

 @HumanomicsMap

Mapping and Strengthening Science for Policy Ecosystems

David Budtz Pedersen PhD
Professor of Science Communication
Aalborg University Copenhagen

6 May 2024
Stronger Together | Brussels



AALBORG UNIVERSITET

THE VELUX FOUNDATIONS
VILLUM FONDEN X VELUX FONDEN



David Budtz Pedersen

Professor of Science Communication

Aalborg University

Head of Humanomics Research Centre

Science Policy Adviser, Danish Government

Member of International Network for Government Science Advice

Member of the Norwegian Research Council for Breakthrough Science



AALBORG UNIVERSITY

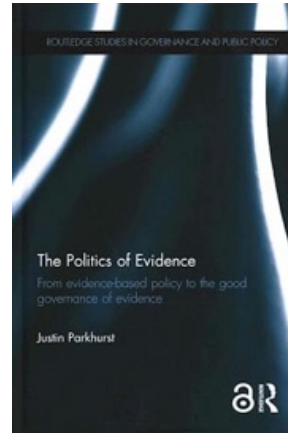
The art of science advice to government

Peter Gluckman, New Zealand's chief science adviser, offers his ten principles for building trust, influence, engagement and independence.

In 2009, I was appointed as the first science adviser to the Prime Minister of New Zealand. The week I was appointed coincided with the government announcement that the New Zealand food industry would not be required to add folate to flour-based products to help to prevent neural-tube defects in newborns, despite an earlier agreement to do so. As it happens, this is an area of my own scientific expertise and, before my appointment, I had advised the government that folate supplementation should occur. But various groups had stirred considerable public concern on the matter, about health and the food supply.

Thus, in my first media interview as science adviser I was asked how I felt about my advice not being heeded. I pointed out that despite strong scientific evidence to support folate supplementation, a democratic government could not easily ignore overwhelming public concern about the food supply. The failure here was not political; rather, it was the lack of sustained and effective public engagement by the medical-science community on the role of folate in the diet. As a result, the intervention did not get the social licence necessary to proceed. Five years on, I am still in the post. I

science adviser are providing advice not on straightforward scientific matters, but instead on issues that have the hallmarks of what has been called post-normal science'. These issues are urgent and of high public and political concern; the people involved hold strong positions based on their values, and the science is complex, incomplete and uncertain. Diverse meanings and understandings of risks and trade-offs dominate. Examples include the eradication of exogenous pests in New Zealand's unique ecosystems, offshore oil prospecting, legalization of recreational psychotropic drugs,



Guidance

Principles of scientific advice to government

Published 24 March 2010

Contents

1. Clear roles and responsibilities
2. Independence
3. Transparency and openness
4. Applying the principles



[OECD Home](#)

[About](#)

[Countries](#)

[Topics](#)

[OECD Home](#) > [Newsroom](#) > OECD calls for common principles for developing and communicating scientific advice

- > [Upcoming events](#)
- > [Publications and statistics](#)
- > [Secretary-General speeches](#)
- > [Photos and videos](#)
- > [Contact us](#)

OECD calls for common principles for developing and communicating scientific advice

23/04/2015 - Governments would benefit from agreeing common principles for developing and communicating scientific advice, both in crisis situations and for long-term policymaking, according to a new OECD report. In light of recent controversies around science advice, the report proposes a checklist for countries to follow to ensure science advisory processes are effective and trustworthy.

[Scientific Advice for Policymaking: The Role and Responsibility of Expert Bodies and Individual Scientists](#) cites examples of recent events where science advice has been called into question, including the Ebola crisis, the 2011 Fukushima nuclear disaster and the 2009 earthquake at L'Aquila in Italy.

The report says governments need to clearly define the remit of scientific advice, by demarcating advisory roles from policy decision-making roles, and defining from the outset the legal responsibilities and potential liability of advisors. The scientific advisory process should also seek to mitigate controversies by introducing procedures to declare and verify conflicts of interest and by explicitly determining how to engage participation from non-scientists and civil society.





