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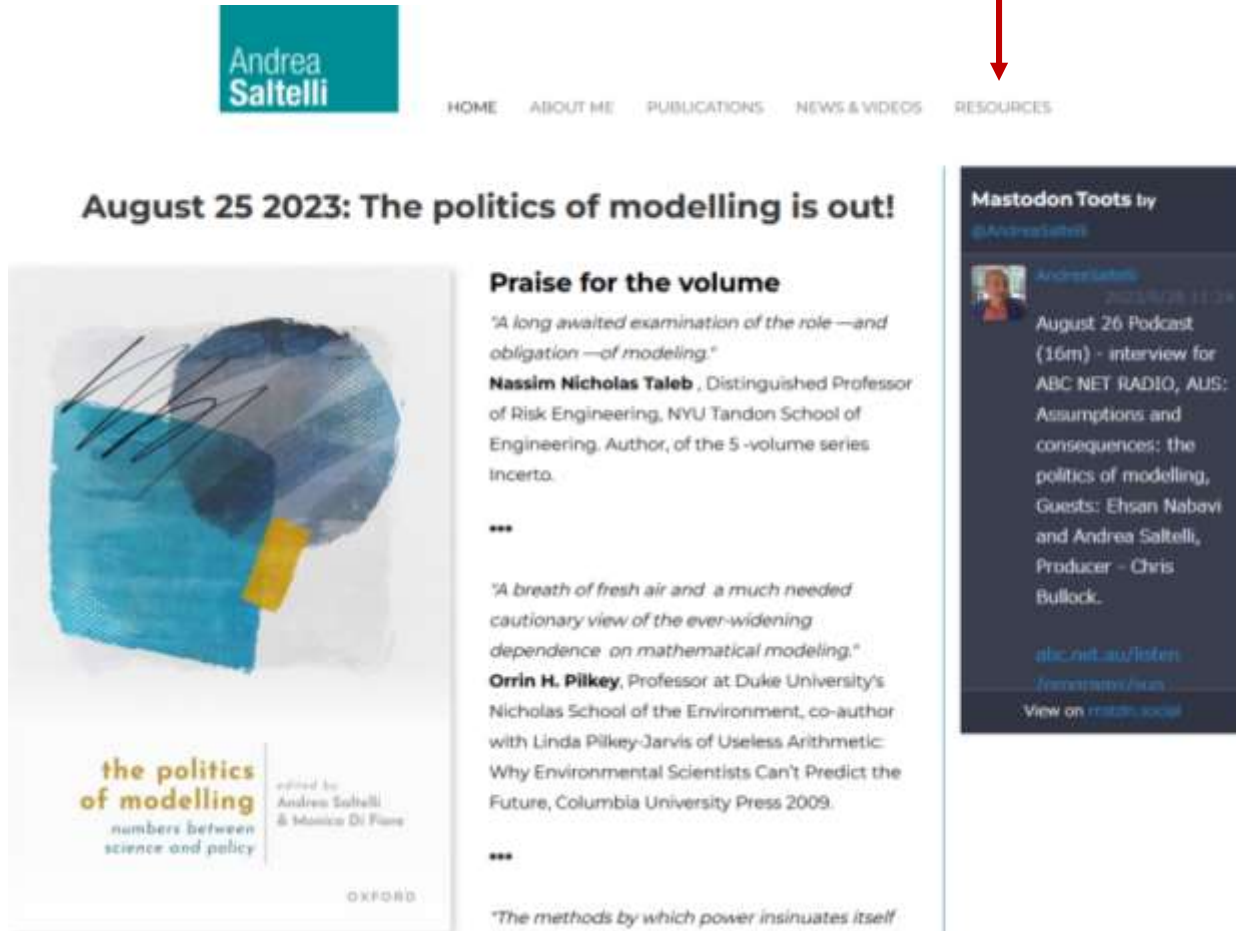
Risk, uncertainty and democracy: what a sociology of quantification has to say

Andrea Saltelli,

UPF Barcelona School of Management, Barcelona, Spain, and
Centre for the Study of the Sciences and the Humanities,
University of Bergen, Bergen, Norway


Seminar: Risk, Uncertainty, and Democracy
Calleva Centre for Evolution and Human Science,
Magdalen College, Oxford, May 14-15 2024

Where to find this talk: www.andreasaltelli.eu



The screenshot shows the website www.andreasaltelli.eu. The header includes the name "Andrea Saltelli" and navigation links: HOME, ABOUT ME, PUBLICATIONS, NEWS & VIDEOS, and RESOURCES. A red arrow points to the "RESOURCES" link.

