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## Enlightening EU policy-making: evolving scientific advice

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### BACKGROUND

Societal progress in everything, from the economy to health care, is largely driven by a combination of scientific advancement and governance. Connecting scientific evidence and governance is scientific advice. This advice is crucial for policies to innovate, and to avoid being inefficient, inappropriate or harmful. The European Union's (EU) drive towards informed, 'better regulation', its 2020 strategy for 'smart' growth, and its long term vision for a knowledge economy all necessitate evidenced-based policy-making. Whether it is about day-to-day technical matters, often driven by standardisation and harmonisation of pre-existing policies, or about highly complex future policy questions, scientific evidence is required to inform policy-making. Fundamentally, in an era in which challenges are increasingly globalised, intertwined and dependent upon science for solutions – change and the worldwide water shortage, for example – scientific advice and policy-making must transcend borders.

In order to obtain evidence for policy-making, governments rely on scientific advice structures. Globally there are five predominant ways of mediating the world of science and policy-making:

1. Advisory councils, which comprise high-level representatives from scientific communities and policymakers to provide evidence on varying agenda topics.
2. Advisory committees comprise more specific, often departmental advice to policymakers.
3. National academies or scientific societies are increasingly involved in policy-making, often informally.
4. Intergovernmental or international institutions.
5. Chief scientific advisors (CSA). These are the intermediaries of all the above information structures. They are supposed to confer directly with top policymakers. These may exist centrally and/or departmentally.

Countries use these structures, in combination with informal knowledge 'ecosystems', to construct policy directions, priorities and their policies. The goal of the advice structure should be to provide relevant, authoritative, independent and transparent advice. This should evidence different policy options, highlight risks and value-based (normative) assumptions, as well as assess the different kinds of advice given by the policy ecosystem. Nonetheless, scientific advice is inevitably considered through a legal, economic and political prism: the feasibility of enacting an evidenced-based policy must take into account not only the utilitarian perspective of opportunity cost and the legal feasibility, but often also the political reality.

Despite being peer-reviewed and seeking to be as objective, valid and reliable as possible, science is not perfect. It is still permeated with bias, values and vested interests – look to the controversies surrounding the funding of climate science. There are also vastly disparate methods and types of evidence that are extremely hard to reconcile into balanced, concise advice. Furthermore, much of the research conducted remains unpublished, a reflection of vested interests and skewed academic incentives. Crucially, science struggles to communicate: it acknowledges

uncertainty in a way which is at odds with the language of certainty politicians and people use in their daily lives. This can undermine the weight of even the strongest scientific consensus. But despite all this, science is the closest we can come to objective knowledge.

## **STATE OF PLAY – Scientific advice and the EU**

Encompassing developed societies of over 500 million people, the EU has a large scientific ecosystem to draw advice from. Aside from the more than 800 expert groups and committees the Commission uses in drawing up legislation, it receives scientific evidence and advice from over 3000 staff members of the Joint Research Centre. The Commission also has agencies that assist in the day-to-day running of policies and programmes, however, the expertise within them is underutilised.<sup>1</sup> Some of the Commission Directorate-Generals (DGs) themselves have their own individual scientific advice structures. For example, for the preparation of the funding programme for research and innovation, Horizon 2020, 19 advisory groups have been established.

The European Parliament's committees may solicit independent advice or ask for advice from the Parliamentary Research Service or its Science and Technology Options Assessments (STOA) Committee – which commissions reports and independent expert advice to inform parliamentary policy-making. They may also ask advice from the two parliamentary DG's for internal/external policies of the Union, which act as a secretariat with research capabilities to ensure the smooth running of the Parliament. Both the Commission and the Parliament may conduct open hearings or consultations.

The Council lacks any formal scientific advisory body, relying instead on national scientific representatives and bodies.

