralised agencies was agreed between the EU institutions in 2012 in order to set a common framework for all these agencies to improve their governance, efficiency and accountability. The last [progress report](#) on the implementation of this evolution was published in April 2015.

*External expertise*

Open consultations by the Commission or hearings by Committees of the European Parliament are other ways for policy-makers to gain access to science advice from various structures: research centres, think-tanks, NGOs, individual experts, etc.

National institutions providing science advice can also join forces at European level. The [European Academies Science Advisory Council](#) (EASAC) is an example of such cooperation. Since 2001, EASAC offers a platform for the national academies to provide advice to the EU institutions through proactive studies and workshops in the fields of energy, biosciences and environment.

### **Chief Scientific Adviser and developments in the European Commission**

In a [speech](#) to the European Parliament on 15 September 2009, José Manuel Barroso announced that he wanted, during his second term as President of the European Commission, to review 'the way European institutions access and use scientific advice' and 'to set up a Chief Scientific Adviser who has the power to deliver proactive, scientific advice throughout all stages of policy development and delivery'. The position of Chief Scientific Adviser to the President of the European Commission was created in March 2010, and Professor [Anne Glover](#) was appointed in December 2011.

#### **The activities of the Chief Scientific Adviser (CSA)**

The [mandate](#) of the CSA was broad, running from the provision of scientific advice and creating networks with other science-advice bodies, to providing foresight on future policy issues and promoting European science in Europe and abroad. In July 2012, detailed [terms](#) of reference were distributed internally in order to improve the interactions between Commission departments and the CSA. The CSA then appeared as a key resource for all aspects related to science advice within the Commission and as the contact point for external science advisory bodies and networks. Anne Glover described her [role](#) as a de facto 'scientific ombudsman' for the Commission.

The CSA supported the creation of the [President's Science and Technology Advisory Council](#) (STAC) established by the Commission in [February 2013](#). The STAC mandate consisted of promoting evidence-based policy-making<sup>3</sup> at EU level and improving the uptake of science and technology in society. In August 2013, the STAC published an opinion paper on '[Science for an informed, sustainable and inclusive knowledge society](#)'. This was presented in a '[Berlaymont Paper](#)' promoting the use of scientific advice within the Commission, edited by the CSA as a member of the [Bureau of European Policy Advisers](#) (BEPA – the Commission's then in-house think-tank). The STAC's second paper, entitled '[The future of Europe is Science](#)', was published in October 2014.

At European level, the CSA set up the [European Science Advisers Forum](#) (ESAF) in June 2014, a network of individual national government science advisers across the EU. She contributed to the establishment of the EU Agencies' Network of Science Advisers. As mandated, she established an internal Foresight Network across the different departments of the Commission. Further afield, she participated in the establishment of the [International Network for Government Science Advice](#).

The CSA role [was criticised](#) in July 2014 by nine health and environment NGOs, who wrote to President-designate Jean-Claude Juncker asking him 'to scrap this position'. They considered that 'the post of CSA is fundamentally problematic as it concentrates too much influence in one person' and that the position was until then 'unaccountable, untransparent and controversial'. These requests triggered a wave of support for the CSA position, especially from the academic sector.<sup>4</sup> In August 2014, 24 NGOs published a [second letter](#) to the President-designate stating that 'there should be more objective and diverse expertise available to policy-makers than any single adviser could

reasonably be expected to provide' and that establishing a CSA position 'undermined expert research undertaken by European Agencies and independent scientists'.

### Limitations of the CSA position

The existing structures in the Commission do not adequately cover all the dimensions of science advice. The creation of the position of CSA to the President of the European Commission can be seen as an experiment to address this issue. However, its [practical implementation](#) appeared inadequate.

First, the mandate of the CSA overlapped to some extent with the mandate of the JRC and with the mandate of the Commissioner for Research. Second, the administrative support for the CSA, with two staff members at the beginning and five at the end of her mandate, was insufficient given the scope of the mandate. The absence of other individuals mandated to provide science advice in the different services of the Commission and at national level within the Member States was also a limitation.

