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Supporting and connecting policymaking in the Member States with scientific research

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SUPPORTING AND CONNECTING POLICYMAKING IN THE MEMBER STATES WITH SCIENTIFIC RESEARCH

1. Introduction

Policymaking is a formidable task. The “wicked” problems¹ the world is facing, such as the COVID-19 pandemic, climate change, energy prices, the digital and green transitions, the use of artificial intelligence, require unprecedented levels of scientific knowledge and expertise to be more accurately described and effectively tackled. Fortunately an incredible wealth of scientific knowledge is available at the click of a mouse. However, getting the best available science to decision-makers when they need it, and in a useful format, is a significant challenge.

Modern policymaking also does not exist in a vacuum but takes place in a challenging global political context for knowledge and expertise, because of polarisation, disinformation, misinformation and authoritarianism. Trust in either government or in science cannot be taken for granted and is inter-connected.

The COVID-19 pandemic provided a stress test of the quality of science advice that brought into sharp focus the challenges at the science-policy interface, such as the need for interdisciplinary scientific knowledge and its synthesis², the improvement of understanding

¹ Ritter, H. W. J. and Webber, M. M., ‘Dilemmas in a General Theory of Planning’, *Policy Sciences*, Vol. 4, No. 2, 1973, pp. 155-169.

² See Mulgan, G., ‘Governments: learn to think better’, *Nature*, Vol. 602, No. 9, 2022, [doi:10.1038/d41586-022-00212-5](https://doi.org/10.1038/d41586-022-00212-5).

and communicating scientific uncertainty³, the need for boundary organisations in knowledge translation and cross-sectoral collaboration⁴, dealing with misinformation⁵, among others.

Within Europe, the COVID-19 stress test revealed important differences across Member States, which led observers to identify different strengths and weaknesses in using of scientific knowledge and expertise for policymaking⁶. The 2021 Commission Communication on “Drawing the early lessons from the COVID-19 pandemic”⁷ recognised that “*the early months of the crisis exposed the uneven level of research and advice in different Member States, as well as the different approaches taken to providing and using that advice. This meant that evidence was patchy, sometimes contradictory and often confusing as a result of different messaging in different Member States*”. The Communication calls for more coordination at the EU level on scientific advice and a “*need to bridge the gap between science and policymaking.*”

³ See Hyland-Wood, B. *et al.*, ‘Toward effective government communication strategies in the era of COVID-19’, *Humanities and Social Sciences Communications*, Vol.8, article 30, 2021, doi:10.1057/s41599-020-00701-w; Ratcliff, C.L. *et al.*, ‘Communicating uncertainty to the public during the COVID-19 pandemic: A scoping review of the literature’, *Annals of the International Communication Association*, 2022, doi:10.1080/23808985.2022.2085136.

⁴ See Vindrola-Padros, C., Herron, D. and McNally, N. ‘Boundary work during COVID-19: The transformation of research review and set-up’, *Future Healthcare Journal*, Vol. 8, No. 2, 2021, pp. e322-e325, doi:10.7861/fhj.2020-0262.

⁵ See Islam, M.S. *et al.* ‘COVID-19 related infodemic and its impact on public health: A global Social Media Analysis’, *Am. J. Trop. Med. Hyg.*, Vol. 103, Issue 4, 2020, pp. 1621–1629; Gabarron, E *et al.* ‘COVID-19-related misinformation on social media: a systematic review’, *Bull World Health Organ*, Vol. 99, Issue 6, pp. :455-463A, 2021, doi:10.2471/BLT.20.276782.

⁶ See Jasanoff, S. *et al.*, *Learning from COVID-19: A 23-Nation Comparative Study of COVID-19 Responses, with Lessons for the Future of Public Health*. Interim Report to the Comparative COVID Response project CompCoRe (United States National Science Foundation RAPID Collaborative Grants #2028585 and #2028567), 2021; Silva, P., Costa, E., and Moniz, J., ‘A Portuguese Miracle: the Politics of the First Phase of Covid-19 in Portugal’, *South European Society and Politics*, 2021, doi:10.1080/13608746.2021.1979741; Ladi, S., Angelou, A., and Panagiotatou, D., ‘Regaining Trust: Evidence-Informed Policymaking during the First Phase of the Covid-19 Crisis in Greece’, *South European Society and Politics*, 2021, doi:10.1080/13608746.2021.1983932; Brusselaers, N., *et al.*, ‘Evaluation of science advice during the COVID-19 pandemic in Sweden’, *Humanities and Social Sciences Communications*, Vol. 9, Article No. 1, 2022, pp. 1–17, doi:10.1057/s41599-022-01097-5.

⁷ COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE EUROPEAN COUNCIL, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS on Drawing the early lessons from the COVID-19 pandemic. COM(2021) 380 final.

Recent work of the Joint Research Centre (JRC) of the Commission, launched in September 2020, on national science-for-policy ecosystems⁸ confirmed that this picture is not limited to COVID-19. These insights came through a survey of around 500 national experts⁹ and a series of fourteen online workshops with more than 1,800 participants (including government ministers of Greece, Portugal, Lithuania and Latvia in four of the eight country-focused workshops) from across the EU¹⁰. As an example, Jurgita Šiugždinienė, current Minister of Education, Science and Sport in Lithuania, underlined during one of the workshops, “*we all agree that major policy initiatives have to be supported by scientific evidence. Collaboration between science and policymaking therefore has to be very close and enhancing science-based decision-making in the public sector is of utmost importance*”¹¹.

Policymakers everywhere are faced with what some have called the “technocrat’s dilemma” – never has science and expertise been more needed but never has it been more questioned¹². On the basis of rigorous, empirical methods, science¹³ can help provide both the shared

⁸ *Science-for-policy ecosystem* is here understood as a complex of organisational structures and entities, processes, and networks that interact to support the mobilisation, acquisition, synthesis, translation, presentation for use, and application of scientific knowledge in policymaking processes.

⁹ For more information, see <https://europa.eu/!RpBb4W>. The survey results are available in Scharfbillig, M. *et al.*, *Qualities of science-for-policy ecosystems – Results from a pan-European survey*, Publications Office of the European Union, Luxembourg, (forthcoming), and they show that overall, the 498 professionals surveyed at the science-policy interface share high agreement with the need for changes in science-for-policy ecosystems on average. The agreement with all 20 survey statements enquiring about areas for improvement in the ecosystems is on average 53% (compared to 21% disagreeing).

¹⁰ The project consisted of a combination of participatory workshops, discussion papers, and the survey data. The workshops, with eight events focused on individual Member States and six concerned with cross-cutting issues, attracted high-level contributors from both the national government and science side, including four government ministers (EL (Minister for Coordination), PT, LV, LT (Ministers for Science/Research/Education)), the President of Parliament and former Prime Minister of Estonia, senior civil servants (from Director-Generals (FR) and Directors (LV, LT) to Chief Science Advisors (IE)), and the leadership of national academies of science and networks of national academies (EE, BG, IE, European Federation of Academies of Science and Humanities ALLEA, SAPEA). For more information, see <https://europa.eu/!jW9NXg>.

¹¹ Intervention of Minister Jurgita Šiugždinienė during JRC workshop “Science for policymaking in Lithuania”, held on 23 November 2021.

¹² Stern, A. ‘The Technocrat’s Dilemma’, *The New Atlantis*, No. 69, Summer 2022, pp. 56-60, TheNewAtlantis.com, April 25, 2022. Retrieved from: <https://www.thenewatlantis.com/publications/the-technocrats-dilemma>

¹³ Science is meant in the broader sense of the German *Wissenschaft* in this document, i.e. including social science and humanities.

understanding of reality essential for democratic debate, and the knowledge policymakers need to make policies that work.

Ensuring decision-makers have access to the best available science when they need it, in a format they can use, and which is trusted by citizens is a challenge that calls for further efforts to make connections and reinforce trust between scientists, policymakers, stakeholders, and the general public.

There is no need to start from scratch. At the EU level and within the Member States, there are many successful examples of institutions, processes and networks informing policy with scientific evidence. The EU has for many years put evidence-informed policymaking¹⁴ at the centre of its work through the ‘better regulation’ agenda, and many initiatives in specific policy fields, such as the establishment of agencies designed to support policymaking with science. Public administrations in many Member States have also taken steps towards strengthening their access to scientific knowledge, ranging from public consultations and assessments of existing science advisory processes and structures to setting up new boundary organisations¹⁵ that connect policymakers with the scientific communities and strengthen analytical capacity inside governments¹⁶.

¹⁴ *Evidence-informed policymaking* refers to an approach to policymaking that aims at informing policy deliberations and decisions with the best available evidence. Evidence in general refers to “data, information, and knowledge from multiple sources, including quantitative data such as statistics and measurements, qualitative data such as opinions, stakeholder input, conclusions of evaluations, as well as scientific and expert advice” (EUROPEAN COMMISSION: Better Regulation Toolbox, November 2021). In the context of the science-for-policy discussions, the focus is on evidence produced according to scientific methods.

¹⁵ The functions and nature of boundary organisations, performing activities (such as knowledge translation and synthesis, as well as networking and science-for-policy training for both policymakers and scientists) to better connect policymaking with scientists, are described in greater detail in section 3.1.1.

¹⁶ See section 3.1.2 for further details.

