Principles of Science Advice

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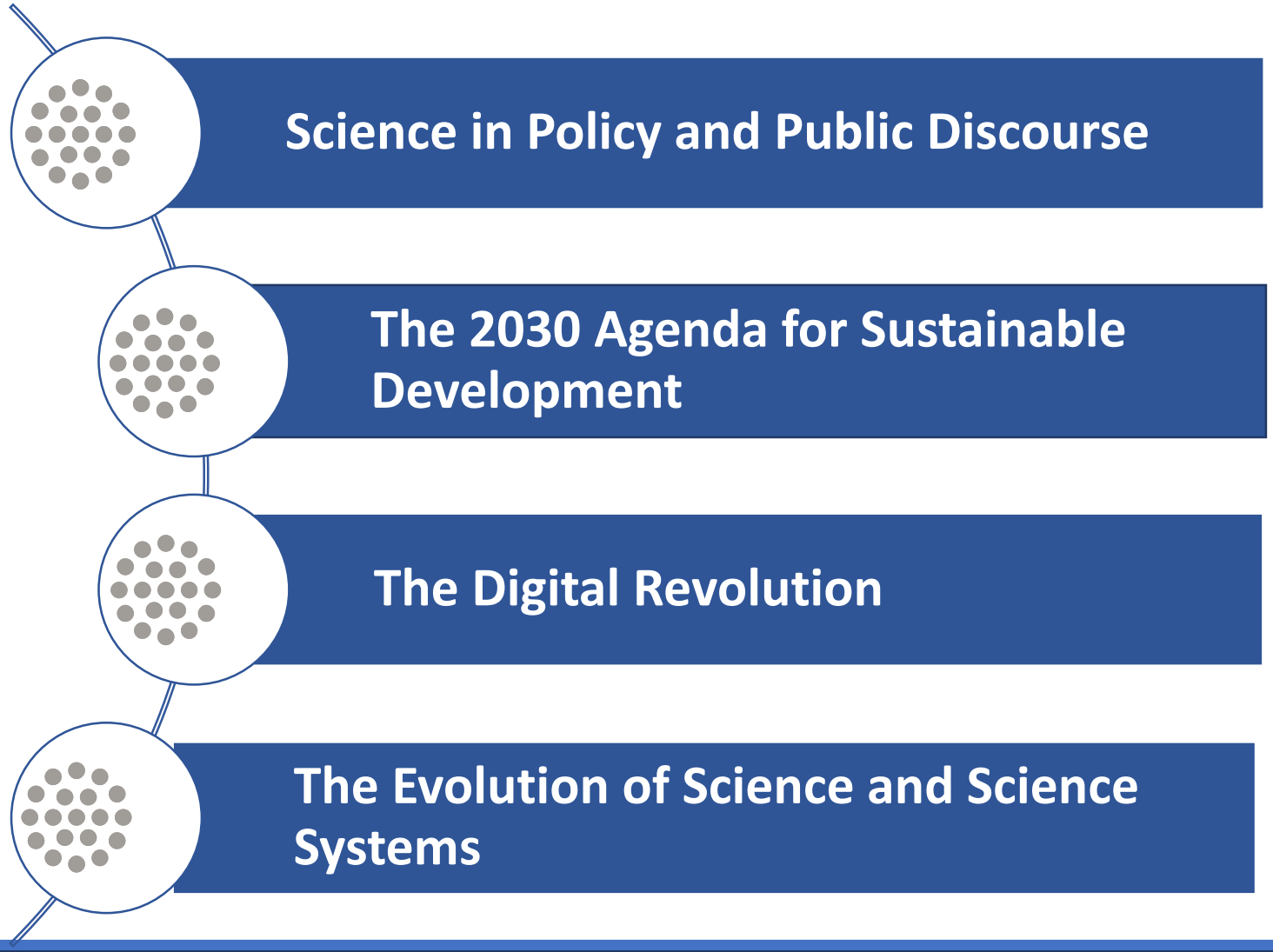
International Network for Government Science Advice

www.ingsa.org

International Science Council

- An integral part of the ISC for **science-policy** and **science-diplomacy**
- Over 4000 members from over 80 countries
- Secretariat based in Auckland (SciPoDS)
- Regional chapters: EU, NA, LATAM, Asia, Africa
- Science international relations and diplomacy division (SPIDER), also hosting FMSTAN
- Knowledge centre
- Forum for sharing, coordinating, networking
- Capacity building activities
- Open access learning resources
- Reports and research