INGSA
2024



INGSA2024:
The Transformation
Imperative

1 and 2 May 2024

5th Global Conference on
Science Advice to Governments

INGSA2024.COM

Changing landscape of science advice

- Single-mechanism advisory systems are not well-suited for addressing complex cross-cutting policy issues.
- Pandemics, artificial intelligence, climate change, security do not belong within single agencies, roles, or functions.
- Traditional science advice systems often are atomized by silos, disciplines, policy domains (lack of integration)
- Addressing complex policy crises is a matter of concerted and coordinated action across advisory bodies.

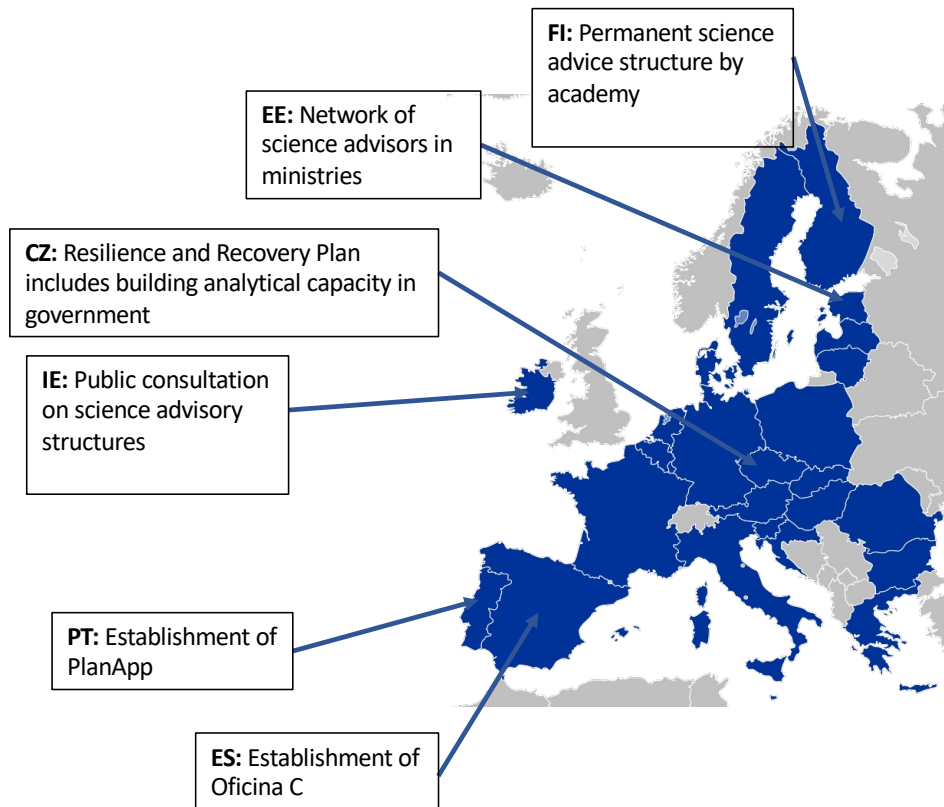


Institutional capacity-building: science-for-policy ecosystems



- **Boundary organisations and knowledge brokers**
- **Preparedness to provide science advice**
- **Policymaking is done across all levels**
- **Need to nurture a European and national debate**

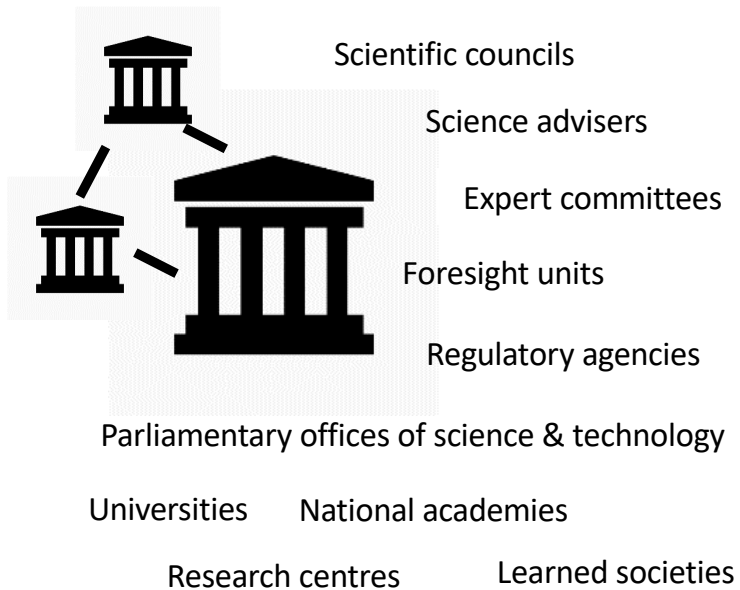
Findings: A lot is happening...