Drawing on the JRC’s recent work on science-for-policy ecosystems, the lessons from COVID-19, and a workshop to gather input from over 100 science-for-policy organisations in the EU held in March 2022¹⁷, **this staff working document aims to promote discussions and policy development on the use of science in informing policymaking in the Member States.** The COVID-19 crisis has already triggered and/or accelerated this reflection in many Member States¹⁸. It has also made clearer how certain EU policies and instruments could better support the use of scientific research for policymaking. By setting out the nature of the challenges, pointing to good practice at EU and national level, and identifying current EU policies and initiatives, this document could be used by Member States to aid their reflections and identify their needs for support of the Commission. It also helps promote mutual learning between Member States, identified by Ilga Suplinska, then Minister of Science and Education in Latvia, when she observed that while her ministry holds a “*unique position*” in support of Latvia’s science-for-policy ecosystem, with activities both on the knowledge demand and supply side, “*at the same time, we have much to learn from other countries*”¹⁹.

Section 2 sets out the arguments for science for policy. Section 3 identifies the main challenges for the use of scientific evidence and expertise in policymaking, and sets out some of the existing science-for-policy structures and policies, resources and instruments available to build stronger, well-connected science-for-policy ecosystems.

¹⁷ The workshop “Share your views – how to support and connect policymaking in the EU and Member States with scientific research” was held on 9 March 2022 – for more information, see <https://europa.eu/!kKqQKq>.

¹⁸ See section 3.1.2 for a list of recent initiatives in several Member States. Moreover, the interest in the JRC workshop series, along with the use of funding from the Technical Support Instrument (see section 3.1.3) and the Recovery and Resilience Fund to support capacity for using evidence, data, and evaluations in policymaking (see footnote 34), all underline the relevance of this policy issue in national discussions.

¹⁹ Written intervention by then Minister Ilga Suplinska on the occasion of the JRC workshop “Science for policymaking in Latvia”, held on 19 May 2021.

The current moment presents not only profound challenges for both science and policymaking, but also unique opportunities to strengthen the ability to rise to the policy challenges Europe faces.

2. Why science for policy: tackling complexity and strengthening democracy

The case for science for policy rests first on its ability to help design more effective policies and second to support the democratic process by providing the facts to support democratic debate of the proposed policies.

Policies developed without sufficient science are less likely to solve the underlying issue and more likely to give rise to unintended consequences. Science can help understand the policy problem, assess different policy options, design solutions that work and distinguish facts from politics in public debate.

These principles are why the Commission has put scientific evidence at the heart of its policymaking processes. Policymakers have been encouraged to gather evidence since the 2002 ‘better regulation’ Communication, which introduced “better regulation” as the overarching framework for good policymaking at the EU level²⁰. The ‘better regulation’ agenda has been further expanded and refined through regular ‘better regulation’ communications and guidelines, and the development and regular updates to the ‘better regulation’ toolbox²¹. These developments have consolidated impact assessments and evaluations, as well as stakeholder

²⁰ COMMUNICATION FROM THE COMMISSION: Action Plan ‘Simplifying and improving the regulatory environment’. COM(2002) 278 final.

²¹ See e.g. COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Better regulation for better results - An EU agenda. COM(2015) 0215 final; COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Completing the Better Regulation Agenda: Better solutions for better results. COM(2017) 651 final; COMMISSION STAFF WORKING DOCUMENT: Better Regulation Guidelines. SWD(2021) 305 final; COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Better regulation: taking stock and sustaining our commitment. COM(2019) 178 final; and EUROPEAN COMMISSION: Better Regulation Toolbox, November 2021. More information available on: <https://europa.eu/lcB33ft>.

consultation processes as a regular feature into EU policymaking, thereby promoting the approach that EU policy initiatives begin and end with analyses of policy problems and impacts of the solutions are thoroughly analysed and take into account stakeholders input. A case in point is the “evaluate first” principle that promotes evaluations before revising legislation or introducing new legislation.

Most recently, in the 2021 Communication²², scientific evidence is explicitly described as a “cornerstone” of better regulation, “*vital to establishing an accurate description of the problem, a real understanding of causality and therefore intervention logic; and to evaluate impact*“. Research communities are “important stakeholders” to be solicited early in the process²³ through calls for evidence. Scientific advice and foresight have also been explicitly integrated as part of the impact assessment process²⁴, with extensive guidance on sources and methods available to the policy officers in the ‘better regulation’ toolbox²⁵.

A number of important sectoral initiatives complement the general support for scientific knowledge in policymaking. For example, the Directorate-General for Agriculture and Rural Development (DG AGRI) and the Member State governments benefit from an internal AGRI Research Network, the Agricultural Knowledge and Innovation System (AKIS), the European Innovation Partnership for agricultural productivity and sustainability, and various tools developed in the context of Horizon Europe²⁶. The Directorate-General for European Civil Protection and Humanitarian Aid (DG ECHO) has recently set up, with the Member States, the

²² COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE EUROPEAN COUNCIL, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS on Better regulation: Joining forces to make better law. COM(2021) 219 final.

²³ COMMISSION STAFF WORKING DOCUMENT op. cit. SWD(2021) 305 final.

²⁴ Better Regulation Guidelines, see footnote 21.

²⁵ Better Regulation toolbox, see footnote 21.

²⁶ Among the relevant topics of Horizon Europe, Work Programme 2021-2022, Cluster 6, were for instance the call for “innovative tools and methods to evaluate the design and support, monitoring and implementation of effective CAP strategic plans (HORIZON-CL602022-GOVERNANCE). See footnote 118 for further Horizon 2020 projects related more generally to strengthening science-policy activities.

Union Civil Protection Knowledge Network²⁷ that brings together civil protection and disaster management actors to work together, collaborate and learn from each other with the objective of strengthening the EU's overall ability and capacity to deal with disasters. The Directorates-Generals for Energy (ENER), for Research and Innovation (RTD) and the Joint Research Centre (JRC), jointly set up the Strategic Energy Technology Plan, bringing research and industry stakeholders together with Member States and the EU to define R&I policies on clean energy technologies. The Directorate-General for Environment (ENV) established the "Science for Environment Policy" (SfEP) news alert service²⁸. In 2021, under the European Climate Law²⁹, the European Scientific Advisory Board on Climate Change was established to provide independent scientific advice to the Union and produce reports on EU measures, climate targets and indicative greenhouse gas budgets and their coherence with the European Climate Law and the EU's international commitments under the Paris Agreement. The recently launched One Health European Joint Research Programme aims to create a sustainable European One Health framework by integration and alignment of medical, veterinary and food institutes through joint programming of research agendas matching the needs of European and national policymakers and stakeholders³⁰.

In 2016, the JRC established science-for-policy "knowledge centres" with policy DGs (e.g. Disaster Risk Management Knowledge Centre with the DG European Civil Protection and Humanitarian Aid Operations (ECHO), a virtual "one-stop shop" that pools, synthesises and communicates knowledge and expertise from locations inside and outside the Commission for use by policymakers and stakeholders, and "competence centres" (e.g. entities that bring

²⁷ See UCP Knowledge Network: Applied knowledge for action under <https://civil-protection-knowledge-network.europa.eu/>.

²⁸ See Science for Environment Policy under <https://europa.eu/!DfvWGK>.

²⁹ Regulation (EU) 2021/1119.

³⁰ For further information, see <https://onehealthejp.eu/>.

together all in-house knowledge on a particular analytical tool, such as foresight, modelling, composite indicators, that can be applied across policy areas).

In 2012, a Chief Scientific Advisor (CSA) to the President of the Commission, supported by a Science & Technology Advisory Council (STAC)³¹ was appointed. The role of CSA was replaced in 2015³² with the Scientific Advice Mechanism (SAM), composed of a Group of seven Chief Scientific Advisors (GCSA) and supported by the Science Advice for Policy by European Academies (SAPEA) consortium and a secretariat in DG Research and Innovation (DG RTD).

Other European institutions have also reinforced their mechanisms to bring scientific expertise into policymaking in recent years. The European Parliament, building on the Panel for the Future of Science and Technology (STOA) established in 1987, created the European Parliamentary Research Service (EPRS) in 2013, and within the service, the European Science Media Hub in 2018. In 2013, the EU's decentralised agencies providing scientific advice for policymakers in different sectors founded the EU Agencies Network on Scientific Advice (EU-ANSA).

The use of science for policy is also at the heart of the Commission's drive to support public administration reform in the Member States. The 2021 Commission Staff Working Document "Supporting public administrations in EU Member States to deliver reforms and prepare for the future" states that "*a systematic consideration of scientific knowledge enables governments and public administrations, for example, to define and analyse policy challenges from multiple perspectives (e.g. understanding pandemics from public health, social justice, mental health, education, gender, environmental, and other perspectives), and develop a set of policy options*

³¹ See EUROPEAN COMMISSION (2013): President Barroso announces creation of a Science and Technology Advisory Council. Press release, 27 February 2013.

³² COMMISSION DECISION OF 16.10.2015 on the setting up of the High Level Group of Scientific Advisors. C(2015)6946 final.

*based on multi-disciplinary scientific input (e.g. the integration of epidemiological modelling data into macro-economic forecasting). To ensure that scientific knowledge informs public policies and services, robust structures, procedures, and competencies need to be further developed and connected at all levels of public administrations and policymaking (e.g. through networks of science advisors in ministries, government's calls for scientific evidence) and to provide training opportunities in data literacy to policymakers*³³. Some Recovery and Resilience Plans also include measures to improve policymaking through evidence and data³⁴.

A similar evolution can be seen in research policy – as the policy area directly shaping the supply of scientific knowledge to policymakers and public administration. The new European Research Area³⁵ (ERA) promotes inter-sectoral mobility, impact assessment, knowledge valorisation, open science, international cooperation and science diplomacy, support to EU missions in Horizon Europe³⁶, and more interconnected R&I ecosystems, which support better connections between policymaking and scientific communities. The emerging policy on knowledge valorisation includes the uptake of scientific knowledge in policymaking. The Commission calls upon Member States, policymakers and other relevant actors to “*strengthen*

³³ COMMISSION STAFF WORKING DOCUMENT: Supporting Public Administrations in EU Member States to Deliver Reforms and Prepare for the Future, SWD(2021)101 final.

