

Centre for the Study of the Sciences &
the Humanities (SVT), University of
Bergen (UiB), Norway

EFSA Conference 2018

Where science meets society: Putting risk assessment in context

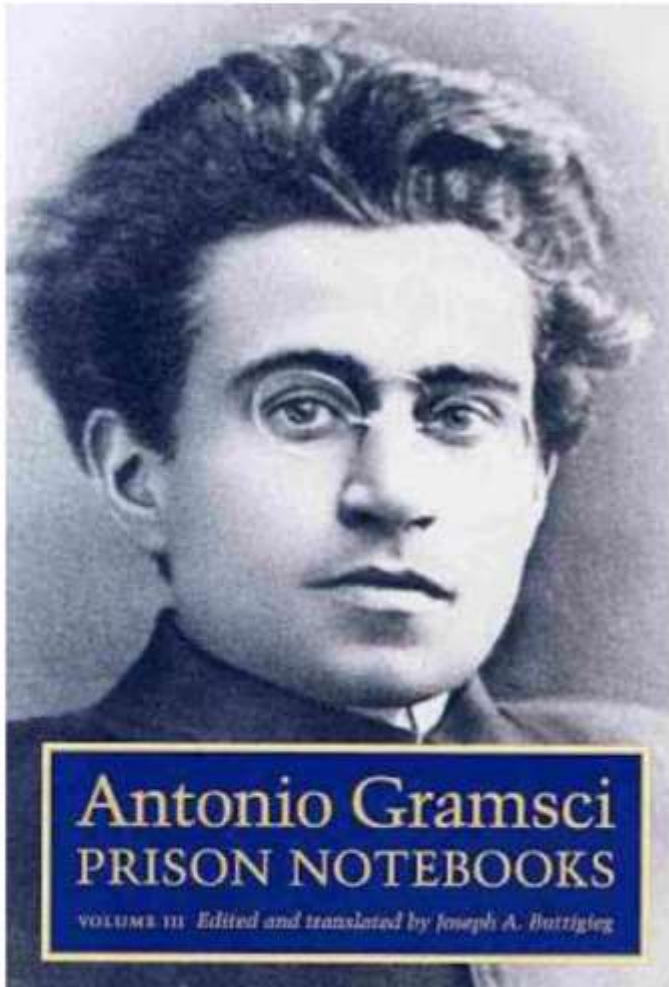
PLENARY SESSION, 18 September 2018

Science meeting society?