The ISC's Four Strategic Priority Domains



Science advice at all levels of governance, open science, trans-disciplinarity, the post-truth/post-trust dynamic, science communication, etc.

Synergies and trade-offs; SDG implementation, transformations to sustainability; etc.

Big, broad, linked and open data, AI, transformation of society, social acceptance of technologies

Inequalities in science, the changing nature of science and science systems, critical capacities, funding, etc.

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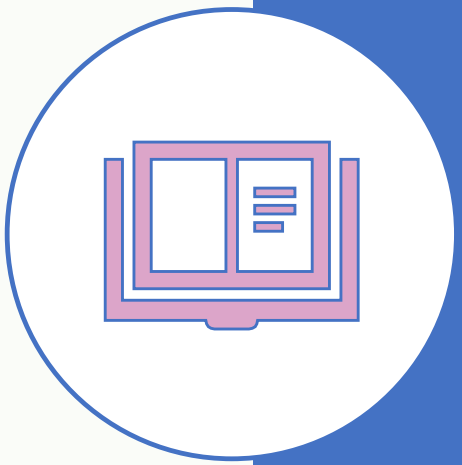
Centre for Science in Policy, Diplomacy and Society

- Multidimensional and evidence- informed approaches to address issues of rapid technological change, social cohesion, and the future of democracy in a 'post-truth' world.
- There is barely a policy question, at either national or an international level, in which the natural and/or social sciences do not have an important contribution to make. Yet too often evidence can be marginalized, ignored or misused in the policy or political process, This is happening globally in the face of populism, truth decay and the impact of social media. Robustly derived and integrated evidence from the social, natural and data sciences can help to change the nature and quality of discourse.
- The need for science diplomacy is expanding: the issues of the global commons are becomning urgent at the very time the post-cold war consensus is collapsing
- The Centre convenes leading thinkers (domestic and international across the full spectrum of disciplines) to consider these major interacting and disruptive transitions in a way that can advise public policy and civil society.

