



Is there need for an ethics of quantification?

Andrea Saltelli

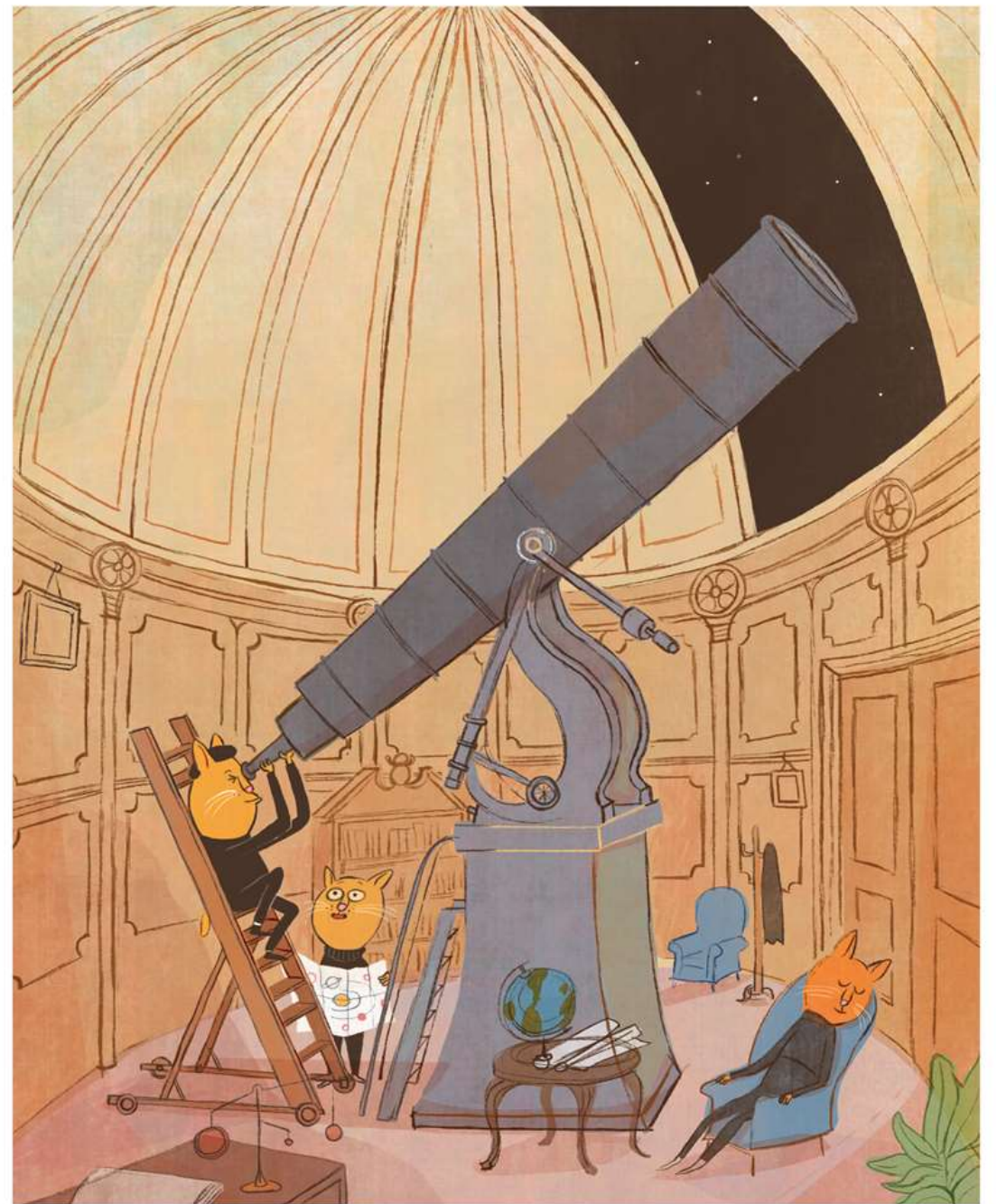


Open Evidence Research, Open University of Catalonia



Virtual webinar on 'Ethics of quantification', organized by
Centre for Science and Technology Studies (CTWS),
University of Leiden, February 5, 2021

An observatory?