³⁴ There are a number of Member States that included support for evidence and data use in public administration. Several Member States plan to introduce better data management and analysis systems (e.g. HR, EL, LT). Other Recovery and Resilience Plans (RRPs) foresee sectoral initiatives, such as MT's Gender Equality and Mainstreaming Strategy Action Plan (to be supported by disaggregated data to support evidence-based approach to policymaking) or RO's investment into developing a digital system for the award of public funding in cultural sectors that would facilitate an evidence-based decision. Another example is the RRP of CZ – see section 3.1.2.

³⁵ See COUNCIL OF THE EUROPEAN UNION (2021): Conclusions on Future governance of the European Research Area (ERA), adopted on 26/11/2021, 14308/21, and EUROPEAN COMMISSION (2021): European Research Area Policy Agenda – Overview of actions for the period 2022-2024. Publications Office of the European Union: Luxembourg.

³⁶ EU Missions are a new way to bring concrete solutions to some of our greatest challenges, introduced under the EU research funding programme Horizon Europe 2021-2027. They are a coordinated effort by the Commission to pool the necessary resources in terms of funding programmes, policies and regulations, as well as other activities, to address challenges such as Climate or Cancer and support Commission priorities.

*structures, processes, and practices in the use of research results and scientific knowledge for designing and implementing public policy*³⁷.

Policies rooted in scientific knowledge can increase trust in public policies and in governments in general. Research on trust in government and policymaking already helps to understand why certain policies reach their goals while others do not, and to increase public acceptance of policies and regulatory compliance³⁸. 68% of Europeans agree that scientists should engage in political debates to make sure that decision-making also takes scientific evidence into account³⁹. Moreover, trust in science and scientists has increased. Globally, those who said they trust scientists ‘a lot’ rose from 34% in 2018 to 43% by the end of 2020, and public trust is higher in scientists (43%) than in national government (26%) and journalists (19%)⁴⁰. Trust in policies comes with trust in governments, and for that, both need to demonstrate their trustworthiness to citizens by producing well-informed, effective and coherent policies. At a time when disinformation is used for sowing discord by exploiting the fears of citizens, it is crucial to ensure that democratic decisions are informed by the most reliable and widely accepted facts and sources of information available.

Arguments in support of making better use of scientific knowledge in policymaking not only point out that policy issues are complex and the policy environment is becoming more challenging. There is also significant public support in Europe and action at EU level in support

³⁷ See EUROPEAN COMMISSION: Proposal for COUNCIL RECOMMENDATIONS on the guiding principles for knowledge valorisation. COM(2022) 391 final.

³⁸ See projects from Horizon 2020 call “SC6 GOVERNANCE-01-2019: Trust in Governance”: “[PERITIA: Policy, expertise and trust](#)” (grant agreement 870883); “[EnTRUST: Enlightened Trust in Governance](#)” (grant agreement 870572); and “[TIGRE: Trust in Governance and Regulation in Europe](#)” (grant agreement 870722) and OECD (2022), *Building Trust to Reinforce Democracy: Main Findings from the 2021 OECD Survey on Drivers of Trust in Public Institutions*, OECD Publishing, Paris, <https://doi.org/10.1787/b407f99c-en>.

³⁹ See Special Eurobarometer 516: European citizens’ knowledge and attitudes towards science and technology, April-May 2021, ISBN: 978-92-76-41143-7. It is important to note that 68% of the 26,827 respondents agreed with a positively framed statement (science should intervene), while only 37% disagreed with the negative statement (science should not intervene) (and 39% agreed). The report states: “On balance, this shows a preference for scientists intervening in political debate”.

⁴⁰ Wellcome Global Monitor, *How COVID-19 affected people’s life and their views on science*, Wellcome Trust, London, 2020.

of science for policy. This will be essential to address the challenges at the science-policy interface set out in the next section.

3. Building robust science-for-policy ecosystems in the Member States

The main challenges are:

- the need for better connections and relationships between actors and organisations in both research and in public administrations;
- the need to improve professional competences of both scientists and policymakers to inform policy with science; and
- the need for good governance in informing policy with science through transparent, participatory, and anticipatory processes.

These challenges were explored in the JRC workshops between 2020-2022 and a survey of almost 500 national experts in the science for policy interface⁴¹. These challenges are also consistent with those identified in several recent analyses undertaken by practitioners⁴² and

⁴¹ See <https://europa.eu/!rKdpjd> for general information about the JRC project, <https://europa.eu/!kKqOKq> for the workshop “Share your views – how to support and connect policymaking in the EU and Member States with scientific research” held on 9th March 2022, and <https://europa.eu/!RpBb4W> for information on the JRC “Science-for-policy ecosystem survey”.

⁴² For instance, Mair, D., *et al.*, *Understanding our Political Nature: How to put knowledge and reason at the heart of political decision-making*, Publications Office of the European Union, Luxembourg, 2019, [doi:10.2760/374191](https://doi.org/10.2760/374191) (online); SAPEA, Science Advice for Policy by European Academies, *Making sense of science for policy under conditions of complexity and uncertainty*, SAPEA, Berlin, 2019, [doi:10.26356/MASOS](https://doi.org/10.26356/MASOS); OECD, *Mobilising Evidence for Good Governance: Taking Stock of Principles and Standards for Policy Design, Implementation and Evaluation*, OECD Public Governance Reviews, OECD Publishing, Paris, 2020, [doi:10.1787/3f6f736b-en](https://doi.org/10.1787/3f6f736b-en); or Global Commission on Evidence to Address Societal Challenges, *The Evidence Commission report: A wake-up call and path forward for decision-makers, evidence intermediaries, and impact-oriented evidence producers*, McMaster Health Forum, Hamilton, 2022.

researchers⁴³. This section sets out on the challenges, but also points to good practice and possible solutions provided by the Commission, including boundary organisations and networks bridging EU science and policymaking organisations, policy frameworks, instruments, and tools.

3.1 Building better connections and relationships between science and policy

3.1.1 The need for boundary organisations and networks

Complex policy problems require extensive connections and trusted relationships among scientists and policymakers to ensure multi-disciplinary advice and coherent policies. In the recent JRC expert survey, 7 out of 10 national experts agreed or strongly agreed that “the science-for-policy ecosystem [of your country] is fragmented: organisations rarely coordinate their activities and are often not aware of each other”⁴⁴. The lack of coordination may result in duplication and contradictions in advice, as observed during COVID-19⁴⁵, wasting resources, undermining public trust, and resulting in confusing messages. Observers often attribute this challenge of coordinating between science and policymaking to the fact that science and policymaking form two distinct communities with different timeframes and approaches to uncertainty, language, incentives, goals and professional culture⁴⁶. This was also echoed by

⁴³ For instance, see Capano, G. and Malandrino, A., ‘Mapping the use of knowledge in policymaking: barriers and facilitators from a subjectivist perspective (1990–2020)’, *Policy Sciences*, Vol. 55, 2022, pp. 399–428, [doi:10.1007/s11077-022-09468-0](https://doi.org/10.1007/s11077-022-09468-0), whose meta-review argues that rather than type or quality of evidence, the use of “evidence depends on how it is processed by actors, by their ideas and values, and by their capacities“. Key barriers are therefore, along with values/ideologies/beliefs, actor relations (e.g. better linkages and mutual understanding) and policy capacities (e.g. policymakers’ scientific skills, organisational capacities). Echoing this, Boaz and Nutley point out that recent literature moved away from first generation linear thinking concerned with knowledge push and dissemination to relational (focus on interactions and partnerships at science-policy interface) and systemic approaches (emphasis on wider networks and coordination structures that shape interactions) to promoting evidence use in policymaking. See Boaz, A. and Nutley, S., ‘Using evidence’, in: *What works now? Evidence-informed policy and practice*, edited by Boaz, A. *et al.*, Policy Press, Bristol, 2019, pp 251–278.

⁴⁴ See Scharfbillig, M. *et al.* (forthcoming) in footnote 9.

⁴⁵ COMMUNICATION *op.cit.* COM(2021) 380 final.

⁴⁶ Caplan, N., ‘The two-communities theory and knowledge utilization’, *American Behavioral Scientist*, Volume 22, Number 3, 1979, pp. 459–470, [doi:10.1177/000276427902200308](https://doi.org/10.1177/000276427902200308); Cairney, P., and Oliver, K., ‘How Should Academics Engage in Policymaking to Achieve Impact?’, *Political Studies Review*, Vol. 18, No. 2, 2020, pp. 228–244, [doi:10.1177/1478929918807714](https://doi.org/10.1177/1478929918807714).

Manuel Heitor, then Minister for Science, Technology and Higher Education of Portugal, who emphasised during a JRC workshop that “*science for policy is an increasingly social process which depends on supportive institutions, processes, and a scientific culture at large*”⁴⁷.

Different responses to this “two communities” challenge focus on stimulating interactions between the two by better institutionalised connections: some see a critical role for boundary organisations to provide translation and connection between the two communities⁴⁸; others focus on how networks of professionals, based on trust, shared values, and frequent interactions, result in increased evidence use in policymaking⁴⁹; many have also started exploring the wider science-for-policy ecosystems that support interactions between the two communities⁵⁰.

Regular reviews of their structures, networks, funding and processes, as well as of their performance would help governments identify how to improve these connections. But such systematic reviews remain rare⁵¹.

