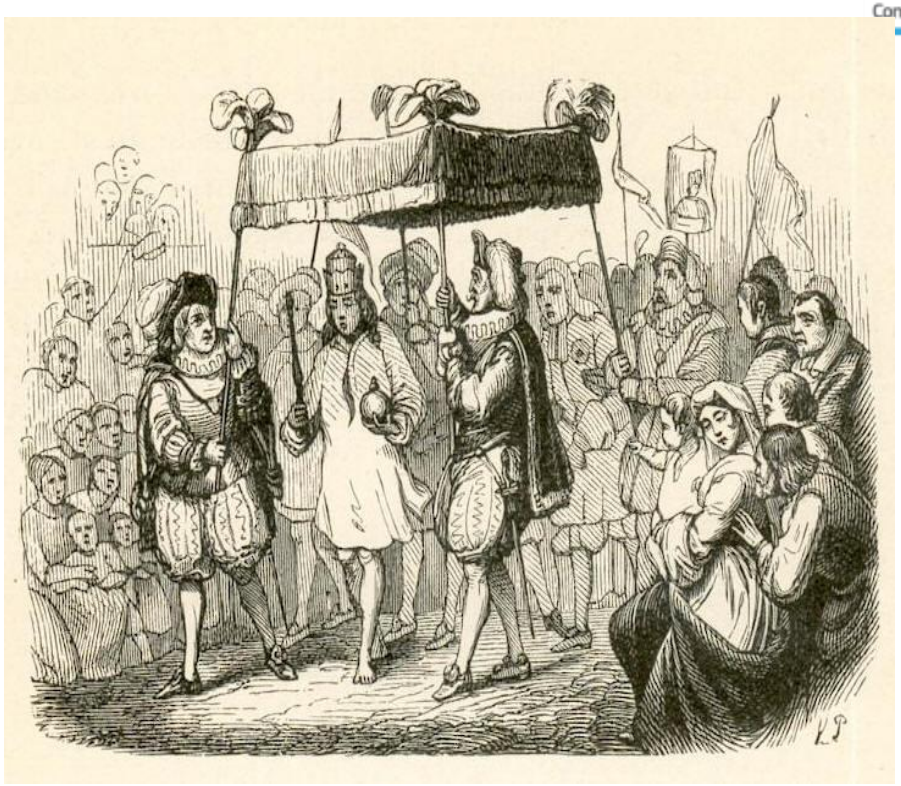

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New directions for evidence based policy

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Today:

- More complexity
- More literacy
- More IT
- More hybridization of roles, styles
- Changing styles of science's governance
- Issues with trust / quality in the scientific enterprise
- More controversy (wicked issues)

More hybridization of roles, styles

- Different forms of media, of literature, of fora; the emergence of boundary institutions (e.g. at the interface between science and policy), new knowledge producing actors

Hybridization

- Latour (1993) uses the conceptual pair of hybridisation and purification […] Purification means a clear separation of nature from society, while hybridization involves mixtures of nature and culture. Latour claims that it is a modern belief that the human and non-human worlds can be separated and exist independent from each other, each in a pure form.

Latour, B., 1993. We Have Never Been Modern. Cambridge, Harvard UP.