### Recent developments

The new President of the European Commission, Jean-Claude Juncker, disbanded the post of CSA and the STAC in November 2014 and BEPA was transformed into the [European Political Strategy Centre](#) (EPSC). This new policy advice structure, larger than the former BEPA, aims to work as an in-house think-tank reporting only to the President of the European Commission.

The JRC, which had previously always been in the portfolio of the Commissioner responsible for research, was transferred to the portfolio of the [Commissioner for Education, Culture, Youth and Sport](#) (Tibor Navracsics). This move was justified in order to 'develop [the JRC] role as a service supporting all Commission services with its knowledge and its expertise'. At the same time, President Juncker charged the [Commissioner for Research](#) (Carlos Moedas) 'to make sure that Commission proposals and activities are based on sound scientific evidence and contribute best to our jobs and growth agenda.'

Commissioner Moedas was given the task of proposing a new system to provide independent science advice to the Commission. On 13 May 2015, he presented the main features of a future [Science Advice Mechanism](#) (SAM) to President Juncker during a meeting with a group of leading European scientists.

The Commission will establish a 'High-level Group' of eminent scientists reporting to Commissioner Moedas, whose role will be to [oversee the SAM](#). The seven members of the group will be appointed following selection by an Identification committee consisting of three individuals. It is planned that the group will have a structured relationship with scientific advisory bodies in the Member States (especially the national academies). To achieve this, the Commission aimed at providing new support for academies and learned societies to collaborate on EU policy issues,<sup>5</sup> with an envelope of 6 million euros for the next four years through Horizon 2020. Operational support for the group will be provided by a new unit within the Directorate-General for Research, with up to 25 staff members.

The Science Advice Mechanism is planned to be operational in autumn 2015. Until then, the announcement of the SAM leaves open key questions on its implementation:

- By what criteria will the members of the 'High-level Group' be selected? For how long? How much of their time will be dedicated to the activities of the group?

- What will be the composition and mandate of the new unit in DG Research acting as secretariat of the group? Will it provide only administrative support or will it play a key role in the interactions with internal and external structures and institutions?
- How will the group complement the existing structures to cover all dimensions of science advice: formal/informal advice, long-term/crisis, proactive/reactive advice?
- How will the group interact with the President of the European Commission, the College of Commissioners and Commission departments, especially the JRC?
- How will the group interact with external structures at the European level and with the institutions of the national science advice systems? How will the planned support for scientific advisory bodies in the Member States be organised?

## Main references

[Scientific Advice for Policy Making: The Role and Responsibility of Expert Bodies and Individual Scientists](#), OECD Science, Technology and Industry Policy Papers, No. 21, OECD Publishing, Paris, 2015.

[Future Directions for Scientific Advice in Europe](#), Edited by J. Wilsdon and R. Doubleday, Centre for Science and Policy, April 2015.

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[Science Advice to Governments Conference - Synthesis Report](#), K. Allen, Office of the Prime Minister's Science Advisory Committee, New Zealand, 2014.

[Typifying Scientific Advisory Structures and Scientific Advice Production Methodologies \(TSAS\)](#), S.Glynn, P. Cunningham and K. Flanagan, December 2003.

## Endnotes

- <sup>1</sup> This complex environment is referred to as a '[post-normal science](#)' environment where 'facts are uncertain, values in dispute, stakes high, and decisions urgent'.
- <sup>2</sup> The concept of 'honest broker' in science advice was developed by Roger S. Pielke, Jr. in *Honest Broker: Making Sense of Science in Policy and Politics*, Cambridge University Press, New York, 2007.
- <sup>3</sup> The concept of evidence-based policy covers a rigorous approach and a set of methods in order to gather and analyse the evidence available that could inform the development and implementation of new policies.
- <sup>4</sup> See for instance the [letter of support](#) from 40 academic institutions and researcher-linked organisations and more than 700 researchers, and the [letter](#) from five networks of European Academies.
- <sup>5</sup> Networks of academies at the European level signed a [Memorandum of Understanding](#) to strengthen their cooperation in providing scientific advice to policy-makers in March 2015. They also mention their commitment to working closely with the EU institutions.

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