www.scipods.org

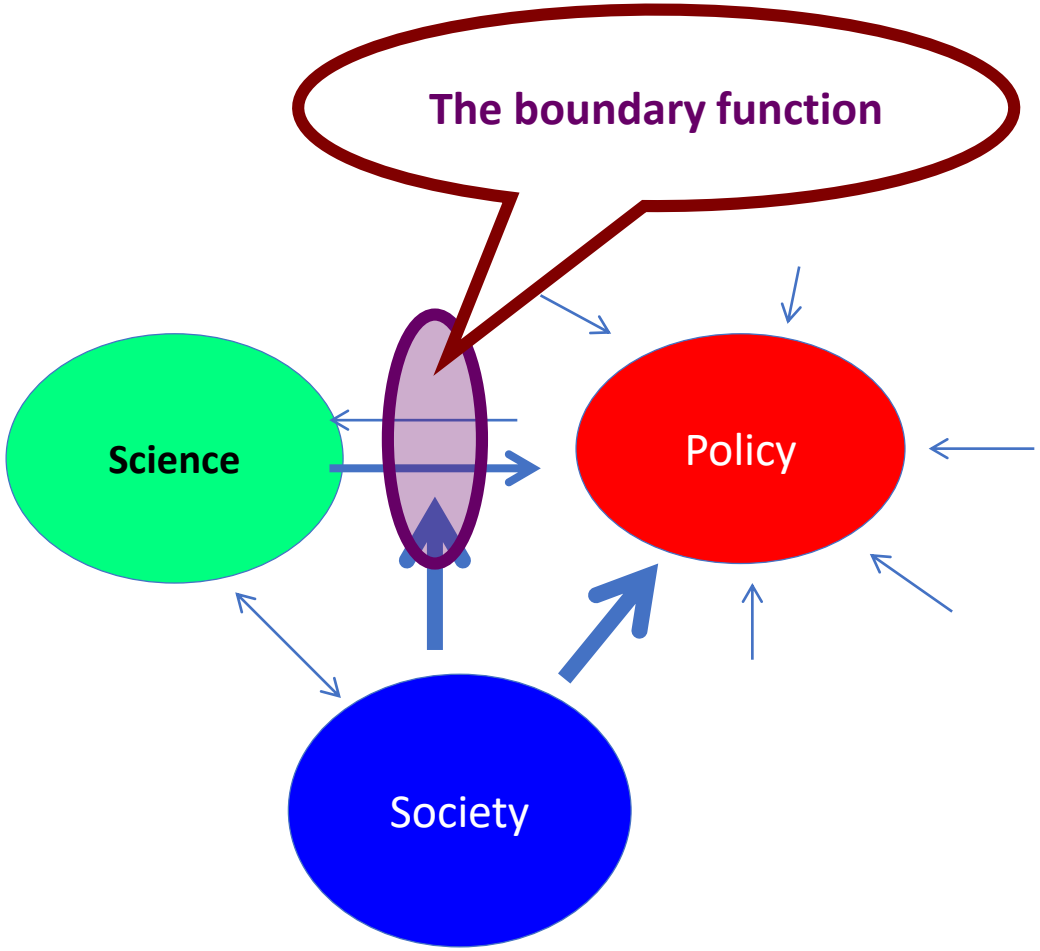
Science and technology advice

Informing or influencing policy through evidence involves much more than simply providing policymakers and politicians with factual results of scientific and technological research and expecting that these results are applied to policy deliberations and decisions.



Science and policy making

- Science and policy making are very distinct cultures, methods and epistemologies
- The place of societal values is very different in science and policy making
- There is increasing recognition of the need for boundary structures to link these cultures.



The science – policy nexus

- Virtually every challenge governments face has a scientific dimension, which may or may not be recognised
- But science alone does not make policy; many values and political considerations
- We increasingly face the challenge of a post-expert, post-elite, post-truth world

- Presumption: *That governments are more likely to make better choices when they use well-developed evidence wisely*

- What is a fact, what is data?
- Is robust science available? Who defines it as 'robust/reliable'?
- Will it be used, misused, manipulated or ignored?

Changing nature of science and technology

- From linear to non-linear
- From singular to multidisciplinary to systems- based
- Accepting complexity, from certainty to probabilistic

- The impact of big data and AI applied to big data

- From normal to post-normal…
  - The science is complex
  - The science is impacting increasingly on society
  - Facts uncertain, there is much which is unknown
  - Stakes are high
  - Decision making is urgent
  - There is a high values component and values are in dispute
- **The science applied or needed in the policy space is often ‘post-normal’**

Science and policy making

- Policy is rarely *determined* by evidence but policy can be and should be informed by evidence

- Inputs into policy
  - The science

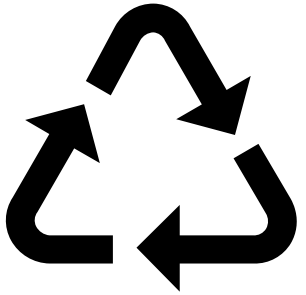
    Evidence of need, possible solutions, impact
  - Public opinion
  - Political ideology
  - Electoral contract
  - Fiscal objectives and obligations
  - Diplomatic issues and any international obligations

What is evidence ?