August 25 2023: The politics of modelling is out!



Praise for the volume

"A long awaited examination of the role—and obligation—of modeling."

Nassim Nicholas Taleb, Distinguished Professor of Risk Engineering, NYU Tandon School of Engineering. Author, of the 5-volume series *Incerto*.

...

"A breath of fresh air and a much needed cautionary view of the ever-widening dependence on mathematical modeling."

Orrin H. Pilkey, Professor at Duke University's Nicholas School of the Environment, co-author with Linda Pilkey-Jarvis of *Useless Arithmetic: Why Environmental Scientists Can't Predict the Future*, Columbia University Press 2009.

...

"The methods by which power insinuates itself

Mastodon Toots by @Andreasaltelli

August 26 Podcast (16m) - interview for ABC NET RADIO, AUS: Assumptions and consequences: the politics of modelling, Guests: Ehsan Nabavi and Andrea Saltelli, Producer - Chris Bullock.

abc.net.au/listen
[/embed/playlist/...](https://www.youtube.com/watch?v=...)
View on mstdn.social

Taking issue with purported neutrality of methods





Environmental Science & Policy

Volume 106, April 2020, Pages 87-98



The technique is never neutral. How methodological choices condition the generation of narratives for sustainability

[Andrea Saltelli](#)^{a b}  , [Lorenzo Benini](#)^c, [Silvio Funtowicz](#)^a, [Mario Giampietro](#)^{d e},
[Matthias Kaiser](#)^a, [Erik Reinert](#)^{a f}, [Jeroen P. van der Sluijs](#)^{a g h}

Most analyses offered as input to policy are framed as cost benefit analysis or **risk analyses**, but environmentalists disagree

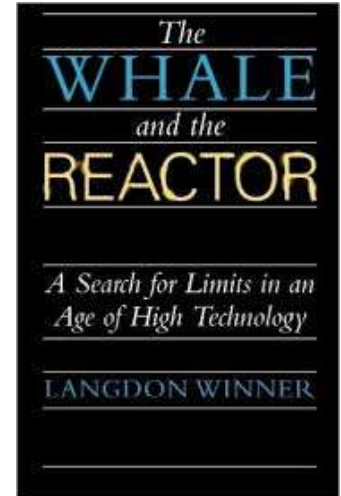


Langdon Winner

8

ON NOT HITTING
THE TAR-BABY

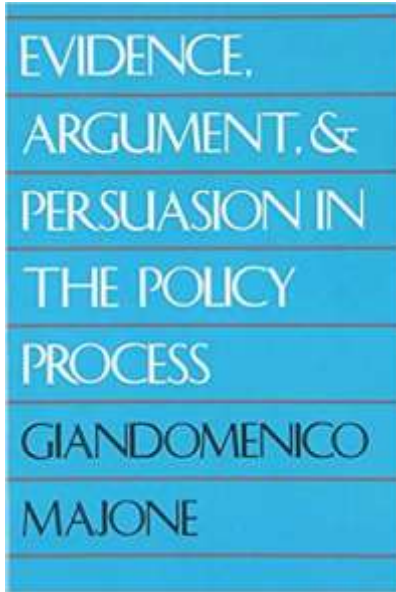
Winner, L., 1986. *The Whale and the Reactor: a Search for Limits in an Age of High Technology*. The University of Chicago Press, 1989 edition.



