

Royal Irish
Academy
Submission to the
Sourcing of Science
Advice
Consultation

Consultation Response / 2022

Introduction



The Royal Irish Academy welcomes the opportunity to respond to the consultation by the Department of Further and Higher Education, Research, Innovation and Science (DFHERIS) on the sourcing of science advice in Ireland. The Academy provides an all-island forum for scholars and researchers in the arts, humanities, social sciences and sciences to discuss and make available to the general public important research on social, cultural and scientific topics that are relevant for our society today. In this Consultation Response to DFHERIS we address seven of the most salient questions concerning the provision of science advice in Ireland today.

Question 1: How should science advice fit into the overall policy process, including the broad reform agenda (such as the generation of evidence for policy, and strengthening policy development and foresight in the public service)?

1.1. Reform of the process and structure for the sourcing of science advice¹ is an important component of the efforts under way across the Irish public service to strengthen the capacity for policy development and implementation. A well designed and aligned science advice mechanism has the potential to add considerable value to the existing ecosystem for advice and input to the Irish policy process by ensuring access and dialogue between policymakers and the best possible scientific and scholarly knowledge and insight from different disciplines and approaches. The value and contribution arising from this effective dialogue was vividly demonstrated throughout the COVID-19 pandemic.

2. The current Irish science-policy ecosystem is fragmented and de-centralised, consisting of a wide range of actors (Government, Oireachtas, government departments, governmental and non-governmental organisations, private sector) all of which both seek and provide policy advice via a complex network of relationships and processes. These relationships and processes are typically sectoral, driven by the policy priorities of particular government departments and often supported by an associated agency with recognised research expertise in these priority areas. Major challenges and vulnerabilities have become apparent in this model, including a lack of the continuity needed to take a longer-term perspective and a

¹ Science advice for policy involves the provision of evidence-based insights to support decision-making on complex issues that typically require evidence and knowledge from multiple disciplines. It can clarify what is known, not known, knowable and unknowable about an issue from multiple perspectives and domains of knowledge.

failure to build enduring structures for knowledge management and brokerage. This in turn has weakened the national effort to put in place a sound foundation for the flow of science advice into policy decision-making.

3. It is clear that a major redesign of the arrangements for sourcing science advice in Ireland is now urgent and important. As stated in the Academy's 2021 publication *Research for Public Policy: an outline roadmap*,² this should be based on the following three pillars:

- Building bridges, creating trust, offering opportunities.
- Joining up and scaling up what already exists.
- Knowledge management and brokerage.

Such an approach would provide a strong framework for addressing the issues identified below.

- The process through which scientists from the wider HE or research ecosystem can give advice and input to the design of study questions, and the wider policy deliberation process, are generally poorly understood.
- Policymakers report challenges in accessing information on the range of scientific expertise available for any particular policy issue. The integration of the humanities and social sciences in policy deliberations on issues is under-developed.
- A reliance upon personal relationships and networks between policymakers and academics increases competition for access to decision-makers and can result in a very narrow range of inputs to deliberations, and in the exclusion of valuable sources of insight. This is particularly relevant to the arts, humanities and social sciences disciplines, which means valuable sources of insight and perspectives can be omitted from the discussion.
- The increasing complexity and cross-cutting nature of the issues confronting society underscores the need for an independent, formalised science-policy interface mechanism(s) that protects the independence and scientific integrity of the scientific process while meeting the needs and timeframe of policymakers.

Proposed mechanism to strengthen the sourcing of science advice in Ireland

4. Science advice for policy involves the provision of evidence-based insights to support decision-making on complex issues that typically require evidence and knowledge from multiple disciplines. It can clarify what is known, not known, knowable and unknowable about an issue from multiple perspectives and domains of knowledge.