- Politicians and policy makers have many sources of evidence
  - Tradition and prior belief
  - Local knowledge
  - Anecdote and observation
  - Science
- Data does not equal information, does not equal knowledge/evidence
- Science is defined by its processes which are designed to reduce bias and enhance objectivity by minimizing values.
- Important value judgments lie within science especially over what question and how to study it and especially over the sufficiency and quality of evidence on which to draw conclusions.
- But the use of science by society is values rich – but in general these are a much more broader set of societal values

Policy-making

- Often has **mixed and not always clear objectives**. It is impacted on by acute externalities, as well as by political and societal values.
- It is about making **choices**
  - between different options,
  - which affect different stakeholders in different ways,
  - with different consequences,
  - many of which are not certain
- Virtually all policy making carries **complexity, risk and uncertainty**
  - But perceptions of complexity, risk, cost and benefit vary between stakeholders
- The political perspectives of stakeholder effects, interests, electoral positioning and electoral risk are always present

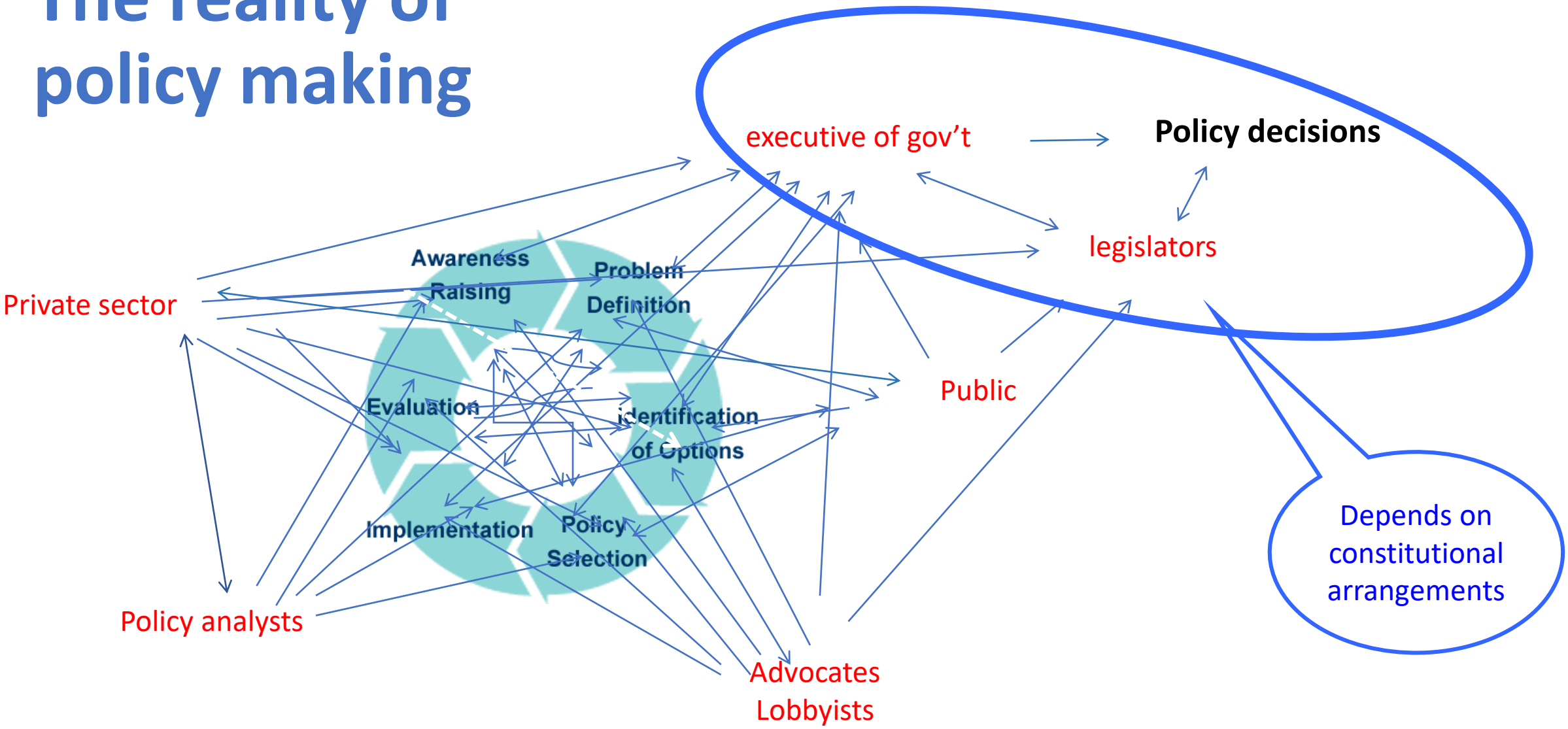


The understanding of risk

- Actuarial/probabilistic
- Perceptional
  - The role of cognitive biases
    - Availability
    - Representational
    - Confirmational
    - Anchoring
    - Asymmetry
  - Perception of gains and losses, benefits and burdens
- Reputational and political
- The misuse of the precautionary principle

The myth of policy making

The reality of policy making



Questions that the policy audience will always have:

- Why do we have to do something now?
- Why is it a priority?
- Have we got the option that meets our broader needs?
  - Who will it benefit, who wont it benefit?
  - Does it benefit priority stakeholders?
  - What are the risks and to whom?
  - What is the political risk of doing or not doing?
- What will it cost?

Scientists and policy making

- Scientists are
  - Good at problem definition
  - Very good at public advocacy