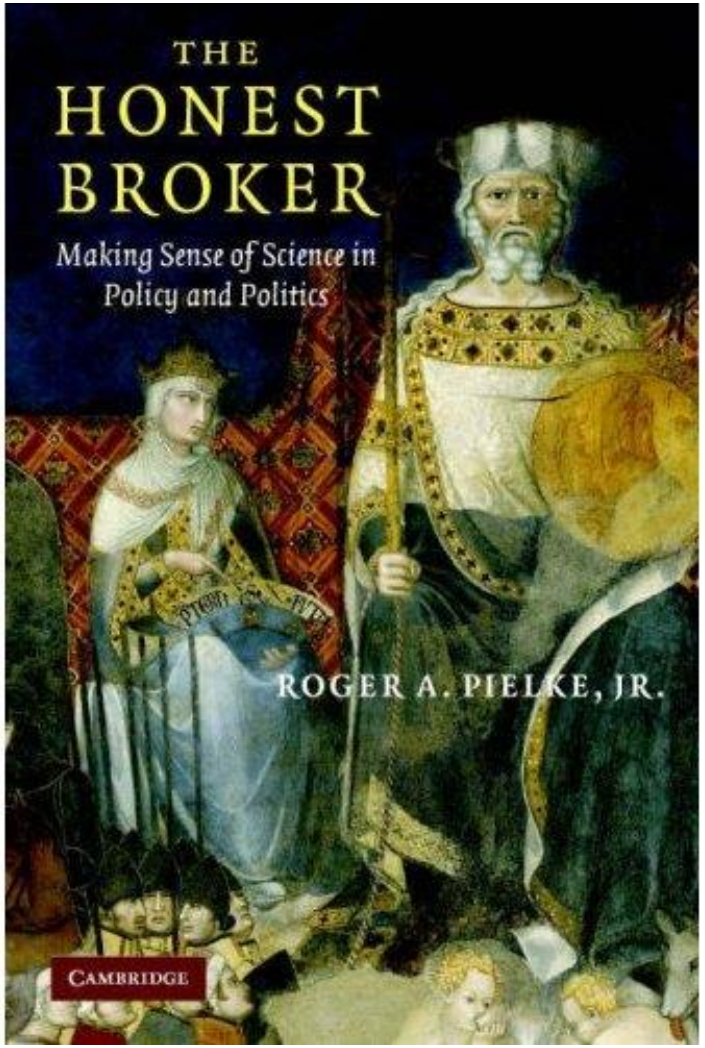
Hybridization

- "Applied to knowledge production this means that facts (about nature) and values (about we ought to do) are seen as separate in the modern world view but bound up with each other in reality.
- One might suspect that the more knowledge is produced in hybrid arrangements, the more the protagonists will insist on the integrity, even veracity of their findings", Grundmann, 2009.

Grundmann, R., 2009, The role of expertise in governance processes, Forest Policy and Economics 11, 398–403

The issue of stealth advocacy: The Honest Broker: Making Sense of Science in Policy and Politics, by Roger A. Pielke Jr.

Pielke, R. JR, 2007. The Honest Broker, Cambridge: Cambridge Univ. Press



Changing styles of science's governance

- The questioning of classic positivistic narratives of prediction and control
- The digital culture; what were once promises, such as quality assurance of policy-relevant science by extended peer review (Funtowicz and Ravetz, 1985; 1990) and co-production of knowledge (Jasanoff, 1996), have today 'materialised'.

Funtowicz S. and Ravetz J. 1990. "Uncertainty and Quality in Science for Policy" Dordrecht, Kluwer Academic Publishers.

Funtowicz, S.O. and Ravetz, J.R. 1985. Three Types of Risk Assessment: A Methodological Analysis. Environmental Impact Assessment, Technology Assessment, and Risk Analysis. NATO ASI Series Volume 4, pp 831-848.

Jasanoff, S. 1996, Beyond Epistemology: Relativism and Engagement in the Politics of Science. Social Studies of Science. 26(2) 393-418.

Issues with trust / quality in the scientific enterprise

Issues with trust / quality in the scientific enterprise

- "Science still commands enormous—if sometimes bemused—respect. But its privileged status is founded on the capacity to be right most of the time and to correct its mistakes when it gets things wrong. […] The false trails laid down by shoddy research are an unforgivable barrier to understanding"

The Economist

The Economist, October 19, 2013, How Science goes wrong, p. 11.

Issues with trust / quality in the scientific enterprise

- Non-reproducibility tsunami …
- Laboratory experiments cannot be trusted without independent verification (Sanderson 2013), rules are proposed to spot "suspected work […in] the majority of preclinical cancer papers in top tier journals" (Begley 2013).

Begley CG 2013 Reproducibility: Six red flags for suspect work Nature 497 433–434.

Ioannidis J P A 2005 Why Most Published Research Findings Are False PLoS Medicine 2(8) 696-701.

Sanderson K 2013 Bloggers put chemical reactions through the replication mill Nature 21 January 2013.

Issues with trust / quality in the scientific enterprise

- A Meta-Research Innovation Centre launched at Stanford (METRICS) to combat 'bad science'.

The Economist, 2013, March 15, Combating bad science Metaphysicians. Sloppy researchers beware. A new institute has you in its sights

Issues with trust / quality in the scientific enterprise

- The centrality of ethics for the health of the scientific enterprise is well described by Ravetz (1971).

"Two separate factors are necessary for the achievement of worthwhile scientific results: a community of scholars with shared knowledge of the standards of quality appropriate for their work and a shared commitment to enforce those standards by the informal sanctions the community possesses; and individuals whose personal integrity sets standards at least high as those required by their community.