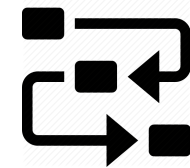
- **Increased interest in building S4P capacity in MS**
- **EU support MS in building S4P capacity (ecosystems series, TSI)**
- **Changes in EU policy frameworks**
- **Better networking between actors, such as EU agencies, and more lesson learning from COVID-19**

...but not well-coordinated and connected

- Science for policy (or science advisory) ecosystems



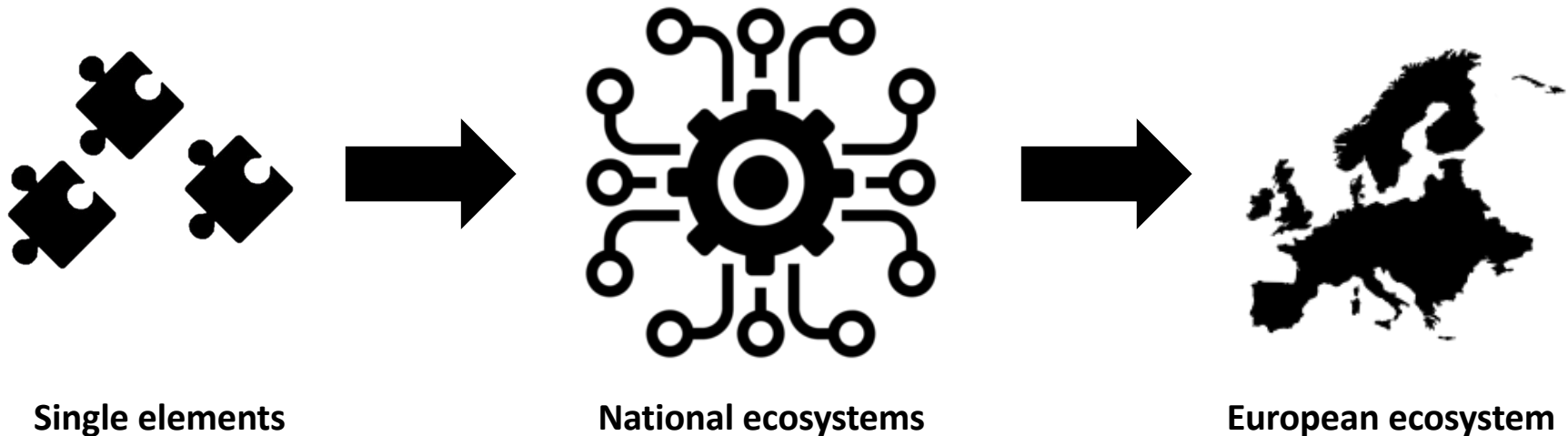
- Professional norms
- Sectoral policies
- Better Regulation
- Research policies
- Public Administration Reform
- Mandates



- Training
- Recruitment
- Consultation
- Evaluation
- Impact Assessment



From mapping to strengthening ecosystems



Analytical blind spots
Interconnectedness?
Missing the big picture

Knowledge coverage
Need for mutual learning
Ensure input to Better Regulation at the EU

Supporting policy with scientific evidence

We mobilise people and resources to create, curate, make sense of and use knowledge to inform policymaking across Europe.