  - Less so at finding workable, scalable and meaningful solutions
  - They often approach the policy maker with considerable hubris.
  - They often do not understand the complex processes of policy making
  - They can have difficulty taking a multidimensional/ multidisciplinary perspective
  - They often fail to recognise that more science will not generally resolve differing world views
- But they still have critical roles in the policy process

The challenge of science at the policy-societal nexus

- Too much science
- The changed nature of science
- The challenge of values within and beyond science
- The post-normal nature of much science
- Post-truth
- Mr Google
- Different perceptions of risk
- Different perceptions of expertise
- The behavior and reciprocal perceptions of scientists and policy makers
- The utilitarian positioning of science

Policy makers

- Have limited bandwidth and often limited manoeuvrability
- They are constrained by electoral, fiscal and other considerations
- They lurch to problems, often driven by externalities
- The policy cycle is generally very short and getting shorter
- Much relevant science is incomplete and much is ambiguous
- They may see scientists as good at problem definition but not at pragmatic (in the policy/political sense) solution finding
- They cannot be expected to be scientific referees
- Policy makers see evidence is one of a number of inputs
    - In what sense is it privileged and how is that privilege maintained? The role of the broker?

Barriers on the ‘policy’ side

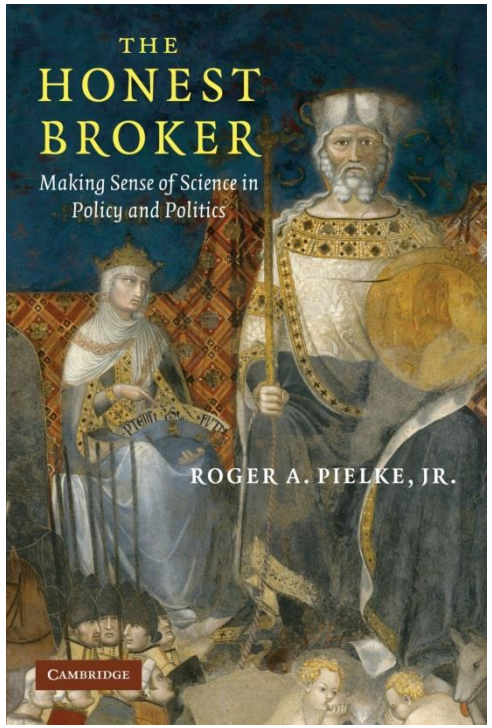
- Policy directed evidence versus evidence informed policy (the policy-political interface)
- Turf protection, Hubris
- Not recognizing when science is needed or can help
- Assumption science cannot help in complex issues where knowledge is contested
- Policy silos
- Scientific silos
- Past exposure to scientists as advocates /lobbyists
- Lack of understanding of the scientific process and value
- Misuse of evidence synthesis hierarchies
- Superficial approaches to data analytics
- Mr Google and Mr Wikipedia
- Trend in public policy training has shifted towards policy management