² Available at: https://www.ria.ie/sites/default/files/research-for-public-polciy-report-2021_1.pdf

5. The RIA supports the establishment of a new intermediary mechanism to strengthen the sourcing of science advice in Ireland and to build connections across the science policy ecosystem. This mechanism would consist of:

- A multi-disciplinary **Science Policy for Society Advisory Council (SPSAC)** to promote dialogue between scientists and policymakers and jointly select the government-requested studies to be undertaken each year. The SPSAC could, for example, be chaired by the D/Further and Higher Education, Research, Innovation and Science (D/FHERIS), with a professional secretariat, bringing together the principal research active government departments and the group of high-level scientific advisors.
- **A group of 4 - 5 high-level independent scientific advisors:** this group would be members of the Science Policy for Society Advisory Council and work with it to co-create science advice requests. This group would also work with the D/FHERIS to improve the overall interaction between government policy-making processes and independent science advice. It should be structured to provide a diversity of views and subject expertise and be supported by a small professional secretariat.
- Appointment of issue-specific **scientific expert panels** to respond to Science Policy for Society Advisory Council requests for science advice. The work of these panels to be supported by a small professional secretariat. The expert panels would be charged with identifying the most important and relevant evidence that can support decision-making on the specified policy issues, including an assessment of the robustness and limitations of the evidence.

6. The Science Policy for Society Advisory Council would:

- a) Build connections across the science policy ecosystem integrating the sciences, humanities and social sciences
- b) Align its work with the existing network of research and advisory agencies to ensure that the overall network provides the high level, cross-sectoral advice that is increasingly required in a complex world, while still benefiting from the range of expertise available across the system. This alignment of work between the agencies is an important goal which would require further careful consideration and design.
- c) Focus on evidence synthesis and the options that follow without advocating for a particular policy response.

7. Ensuring the credibility of and public trust in the SPSAC will be vital. Transparency in the process of the selection of science advice requests, the identification of experts, measures to ensure against

conflicts of interest, and the process of evidence review and synthesis will be supported by agreed guidelines and processes in respect of:

- Pre-agreement of the selection criteria to guide the SPSAC selection of study requests. For example, the European Commission's Scientific Advice Mechanism conducts studies only
 - a) where such advice is critical to the development of EU policies or legislation and
 - b) does not duplicate advice being provided by existing bodies.
- Adoption of an agreed framework and codes of practice for the sourcing and use of scientific advice in policymaking. See for example the Berlin-Brandenburg Academy 2011 white paper on the internal and external rules for science advice committees.
- Outsourcing of the selection of the high-level scientific advisors and members of expert panels to an independent body, such as the national academy. The Royal Irish Academy has extensive experience in administering independent selection and assessment panels and would be happy to work with the government to support this function.

8. Ireland now has an opportunity to strengthen the ecosystem of science advice and provide a highly visible cross-sectoral platform via the proposed SPSAC to connect scientific experts with the science advice needs of policymakers. This platform can:

- Act as a channel for evidence synthesis in response to the commitments within the Civil Service Renewal Programme to enhance evidence-based policymaking
- Support the knowledge brokerage and strategic coordination functions of the D/FHERIS.
- Support capacity building and training of policymakers and scientists to engage in science advice through the Civil Service Reform Programme and across the higher education sector by the individual higher education institutions and the Higher Education Authority.
- Assist with elements of work typically undertaken as part of Foresight in the public exercise by bringing together multi-disciplinary expertise to support horizon scanning and scenario building.
- Connect existing sectoral networks and nodes of expertise enabling collective evidence synthesis – drawing on multiple disciplines – on issues of common concern.
- Leverage the government's investment in the National Challenges Fund to build the system's capacity to engage with science advice.

- Support greater transparency and accountability in relation to how policy is formulated, delivered and implemented.
- Enable policymakers and scientists to engage in ongoing dialogue to build capacity and knowledge of the scientific and policy processes.

Question 2: what examples and experience do you have where advice has been effectively sourced and applied?

1. To provide evidence-based insights for decision-making, science advice must bring together two dimensions. First, evidence synthesis, which provides a review of the available knowledge on a specific issue, considering the multiple disciplines and framings that can contribute to the knowledge on the issue. Second, knowledge brokerage, which aims to enable scientific evidence to be used to deal with a given issue by helping decision-makers to interpret scientific information, draw conclusions from it, and implement the required actions.