European Commission > Knowledge for policy > Rethinking evaluation of complex ecosystems of science for policy

BLOG POST | 04 DEC 2023

Rethinking evaluation of complex ecosystems of science for policy



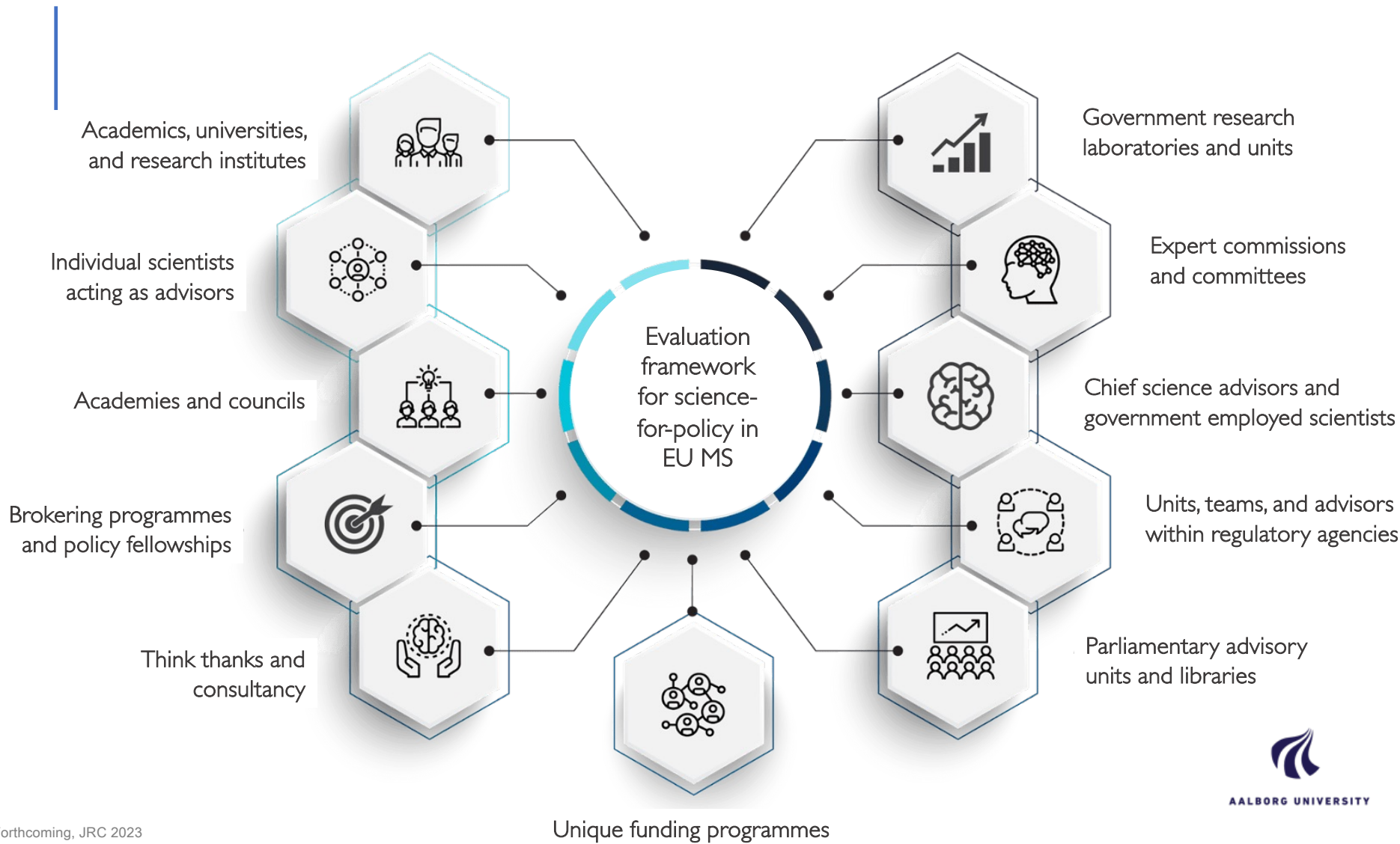
David BUDTZ PEDERSEN

Evidence-Informed Policy Making

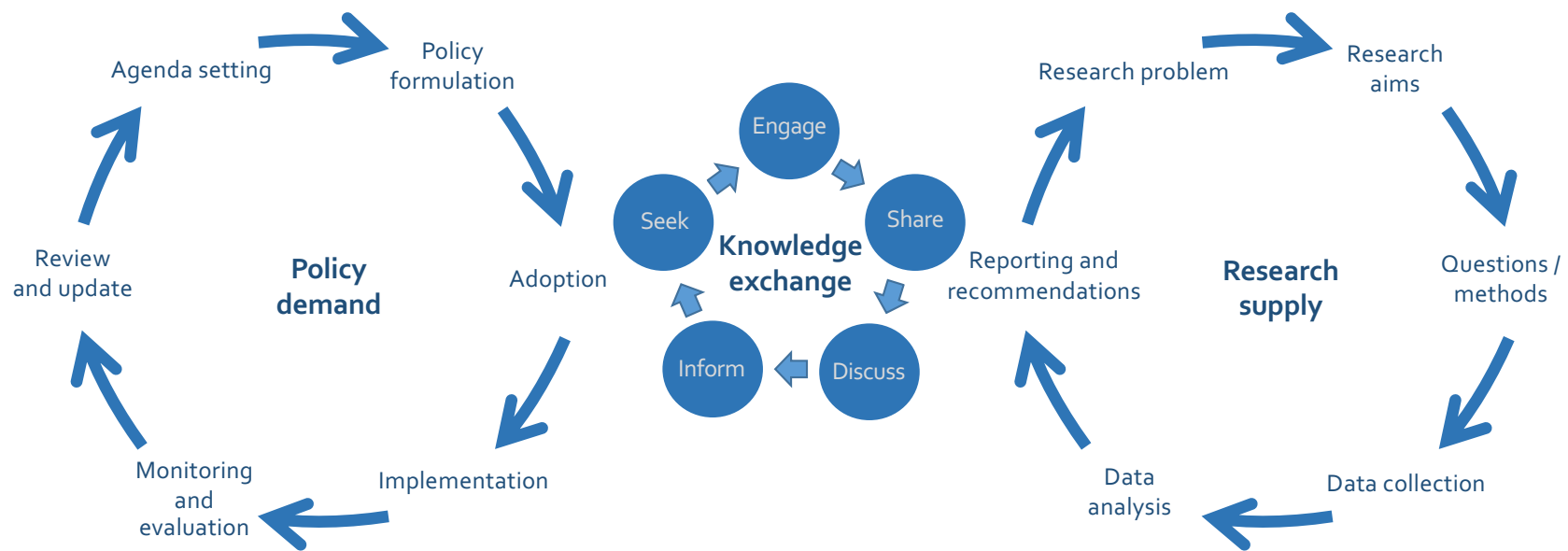
David Budtz Pedersen from Aalborg University contributes in this blog to the ongoing discussions on how to assess the capacity of science-for-policy ecosystem in a manner that fosters learning and collective deliberation in support of strong and well-connected science-for-policy ecosystems in Europe. In this blog, he introduces the key elements of the guidebook he wrote for evaluators.

Background





Science-policy-interface more fluid than standard linear models suggest



Mapping ecosystems of science advice

- In 2021, in collaboration with EU Joint Research Centre and Danish Government, we conducted a mapping.
- Part of an effort to assess the health and maturity of the Danish ecosystem
- Research institutes, commissions, scientific councils, expert committees, national academies.
 - Technical science advice (climate, environment, chemicals, food)
 - Fiscal science advice (economic councils, internal units, etc.)
 - Legal science advice (20+ legal councils, e.g., health etc.)
 - Cultural science advice (national security, police, intelligence)
 - Ethical advice (the ethical council, data ethics, health ethics)