Different roles in a science advisory ecosystem

	Knowledge generators	Knowledge synthesizers	Knowledge brokers	Policy Evaluation
Individual academics	+++	++		+
Academic societies/professional bodies		+		
Government employed practicing scientists	+++	+		++
Scientist within regulatory agency	+	++	++	
Independent think tanks		+++	+	+
What works units etc		+++	+	++
National academies		+++	+	
Government advisory boards/science councils		++	+	
Science advisors to executive of government		++	++++	
Science advice to legislators		+	++	±

Advocacy versus brokerage

- **The Issue Advocate** is the scientist who collects and presents data with a view to servicing a cause
- **The Honest Broker** tries to identify and overcome biases to present what is known, what is not known, what is the scientific consensus, what are the implications for policy and action and the tradeoffs of various options



Roger Pielke, Jr (2009)
The Honest Broker

Purposes of evidence in informing policy

- To provided explanation of complex (open) systems so options can be explored
- To define options for action to achieve a particular outcome(s) and explore implications of each option

- To address a particular implementation issue or scientific question
- Emergencies/crises

- To define and plan an intervention
- To evaluate the impact and effect of the intervention

Lesson 1: Solicited vs unsolicited reports, understand the policy process

- **Always have an interested customer** – Reports that do not have an agreed customer who is actively seeking the information are unlikely to be impactful on the policy process
- It is critical to **understand the policy process and key players** in the particular entity of interest – One can then create the customer.
- **Decide on the nature of the output** (s) – it is a comprehensive report, a policy brief, or some other format.
- **Decide the process** – agree that preemptively with the customer

Lesson 2: Defining the problem is critical

- Too often the question the customer (ie the policy-maker) wants answered is not the the same as the question in the mind of the academic.
- Alignment of intent is critical.
- Reports can have multiple purposes and the authors must be clear what is the intent:
  - Is it to explain a system?
  - To provide options?
  - to address a particular problem?