2. The Royal Irish Academy's membership of active science policy networks, including the Science Advice for Policy for European Academies (SAPEA), the European Academies Science Advisory Council and the All-European Academies (ALLEA), has enabled it to gain first-hand experience of the process through which science advice is conducted – from the topic identification to evidence gathering and review and communication of findings.

3. The Academy supports the involvement of Irish experts in the sourcing of science advice for the European Commission via the Science Advice Mechanism. The latter provides a formal channel whereby policymakers can request science advice in a given policy area from the European academies of sciences, humanities and social sciences who form and support multi-disciplinary expert independent panels to prepare the evidence synthesis. Irish experts nominated by the RIA have contributed to scientific evidence synthesis reports on issues including sustainable food systems for the EU, food from the oceans, microplastics in nature and society, transforming the future of ageing, and energy transition in Europe.

4. Specific examples of where advice has been sourced and applied:

a) **Development of European and national research integrity guidelines:** these guidelines were developed by a science policy group of the Federation of All European Academies (ALLEA) through extensive stakeholder involvement and evidence synthesis of the extent and causes of scientific integrity breaches and ways to counter misconduct. This work was subsequently taken up by the National Research

Integrity Forum in Ireland at the request of the then Department of Education and led to an agreed national framework and code of conduct for scientific integrity supported by a training programme, which has been taken by some 12,000 researchers across the Irish system.

b) Ecosystem services, agriculture and neonicotinoids (2015 and 2023) – a bottom-up approach to science advice

In 2015, the RIA nominated and supported an Irish expert, Prof Jane Stout, MRIA, Trinity College Dublin, to participate in a multi-disciplinary European Academies Science Advisory Council (EASAC) science policy working group examining the use of neonicotinoids across the European Union. This science policy work was conducted on the initiative of EASAC member academies, responding to a) the highly contested nature of scientific evidence on the use of neonicotinoids on flowering crops and b) the timeliness of an evidence synthesis on the scientific evidence to inform the EU review of the temporary suspension of use of neonicotinoids on flowering crops. The resulting science advice report proved highly impactful in raising public awareness of these issues and attracted a range of media attention. Subsequently, the EU regulatory landscape underwent considerable change with four out of five of the active substances that had been on the market for controlling crop pests banned from outside use, and a new Green Deal for Europe agreed which included new EU pesticide reduction targets.

c) The imperative of climate action to protect human health in Europe (2019): The RIA supported the participation of Prof Pat Goodman, TU Dublin, in an EASAC Science Advice project which sought to synthesise the available evidence of the impact of climate change on health. The science advice report sought to inform health policymakers to develop the most effective climate change adaptation (ways of dealing with the consequences of climate change) and mitigation (efforts to reduce greenhouse gas emissions) strategies for health, and to include health impact assessments in developing and monitoring adaptation and migration strategies in energy, transport and housing. The resulting evidence synthesis report was presented to policymakers in Europe and Ireland and informed deliberations by the Department of Health on the development of its Climate Adaptation Plan.

Question 3: What examples and experience do you have where advice could be more effectively sourced and applied?

1. Many European national academies make a significant contribution to science advisory mechanisms.

In the Netherlands, the Royal Netherlands Academy for the Arts and Sciences acts as a forum for debate and a platform for knowledge sharing and brokerage and issues advisory reports and foresight studies in response to government requests.

In Germany, the Leopoldina (the National Academy of Sciences) has a specific science policy advisory function and frequently presents recommendations on socially relevant issues. For example, the Leopoldina, in collaboration with the vaccine advisory group and the National Ethics Council, was tasked with providing advice through the delivery of a joint policy position paper to the German Government in respect of the prioritisation of COVID-19 vaccines.

In Finland, the Finnish Academy of Science and Letters acts as a connecting hub within the national science-policy ecosystem. It facilitates the impact of scientific research through networks and partnerships, collates and brokers existing high-quality scientific research, and facilitates ongoing interaction among researchers and decisionmakers.

