

# Science Sparring: An Emerging Science-for-Policy Interaction Model for Systemic Policy Issues

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In traditional science-for-policy operating models the interaction between scientists and policy-makers is often framed around question-and-answer logic. While varying in terms of their contextual processes, scientific reports, communications, and hearings generally follow a linear pattern in which policy-makers put forward questions and scientists aim to provide an answer to them (e.g. Valente et al. 2015; Maas, Pauwelussen & Turnhout 2022).<sup>1</sup> While many of the traditional approaches have their merit, simultaneously the conceptual foundation of science-for-policy needs fundamental rethinking.

This policy brief suggests that especially in the case of systemic policy issues relating to the realisation of SDGs, science-for-policy could benefit from interaction following inversed operating logic: instead of starting from questions start from early hypotheses and draft proposals.

The brief discusses a newly developed operating model, called Science Sparring, which utilises the potential of this reframing. The model has been developed by Sofi - Science Advice Initiative of Finland (2019-2021), which was a national experimental initiative funded by the Ministry of Education and Culture. The Initiative designed and piloted several new approaches to science for policy in collaboration with the government and science academies.

During three years of piloting, Science Sparring was iterated with seven different ministries in ongoing policy-processes aiming to the realisation of SDGs. The policy brief describes the core idea of Science Sparring, and the road to proof-of-concept. In the latest Finnish Government Report on the Future (2023), which focuses on government for future generations, wide adoption of Science Sparring is recommended in ministries in support of future-proofed policy-design.

## Starting point: Tackling complex policy environment and information overload

Sofi Initiative's development work was conducted with the use of co-design methods and iterative piloting. The development was conducted with needs-based approach, starting from identification of challenges in the everyday lives of researchers and policy-makers.<sup>2</sup> The following three challenges constituted starting-point for the development work:

1. Blurred lines of policies. The boundaries of policies can remain blurry due to their systemic nature. This entails also challenges in identifying the complete set of questions that would be beneficial to get answers in.
2. Information overload. Policy-makers are facing exponential increasers in information available to support their work, including high quality scientific evidence. While this provides opportunities for informing policy design with evidence, it has proven challenging to navigate even for experts working on the field.
3. Fragmented evidence. The existing support models (incl. commissioned reports, expert statements, hearings) lead to a large set of scattered evidence. This can be both difficult to manage and make sense of.

The inception of the model was in a science for policy - dialogue organised by the Ministry of Environment and Finnish Academy of Science and Letters. The incoming government established a requirement for new legislation to include a climate impact assessment as part of the draft delivered to the parliament. Nine legislative projects from five different ministries participated. Each were requested to draft early plans for impact assessment, which would then be reviewed

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<sup>1</sup> "At times, both the answers and questions come from scientists, meaning that scientists communicate knowledge on questions that they deem necessary/useful to be answered.

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<sup>2</sup> The diagnostic was conducted through surveys and interviews. The Initiative interviewed more than 300 researchers, administrators from universities and other research organisations, civil servants, politicians, and representatives of companies and foundations. It also carried out a survey among the membership of science academies, to which 295 professor-level researchers responded.

by a group of scientists and further discussed in workshops among civil servants and scientists.

Since then, Science Sparring has been iterated and developed with a total of six ministries. The list of pilots includes:

- Climate regulatory impact assessment (Ministry of Environment, Ministry of Justice)
- Nature Conservation Act (Ministry of Environment)
- Public Sector Strategy (Ministry of Finance)
- National Transportation Plan (Ministry of Transportation and Communications)
- Roadmap to Fossil-Free Transportation (Ministry of Transportation and Communications)
- Architectural Policy Program (Ministry of Education and Culture)
- National Climate Adaptation Plan (Ministry of Agriculture and Forestry)
- Biodiversity Act (Ministry of Environment)

## Science Sparring in Practice

In Science Sparring scientists review and comment draft policy documents put forward by policy-makers. The frame of interaction draws its inspiration from the idea of Red Teaming (see e.g., Zhang, L., Gronwall, G. K. 2020), which is utilised for example in intelligence, foresight, and cyber security.