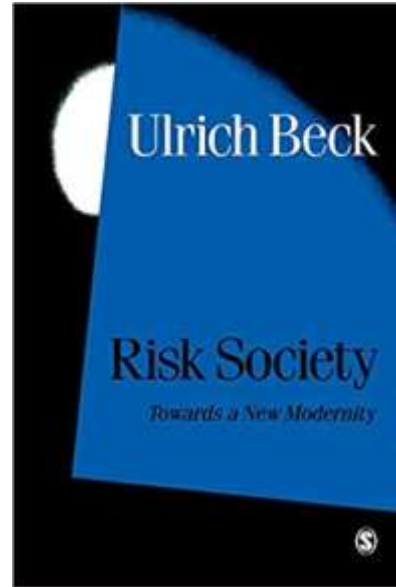
From Ulrich Beck to Giandomenico Majone: the technique is never neutral



Ulrich Beck
(1944 –2015)



1989



1992 (1986)

“... from the experts and the fundamental controversies they have fought out (or not fought out) one can learn how unwelcome results can be blocked professionally (by methodological criticism, for instance)” (Beck 1992)

The pretended distinction between facts and value is used instrumentally. In the policy process fact and values cannot be separated in the making of an argument (Majone, 1989)

The impossible separation between facts and values is one of the 'keys' of post-normal science


SPRINGER LINK


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Home > Foundations of Science > Article

What is Post-normal Science? A Personal Encounter

Open access | Published: 10 November 2023
(2023) | [Cite this article](#)

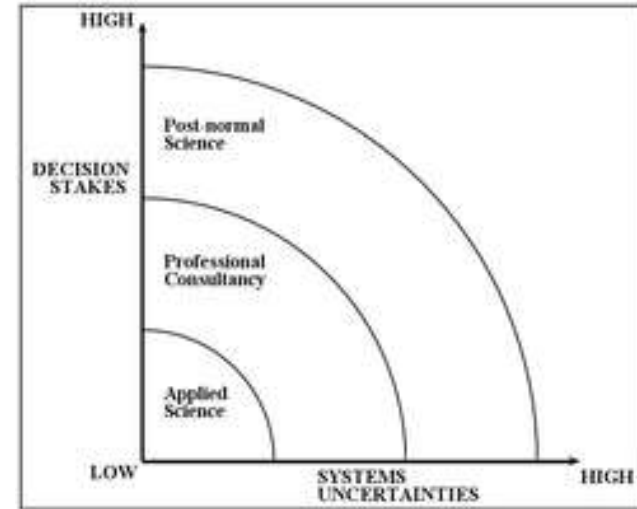
Andrea Saltelli 

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Foundations of Science

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S. Funtowicz and J. R. Ravetz, 'Science for the post-normal age', *Futures*, vol. 25, no. 7, pp. 739–755, Sep. 1993, doi: 10.1016/0016-3287(93)90022-L.

A technical proof of quality is illusory without a parallel investigation of normative quality; the example of indicators of employment

Technical Quality

Normative quality

Justice: Means versus Freedoms

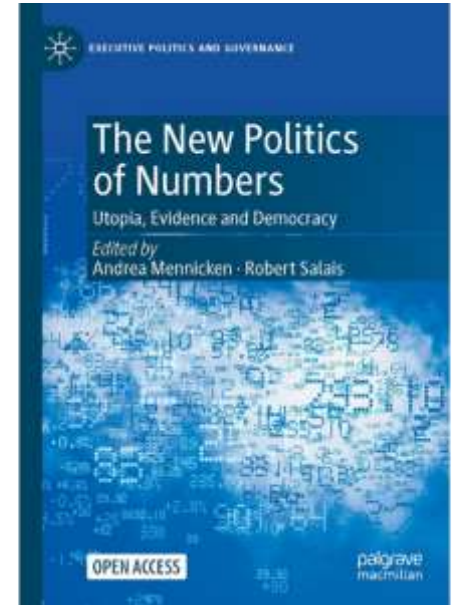
Author(s): Amartya Sen

Source: *Philosophy & Public Affairs*, Vol. 19, No. 2 (Spring, 1990), pp. 111-121

Published by: [Wiley](#)

Stable URL: <http://www.jstor.org/stable/2265406>

Accessed: 28/10/2014 14:48



← Salais, R. (2022). “La donnée n’est pas un donné”: Statistics, Quantification and Democratic Choice. In *The New Politics of Numbers: Utopia, Evidence and Democracy*, Andrea Mennicken and Robert Salais, Palgrave Macmillan, pp. 379–415.