Jerome R. Ravetz

Ravetz, J., 1971, Scientific Knowledge and its Social Problems, Oxford University Press, p.22.

Issues with trust / quality in the scientific enterprise

- Science degenerates when it becomes a commodity for Lyotard (1979) and Mirowski (2011).

Lyotard, J.-F. 1979. La Condition postmoderne. Rapport sur le savoir, Paris : Minuit, Chapter 10.

Mirowski, P. 2011. Science-Mart: Privatizing American Science, Harvard University Press.

Jean-François Lyotard

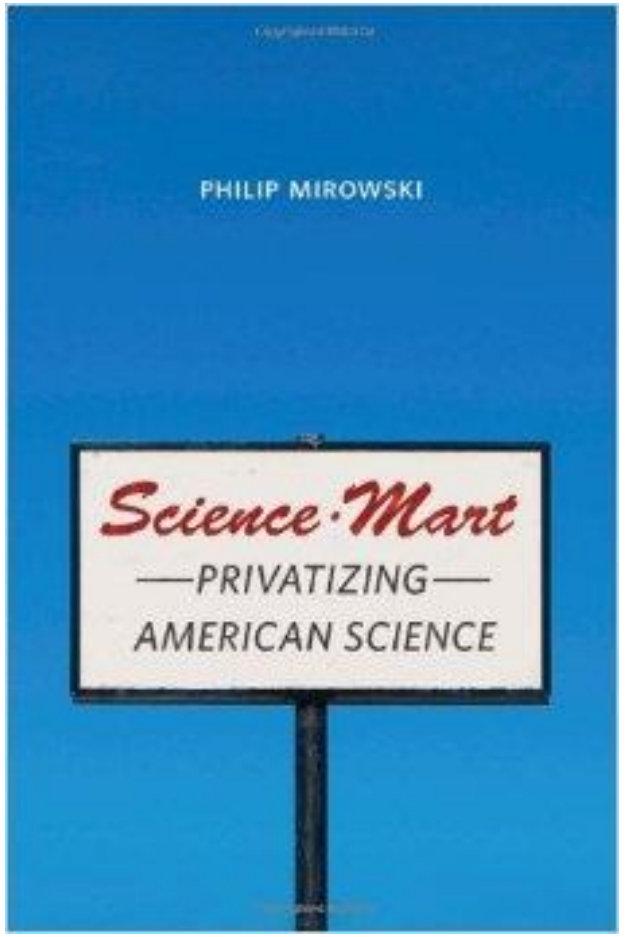
Philip Mirowski

Issues with trust / quality in the scientific enterprise

- Mirowski's take on science's lost innocence:

After the eighties neoliberal ideologies succeeded in decreasing state intervention in the funding of science, which became increasingly privatized...

…Knowledge as a monetized commodity replaces knowledge as public good...



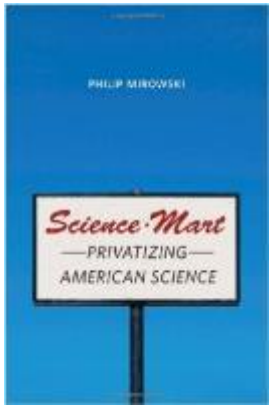
Issues with trust / quality in the scientific enterprise

- Mirowski's take on science's lost innocence:

…In house science labs of major corporation were closed and research outsourced to universities which …

… became more and more looking as corporations…

… then research ended up outsourced again to contract-based private organizations……➔



More controversy - wicked issues

- Policy files are all controversial … and controversy is pervasive, from GMO to climate, from bees and pesticides to shale gas fracking, from the cooling liquid of Mercedes-Benz to endocrine disruptors and badger culling …