SAPEA (Science Advice for Policy by European Academies) is part of the European Commission's Scientific Advice Mechanism. Together with the Group of Chief Scientific Advisors it provides independent scientific advice to European Commissioners to support their decision making. The Royal Irish Academy is a member of SAPEA and an active participant in its scientific advisory groups.

2. Greater use could be made by the government of the multi-disciplinary expertise and experience of providing science advice held within the national academy of Ireland, the Royal Irish Academy.

Question 4: How could any existing sources be mobilised?

1. Ireland should increase its dependence on the national academy in terms of the sourcing of science advice by formalising its role in the new process. The Royal Irish Academy is well placed to act as the central knowledge broker supporting the development of connections across the science policy ecosystem.

2. The Academy has:

- Extensive experience with international science policy working groups including the European Commission's Science Advice Mechanism and science policy advisory groups of ALLEA and EASAC.

It has expertise in the process of identifying and selecting independent experts, conducting evidence synthesis reviews, and preparing policy option reports for policymakers.

- Direct access to over 800 experts through its network of multi-disciplinary committees and membership. These experts represent the full range of disciplines and are drawn from the full span of universities and technological universities, public research organisations and agencies and the public and private sector.
 - As an all-island institution it can build cooperation and mobilise effective responses across the island's science policy ecosystem.
 - Experience in convening and supporting independent working groups to develop statements to inform policy discussion; see for example, its work on Research Integrity, Climate Change and Health, and Higher Education Futures.
 - Expertise in convening and supporting roundtable discussions bringing together academics, sectoral experts and policymakers.
 - Professional secretariat to support science advice working groups (access to such support is repeatedly identified as a key success factor in science advice models).
 - Access to a wide and varied international expertise across the sciences, arts, humanities and social sciences through its relationships with sister academies worldwide, including the Royal Society of Canada, the Australian Academy of Humanities, Leopoldina, the Royal Netherlands Academy for the Arts and Sciences, the Finnish Academy, and academies in the UK – the British Academy, the Royal Society, the Learned Society of Wales, the Royal Society of Edinburgh, the Academy of Medical Sciences and the Royal Society of Engineers.
 - Experience in providing opportunities for researchers and policymakers to interact and network thereby helping the latter to keep abreast of “the science” and the former to better understand the policy cycle and its information needs. The Academy's Parliamentary Pairing Scheme is one such type of initiative that could be usefully expanded upon.
 - The existing pool of RIA nominated Irish experts who have participated in SAPEA and EU science advisory working groups is a valuable asset in the advisory ecosystem, bringing research expertise and direct experience of science advice processes.
3. An important aspect of this consideration is the essential alignment with the agenda for public service reform and renewal and the strategic objectives and direction of the national research and innovation agenda, including:

- The Civil Service Renewal to 2030 programme
- Creation of a policy development toolkit led by the OECD
- Structural changes including the Irish Government Economic and Evaluation Service (IGEES)
- The proposed establishment of Strategic Policy Units across government departments
- Development of challenges-based research funding approaches for all disciplines
- The 2022 government strategy for research and innovation – *Impact 2030*
- *Creating Our Futures* public consultation.

The science advice mechanism needs to be designed to enhance and support these important initiatives and build connections.

4. Other existing sources that can be mobilised to strengthen the science policy ecosystem include:

- Policy-facing institutes and research cohorts across the higher education sector could be brought together to establish a joint interface for researchers and policymakers addressing the current information and connection gaps between these communities.
- National and EU funding that supports curiosity-driven and mission-based research
- Engagement Network and the Research England-funded Capabilities in Academic Policy Engagement (CAPE) initiatives offer a useful template for such an interface.
- Co-design of National Challenge Fund questions by researchers from the sciences, humanities and social sciences, and policymakers.
- Co-ordination of the existing range of initiatives intended to connect researchers and public policy decision makers and parliamentarians through a central administrative body to ensure a complementary range of schemes and supports available across the full range of disciplines.
- A standardised approach to the use of annually updated Data and Research Plans by Government Departments and Agencies will enable researchers to better understand the areas of research interest
- Continuing and extending the work of Campus Engage in training researchers to engage with public policy researchers and evidence synthesis skills.