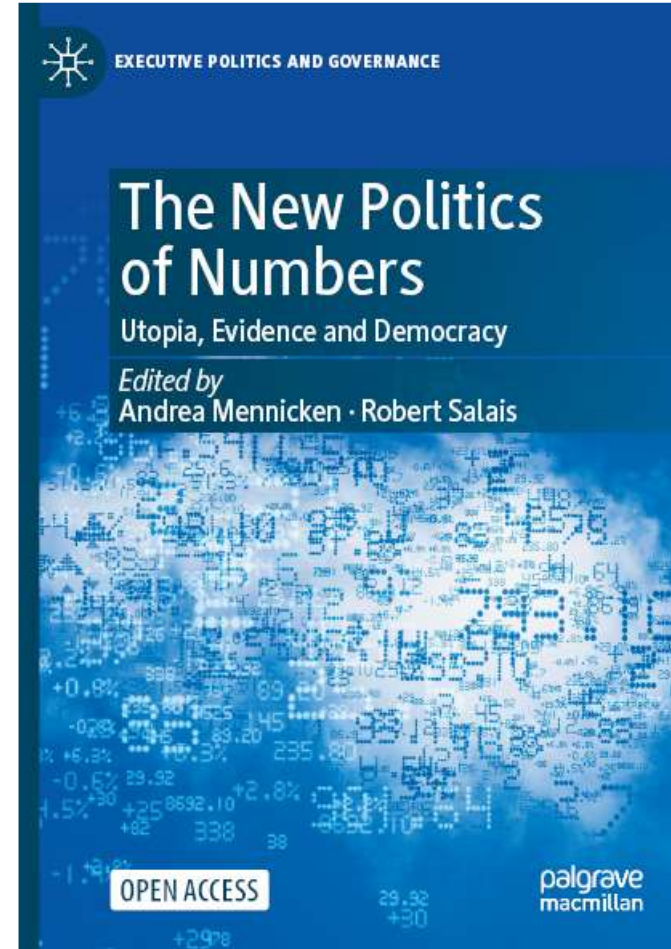
Evidence based policy

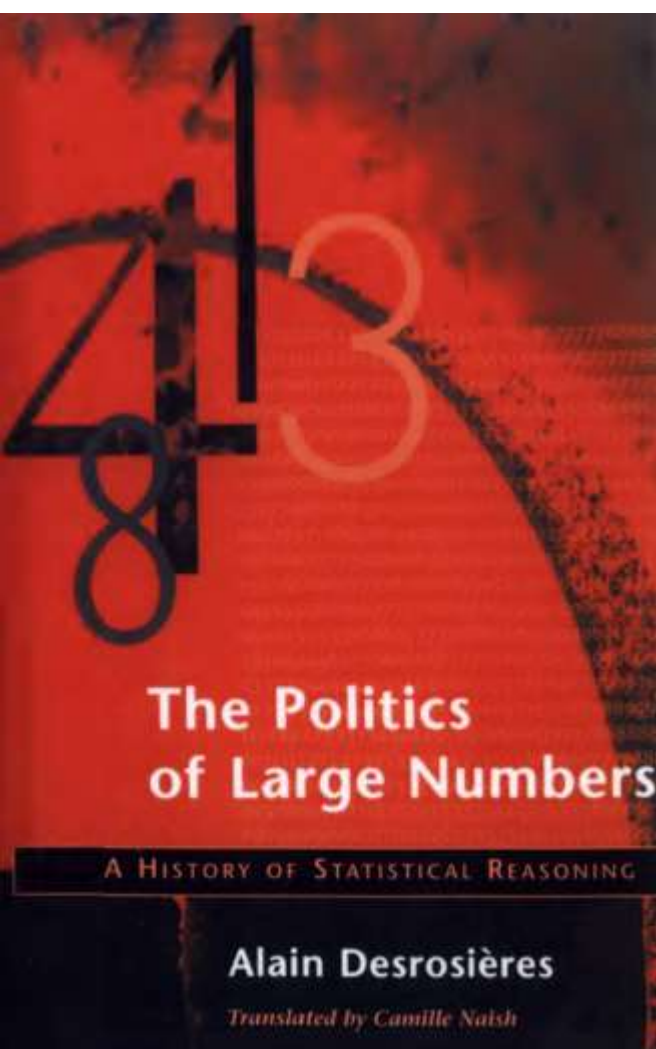
Statistics: creating things that hold together (Desrosières) for the solution of practical problems