How these structures channel advice into policy-making has been evolving within the EU. Most notably, with the recent drive towards better regulation, the objective is to improve transparency and participation in the policy-making process. A keystone of this process is the reformed Impact Assessment (IA), which occurs when the Commission prepares proposals that "have significant economic, social or environmental impacts".<sup>2</sup> In conducting an impact assessment, firstly an internal inter-service steering group, in theory comprised of all the DG's who are relevant to the regulation as well as the JRC, is consulted to inform the evidence gaps. Stakeholder feedback is then sought on the preliminary, 'inception' IA-containing the stated framework and policy directions of the IA. Based on this feedback, there is then a deeper stakeholder consultation to develop these policy options. Incorporating the results of this feedback, the authors begin to draft the IA and must repeatedly inform the inter-service group of what they are doing to avoid bias. The draft IA must list all the evidence used, whether it was validated, its uncertainty, and (mis)alignment with any consensus within the scientific community. Any external evidence provided in the public consultation that is not included should be listed and explained (in practice this is only partially observed). The draft IAs must also account for the results of the consultation; the proposal's consistency with other EU policies and objectives; the impacts of each potential policy route; the legal elements and basis of the proposal; its compliance with the principles of subsidiarity and proportionality, as well as its budgetary implications. The draft IAs are evaluated by the Regulatory Scrutiny Board (RSB) composing a chair and three internal plus three external members. Comments must be addressed, and after appropriate amendments, it is re-submitted for approval. Once approved, it is subject to review by an inter-service consultation, along with the policy proposal it supports, and then finally adopted as a Commission proposal. There is then another public consultation, the results of which are fed to the Council and the Parliament.

Beyond the strengthening of IAs, another recent development toward more evidenced-based better regulation stems from the Commission's 2012 creation of the post of Chief Scientific Advisor to the President of the European Commission. In 2014 however, several prominent NGO's wrote an open letter detailing their concerns about concentrating the weight and diversity of scientific opinion into one person.<sup>3</sup> Later that year, the incoming Juncker Commission terminated the post. This decision was not uncontroversial and, in part due to the criticism the Commission received from the scientific community for scrapping the CSA, a review was conducted into a replacement structure. Unsurprisingly, the review found that there were already many sources of advice. A core mechanism was devised to provide high quality, timely and independent scientific advice for any Commission policy-making activity, drawing existing advice together through a new Scientific Advice Mechanism (SAM).

At the core of the SAM is a High Level Group of Scientific Advisors, composed of seven highly qualified, diverse and reputable scientists who have experience at the interface of science and policy. The group meets at least four times a year and has a remit to provide advice in areas which the other bodies within the EU do not, particularly on informing future Union policy or legislation. With such a huge array of these bodies, this is no easy task.

The SAM takes requests for advice from the college of Commissioners. The framing and subject of the questions are jointly elaborated in a scoping paper. Interestingly, it is also tasked to inform the Commission on areas where scientific advice is needed, and on improving the Commission's interface between science and policy-making, potentially putting it in conflict with the politics the Commission has to navigate. The SAM will also be working with the new 'Science Advice for Policy by the European Academies' (SAPEA) consortium, which is set to help fulfil SAM's mandate. However, drawing evidence and brokering consensus from national academies is a time-consuming exercise: the European Academies' Science Advisory Council (EASAC), one of the five networks of EU academies that the SAM is set to work with, describes their "rapid response" as a "few months".<sup>4</sup> Such time scales -rooted in the concerns of producing consensus evidence- means it will be a challenge for the SAM to deliver in a relevant timescale for the Commission. On the other end of the scale, during times of crises, the SAM will also work with the EU's rapid alert system ARGUS. The SAM will publicise the minutes of its meetings and submissions online. In terms of funding, the development of rapid response capabilities and its collaboration with the European Academy Networks comes directly through a 6 million euro grant out of the Horizon 2020 budget.

The SAM's construction quenches some of the criticisms forwarded by NGO's about the dangers of concentrating scientific advice into one person and follows previous calls for such a mechanism.<sup>5</sup> It has been created taking into account many of the criteria that came out of the first conference on 'Science Advice to Governments'.<sup>6</sup> It also ticks many of the boxes in the OECD's checklist for "effective and trustworthy" scientific advisory structures<sup>7</sup>, as well as the UK government's 'Principles of Scientific Advice'.<sup>8</sup>

Whilst the SAM is supposed to be independent and guarded from political (and other vested-interest group) interference, the questions it handles are ultimately decided by the Commission. Therefore, it doesn't prevent the SAM from being sandwiched between the political agenda setting of policy routes and the political decision of whether to act as advised.