- Review of academic careers and promotional frameworks to enhance recognition and reward of public service and public policy engagement.
- Widening access to government department databases and information sets on a cross-departmental basis.

Question 5: What kind of individual skills and competencies do science advisors, scientists and government officials need to develop to effectively populate / engage with science advisory structures?

1. The degree to which scientific input is perceived, valued and appreciated within a political arena plays a major role in the practical influence and power of scientific experts in collective decision-making. Agreement by policymakers and scientists in advance on the role and function that scientific evidence should play in the respective discussion is key to building successful relationships. In this context, it will be important at the outset to recognise that the key stakeholders experience significantly different environments and motivations, and that attention must be paid to building bridges, creating greater understanding and managing relationships. Central to this is the need for all parties involved to have an understanding of the function of evidence and science advice, namely that it is essential, leads to better decisions, and should be contextualised within other policy and resource constraints.

2. An important means of ensuring public trust in the system is to agree principles of scientific advice which establish the rules of engagement between government and policymakers and those who provide independent scientific advice and evidence synthesis. These principles should address:

- Securing the independence of science advisors and expert panels.
- The recruitment of the participants of advisory groups: this should be conducted by respected scientific entities such as the national academy.
- The composition of the membership of the group of high-level science advisors and membership of expert panels: such as the handling of conflicts of interest, multi-disciplinary membership, inclusion of relevant domains of knowledge, citizen engagement.

- the processes and procedures for the quality assurance of evidence, transparency and openness of deliberations and the communication of results to different audiences.³

3. The European Commission identifies the following core competencies for members of the Group of High-Level Scientific Advisors:

- To have the highest eminence as scientific leaders including an undisputed reputation as research leaders and for their independence and commitment to research
- A track record of research practice and experience of scientific or policy leadership at the European and global level
- Trust and confidence of the scientific community and of policy-makers
- To be available and willing to work as members of the Group of Chief Scientific Advisors and to be able to function independently and in the public interest.

4. In agreeing the final composition of the Group of High-Level Scientific Advisors, the Commission seeks to:

- Reflect the broad disciplinary scope of research, embracing the natural sciences, medicine and engineering, as well as the social sciences, economics and the humanities
- Include members with experience in bodies such as advisory councils and committees, government scientific advisors, academies of science and learned societies, universities and research institutes.

³ See for example, SAPEA (2019) *Making sense of science for policy under conditions of complexity and uncertainty. Science Advice for Policy by European Academies (SAPEA)*, Berlin. Also: the UK Government's 'Principles of scientific advice' (2010). These set out the rules of engagement between government and those who provide independent scientific and engineering advice. The principles set out the roles and responsibilities and cover independence, transparency and openness. The Berlin-Brandenburg Academy of Sciences 2011 white paper specifies a set of internal and external rules for science advice committees.

- Include skills in the public communication of science, as well as experience in areas such as data analytics and visualisation, involvement in legislative processes, studies of scientific advisory systems, and the wider political context.

5. The **skills and competencies for scientists** wishing to contribute to science advice expert panels should include:

- a. World-class excellence demonstrated in one or more of the specific knowledge domain areas listed in the call for evidence accompanying the request for advice.
- b. Understanding of the policy cycle.
- c. Understanding of the limits of advocacy versus brokerage.

5.1. SAPEA also considers the following criteria when assessing nominations for its expert panels:

- Interdisciplinarity, with relevant disciplines included
- Wide geographical coverage
- Gender participation
- Inclusion of early career scientists.

6. A 2018 OECD guide on **skills for policymakers** for evidence-informed policymaking identifies six skill clusters:

1. Understand (Evidence literacy; Data literacy).
2. Interrogate / consider.
3. Engage (Communicating evidence. Citizen engagement. Dialogue with evidence community).