More controversy - wicked issues

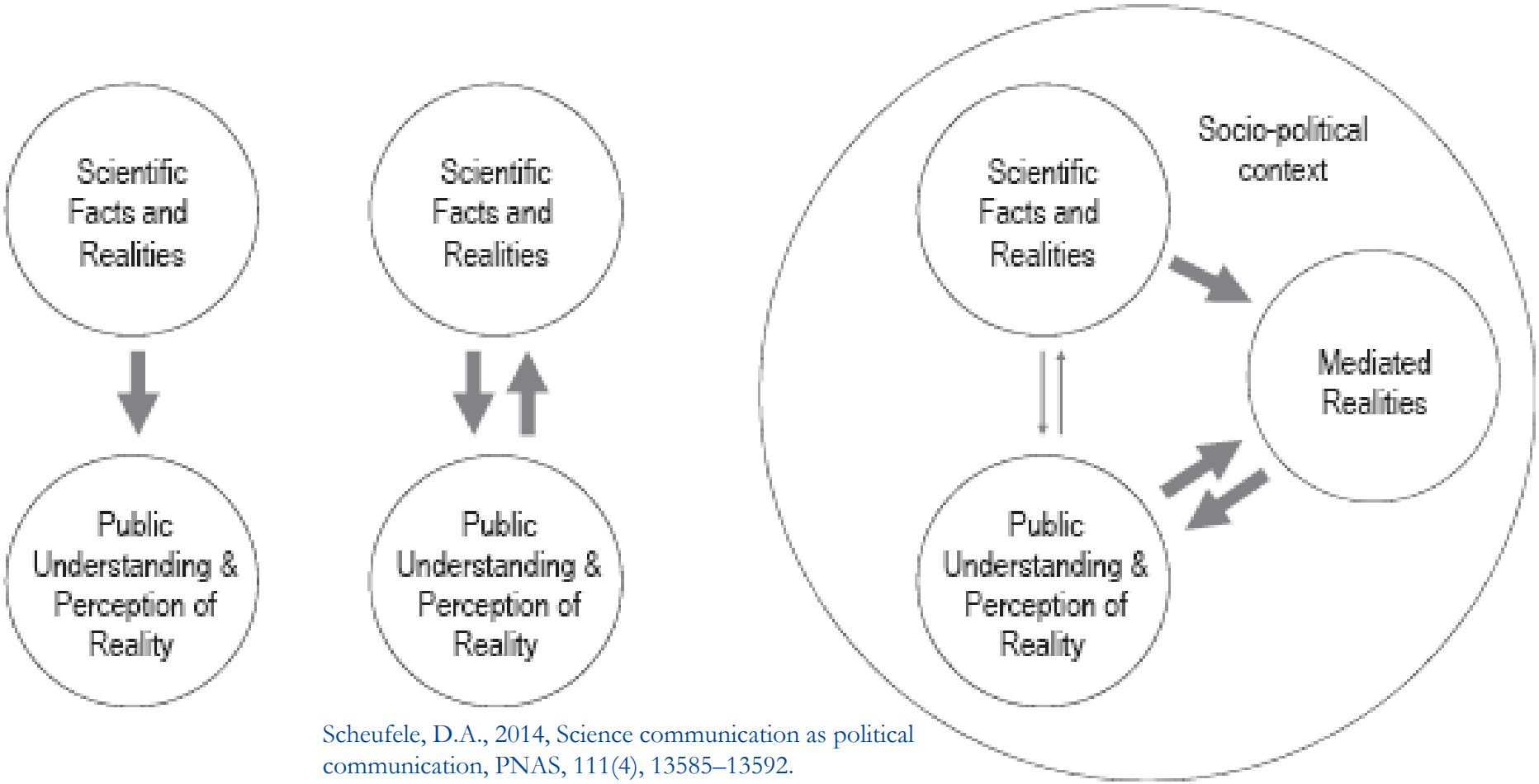
- More and more issues become 'wicked' , meaning by this deeply entangled in a web of hardly separable facts, interests and values…
- 'Medialization', agenda setting strategies (Scheufele, 2014)

Scheufele, D.A., 2014, Science communication as political communication, PNAS, 111(4), 13585–13592.

MODEL 1:
Knowledge Deficit

MODEL 2:
Public Engagement with Science

MODEL 3:
Science Communication as Political Communication



Scheufele, D.A., 2014, Science communication as political communication, PNAS, 111(4), 13585–13592.

Wrapping up on what is changing

- More hybridization of roles, styles ➔ Need for boundary organizations
- Changing styles of science's governance ➔ More actors with a voice

Wrapping up on what is changing

- Issues with trust / quality in the scientific enterprise ➔ Do it yourself movements
- More controversy (wicked issues) ➔ More 'weapons' developed

… Which leads to a question relevant to JRC:

- It is possible to disentangle evidence based policy from policy based evidence?

- Many examples could be done here from eugenics to tobacco …

All this to say that in fact you cannot separate evidence based policy from policy based evidence.