⁴⁷ Intervention by then Minister Heitor during the JRC workshop “Science for policymaking in Portugal” held on 16 November 2021.

⁴⁸ Gluckman, P. et al. ‘Brokerage at the science–policy interface: from conceptual framework to practical guidance’, *Humanit Soc Sci Commun*, Vol. 8, Article No. 84, 2021, [doi:10.1057/s41599-021-00756-3](https://doi.org/10.1057/s41599-021-00756-3).

⁴⁹ See Oliver, K. and Faul, M. V. ‘Networks and network analysis in evidence, policy and practice’, *Evidence and Policy*, Vol. 14, No. 3, 2018, pp 369-379, [doi:10.1332/174426418X15314037224597](https://doi.org/10.1332/174426418X15314037224597).

⁵⁰ Boaz and Nutley, op.cit., see footnote 43.

⁵¹ Comprehensive reviews of science-for-policy ecosystems are rare. They focus on: (a) specific policy issues, such as assessment of COVID-19 responses (see footnote 11) or the effort of a Commission’s High-Level Expert Group tasked to determine the needs and develop options to strengthen the international science policy interface for improved food systems governance (EUROPEAN COMMISSION (2022): *Everyone at the Table: Transforming Food Systems by Connecting Science, Policy and Society*. Publications Office of the European Union, Luxembourg, [doi:10.2777/440690](https://doi.org/10.2777/440690)); (b) specific science advice mechanisms such as legislative science advice organisations, see Nentwich, M., *Parliamentary Technology Assessment Institutions and Practices A Systematic Comparison of 15 Members of the EPTA Network*. ITA Manuscripts ITA-16-02, 2016, ISSN:1818-6556; and (c) recent analysis of national ecosystems of Denmark, Greece and Portugal linked to the JRC Science for Policy Ecosystems project: Pedersen, D. B. and Hvidtfeldt, R., *The Danish Ecosystem of science for policy*, Discussion Paper by the Danish Council for Research and Innovation Policy, Copenhagen, 2021; Ladi, S. et al., *The Greek ecosystem of science for policy*, edited by Krieger, K. and Melchor Fernandez, L., Publications Office of the European Union, Luxembourg, 2022, [doi:10.2760/338170](https://doi.org/10.2760/338170); and Simões, V.C., *Science for policy in Portugal*, edited by Melchor Fernandez, L. and Krieger, K., Publications Office of the European Union, Luxembourg, 2022, [doi:10.2760/88096](https://doi.org/10.2760/88096).

Increased support for boundary organisations from governments and scientific institutions is also needed to help fill existing gaps and strengthen connections at the science-policy interface within and between Member States. Boundary organisations can provide knowledge exchange and brokerage services to connect science and policymaking⁵². They can take many forms within either the policymaking system, the science system, or at arm's length from both sides⁵³. They can perform different functions: disseminating, translating, synthesising and communicating research for policy⁵⁴; managing requests for evidence; facilitating access to research; training researchers and decision-makers for evidence-informed policymaking; building partnerships; rewarding policy impact; and creating processes and posts for science for policy⁵⁵.

Robust science-for-policy ecosystems require well-connected structures, processes, and networks that support all of these functions. The need for boundary organisations and infrastructure has been widely recognised: in a recent mapping of 513 organisations across 40 countries, it was noted that *“by far the majority of research-policy engagement activities themselves date from 1945 onwards, with a large increase in activity from 2010 onwards”*⁵⁶. Yet, this increased activity, in the absence of any systematic reviews, has been described as *“rudderless”* and *“busy rather than effective”*⁵⁷. Moreover, the JRC survey suggests that scientists and policymakers continue to lack regular and well-supported opportunities to meet

⁵² See for example Guston, D. H., 'Boundary Organizations in Environmental Policy and Science: An Introduction', *Science, Technology, & Human Values*, Vol. 26, No. 4, Oct. 2001, pp. 399-408, [doi:10.1177/016224390102600401](https://doi.org/10.1177/016224390102600401); and Cash, D. W., *et al.*, 'Knowledge systems for sustainable development', *PNAS*, Vol. 100, No. 14, 2003, pp. 8086-8091, [doi:10.1073/pnas.1231332100](https://doi.org/10.1073/pnas.1231332100).

⁵³ For instance, within the policymaking system there exist government offices of science and technology, foresight units, networks of ministerial science advisors, behavioural insight units, scientific and regulatory agencies; within the science system, there are academies, learned societies, knowledge exchange and policy engagement units in universities; and of mixed nature, such as independent scientific councils.

⁵⁴ Gluckman, P. *et al.* 'op.cit. see footnote 48.

⁵⁵ Neal, J. W. *et al.* 'Defining brokers, intermediaries, and boundary spanners: a systematic review', *Evidence & Policy*, Vol. 18, No. 1, 2022, pp. 7-24, [doi:10.1332/174426420X16083745764324](https://doi.org/10.1332/174426420X16083745764324).

⁵⁶ Oliver, K. *et al.*, 'What works to promote research-policy engagement?', *Evidence & Policy*, published online ahead of print 2022, pages 1–23, [doi:10.1332/174426421X16420918447616](https://doi.org/10.1332/174426421X16420918447616).

⁵⁷ Oliver, K *et al.* – op.cit. in footnote 56.

and exchange ideas (71%)⁵⁸. The survey suggests that resources for such organisations and services are perceived as limited, with about half of respondents to the JRC survey identifying funding for science-for-policy structures and activities at national level as a major obstacle.

Finally, no one country or region produces all the science it needs to solve its own policy problems and resources are limited. Better connecting different Member State systems with each other and with the EU-level science-for-policy ecosystem would make it more likely that policymakers, wherever they sit, get the best available science in good time. Each Member State has a different governance and research heritage so it is important to connect national structures, processes, networks, and practices without attempting to impose any “one size fits all” model.

3.1.2 Dynamic science-for-policy ecosystems: good practice

The Commission’s better regulation framework supports better science-policy connections and trusted relationships at the EU level. The JRC, SAM, STOA and EPRS (among others) contribute to reinforce the scientific evidence at the disposal of policy makers. Many Member States have also tackled these challenges over recent years and offered examples of good practice.

New advisory bodies and structures, often acting as boundary organisations to connect policymaking with science, have recently been established. For instance, in Estonia, a network of science advisors in government ministries was set up in 2017⁵⁹. In Finland, following an in-depth investigation of how scientists engage with policymakers, a permanent science-for-

⁵⁸ Scharfbillig, M., *et al.* (forthcoming) (see footnote 9).

⁵⁹ Estonia established a network of scientific advisers at ministries and the government office, see Directive No. 1.1-2/17/15 of the Minister of Education and Research of 27 January 2017.

policy platform managed by the four Finnish science academies was formed in 2021⁶⁰. In Lithuania, the government established the Government Strategic Analysis Center STRATA in 2019 as an expert body that provides the government and ministries with independent, research-based information needed to make evidence-informed policy decisions⁶¹. In Portugal, the Competence Centre for Planning, Policy and Foresight in Public Administration (PlanAPP) was created in 2021 to support strategic planning, policy analysis and evaluation, and foresight with the vision to develop competences, better linkages with the scientific community, and active participation of civil society⁶². In Spain, between 2020 and 2021, the Spanish Government created the National Office of Foresight and Strategy Spain 2050 to provide foresight advice while the Congress of Deputies established Oficina C to receive science and technology advice⁶³. In addition, existing boundary organisations in several Member States offer many lessons on how to connect science with policymaking, including government councils, such as the Netherlands Scientific Council for Government Policy (WRR), national academies, e.g. Germany's *Nationale Akademie der Wissenschaften Leopoldina*, and legislative advisory bodies, like the French *Office parlementaire d'évaluation des choix scientifiques et technologiques* (OPECST), among others.

⁶⁰ The Sofi Science advice initiative in Finland has been a joint initiative of the four Finnish science academies, funded by the Ministry of Education and Culture. Sofi developed a new permanent science for policy platform in Finland. See <https://acadsci.fi/sofi/in-english/>.

⁶¹ See more on: <https://www.strata.gov.lt>. DG REFORM supported an EU-funded project implemented by the OECD to strengthening decision making and policy evaluation for long-term development and the role of STRATA was highlighted. See OECD, *Mobilising Evidence at the Centre of Government in Lithuania: Strengthening Decision Making and Policy Evaluation for Long-term Development*, OECD Public Governance Reviews, OECD Publishing, Paris, 2021, [doi:10.1787/323e3500-en](https://doi.org/10.1787/323e3500-en).

⁶² See Republic Diary No. 21/2021, Series 1 of 2021-03-15. See summary of further investments into science-for-policy capacity by Simões, V. C. (see footnote 51).

⁶³ See for instance the foresight report by Oficina Nacional de Prospectiva y Estrategia del Gobierno de España (coord.). *España 2050: Fundamentos y propuestas para una Estrategia Nacional de Largo Plazo*, Ministerio de la Presidencia, Madrid, 2021), or more information about the collaboration between the Congress of Deputies and the Spanish Foundation for Science and Technology (FECYT) to establish Oficina C: <http://www.oficinac.es>.

Further initiatives have recently been launched. For instance, in Ireland, the government launched a public consultation on science advice structures in January 2022⁶⁴; in the Czech Republic, the National Reform Programme includes investments into a central analytical unit to promote, coordinate and advise on evidence-informed policymaking across the public administration, and the Technology Agency of the Czech Republic provides funding for a mapping and capacity building project of analytical units across government⁶⁵; or in the Netherlands, there are plans for a “scientific test” of government proposals undertaken on behalf of Parliament, fostering interactions between government, Parliament and science⁶⁶. Akis Skertsos, Minister of State responsible for the coordination of government policies in Greece, highlighted the interest in evidence-informed policymaking of the Greek government during a JRC workshop: “*evidence-informed policymaking lies at the heart of what we call in Greece the executive state. It is a new way of running the government, putting great emphasis on science and data before and during the design of policies, and while implementing policies*”⁶⁷.