Policy based evidence

Governance driven quantification: a reversal of the statistical pyramid

CHAPTER 12, “La donnée n’est pas un donné”: Statistics, Quantification and Democratic Choice, *Robert Salais*

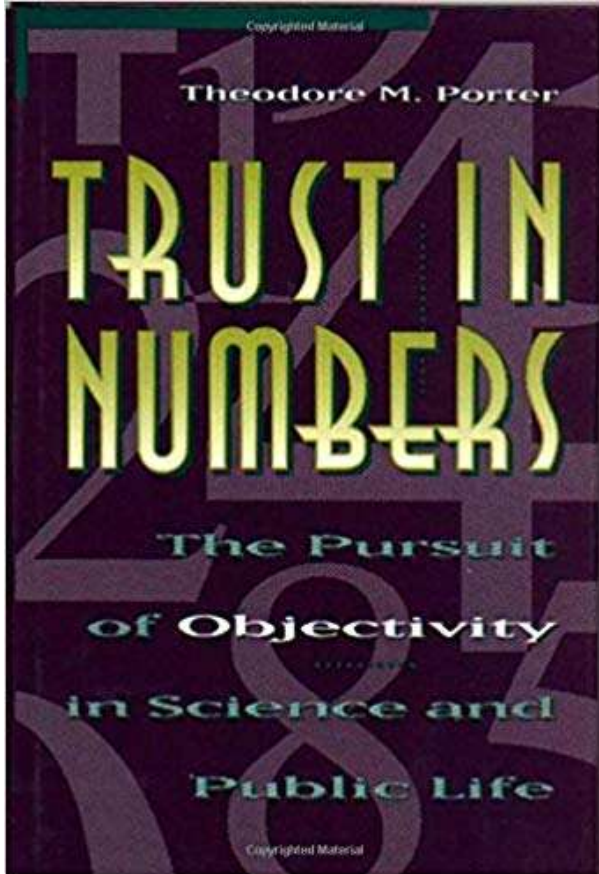




The innocence lost?

Alain Desrosières: statistics for “making things that hold”

The construction of statistical concepts and categories that can inform policy



Numbers are not neutral but their purported neutrality is a large part of their appeal: being performative without appearing to be so

<http://ereserve.library.uta.edu/Annual/WRTG/3705/Mathison/objectivity.pdf> in



**Objectivity as Standardization:
The Rhetoric of Impersonality in
Measurement, Statistics,
and Cost-Benefit Analysis**

THEODORE M. PORTER

*1. Quantification makes knowledge impersonal,
hence objective.*



What to do? adopt more lenses

Environmental Science and Policy 142 (2023) 99–111



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Environmental Science and Policy

journal homepage: www.elsevier.com/locate/envsci



Impact assessment culture in the European Union. Time for something new?