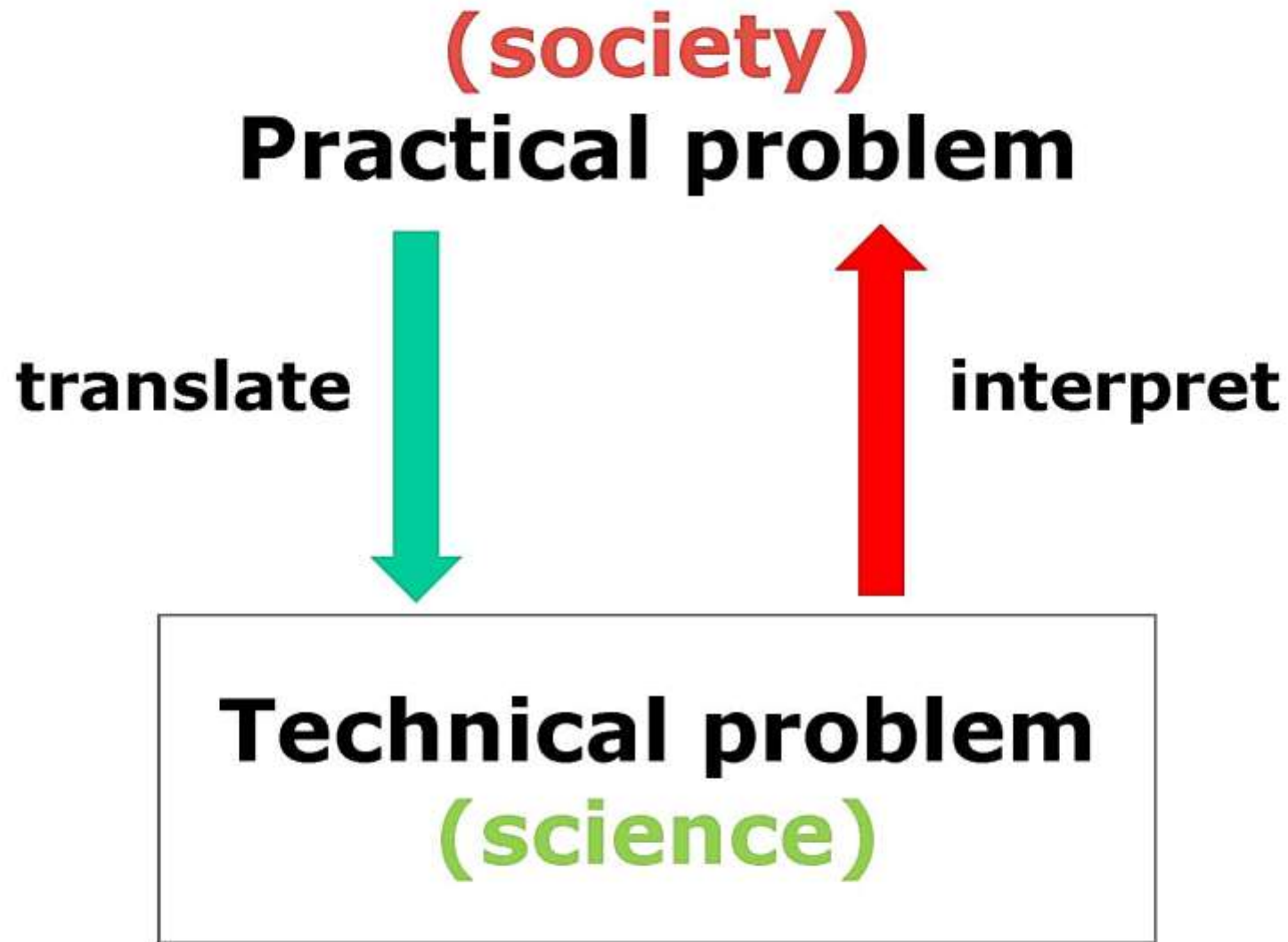
The old, the new, & the uncertain in-between

SILVIO FUNTOWICZ

@SFuntowicz



“The crisis consists precisely in the fact that the old is dying and the new cannot be born; in this interregnum a great variety of morbid phenomena take place”



Where science meets society: Putting risk assessment in context

PLENARY SESSION

Tuesday 18 September 2018 / 13:30 - 18:00

“The interplay between science, risk assessment and policy has become increasingly complex because **we live in a world in which values are becoming more influential than facts in shaping public opinion. Science is increasingly mistrusted; discussions about risks are often polarised and politicised; scientific arguments serve as proxies for differences in values...**”

<https://conference.efsa.europa.eu/event/sessions/efsa-2018/where-science-meets-society-putting-risk-assessment-in-context>

Weinberg A M. Science and trans-science. *Minerva* 10:209-22, 1972.
[Oak Ridge National Laboratory, TN]

Origins of Science and Trans-Science

Alvin M. Weinberg
Medical Sciences Division
Oak Ridge Associated Universities
Oak Ridge, TN 37831-0117

I co
time
Oak Ridge National Laboratory was becoming involved in the debate over nuclear power—in particular the debate over the hazard of low levels of radiation.