These are just a few recent examples that demonstrate the dynamism and good practice in the science-for-policy field within the Member States and the increasing recognition of the need to strengthen connections between actors at the science-policy interface.

⁶⁴ The Irish government is planning to decouple the Chief Science Advisor role from the role of the Director General of Science Foundation Ireland (SFI) and opened a public consultation period in January 2022 to study what science advice structure can become the best model for Ireland. See Department of Further and Higher Education, Research, Innovation and Science (2021): ‘Minister Harris announces intention to change science advisory system’. Press release, 10 November 2021.

⁶⁵ In the “National Reform Programme of the Czech Republic 2021”, the country’s Recovery and Resilience Plan, from 2021, the component “increasing the efficiency of the public administration” focuses, among others, on strengthening the application of an evidence-informed approach in public administration. See the Reform Programme under https://www.vlada.cz/assets/evropske-zalezitosti/aktualne/NPR-2021_EN.pdf. For the mapping/capacity building project, see <https://www.pank.cz>.

⁶⁶ The Dutch government is obliged to substantiate policy and legislative proposals. In early 2020, Dutch MPs expressed a need for a scientific test of that substantiation. This “test” is now under construction. See Matthews, D. Dutch Parliament Aims for ‘Gold Standard’, *Inside Higher Education*, 2 October 2020.

⁶⁷ Intervention by Minister Akis Skertsos during the JRC workshop “Science for policymaking in Greece” held on 29 September 2021. The new Greek Executive State Law (4622/2019) foresees a new way of designing public policy, coordination of the government work, monitoring and evaluation of public policies and a new approach to regulatory impact assessments.

The following section sets out EU policy instruments that can help strengthen connections and build relationships within and between national systems and also to connect them to EU-level counterparts.

3.1.3 Commission support to Member States to build institutional capacity for connecting scientific and policymaking communities

Better understanding the landscape of different entities in this field is critical for identifying where further investment, e.g. in support of boundary organisations, is desirable. The JRC's Science-for-Policy Ecosystems project has since 2020 been mapping the science-for-policy structures, processes, and networks within the Member States⁶⁸. The JRC, along with DG REFORM, is also developing an evaluation framework for institutional capacity for evidence-informed policymaking⁶⁹ within Member States' administrations. More specific maps, such as on policy labs across the EU⁷⁰, have also been developed.

Identifying and sharing good practice in connecting policymaking with science is also instrumental in helping Member States build capacity for science for policy. One example is a live repository where Member States and stakeholders share their best practices on knowledge valorisation in different areas, including on science for policy⁷¹. Another is the JRC Science

⁶⁸ See further information on the JRC project in footnote 10.

⁶⁹ For the JRC evaluation project, see Oliver, K., *Assessing national institutional capacity for evidence-informed policymaking: the role of a science-for-policy system*, Krieger, K. and Melchor Fernandez, L. editor(s), Publications Office of the European Union, Luxembourg, 2022, [doi:10.2760/951556](https://doi.org/10.2760/951556); Strand, R., *Indicator dashboards in governance of evidence-informed policymaking: Thoughts on rationale and design criteria*, edited by Krieger, K. and Melchor Fernandez, L., Publications Office of the European Union, Luxembourg, 2022, [doi:10.2760/328204](https://doi.org/10.2760/328204); Niestroy, I., *Constructing assessment indicator dashboards for evidence-informed policymaking: Insights from the perspective of public administration, institutions, and governance*, edited by Krieger, K. and Melchor Fernandez, L., Publications Office of the European Union, Luxembourg, 2022, [doi:10.2760/8657](https://doi.org/10.2760/8657). In cooperation with the JRC, DG REFORM examined the potential for a set of indicators measuring capacity for evidence-informed policymaking. See European Commission, Directorate-General for Structural Reform Support, Mackie, I., Fobé, E., Škarica, M., et al., *Evidence-informed policy making: Building a conceptual model and developing indicators*, Publications Office of the European Union, 2022, forthcoming.

⁷⁰ Fuller, M. et al. (2016): *Public policy labs in European Union Member States*. Publications Office of the European Union, Luxembourg, 2016, [doi:10.2788/799175](https://doi.org/10.2788/799175).

⁷¹ Repository of best practices on the Knowledge Valorisation Platform in <https://europa.eu/!tNdPR4>.

for Policy Handbook that provides detailed practical guidance to scientists seeking to engage with policymaking. It addresses, for instance, policy impact, working through communities of practice, communicating science in a policy context, engaging with citizens, foresight, and big data for policy⁷². Further initiatives also provide in-depth insights, such as on foresight systems⁷³ or innovative R&I policy⁷⁴.

Beyond mapping existing institutions and sharing good practices, the Commission has a set of instruments for technical and financial assistance that can be mobilised.

On the policy side, strengthening the capacity of public administration for better-informed policymaking is one issue that the Technical Support Instrument (TSI) managed by DG REFORM⁷⁵ seeks to address. The instrument, with a budget of EUR864 million for 2021-2027, provides tailor-made technical expertise to EU Member States to design and implement structural reforms. TSI projects, such as the forthcoming project on “Building capacity for evidence-informed policymaking in governance and public administrations in a post-pandemic Europe” (2022-2024) with seven participating Member States⁷⁶, combine a mix of expert-led diagnostic assessments of capacity, with the development of policy recommendations and concrete networking and capacity building measures (mutual learning exercises, staff exchanges, training, pilot schemes).

⁷² Šucha, V. and Sienkiewicz, M. (eds.), *Science for policy handbook*, Elsevier, 2020, [doi:10.1016/C2018-0-03963-8](https://doi.org/10.1016/C2018-0-03963-8).

⁷³ European Commission, *Strategic Intelligence Foresight System for European Union Research and Innovation SAFIRE*, Publications Office of the European Union, Luxembourg, 2021, [doi:10.2777/545661](https://doi.org/10.2777/545661).

⁷⁴ Economic and Societal Impact of Research and Innovation (ESIR) high-level expert group provides evidence-based policy advice to the Commission on how to develop a forward-looking and transformative research and innovation policy.

⁷⁵ For more information, see <https://europa.eu/!m86QbD>.

⁷⁶ Specifically, this project aims at increasing awareness for evidence-informed policymaking and a better institutional integration of evidence, science and evaluation in policymaking. The project directly addresses the need for better connections between science and policymaking by involving beneficiary organisations in the Member States from public administrations and science, as well as providing space for joint problem and solution identification, cross-sectoral mutual learning exercises, and cross-country networking opportunities.

Under the regional policy framework, the European Regional Development Fund, the European Social Fund Plus, and the Cohesion Fund, aim to address the economic and social development needs in all EU regions and for all population groups concerned. This includes support for capacity building and cooperation with partners, including for public administration⁷⁷. Under the 2014-2020 cycle of support (thematic objective 11 of the Cohesion Fund), Estonia used this option to establish its network of scientific advisors across ministries and launched calls for research projects in “Support for knowledge-based policy formulation”. The network of ministerial science advisors acts as a bridge between scientific communities and government ministries while promoting a culture of evidence-informed policymaking across government.

In support of these policies, the Horizon Policy Support Facility (PSF) managed by DG RTD⁷⁸, with an annual budget of EUR1.5 million, provides practical support to Member States to design, implement and evaluate reforms that improve R&I systems. The support comes in different forms, from in-depth assessments of the national R&I systems led by experts (PSF Country) to mutual learning exercises (PSF Challenge). The focus of the expert reviews and challenges is co-created with the Member States, opening the opportunity to undertake science-for-policy capacity evaluations and to develop professional networks around shared science-for-policy challenges in a group of Member States.

Calls under Horizon Europe offer opportunities to invest in capacity for science for policy, often sectorally targeted⁷⁹. Calls have also targeted trust in experts and how scientific advice to policymaking is perceived.⁸⁰

⁷⁷ Find more information under <https://europa.eu/!Cd8CDG>.

⁷⁸ Find more information under: <https://europa.eu/!krkWh3>.

⁷⁹ For instance, Horizon Europe – Cluster 6 – Destination 7: Innovative Governance, Environmental Observations and Digital Solutions in Support of the Green Deal.

⁸⁰ See Call H2020-EU.3.6. - SOCIETAL CHALLENGE 6, topic GOVERNANCE-01-2019 - Trust in governance in <https://europa.eu/!BRP4BJ>; especially ongoing project PERITIA: policy, expertise and trust in action (<https://peritia-trust.eu/about-peritia/>).

In addition, the Observatory for Public Sector Innovation⁸¹ (funded through Horizon 2020, Horizon Europe and in partnership with the OECD) develops guidance and tailored advice on ways governments can support innovation for better outcomes, while also providing networking and knowledge exchange opportunities between public administrations, encouraging them to experiment with public sector innovations. One innovation area directly linked to science-for-policy work is the better integration of insights from behavioural science in policymaking⁸².

Capacity to use science for policy is also supported at the sub-national level. The JRC-led “Science meets Regions” Preparatory Action⁸³, with a total budget of EUR1.5 million, aims to foster evidence-informed policymaking at the regional and local level through innovation camps and participatory events, networking initiatives, pairing schemes, and training sessions. So far, over 40 local and regional authorities, parliaments or development agencies have benefited from the Science meets Regions initiative. Its activities are further reinforced through a close coordination with instruments such as the Knowledge Exchange Platform (KEP)⁸⁴ and partners such as the Committee of the Regions.