Andrea Saltelli ^{a,b,*}, Marta Kuc-Czarnecka ^c, Samuele Lo Piano ^d, Máté János Lőrincz ^d,
Magdalena Olczyk ^c, Arnald Puy ^e, Erik Reinert ^{f,g}, Stefán Thor Smith ^d,
Jeroen P. van der Sluijs ^{b,h}

EVIDENCE,
ARGUMENT, &
PERSUASION IN
THE POLICY
PROCESS
GIANDOMENICO
MAJONE

Multiple policy evaluation should also be possible. It would recognize the legitimacy of the different perspectives ... the objective is not to construct a grand model that would combine all the partial perspectives into...a weighted average ...of equity, effectiveness, legality ... (p.9)

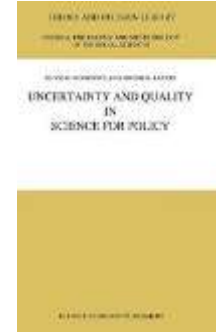
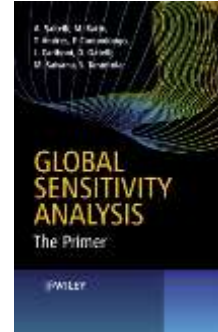
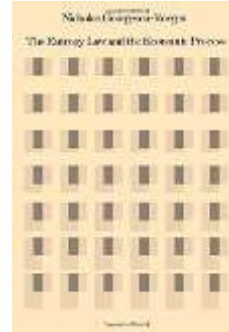
Proposed lenses

- Non-Ricardian economics
- Bioeconomics (in the sense of Nicholas Georgescu-Roegen)
- Approaches originated in the context of post-normal science
 - global uncertainty and sensitivity analysis
 - sensitivity auditing
 - NUSAP
 - quantitative storytelling



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Contrasting invisibilities

Non-Ricardian economics: invisibility of qualities, whereby all hours of work are taken to have the same value

Bioeconomics: invisibility of nature, whereby natural resources are considered as infinite or infinitely substitutable

Post-normal science: invisibility of values, obfuscated by the purported neutrality of quantification



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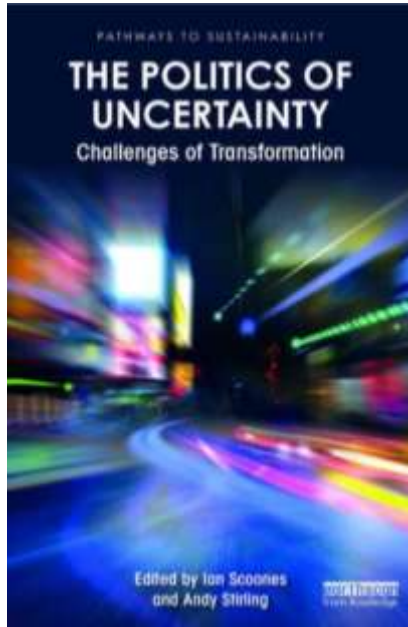
Nicholas Georgescu-Roegen



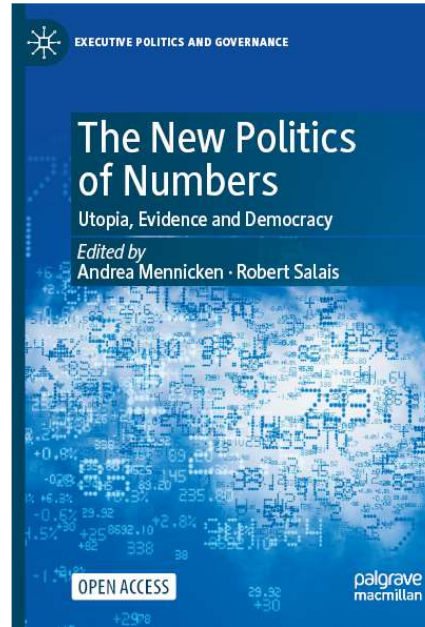
Erik S. Reinert



Jerome Ravetz and Silvio Funtowicz



2020



2022



2023



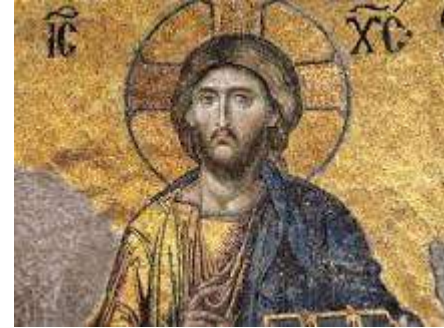
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Reveal the policy of the numbers

A technocratic orthodoxy in the EU? Why 'reductionism'?