Why is this story of evidence based policy so important?

Chapter 2, Le probleme: La legitimation

'C'est depuis Platon que la question de la légitimation de la science se trouve indissociablement connexe de celle de la légitimation du législateur. Dans cette perspective, le droit de décider de ce qui est vrai n'est pas indépendant du droit de décider de ce qui est juste […] savoir et pouvoir sont les deux faces d'une même question: qui décide ce qu'est savoir, et qui sait ce qu'il convient de décider? La question du savoir à l'âge de l'informatique est plus que jamais la question du gouvernement.'

Jean-François Lyotard

Lyotard, J.-F. 1979. La Condition postmoderne. Rapport sur le savoir, Paris : Minuit.

Why is this story of evidence based policy so important?

Because it an oxymoron?
Because everybody says it is in fact the opposite (policy based evidence)
that which takes place?

Why is this story of evidence based policy so important?

"And so we have a large consultancy business of transport modellers, environmental experts, risk managers and impact assessment modellers, the front line of an army that has turned evidence-based policy into policy-based evidence. These procedures cloak often casual instinctive assessments in an appearance of objective justification", Kay, 2014.

Kay, J., 2014, The wisest choices depend on instinct and careful analyses, Financial Times, September 2.

On demarcation:

"the incoming commission must find better ways of separating evidence-gathering processes from the 'political imperative' ", A. Glover, former Chief Science Adviser of President Barroso (Wildson, 2014).

Anne Glover

Wilsdon, J. 2014. Evidence-based Union? A new alliance for science advice in Europe. In The Guardian. Available at: http://www.theguardian.com/science/political-science/2014/jun/23/evidence-based-union-a-new-alliance-for-science-advice-in-europe.

The demarcation model is challenged in modern epistemologies, mostly based on the impossibility to achieve separation between facts and values. Alternatives are offered by 'Post Normal Science' (Funtowicz and Ravetz, 1991, 1992, 1993) and by the 'Co-production of knowledge' (Jasanoff, 1996) models.

Funtowicz, S. O., & Ravetz, J. R., 1991. A new scientific methodology for global environmental issues. In R. Costanza (Ed.), Ecological economics: The science and management of sustainability (pp. 137–152). New York, NY: Columbia University Press.

Funtowicz, S. O., & Ravetz, J. R. 1992. Three types of risk assessment and the emergence of postnormal science. In S. Krimsky & D. Golding (Eds.), Social theories of risk (pp. 251–273). Westport, CT: Greenwood.

Funtowicz, S. O. & Ravetz, J. R. 1993. Science for the post-normal age. Futures, 25(7), 739–755.

Jasanoff, S. 1996, Beyond Epistemology: Relativism and Engagement in the Politics of Science. Social Studies of Science. 26(2) 393-418.

An alternative: the Model of Extended Participation from PNS:

- The ideal of rigorous scientific demonstration is replaced by that of open public dialogue…
- "Science" is but one among a plurality of 'relevant knowledges'…
- Citizens become both critics and creators (public engagement, coproduction…)
- Facts become 'extended facts' …

Another feature of PNS is that in PNS quality can become the new organizing principle which "enables us to manage the irreducible uncertainties and ethical complexities" (Funtowicz and Ravetz, 1994).

Funtowicz, S.O. and Ravetz, J.R. (1994). The worth of a songbird: Ecological economics as a post-normal science, Ecological Economics, 10(3), 197-207.

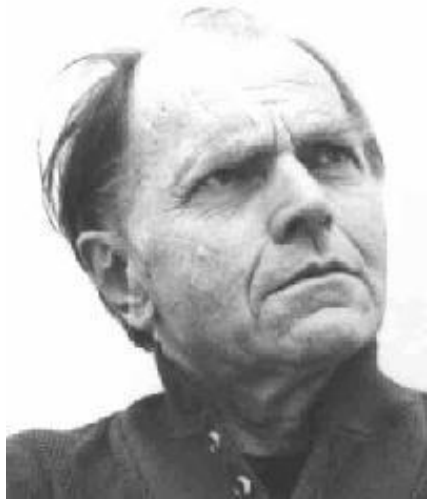
The model of extended participation for science's input to policy should be contrasted with the prevailing wisdom, which is the positivistic model of prediction and control where '*science speaks truth to power*' (Wildavsky, 1979), where the problem are the citizens with their limited understanding of scientific subject ➔ Deficit model; Public understanding of science (PUS).