While open to support science-for-policy activities, such as mapping science-policy interfaces, creating opportunities for scientists and policymakers to connect, and building capacity for boundary organisations, these instruments could be further used by Member States to support science for policy.

⁸¹ Find more information under: <https://oecd-opsi.org/>.

⁸² Find more information under: <https://oecd-opsi.org/work-areas/behavioural-insights/>, including a mapping of behavioural science units in governments and a knowledge hub with analyses, case studies, and more in this area.

⁸³ See the JRC’s “Science meets regions” in: <https://europa.eu/!yt9TWQ>.

⁸⁴ Find more information in: <https://europa.eu/!xv9UTy>.

3.1.4 Leveraging science-for-policy networks

The convening capacity of the Commission and the EU is used to support a large number of European networks that help connect science-policy professionals and organisations of different sectors and countries.

The Commission supports the European Science Advisors Forum (ESAF)⁸⁵, the network bringing together representatives of key organisations at the science-policy interface. Its members are appointed by the 27 Member States. ESAF membership is diverse, ranging from presidents of academies and national research councils, chief science advisors to senior civil servants from the ministry of research, and government agencies. It is an informal network, functioning as a platform for informal exchanges, rather than taking initiatives and has very limited resources.

As part of its Scientific Advice Mechanism (SAM), the Commissions supports the SAPEA consortium⁸⁶. SAPEA brings together over 100 academies, young academies⁸⁷, and learned societies in more than 40 countries across Europe. SAPEA pools multidisciplinary expertise to support the Group of Chief Scientific Advisors in providing independent scientific advice to inform the Commission's decision-making. SAPEA also aims to raise awareness for science advice and strengthen capacity of its member academies.

In 1990, the network of European Parliamentary Technology Assessment (EPTA)⁸⁸ was established by the European Parliament. This is a platform for advancing legislative science advice, supporting mutual learning and exchange across members, as well as common projects often comparing scientific advisory practices for Parliament in different countries. The 25

⁸⁵ Find more information under: <http://www.esaforum.eu>.

⁸⁶ Find more information under: <https://sapea.info/>.

⁸⁷ Find more information under: <https://globalyoungacademy.net/national-young-academies>.

⁸⁸ Find more information under: <https://eptanetwork.org/>.

member organisations vary from permanent parliamentary committees and separate units within the parliamentary administration, to independent organisations with the mandate to serve as permanent consulting body for the parliament.

The EU Agencies Network on Science Advice (EU-ANSA)⁸⁹ is a sub-network operating under the Heads of EU Agencies Network. Founded in 2013, it gathers chief scientists and senior scientific staff from 15 EU agencies with a strong science component to their work, and which are mandated to provide scientific and technical advice to the EU and Member States' policymakers. The network facilitates dialogue on mutual challenges of the EU Agencies in the provision of the scientific advice, exchange of good practice, mutual advice and information between agencies, as well as enables the member agencies to operate in a cross-sectoral and transdisciplinary manner.

In addition to these networks connecting specific types of actors, there are networks focused on particular aspects of science-for-policy practices or policy fields. For instance, in 2021, a Network of Science Advisors and Science Diplomacy Coordinators in EU Ministries of Foreign Affairs was established.

While these networks are undoubtedly useful to their members, interactions between them remain limited, and many of them also have very limited administrative resources and lack formal mandates.

3.2 Building individual competences for science for policy

3.2.1 Professional competences of scientists and policymakers for science for policy

Using science for policymaking is demanding. Not only does it require effective processes and institutions but professionals with the right competences and incentives. The EU has

⁸⁹ See 2018 leaflet on EU-ANSA: <https://europa.eu/!H867v9>.

considerable potential. In the EU, there are almost 1.9 million researchers and the EU's share of global scientific publications was 21% in 2020, as was its share among the top 1% highly cited scientific publications⁹⁰. Researchers not only work in higher education (only 33%). 55% were employed in industry; and 11% worked in the government in 2020⁹¹, showing that there is a pool of researchers that already directly engages with policymaking processes.

Both policymakers and researchers need competences⁹² to build bridges between each other, from a better understanding of policymaking, ability to communicating uncertainty, and stakeholder consultation by scientists, to improved scientific and data literacy, working with data and models, and assessing the quality of evidence among policymakers. Developing these competences also facilitates mutual understanding between the “two communities“, which in turn strengthens the connections and interactions between science and policymaking. This requires training and career incentives for scientists and policymakers within the Member States, as well as new job profiles for professionals involved in boundary spanning organisations and infrastructure across Europe. Staff exchanges across sectors can provide hands-on experiences for professionals at the science-policy interface.

In fact, the JRC survey shows that 62% of respondents do not think that policymakers in Europe have the skills to understand and critically appraise scientific evidence, and 63% of respondents do not think that scientific knowledge is synthesised, translated, and formatted in a way in the ecosystem that policymakers can use it easily. In terms of incentives, 56% of the respondents

⁹⁰ European Commission, Directorate-General for Research and Innovation, *Science, research and innovation performance of the EU, 2020: a fair, green and digital Europe*, Publications Office of the European Union, Luxembourg, 2020, [doi:10.2777/534046](https://doi.org/10.2777/534046).

⁹¹ Eurostat (2021): Statistics Explained – R&D Personnel. Online Data code: RD_P_PERSOCC.

⁹² Topp, L. *et al.*, ‘Knowledge Management for Policy Impact: The Case of the European Commission’s Joint Research Centre’, *Palgrave Communications*, Vol. 4, Issue 1, 2018, pp. 1-10, [doi:10.1057/s41599-018-0143-3](https://doi.org/10.1057/s41599-018-0143-3); and Schwendinger, F., *et al.*, *Competences for Policymaking*, Publications Office of the European Union, Luxembourg, 2022, [doi:10.2760/642121](https://doi.org/10.2760/642121).

agree that scientists cannot expect recognition, rewards, and/or support for science for policy/advice work by their employers, funders, and peers⁹³.

3.2.2 Commission support for professional competence building

Without sufficiently competent professionals, efforts to support institutions will remain ineffective. The Commission has several initiatives to enable professionals to perform effectively at the science-policy interface.

Professional skills and capacities are already recognised as a guiding principle of knowledge valorisation⁹⁴. It invites Member States, policymakers and other actors of the R&I system to *“promote and support the development of the skills and capacities needed to develop and practice knowledge valorisation operations involving all stakeholders from students, researchers and inventors to professional intermediaries, and from technology users to policymakers”*⁹⁵. Moreover, it encourages Member States, policymakers and other actors of the R&I system to *“ensure that mobility schemes are in place between academia, industry and the public sector”*.

One set of initiatives specifically focuses on science-for-policy competences both for scientists and policymaking, recognising that operating at the science-policy interface requires new cross-disciplinary and cross-policy competences for both professions. The JRC, in collaboration with the EU Policymaking Hub of the Commission, developed two competence frameworks (‘Innovative Policymaking’ addressing policymakers and ‘Science4Policy’

⁹³ Scharfbillig, M., *et al.* (forthcoming) (see footnote 9).

⁹⁴ See footnote 37.

⁹⁵ In this context, the Commission recently updated its skills taxonomy for researchers for the European Skills, Competences, Qualifications, Occupations (ESCO) classification (see <https://europa.eu/vU88BG>). Linked to this update, the Commission developed ResearchComp, a European competence framework for researchers (see <https://europa.eu/p7Qtqc>). ESCO and ResearchComp support targeted training and inter-sectoral mobility, and include the “making an impact” competence cluster.

addressing scientists)⁹⁶. The competence frameworks are career guidance tools for policymakers and researchers across Europe. The JRC also created the ‘Science for Policy’ professionalisation programme⁹⁷ and scientific organisations across Europe⁹⁸ have followed suit to build capacity among their scientists on science for policy.

Another way the EU builds capacity for researchers are different programmes to promote inter-sectoral mobility, allowing academics to spend time at public administration bodies⁹⁹. These include pairing schemes, internships, placements, details, rotations, secondments, and fellowships¹⁰⁰.

One such example is the Marie Skłodowska-Curie Actions (MSCA)¹⁰¹, the EU’s programme for doctoral education and postdoctoral training. The MSCA promote shorter or longer-term inter-sectoral mobility from academia to non-academic sectors, depending on the type of Action. While the MSCA have been very successful in promoting mobility and collaboration with the private sector, the participation of public sector bodies remains low, representing only around 1% of participation in the MSCA under Horizon 2020. This is also low in comparison

⁹⁶ See the JRC’s dedicated website on Competence Frameworks for Policymakers and Researchers working on Public Policy: <https://europa.eu/!krrFfF>.

⁹⁷ This programme consists of several strands: (a) curriculum for 2-day course on Science for Policy for researchers and which is publically available; (b) Training-of-Trainers programme on Science for Policy in response to the demand for delivering Science-for-Policy courses in Member States; (c) 1-hour e-learning module "Science for Policy – Maximise your policy impact" on the EU Academy; and (d) a ‘Science4Policy’ competence framework that provides an overview of the collective set of competences that are essential for individuals and organisations operating at the science-policy interface. The framework develops each of the 27 competences along a 4-level progression model from foundational to expert level, including competences such as innovation and futures literacy, and can be used to assess individuals/teams Sci4Pol competences, to design learning offers.

⁹⁸ For instance, the European Cooperation in Science and Technology (COST) funding organisation, national academies under the umbrella of ALLEA and the SAPEA consortium, and learned societies such as the Marie Curie Alumni Association (MCAA) and European Geosciences Union (EGU).