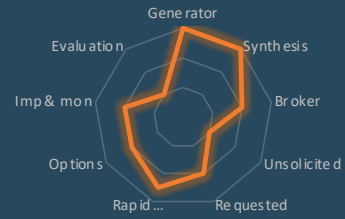


Different roles in a science advisory ecosystem

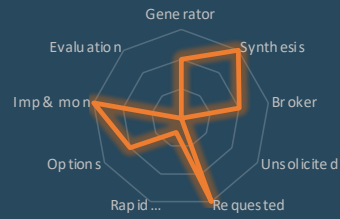
	Knowledge Generators	Knowledge Synthesis	Knowledge Broker	Unsolicited input	Requested input	Rapid response	Identify Options	Guide Implementation	Evaluation
Sector Research Institutes	++	+++	++	+	++	+/-	+	++	++
Commissioned Uni. Research Advice	++	+++	++		+++	+/-			
Scientific Councils		++	+		+		+	+	+/-
Independent Research Institutes	++(+)	++	++	++	+	++			
Government commissions	+	++	++	+/-					+++
Expert panels & committees		++	++	+/-	+		++		
National academies	+	+++	+	+					
Individual advisers	+(++)	+	+	++	++	+++	+/-	+/-	+/-
Think Tanks		++	+	++	+		++	+/-	+/-
Chief Science Adv		+	+++	++	+++	+++	+		
What Works Units		+++	+	++	+	+/-			

Budtz Pedersen, D. & Hvidtfeldt, R. (2021). The Danish Eco-System of Science for Policy. Ministry of Higher Education and Science. Copenhagen.