*Three essential steps can be identified in organising a Science Sparring:*

1. **Identify frames of dialogue.** The model is flexible and adaptable to different policy contexts and themes. Instead of formulating clearly delineated questions, the starting-point for Science Sparring is needs-based identification of general frames around which the dialogues are organised. These can include review of key concepts, feasibility of policy means and goals, ex ante impact assessment analyses or impact assessment framework. They can also include scanning of uncertainties, evidence gaps or interdependencies.

*Rationale:* Especially in the context of systemic policy topics it can be beneficial to start from general frames instead of

clearly delineated questions. This leaves explorative space for interaction and reduces the need to know the right questions in advance.

2. **Utilise draft documents as boundary objects** (cf. White et al. 2010; Sarkki et al. 2020). A key role in Science Sparring is played by preparatory documents – e.g., background papers, working group notes, texts, and impact assessment materials. In the dialogues scientists review and comment early drafts from the perspective of scientific evidence and expertise.

*Rationale:* Interaction framed around policy documents brings the two sides closer and improves the potential of valuable input.

3. **Stress-test hypotheses and claims.** Scientists use a critical lens of scrutiny and provide feedback on evidence-related “issues”, “assumptions”, and “gaps” in the documents. They can also be requested to provide proposal for improvement.

*Rationale:* Forming dialogues around the review of proposals and open commentary can lead to more diverse utilisable input from scientists than question-answer logic.

*Value:*

The process can be utilised in revealing known-unknowns and unknown-known. Early interventions in the drafting process through the lens of scientific expertise can e.g., help in uncovering:

- hidden questions requiring further review and scrutiny
- risks or side costs relating to policy means
- problematic framing of concepts or assumptions about causality
- interdependencies requiring broadened scope of consultations

*The set-up for interaction:*

The draft documents are provided to scientists in advance of the sparring sessions. A single session or multiple (3-4) sessions (lasting between 2-7 hours) are organised either face to face or on a digital working platform. After the scientists initial feedback a back-and-forth dialogue aims to deepen the understanding a explore what the feedback entails for the drafting process. The sessions are facilitated by knowledge-brokering experts (cf. Turnhout et al. 2013; Gluckman,

Bardsley & Kaiser 2021) and can include small (between 5-10) multidisciplinary team of researchers and policy-makers (between 5-10). The deliverables can range from individual commentary to joint-opinions or more systematic review reports.

#### *Feedback:*

Post-session surveys and interviews conducted among policy-makers and scientists in six pilots showed a strongly positive response on both sides, average grade among policy-makers being 8.6/10 and 8.8/10 among researchers. Researchers considered the benefits of participation to extend beyond impact. They included new networks, ideas on research topics, and increased understanding of the realities of policy world. Policy-makers welcomed the opportunity to discuss the drafting work with scientists. This gave them a broad external perspective on the state of the preparation and its direction. In particular, the openly critical but constructive approach of the researchers was praised by policy-makers. Virtually every policy-maker and scientist showed strong willingness to participate in future sparring and to recommend participation to their colleagues. A key challenge cited by both parties was lack of time.

#### *Preconditions for successful interaction:*

While the presented model as such is not complicated in terms of its components or execution, various preconditions for success nevertheless apply:

*Trust.* The critical framing integrated in Science Sparring entails that there needs to be high level of trust among the participating parties. Policy-makers essentially open the drafting process at early stages, exposing potential flaws and misunderstandings in the process. The interaction can easily turn unconstructive and adversarial (in a wrong way) unless there is a mutual understanding that the critical component in the process is essentially an instrument to better policy.

*Closed setting.* Science Sparring requires an explorative space where there are also opportunities for tangents in the interaction. This can prove to be hard when there are third parties (e.g., stakeholders and interest groups) present, and the interaction can quickly turn from constructive explorative dialogue to adversarial public spectacle. The closed nature of the model entails that it's crucial for the sessions to be conducted as transparently as possible.

*Knowledge-brokers.* Expert facilitators are essential from early need-identification to facilitation. Policy-makers' needs may be latent, and sparring requires on

both sides a mindset that can be cultivated by facilitators.

## Conclusions

At present Science Sparring has proof of concept and the development work continues. There is increasing evidence on its utility and its scalability. Overall, Science Sparring is a low-cost interaction model for policy-making with significant and diverse value-potential for evidence-informed implementation of SDGs. This is the case especially in the context of systemic policy initiatives where uncertainties are significant and a multidisciplinary approach to evidence is warranted.

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