⁹⁹ General information about different knowledge exchange programmes worldwide can be found in the AAAS report ‘Connecting Scientists to Policy around the Globe’ <https://www.aaas.org/resources/connecting-scientists-policy-around-world> from 2017, and the S4D4C report ‘How to set up a knowledge exchange experience in policy and/or diplomacy for researcher’ https://www.s4d4c.eu/wp-content/uploads/2021/04/S4D4C_D5.9_open-doors-report_revised.pdf from 2021.

¹⁰⁰ While there is a lot of focus on placing researchers in public administrations, there are also schemes promoting the reverse direction, with policymakers visiting research performing organisations and having meetings with tens of experts, such as [The Mercator Science Policy Fellowship Programme](#) of the University of Frankfurt, or civil servants using sabbaticals to spend months working at academic institutions.

¹⁰¹ Find more information under: <https://marie-skłodowska-curie-actions.ec.europa.eu/>.

to the share of MSCA alumni pursuing a career in the public sector, which is around 6%. The MSCA have recently collaborated with the JRC to organise a pilot science and policy matchmaking event to promote further participation of public body entities in the MSCA Postdoctoral Fellowships¹⁰².

Another scheme is the Blue Book traineeship¹⁰³ of the Commission or the Schuman Traineeship¹⁰⁴ in the European Parliament, which enable university graduates to experience working at the EU institutions for five months. However, only 6% of Blue Book trainees are PhD holders¹⁰⁵.

Considering the successful examples for more targeted science-for-policy mobility schemes outside the EU (in the US, Canada, the UK, Israel...) and recently inside the EU in Ireland¹⁰⁶, there is still room for improvement in the use of these instruments, but also importantly from the Member States.

3.3 Improving Member State science-for-policy governance

3.3.1 Good governance of evidence use: Recognising and responding to the limits of science for policy

Building trust between science and policymaking needs clear guidelines to manage expectations and demarcate responsibilities. This is echoed in some observers' call for a "good

¹⁰² See <https://europa.eu/!XdbDXc>.

¹⁰³ Find more information under: <https://traineeships.ec.europa.eu/>.

¹⁰⁴ Find more information under: <https://ep-stages.gestmax.eu/website/homepage>.

¹⁰⁵ According to an internal screening of the profiles of all trainees from March 2014 to October 2020.

¹⁰⁶ See the US' [AAAS Science & Technology Policy Fellowships](#), the [Mitacs Canadian Science Policy Fellowships](#), the UK [ESRC Policy Fellowships](#), the Israel's [Mimshak Fellowship](#), or the [SFI Public Service Fellowship Programme](#) in Ireland. Of note, 50% of AAAS science and technology policy fellows continue working in public administration after their fellowship, with 25% going back to academia, and the remaining 25% continuing working in policy but in industry or NGOs, as shown in the AAAS report 'Connecting Scientists to Policy around the Globe' <https://www.aaas.org/resources/connecting-scientists-policy-around-world>.

governance of evidence” that defines responsibilities, rules and norms for evidence use in policymaking¹⁰⁷.

The need for good governance in evidence use is one key lessons from discussions on the limits of science for policy. Individual perceptions, judgements, and behaviours, including those of scientists, are shaped by “biases”, values, and identities¹⁰⁸. Policy issues where “facts are uncertain, values in dispute, stakes high and decisions urgent” call for “post-normal science”¹⁰⁹. The goal therefore cannot simply be "add more science" (the so-called “knowledge-deficit” model). Rather, institutional design needs to consider “biases”¹¹⁰ on both scientists’ and policymakers’ sides, as well as uncertainty in the science of complex problems. The concepts of “wicked” policy problems from 1973 as well as post-normal science were developed to warn against over-reliance on technocratic solutions to policymaking¹¹¹ and ensure trust in both science and government.

Likewise, politicians should not use science alone to justify their political choices but should explain the evidence that has informed their decision and what has not been taken into account. Legitimate interests and values should weigh in the necessarily political selection of which evidence counts and these choices should be explained. Additionally, policymakers usually have to take decisions without all the facts, even in the best researched areas, with uncertainty about the long-term consequences of their decisions.

¹⁰⁷ See Parkhurst, J., *The politics of evidence: from evidence-based policy to the good governance of evidence*, Routledge, Abingdon, 2017.

¹⁰⁸ See Mair, D. *et al.* (2019) (see footnote 42) and Scharfbillig, M., *et al.* ‘*Values and Identities - a policymaker’s guide*’, Publications Office of the European Union, Luxembourg, 2021, [doi:10.2760/349527](https://doi.org/10.2760/349527). The meta-review on barriers to knowledge use in policymaking by Capano and Malandrino (2022) (see footnote 43) identifies values/ideologies/beliefs as the most frequently mentioned barrier.

¹⁰⁹ See Funtowitz, S. O., and Ravetz, J. R., ‘Science for the post-normal age’, *Futures*, Vol. 25, No. 7, 1993, pp. 739-755, [doi:10.1016/0016-3287\(93\)90022-L](https://doi.org/10.1016/0016-3287(93)90022-L); SAPEA (2019) (see footnote 42); Strand, R. (2022) (see footnote 69).

¹¹⁰ Stanovich, K. E., *The Bias that Divides Us – The Science and Politics of Myside Thinking*, MIT Press, Cambridge, MA, 2021, ISBN: 9780262045759.

¹¹¹ Head, B. W. (2018): ‘Forty years of wicked problems literature: forging closer links to policy studies’, *Policy and Society*, Vol. 38, No. 1, 2018, pp. 1-18, [doi:10.1080/14494035.2018.1488797](https://doi.org/10.1080/14494035.2018.1488797).

It is therefore important that new initiatives recognise the limits of science to solve fundamentally political questions. This explains why the term “evidence-informed policy”, rather than “evidence-based policy” is preferred in this document, to acknowledge the limits of science for policy. The challenges of “wicked” problems and the need for “post-normal science” call for science advice processes to be transparent and inclusive, as open and participatory (beyond the scientific and political elites)¹¹² as possible, multidisciplinary, independent, and conducted with integrity¹¹³. Scientific independence and integrity should be safeguarded from political interference, and scientists should act as “honest brokers” rather than issue advocates¹¹⁴.

According to the JRC survey, these areas need improvement: almost 6 out of 10 national experts describe processes of production and use of scientific knowledge in policymaking in Europe as not transparent to the public, and agree that roles and processes are not clear. The JRC survey also showed that trust between the two sides is a challenge, although less than other issues¹¹⁵.

3.3.2 Better understanding the limits of science for policy

The JRC and DG RTD promote research and advice on science for policy. Developing and sharing this knowledge is important for supporting science-for-policy initiatives: without

¹¹² “Post-normal science” for instance calls for so-called “extended peer review” processes to address the challenges of complexity, value disputes, and high political stakes, including the importance of citizen engagement (see footnote 109).

¹¹³ See Gluckman, P. *et al.* (2021) (see footnote 48); Pamuk, Z. *Politics and Expertise: How to Use Science in a Democratic Society*. Princeton University Press, Princeton, 2022; Oliver, K. *op.cit.* see footnote 56; and Strand, R. (2022) *op. cit.* see footnote 69.

¹¹⁴ Pielke, Jr, R. *The Honest Broker: Making Sense of Science in Policy and Politics*, Cambridge University Press, Cambridge, 2007.

¹¹⁵ Of the 498 respondents, 35% either disagree or strongly disagree with the statement that “Policymakers do not trust scientists (and vice versa)” whilst only 34% agree or strongly agree. See Scharfbillig, M., *et al.* (forthcoming) (see footnote 9).

recognising limitations to the use of science in democratic policymaking, any initiatives would run the risk of being ineffective or lacking public and political support.

The science about the limits and barriers to the use of scientific knowledge in policymaking has been at the heart of the JRC's Enlightenment 2.0 programme, which sets out the behavioural science on what influences policymaking and political behaviour. This includes emotions, values, narratives, interests, concerns and social relations¹¹⁶. The 2019 report by SAPEA on "Making Sense of Science for Policy under Conditions of Complexity and Uncertainty", produced for the GCSA Scientific Opinion on "Scientific Advice to European policy in a complex world"¹¹⁷, also sets out best practice, highlighting aspects such as the need to combine analytical rigour with deliberative argumentation, be aware of biases and the effects of values on knowledge production and use, the importance of mutual trust between scientists and policymakers, the recognition that there is no single institutional model for science advice that fits all political and sectoral contexts, the plurality of legitimate perspectives and insights, and more.

The Commission has also funded different research projects (under Horizon 2020 and previous Framework Programmes) on science and policymaking for around EUR 22.2 million¹¹⁸, as well as on the perceptions of EU citizens about science¹¹⁹. The evidence produced by these projects

¹¹⁶ See Mair *et al.* (2019) – see footnote 42.

¹¹⁷ See SAPEA, Science Advice for Policy by European Academies, see footnote 42.

¹¹⁸ These include, among others, [PACITA](#) (Parliaments and Civil Society in Technology Assessment), which aimed at increasing the capacity and enhancing the institutional foundation for knowledge-based policy-making on issues involving science, technology and innovation; [PERITIA](#) (Policy, Expertise and Trust), which takes a closer look at the factors determining public trust in expertise; or [EL-CSID](#) (European Leadership in Cultural, Science and Innovation Diplomacy), [S4D4C](#) (Science for/in diplomacy for addressing global challenges), and [InsSciDE](#) (Inventing a shared Science Diplomacy for Europe), which all have supported building capacity and shared understanding of EU science diplomacy. [K4U](#) (Knowledge for Use), ERC-funded research project that aimed to show how to put scientific research and common knowledge together to build better policies; [EKLIPSE](#) (Establishing a European Knowledge and Learning Mechanism to Improve the Policy-Science-Society Interface on Biodiversity and Ecosystem Services), which developed an innovative, light, ethical and self-sustainable EU support mechanism for evidence-based and evidence-informed policy on biodiversity and ecosystem services.