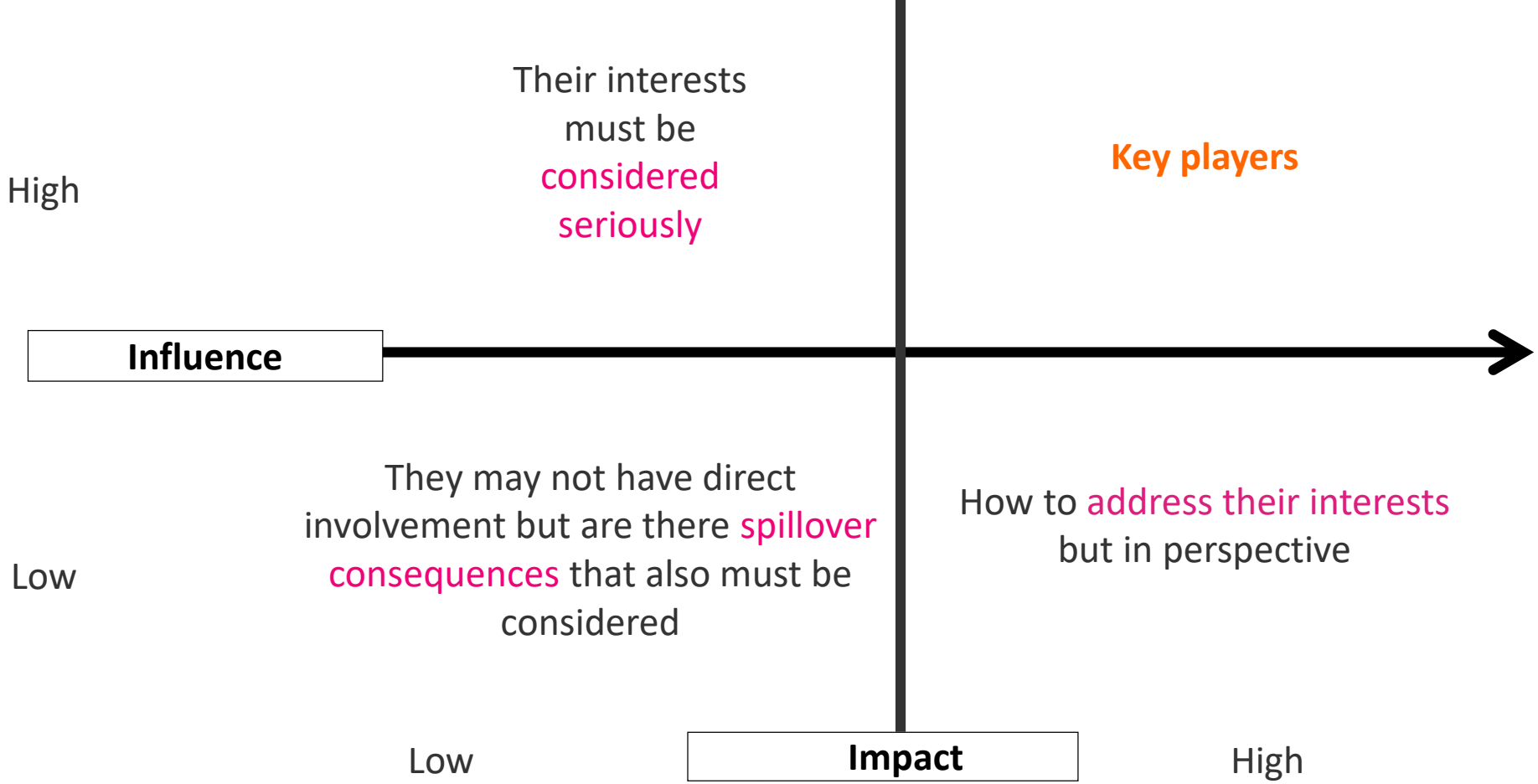
Lesson 3: Timing is everything

- Policy makers have limited bandwidth
- They lurch to problems as they arise
- The policy cycle is often messy, complex
- Externalities can shift priorities rapidly and change the potential for impact

Lesson 4: Remember all of the stakeholders

- Don’t underestimate the value of stakeholder analysis
- Understand the impact on each stakeholder and their influence
- Recognize the inevitable cognitive biases including your own
- Recognize the differing perceptions of risk and precaution, cost and benefit

Stakeholder mapping



Lesson 5:
Provide practical and scalable options/ways ahead/solutions

- Policy makers will generally not pick up a problem unless there is a solution.
- It is rare for a problem definition alone to change policy.
- Solutions must be practical; affordable, policy and politically acceptable and, where appropriate, scalable.
- In general this means incremental versus disruptive change.
- But this does not mean sacrificing intellectual integrity

Lesson 6: Writing a report is not impact

- Many academic reports never get read
- To have most impact a report must appeal to multiple audiences
- Style matters, and graphics can matter a lot
- Think about the power of narrative
- Clarity and avoidance of jargon is critical
- And once the report has been submitted there are issues of:
  - ensuring the key audience understands (follow up)
  - Do other stakeholders understand?
  - Is there a need for PR?
  - Is there a need for further action /report/evaluation?

Some final tips for reaching into policy

(Modified from Oliver & Cairney 2019, Cairney and Kwiatkowski 2017, Gluckman 2014 amongst others)

- Understand the context and challenges of policy making
- Understand policy processes;
- Understand the role of cognitive biases on both sides
- Humility and trust
- Do not overload them with information
- Decide if you want to be an issue advocate or honest broker;
- Find the right time to act
- Find pragmatically acceptable solutions
- Build relationships (and ground rules) with policymakers; understand their perspective

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