Wildavsky, A., 1979, Speaking Truth to Power: The Art and Craft of Policy Analysis, Boston Little, Brown and Company.

"[…] in a democracy local populations not only will, but also should, use the sciences in ways most suitable to them. The objections that citizens do not have the expertise to judge scientific matters overlooks that important problems often lie across the boundaries of various sciences so that scientists within these sciences don't have the needed expertise either."

Feyerabend, P. (1975, 2010) Against Method,

Verso publisher, London.



Paul Feyerabend

"Moreover doubtful cases always produce experts from one side, experts for the other side, and experts in between. But the competence of the general public could be vastly improved by an education that exposes expert fallibility instead of acting as if it did not exist."

Feyerabend, Op. cit.

Expertise and responsibility

- Experts as stakeholders among many, with their occupational psychoses.
- Example: most analyses offered as input to policy are framed as cost benefit analysis (monetization, the occupational psychosis of economists) or risk analyses.
- Techniques (such as CBA) is never neutral; according to Winner (1986) ecologists should not fall into the trap of CBA.
- Some CBA amount to little more than occupational therapies!

Langdon Winner

Winner, L., 1986. The Whale and the Reactor: a Search for Limits in an Age of High Technology. The University of Chicago Press, 1989 edition.

Frames:

- Frames are never neutral. The example of car accident statistics framed with a focus on the driver and not on the car, or the road.

- "the statistics on road accidents [give] details about the driver (age, gender, speed, alcohol or drugs intake, etc.) but none about the vehicle (age, make and model) or about the road where the accident took place. In other words, the institutions put the emphasis on the "agent-act ratio" excluding implicitly the importance of others elements of the drama such as the scene (road and traffic) and the agency (hazardousness of the vehicle)", Boulanger, 2014.

Boulanger, Op. cit., quoting Gusfield, J. (1981). The Culture of Public Problems. Drinking-Driving and the Symbolic Order. Chicago : The University of Chicago Press.

Frames:

- GMO presented as a food scare. The Economist, discussing the introduction of a GMO labelling scheme in Vermont (US): "Montpelier is America's only McDonald's-free state capital. A fitting place, then, for a law designed to satisfy the unfounded fears of foodies […] genetically modified crops, declared safe by the scientific establishment, but reviled as Frankenfoods by the Subarus-and-sandals set", (The Economist, 2014).

The Economist, Vermont v science, The little state that could kneecap the biotech industry, May 10th 2014

Questions about GMO deemed relevant by citizens (Marris, 2001)

- Why do we need GMOs? What are the benefits?
- Who will benefit from their use?
- Who decided that they should be developed and how?
- Why were we not better informed about their use in our food, before their arrival on the market?
- Why are we not given an effective choice about whether or not to buy and consume these products?
- Do regulatory authorities have sufficient powers and resources to effectively counter-balance large companies who wish to develop these products?

Marris, C., Wynne, B., Simmons P., and Weldon, S. 2001. Final Report of the PABE research project funded by the Commission of European Communities, Contract number: FAIR CT98-3844 (DG12 - SSMI), December 2001.

Thus, as exemplified by the case of GMO, a risk analysis is performed to demonstrate the safety of a new technology after the technology has been introduced. According to Langdon Winner (1986, p. 138-163) citizens should instead question the broader power, policy and profit implications of that introduction.

Winner, L. Op. cit.

Take home points:

- ➔ Careful with 'evidence based policy' (do you have a counter-factual or a model?)
- ➔ Try 'socially robust policy' (socially robust knowledge, Nowotny, 2003)
- ➔ Adopt knowledge pedigrees: NUSAP (Funtowicz and Ravetz, 1990; Van der Sluijs et al., 2005) and Sensitivity Auditing (Saltelli and Funtowicz, 2014)
- ➔ Discard the deficit model
- ➔ Engage in PNS' extended participation labs (using JRC?)

Nowotny, H., 2003, Democratising expertise and socially robust knowledge, Science & Public Policy (SPP), 30 (3) 151
Funtowicz, S. and Ravetz, J. (1990) Uncertainty and Quality in Science for Policy, Kluwer Academic Publishers, The Netherlands
van der Sluijs, J.P. (2005) 'Uncertainty as a monster in the science policy interface: four coping strategies', Water Science and Technology, Vol. 52, No. 6, pp.87–92.