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mental levels of dose levels far below the
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SUCH **BROOKS** sug-
gested that an analysis of such situations
was beyond the power of mathematics, and
therefore, was trans-scientific.²

The term “trans-science” is used quite
widely now. Perhaps most notable was
W. Ruckelhaus’s admission in 1985 that
many of the EPA’s regulations hang on the
answers to questions that can be asked of
science but cannot be answered by sci-
ence—i.e., are trans-scientific.³

In this p
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20 years
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is gradually being recognized in many
quarters. For example, W.G. Wagner con-
cludes: “...in order to accommodate trans-
science, the judicial framework must
change... Trans-scientific obstacles can be
circumvented by referring to more gen-
eral notions of qualitative causation
and unreasonable conduct...then the
courts may be able to reincorporate the
principles of deterrence into the adjudica-
tion of toxic torts.”⁴

In addition to giving a name to an idea
that regulators and toxic torts lawyers had
been grappling with, “science and trans-
science” has added another dimension to
the governmental quest for limits to science. To
the limits of science posed by Weinberg’s
uncertainty principle, or the second law of

the hazard of low levels of radiation. The
public’s exaggerated estimate of risk was
at the root of the difficulties nuclear en-
ergy was facing. If ever there was a trans-
science question, this was it.

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After the paper was published, Harvey
Brooks added another dimension to “trans-
science”—the evolution in time of systems
governed by large classes of nonlinear equa-
tions. *Forecast* was one of the first to stress

mits of science. *Proceedings of the Symposium on Phenotypic
ssment*, December 7-10, 1986. Brookhaven National Laboratory.

Minerva 10:484-6, 1972.
Technol. 1:19-38, 1985.

4. Wagner W G. Trans-science and torts. *Yale Law J.* 9:428-49, 1986.

CORRESPONDENCE 05 September 2018

Evaluate power and bias in synthesizing evidence for policy

Andy Stirling & Clive Mitchell

Sometimes, **complexities in scientific evidence allow several contrasting but equally valid interpretations**. In such cases, there is a risk that privileged stakeholders associated with one way of thinking might unduly influence the particular values and interests prioritized in that synthesis.

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Evaluate power and bias in synthesizing evidence for policy

Andy Stirling & Clive Mitchell

Scientific aspirations, integrity and practices are crucial for challenging this authority. But if scientific disciplines and organizations deny or become complacent about their own forms of bias, then claims that purport to be definitive and objective could distort decision-making.

Nature **561**, 33 (2018)

doi: 10.1038/d41586-018-06128-3

WORLD VIEW

24 January 2018

Don't attack science agencies for political gain

*Eroding trust in regulatory agencies will not improve democratic accountability, warns **Bernhard Url***

“That the agencies reached different conclusions is not surprising: each considered different bodies of scientific evidence and methodologies.”

CORRESPONDENCE 05 September 2018

European politicians must put greater trust in plant scientists

Josep M. Casacuberta & Pere Puigdomènech



As members of the EFSA's panel on GM organisms since its inception, **we have witnessed a mounting distrust of scientific assessments.** That has manifested with the approval of rules that demand a rigid analysis of GM plants.

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European politicians must put greater trust in plant scientists

Josep M. Casacuberta & Pere Puigdomènech



We need to reverse this trend, for example by acknowledging that approval of genome-edited plants calls for much less data than classic GM organisms, and by **commanding greater respect for the work of scientific panels. This would promote scientifically sound risk analysis while complying with existing directives.**

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The principles and methods behind EFSA's Guidance on Uncertainty Analysis in Scientific Assessment

<https://doi.org/10.2903/j.efsa.2018.5122>

24 January 2018

<https://efsa.onlinelibrary.wiley.com/doi/10.2903/j.efsa.2018.5122>

NUSAP method, using a set of ordinal scales to characterise different dimensions of each source of uncertainty, and its influence on the assessment conclusion, and plotting these together to indicate which sources of uncertainty contribute most to the uncertainty of the assessment conclusion.

The challenge of science at the policy-societal nexus

- Too much science, much of which is in disciplinary silos
- Often incomplete and ambiguous at the time policy choices are needed
- The changed and post-normal nature of much science
- The challenge of values within and beyond science
- The different perceptions of risk
- Different perceptions of expertise
- The reciprocal perceptions of scientists and policy makers

Principles and Structures of Science Advice, **Sir Peter Gluckman** ONZ FRS, Chair, International Network of Government Science Advice , President Elect, International Science Council, Kigali August 2018

<https://www.ingsa.org/wp-content/uploads/2018/08/Kigali-INGSA-2018.pdf>