- The single market needs a centralized, standardized **risk assessment approach**
- EU pro-industry (e.g. biotech) growth agenda
- Fear of opening the road to endless deconstruction of planned policies



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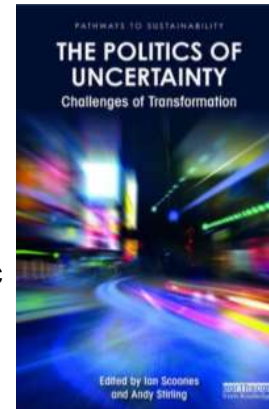
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See 'The unravelling of technocratic orthodoxy', of P. van Zwanenberg



Test cases

- Climate, energy, and Sámi herders ←
- Climate and Water security
- Biodiversity and pollinator decline
- Lessons learned from COVID-19



https://www.researchgate.net/publication/233760548_Eurasian_Arctic_Land_Cover_and_Land_Use_in_a_Changing_Climate/figures?lo=1

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Test cases

- Climate, energy, and Sámi herders
- Climate and Water security
- Biodiversity and pollinator decline
- Lessons learned from COVID-19



COMMENTARY Open Access

What did COVID-19 really teach us about science, evidence and society?

Andrea Saltelli , Joachim P. Sturmberg, Daniel Sarewitz, John P. A. Ioannidis

First published: 06 June 2023 | <https://doi.org/10.1111/jep.13876> | Citations: 2



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Comment | Published: 29 June 2023

Irrigation modelling needs better epistemology

Arnald Puy , Michela Massimi, Bruce Lanford & Andrea Saltelli

Nature Reviews Earth & Environment 4, 427–428 (2023) | [Cite this article](#)

337 Accesses | 4 Citations | Altmetric | [Metrics](#)

Robinson, Claire, et al. 2018. “Ensuring a Higher Level of Protection from Pesticides in Europe: The Problems with Current Pesticide Risk Assessment Procedures in the EU –and Proposed Solutions. A White Paper Prepared for the Coalition Citizens for Science in Pesticide Regulation.” <https://doi.org/10.5281/ZENODO.2543743>.



Contesting unjust/unfair governance arrangement is impossible without producing alternative constructions of evidence – that requires muscles not easily available to the lay citizen



Futures

Available online 26 October 2021

In Press, Journal Pre-proof



Science, the endless frontier of regulatory capture

Andrea Saltelli ^{a,*,} , , Dorothy J. Dankel ^{b,c,} Monica Di Fiore ^{d,} Nina Holland ^{e,} Martin Pigeon ^e



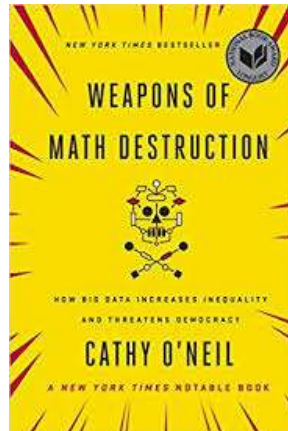
But purported facts checkers play numbers to serve private interests

Powered by algorithms, governance by (visible and invisible) numbers contributes to a loss of democratic agency (a-democracy)

2015
(jurist)



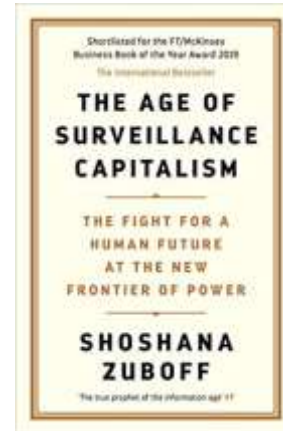
2016
(data scientist)



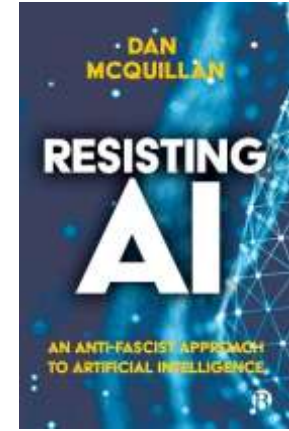
2017
(philosopher)



2019
(economist)



2022
(physicist/sociologist)



From loss of political agency to identity politics

The Clash Of Civilizations Is The Politics Of The End of History

Reflections by the philosopher Slavoj Žižek on universality and “workless places.”