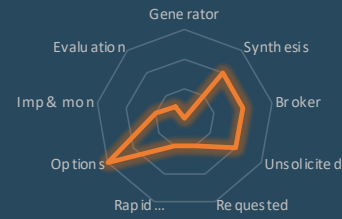
Government Research Institutions



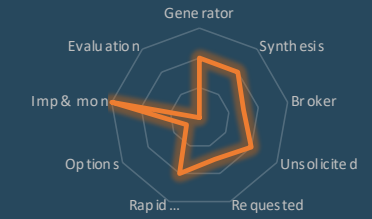
Commissioned Research



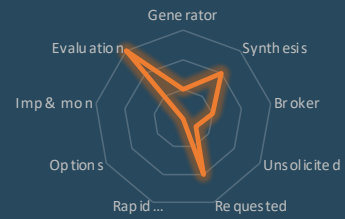
Scientific Councils



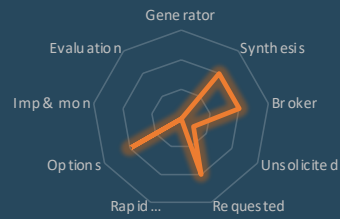
Independent Research Institutions



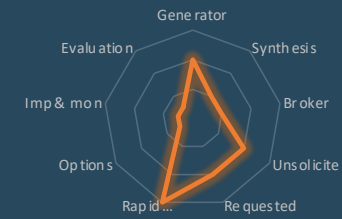
Government Commissions



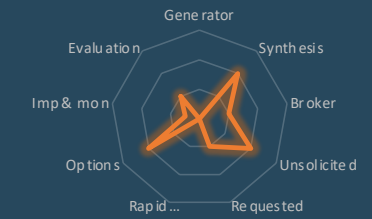
Expert Panels & Committees



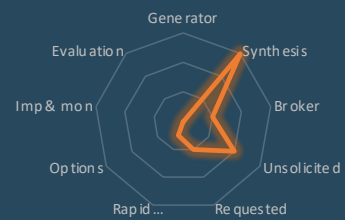
Individual Advisers



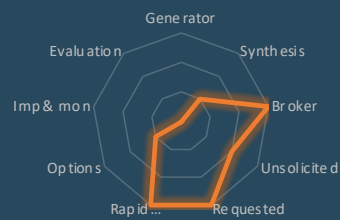
Think Tanks



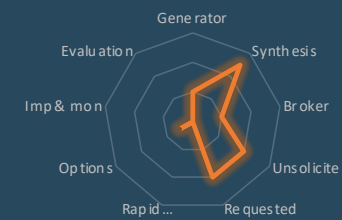
What Works Units



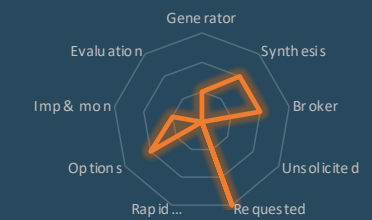
Chief Science Adviser



National Academies



RTOs



Findings and shortcomings

- Ecosystem-wide competences to “procure” advice and “provide” advice are incomplete and fragmented.
- No central coordination or systemic integration
- Lack of interdisciplinarity and diversity
- Lack of behavioural science advice
- Lack of “everyday” coordination practices to support “emergency” response capacity (siloed, fragmented).



Indicator dashboards

- From quantification to qualitative assessments
 - For key functional requirements and normative principles underlying S4P institutions
 - Advice on inclusive evaluation process



Reflection paper

Indicator Dashboards in Governance of Evidence-Informed Policymaking: Thoughts on Rationale and Design Criteria

Input to JRC workshop "Developing an evaluation framework for science for policy ecosystems"

Roger Strand



Reflection paper

Assessing national institutional capacity for evidence-informed policymaking: the role of a science-for-policy system

Input to JRC workshop "Developing an evaluation framework for science for policy ecosystems"

Kathryn Oliver



Reflection paper

Constructing assessment indicator dashboards for evidence-informed policymaking: Insights from the perspective of public administration, institutions, and governance

Input to JRC workshop "Developing an evaluation framework for science for policy ecosystems"

Ingeborg Niestroy

Evaluating the ecosystem

- An institutional "health check"
- Ecosystems are relational, structured by interactions and connections.
- More fluid and more diverse than standard system-thinking models allow.
- Knowledge is co-produced , circulated, and co-opted by different agents in different settings.



Foundational principles for science-to-policy

	<i>Independence</i>	<i>Transparency</i>	<i>Responsibility</i>	<i>Accountability</i>	<i>Diversity</i>	<i>Timeliness</i>	<i>Rigour</i>	<i>Demarcation</i>
EU COMM	•	•	•	•	•	•	•	•
UK GOV	•	•	•			•		•
OECD	•	•	•	•	•	•	•	•
NAS			•	•	•		•	•
JST	•	•	•	•	•	•	•	•
SAPEA	•	•	•		•		•	•

Table 1. The eight principles and their occurrence in the six documents



Thank you for the attention

David Budtz Pedersen: davidp@hum.aau.dk

Twitter: @HumanomicsMap

Website: <http://mapping-humanities.dk>


Supported by

VELUX FONDEN



Setting the agenda in research

Comment



Artificial-intelligence models could be used to sift the scientific literature and provide policymakers with the latest knowledge.

AI tools as science policy advisers? The potential and the pitfalls

Chris Tyler, K. L. Akerlot, Alessandro Allegra, Zachary Arnold, Henriette Canino, Marius A. Doornenbal, Josh A. Goldstein, David Budtz Pedersen & William J. Sutherland

Large language models and other artificial-intelligence systems could be excellent at synthesizing scientific evidence for policymakers – but only with appropriate safeguards and humans in the loop.

Recent advances in artificial intelligence (AI) have stoked febrile commentary around large language models (LLMs), such as ChatGPT and others, that can generate text in response to typed prompts. Although these tools can benefit research, there are widespread concerns about the technology – from loss of jobs and the effects of over-reliance on AI assistance, to AI-generated disinformation undermining democracies.

Less discussed is how such technologies might be used constructively, to create tools that sift and summarize scientific evidence for policymaking. Across the world, science advisers act as knowledge brokers providing presidents, prime ministers, civil servants and politicians with up-to-date information on how science and technology intersects with societal issues.

From solid-state batteries and antibiotic resistance to deep-sea mining, science advisers have to nimbly navigate a vast array of information. They must dig through the millions of scientific papers that are published each year, while considering reports from advocacy organizations, industry and scientific academies, each with their own take. Advisers must work fast – policy deadlines are more rigid and hastier than those in academia.

Nature | Vol 622 | 5 October 2023 | 27