4. Obtain (Commission evidence).
5. Apply (Applying evidence/knowledge in policy. Innovation in governance).
6. Evaluate (producing multidimensional impact assessment. Assessment of intervention results).
7. The OECD report notes that developing the right skillset for evidence-informed policymaking is just part of the equation. The right institutional conditions, procedures, incentives and culture are also vital to enable evidence-informed policies.

Question 6: How can we make sure that citizen involvement, public trust and experience-based knowledge is included in any science advisory structure?

1. Citizen engagement in science and policymaking offers a valuable way to connect citizens, experts and policymakers and is an important way of boosting democratic legitimacy, accountability and transparent governance, and supporting public trust in policymaking and science. This is particularly important in a context where the risk of fake news is a rising challenge for policy design and implementation.
2. Citizens can provide evidence for policymaking and evaluation of policy decisions, while also generating ideas for new policies or services. Expert knowledge when combined with local and indigenous knowledge can yield valuable data and insights to inform policy and practice development (see for example, the Geological Survey of Ireland's work in preparing groundwater flooding maps).
3. A new structure for the sourcing of science advice in Ireland should carefully consider how best to integrate citizens into the process of deliberation between scientific expert panels, science advisors and policymakers. It should foster more inclusive practices and promote greater appreciation of the usefulness and validity of non-traditional inputs coming from citizens, communities or other groups. The arts, humanities, social sciences and creative sciences can play a major role in promoting such inclusive engagement practices.
4. A 2016 report by the Joint Research Centre *Citizen Engagement in Science and Policymaking* notes the importance of providing adequate resources and competences to support citizen engagement in policymaking to address challenges of data quality, reliability, curation, privacy, and intellectual property or ownership.

5. Ireland is particularly well positioned to build citizen involvement in the science policy ecosystem and can build upon its existing tradition of citizen participation in policy through citizen assemblies or juries. Citizens juries on genomic medicine offer a useful example of such work and such engagement will be increasingly important in the context of emerging and converging technologies. See for example, work by the National Academies in the US on public engagement and trust.
6. The *Creating Our Futures* (2022) report offers a valuable repository of citizen generated insights which could usefully be drawn upon in the formulation of science advice briefs on specific topic areas.

Question 7: How can the Irish system be better connected to EU and EU-27 science advice processes?

1. Ireland is acknowledged as a highly active participant in EU policy deliberative processes and as a country that brings well-briefed informed input to the decisions. Engagement at this formal government and civil servant level is a highly valuable point of connection but there are multiple points of connection that can be exploited in order to facilitate a two-way exchange of knowledge from Ireland to Europe and Europe to Ireland in support of a stronger science policy ecosystem.
2. The Royal Irish Academy has nomination rights to the SAPEA science advice expert panels by virtue of its membership of the Federation of All European Academies (ALLEA) and the European Academies Science Advisory Council. Irish experts are highly sought after for these groups and with additional resources the Academy could greatly increase the number of Irish participants in these important EU science advice processes. This would help strengthen Ireland's positioning and input to important policy and funding discussions at the EU and would be particularly important in the context of the ongoing implementation of Horizon Europe, which has significant investment resources.
3. It is also important to recognise that the policy tasks and priorities of a national government will necessarily differ at times to those of the Commission. Science advice generated at EU-level is necessarily understood and responded to in the context of local/national political priorities.
4. An ability to tap into national and international networks of expertise strengthens the Irish science policy ecosystem. Higher education networks and bodies such as the national academy have well established networks and connections with multi-disciplinary, multi-lateral networks of research excellence. These connections can be usefully and relatively easily deployed in support of Ireland's science advice structures.

About the Royal Irish Academy

The Academy promotes and supports excellence in scholarship across the sciences, humanities and social sciences. It is an independent, self-governing body of Ireland's most distinguished and internationally renowned scholars and scientists with over 600 members. The Academy encourages and facilitates scholarly informed debate and discussion on issues of public interest in line with its members' expertise.

For more information on this submission please contact the Royal Irish Academy, policy@ria.ie