ESSAY GEOPOLITICS & GLOBALIZATION

BY NATHAN GARDELS

MAY 3, 2024



“The only remaining legitimate source of conflicts are cultural (ethnic, religious) tensions. Today’s rise of ‘irrational’ populism is thus to be conceived as strictly correlative to the depoliticization of our societies, i.e., to the disappearance of the proper political dimension” (Slavoj Žižek)



<https://www.noemamag.com/the-clash-of-civilizations-is-the-politics-of-the-end-of-history/>

Summary

Risk analyses (as any kind of quantification) cannot be neutral

The double dimension of quality from Sen to Salais

Mathematical modelling can escape societal supervision
(epistemically authoritative, purportedly neutral, difficult to challenge)

An antidote: a plurality of lenses
(But power asymmetries are a challenge)

An apparatus of quantification with visible and invisible numbers contributes to a-democracy
(Or to fascism for Dan McQuillan; from a-democracy to identity politics for Slavoj Žižek)

End

Climate, energy, and Sámi herders

A grid interconnection between Scandinavian countries and Iceland?

Complex web of interests and vulnerabilities

Negative effect of (green) energy production in Scandinavia for the migratory patterns of reindeers, against increased infrastructural burden in Iceland

Norwegian wind farms violate rights of Sámi reindeer herders, says court



Copyright: FRANK JANSEN / AFP

Norway's Supreme Court has ruled that two western wind farms have illegally encroached on the grazing land of Sámi reindeer herders.

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Climate, energy, and Sámi herders

Loss of habitat, economic predation and legal frameworks “potentially dwarf the putative effects of projected climate change on reindeer pastoralism”

N. J. C. Tyler *et al.*, ‘Saami reindeer pastoralism under climate change: Applying a generalized framework for vulnerability studies to a sub-arctic social-ecological system’, *Global Environmental Change*, vol. 17, no. 2, pp. 191–206, May 2007, doi: 10.1016/j.gloenvcha.2006.06.001.



https://www.researchgate.net/publication/233760548_Eurasian_Arctic_Land_Cover_and_Land_Use_in_a_Changing_Climate/figures?lo=1

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Magdalena Olezyk^c, Arnold Puy^e, Erik Reinert^{c,g}, Steffen Thor Smith^e,
Jeroen P. van der Sluijs^{b,h}



Climate, energy, and Sámi herders

Reductionism in the EU energy policy making: the problem are the emissions and the solution is swapping fossil fuel based with renewable

This ignores causal linkages with social and environmental structures, such as how this interfere with the Sámi herders

https://www.researchgate.net/publication/233760548_Eurasian_Arctic_Land_Cover_and_Land_Use_in_a_Changing_Climate/figures?lo=1



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Magdalena Olezyk^e, Arnold Puy^f, Erik Reinert^{g,h}, Steffen Thor Smith^e,
Jeroen P. van der Sluis^{h,i}

Power asymmetries in the framing of issues:
those who have the deepest pockets marshal
the best [foremost ‘scientific’] evidence



Futures

Available online 26 October 2021

In Press, Journal Pre-proof 



Science, the endless frontier of
regulatory capture

Andrea Saltelli ^{a, *}  , Dorothy J. Dankel ^{b, c}, Monica Di Fiore ^d, Nina Holland ^e, Martin Pigeon ^e

An epistemic ladder for regulatory capture

- Epistemic. Invalidating the inference or the methods
- Institutional. Delegitimising and/or 'colonising' institutions
- Political. Promoting a worldview where the very idea of regulation is undesirable



Science, the endless frontier of regulatory capture

Andrea Saltelli ^{a, b, c}, Dorothy J. Dankel ^{b, c}, Monica Di Fiore ^d, Nina Holland ^e, Martin Pigeon ^e



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