## RECOMMENDATIONS

While the first task of the SAM is to "provide the Commission with independent scientific advice on specific policy issues", it also has the mandate to "provide recommendations for improving the overall interaction between Commission policy-making processes and independent scientific advice".<sup>9</sup> Given this mandate, and the central role of IA in the better regulation process, the SAM should address shortcomings within this process:

- The Better Regulation Guidelines lay out a fairly robust pathway for impact assessments. However, there is a residual lack of transparency in selecting evidence: it doesn't force the authors to give the methodology used to acquire and screen evidence. As a result, many of the facts and figures that the institutions use to make policy are unreferenced and may appear arbitrary or selective to suit a policy goal; as seen in the recent glyphosate debacle.<sup>10</sup> Therefore, a **comprehensive, standardised and validated method to select and weigh evidence**, incorporating inclusion and exclusion criteria, would further the transparency and validity of the evidence base. Changes to this methodology could be included for scrutiny in the inception IA. All evidence accrued throughout the IA could be transparently graded through an online evidence portal.
- **Public consultations should be proactive in reaching a larger audience beyond sectoral policy silos.** They should be a dialogue rather than a singular proposal and response format.<sup>11</sup>
- The EU's vision for a 'knowledge society' has an implicit bias towards certain kinds of knowledge, dictating the direction of science and thus knowledge towards the techno-scientific.<sup>12</sup> Contrary to better Regulation's focus on gathering "as much quantitative evidence as possible"<sup>13</sup>, the RSB could intervene, or an internal committee be constructed, to ensure **social scientists scrutinise the framing behind the questions within public consultations as well as the policy options within the IA's.** IA's should also include policy evaluations of relevant past policies.
- IAs, and thus the basis of policy proposals, are only assessed formally through the RSB. However, this consists of only two or three permanent external experts (currently all of whom have a background in economics or law). The RSB therefore only provides a non-specialist peer-review. **The evidence base within IA's should be externally peer-reviewed** with reviewers selected on a case-by-case basis for their expertise on the subject. This must be done externally and would quell a lot of the concerns regarding the evidence base of Commission proposals, as well as assist the Parliament's own ex-ante appraisals and secondary IAs.

Beyond IAs, there are many areas in which the SAM could use its mandate:

- Drawing on lessons from cognitive psychology, marketing and EU agencies (such as EFSA<sup>14</sup> and the ongoing work by EU-ANSA), the SAM should lead the way for **scientific advice to be presented in a relatable manner and to convey uncertainty in such a way so as to overcome risk bias.** This could take place within a lay summary of its opinions.

- The precautionary principle ought to ensure an evidenced and risk-based approach supersedes any purely hazard-based approach to regulation.<sup>15</sup>
- If the Commission acts contrary to the advice delivered by the SAM then the Commissioner responsible should have to publically detail why the advice was not followed.<sup>16</sup>
- The SAM should feed into the Commission's agenda-setting processes. It should use the SAPEA network to systematically consult national academies of science across the EU on areas they think require legislative action.

Below are proposals that lie beyond the SAM's remit and the realm of the Commission:

- **The parliament should consider piloting a scientific accuracy mechanism** (providing the tempting abbreviation of SCAM) – an expansion of the role of STOA, which could, upon request from a member, provide a scientific review of amendments (their own or others) that currently need not be evidenced-based. The JRC could be consulted on any technical matter. This is in line with the STOA's strategy for the future and recommendations put forward by Kari Raivio.<sup>17</sup>
- To ensure a minimum understanding of science and policy-making, the JRCs educational work should be furthered, establishing **induction education for EP Committees, as well as scientists involved in expert groups**. Here are two useful 20 point lists which inform policymakers<sup>18</sup> about science and their advice structures, and scientists<sup>19</sup> about policy-making.

As policy-making becomes increasingly technical, muddling through is no longer sustainable. Science needs to visibly ground policy-making to evidence and illuminate uncertainty. Ultimately, the system of scientific advice should be systemic, synced to political timeframes, and have a say not only in policy proposals but on political agenda setting; it should not be linear, and should feedback both through peer-review of its own structure and methodology, and by hardwiring experimental indicators into policies so that they can be transparently evaluated and used to inform future decisions. These advice bodies should not only inform policymakers but should engage with citizens and the ecosystem of actors surrounding them. Only then will we have effectively evolving governance that enables the public to feel confident it works for them. Advancing advice in this direction within the Commission will be the biggest challenge facing the SAM.

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