¹¹⁹ [CONCISE](#) (Communication role on perception and beliefs of EU Citizens about Science), which shed light on the role science communication plays in the origin of beliefs, perceptions and knowledge concerning social controversies on science issues.

can also help scientists and policymakers reflect on how to build effective bridges between science and policy and trust from citizens. The Commission is also planning to set up a European competence centre for science communication¹²⁰.

3.3.3 Better processes to respond to the limits of science for policy: ‘better regulation’ and anticipatory governance

‘Better regulation’ and greater anticipatory capacity in policymaking e.g. foresight, technology assessment, and anticipatory and strategic policymaking, are two approaches that address governance challenges. The better regulation framework allows for a systematic, transparent and inclusive approach to mobilising and integrating expert knowledge into policymaking while anticipatory approaches can help win time to assemble the necessary evidence to understand the problem and help identify policy options.

The Commission has been at the forefront of progress in better regulation and anticipation. Since the early 2000s, the Commission has developed a rigorous approach to ensuring that policymaking benefits from evidence and data. Commission policy officers follow the guidance laid out in the ‘better regulation’ guidelines and toolbox, which includes early and extensive stakeholder consultation, as well as impact assessments and policy evaluations. The toolbox is a rich source of guidance: it provides general guidance tools, such as a tool dedicated to the principles of and a step-wise approach to evidence-informed policymaking¹²¹, along with specific tools in support of undertaking better regulation’s procedural steps, from cost-benefit analysis, and simulation models to multi-criteria analyses for impact assessments and

¹²⁰ See topic HORIZON-WIDERA-2022-ERA-01-60: <https://europa.eu/PjF8GK>.

¹²¹ See tool #4 in the European Commission. Better Regulation toolbox. November 2021. See <https://europa.eu/qwgT7D>. Tool #4 identifies six steps towards evidence-informed policymaking: (i) understanding the policy problem; (ii) mapping available expertise; (iii) collecting evidence; (iv) analysing evidence; (v) Interpretation of evidence; and (vi) presentation of evidence. For each step, further guidance, tools, and resources are listed, including the opinions of the Group of Chief Scientific Advisors and EU open data portal (see <https://data.europa.eu/en>).

evaluations. By stressing key principles of policymaking (comprehensive, coherent, proportionate, participatory, transparent, informed by evidence, and learning from experience,) and transparently setting out the resources, tools and processes used by EU officials for policymaking, better regulation contributes to public trust and accountability of evidence use in policymaking.

Foresight has also been included in the Commission's better regulation and – more broadly – as part of a wider inclusion of anticipatory governance approaches into EU policymaking. For example, the updated 'better regulation' toolbox includes a dedicated tool on the use of strategic foresight for impact assessments and evaluations¹²².

In 2021, the Commission launched a two-tiered EU-wide Foresight Network¹²³, at ministerial level with the so-called "Ministers for the Future" and at senior official level, building also on the long-standing expertise of the inter-institutional European Strategy and Policy Analysis System (ESPAS). This is complemented by the annual Strategic Foresight Report, supported by the JRC¹²⁴, and has fostered some changes in foresight practices in certain Member States (e.g. España 2050¹²⁵ and Lietuva 2050¹²⁶).

¹²² See tool #20 in the Better Regulation toolbox of the European Commission, which introduces the instruments of megatrends and long-term scenarios to help policy officers anticipate potential changes in the policy problem and stakeholders.

¹²³ Find more information on the EU Foresight Network on: <https://europa.eu/!ctKF8N>.

¹²⁴ In 2022 the third edition of the annual Strategic Foresight Report 'Twinning the green and digital transitions in the new geopolitical context' was published. More information on this and the earlier Strategic Foresight Reports can be found here: <https://europa.eu/!ctKF8N>. It is important to mention that these general foresight activities at EU level are complemented by sectoral ones, such as DG Environment's EU Foresight System for the identification of emerging environmental issues and related opportunities and risks (FORENV – see <https://europa.eu/!TcBnr7>).

¹²⁵ See footnote 63.

¹²⁶ See <https://lrv.lt/lt/aktuali-informacija/lietuva-2050>, a national strategy for Lithuania prepared by the Government Chancellery in cooperation with the Future Committee of the Seimas, the Center for Strategic Analysis of the Government (STRATA) and Vilnius University.

4. Conclusions

In this era of complex policy challenges, it is key that policymaking makes best use of scientific knowledge. This is not only a much needed response to the complexity of climate change, global pandemics, artificial intelligence etc. It also recognises the complex political environment in which policymaking takes place now. A better use of science can help boost public trust in governments and their competence. It can help explain better the policy choices to the public, fight disinformation and improve support and implementation of adopted policies.

This need for better science for policy is widely acknowledged: citizens support the idea and the interest and dynamism in building capacity for science for policy within many Member States and at EU level points to political support.

Yet, recent analyses undertaken by the Commission and others, along with the lessons from the COVID-19 “stress test”, point to three major challenges to getting the best available science on the desk of the policymaker when they need it and in a format which allows them to take it on board, wherever it comes from. There is a need to

- build better connections and relationships within and between national science-for-policy ecosystems, e.g. strengthening boundary organisations and inter-organisational networks;
- develop the professional competences needed at the science-policy interface, e.g. by adopting competence frameworks and professional training modules and support staff exchanges, fellowships and placements for mutual learning between scientists and policymakers; and

- strengthen principles and processes of good governance in using science for policymaking, e.g. by understanding the limits of science for policy and addressing them through governance principles and processes.

Addressing these challenges is a collective task that calls for a more robust and interconnected science-for-policy ecosystem across Europe. Such an ecosystem needs to both recognise the necessary and beneficial diversity of national contexts and serve policymakers at the EU, Member States, and regional level equally well. Such an ecosystem would not only improve policymaking in Europe but would also add to Europe’s global leadership in effective and democratic governance.

Several Member States are already reflecting on how best to strengthen their science-for-policy ecosystems to address these challenges. All Member States are invited to reflect further on the challenges set out in this document and make use of a number of platforms for discussion, reflection and peer-learning, notably:

- the JRC’s Science for Policy Ecosystem series, where eight Member States have already undertaken a national workshop,
- the planned Commission conference on “Building forward better informed – Science for Policy in Europe” (2023), and regular international conferences, such as SAPEA’s “science advice” events, the EU Knowledge Valorisation Week, the European Research & Innovation Days and
- the Commission's Expert Group on Public Administration and Governance¹²⁷.

Commission services can support this deliberation and reflection through:

¹²⁷ See COMMISSION DECISION setting up the group of experts on public administration and governance, C(2021)9535.

- the Commission’s framework for science-for-policy ecosystems¹²⁸;
- Commission projects on evaluating science-for-policy capacity¹²⁹.

Several Member States have already indicated their interest in the instruments available to connect policymaking with scientific research, from including science-for-policy proposals in Recovery and Resilience Plans and applying with such proposals for funding through the Technical Support Instrument to engaging actively with existing professional networks and offering evidence-informed policymaking to scientists and policymakers. Further opportunities remain that Member States could consider:

- applying for additional support through the DG REFORM’s Technical Support Instrument for enhancing capacity building for evidence informed policy-making, including in the form of multi-country projects ensuring the creation of synergies and networks of scientists and policymakers;
- using the DG RTD’s Policy Support Facility for a peer review of the science-for-policy capacity of their R&I system (PSF Country) and to run mutual learning exercises (PSF Challenge), e.g. for professional competence development at the science-policy interface or strengthening the capacity of boundary organisations;
- providing further support to existing professional networks across Member States in the area of science for policy, such as the European Science Advisors Forum (ESAF). This may include reflections on how such networks could become even more effective in connecting the scientific and policymaking communities, e.g. by considering increasing interactions with networks from governmental ministries other than those responsible for research;

¹²⁸ See footnote 8.

¹²⁹ See footnote 69 for outputs from the two closely interlinked projects. Further information under <https://europa.eu/PTW8M9>.

- making use of the platform for dialogue created under the Commission’s Expert Group on Public Administration and Governance for further improving the science-for-policy ecosystem, reinforcing links between specialised networks and exploring ways to enhance the interaction between science and policymaking based on good national practices;
- strengthening connections between the JRC’s work on science-for-policy ecosystems and science-for-policy initiatives in their own country via the JRC Board of Governors¹³⁰
- developing fellowship schemes and placement opportunities of scientists in public administrations to promote inter-sectoral mobility as well as analytical capacity in public service, modelling their approach after EU and other countries’ successful schemes¹³¹ and aligned with the new ERA’s objective to promote inter-sectoral mobility;
- creating more knowledge exchange opportunities such as innovation camps and pairing schemes to facilitate networking between scientists and policymakers, including also modalities that enable policymakers to visit scientific organisations and have interviews with many scientists¹³²; and
- joining the Commission’s activities on developing codes of practice for actors in the R&I ecosystem¹³³ to provide guidance on implementing certain areas of knowledge valorisation, such as for instance a code of practice on the uptake of scientific knowledge in the policymaking process.

¹³⁰ More information on the JRC Board of Governors under: <https://europa.eu/!3JjTkT>.

¹³¹ See footnote 106 for examples of fellowship schemes for scientists to work in public administrations.

¹³² See footnote 100.

¹³³ See European Commission, Directorate-General for Research and Innovation, *European Research Area Policy Agenda – Overview of actions for the period 2022-2024*, Publications Office of the European Union, Luxembourg, 2021.