Source: Tor Freeman, <http://tormalore.blogspot.com/>

**Why ethics of quantification
is needed now**

Andrea Saltelli

Open Evidence Research, Universitat Oberta de Catalunya, Barcelona, Spain

Antonio Andreoni

UCL Institute for Innovation and Public Purpose;
South African Research Chair in Industrial
Development, University of Johannesburg, South
Africa

Wolfgang Drechsler

Tallinn University of Technology, Estonia;
UCL Institute for Innovation and Public Purpose;
Davis Center at Harvard University, United States

Jayati Ghosh

University of Massachusetts Amherst, United
States;
UCL Institute for Innovation and Public Purpose

Rainer Kattel

UCL Institute for Innovation and Public Purpose

Ingrid H. Kvangraven

Department of Politics, University of York

Ismael Rafols

Centre for Science and Technology Studies,
Leiden University, the Netherlands

Erik S. Reinert

Tallinn University of Technology, Estonia;
UCL Institute for Innovation and Public Purpose

Andy Stirling

Science Policy Research Unit, University of
Sussex

Ting Xu

School of Law at the University of Essex



**UCL Institute for
Innovation and
Public Purpose**

WORKING PAPER
WP 2021/05



… our world is structured by numbers, visible and invisible, where truth is conveyed and reality constructed

Numbers are seductive, performative, confer to their masters' epistemic power and legitimacy

Governing the modern state, or even contesting it, without numbers is impossible

Numbers are the prevalent means to express value in our societies
… Access & production of numbers reflect and reinforce power imbalances

Numbers, visible and invisible...

“what qualities are specific to rankings, or indicators, or models, or algorithms?”

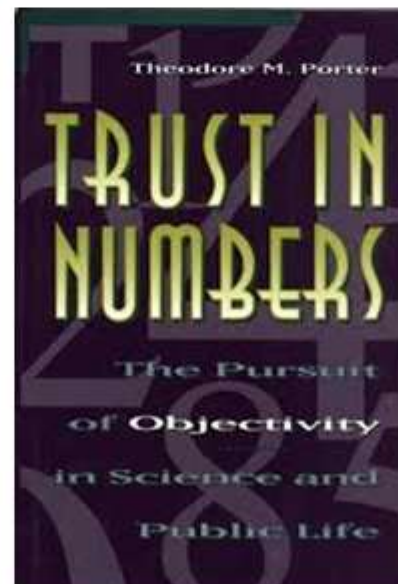
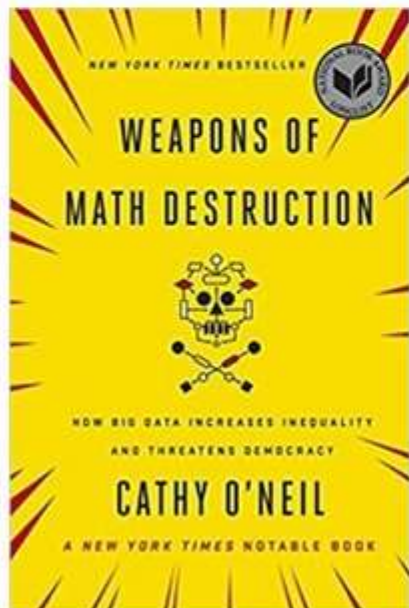
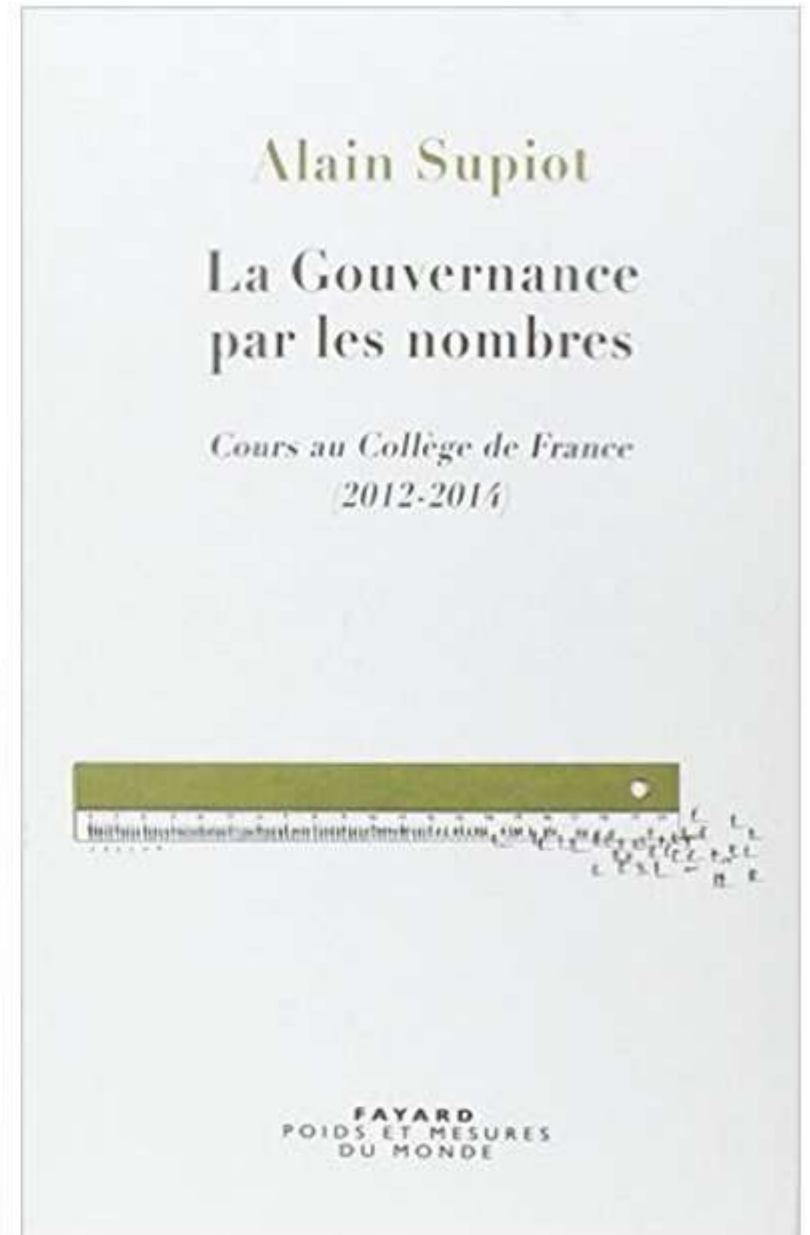
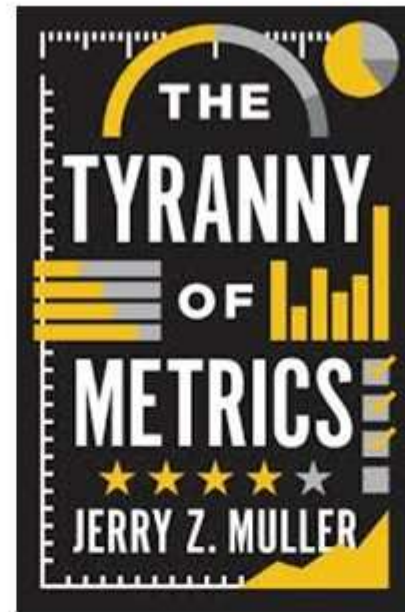
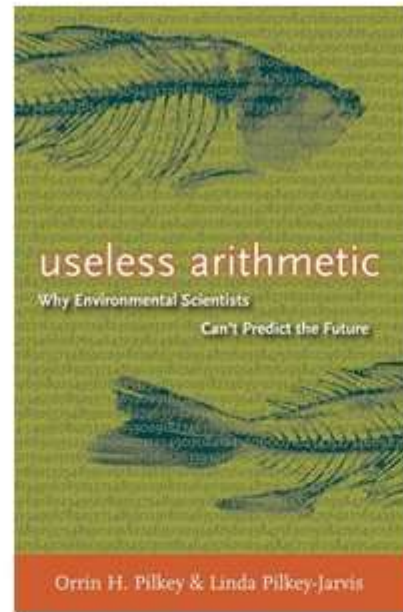
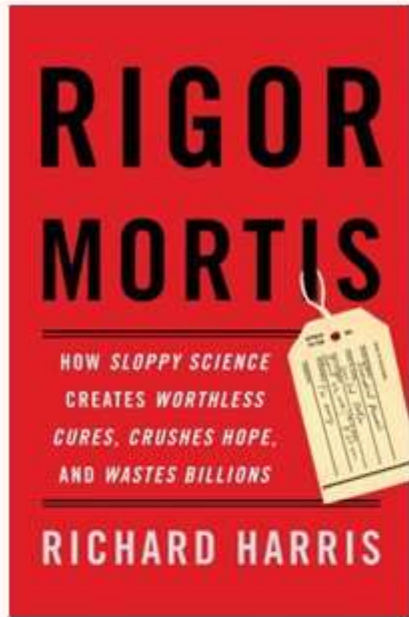


Elizabeth
Popp Berman

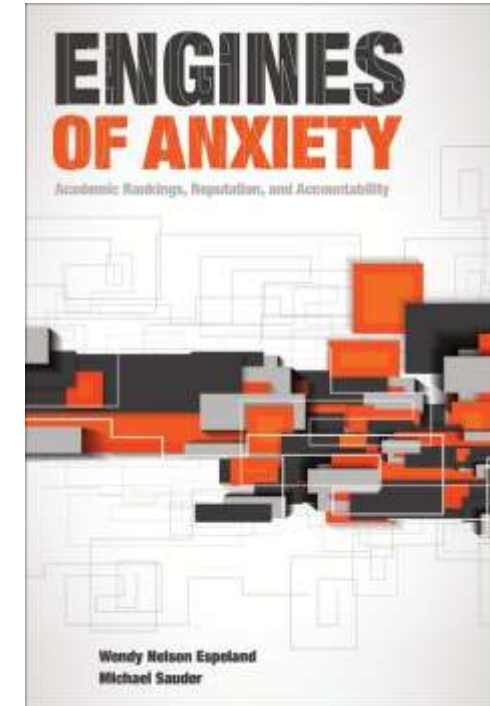
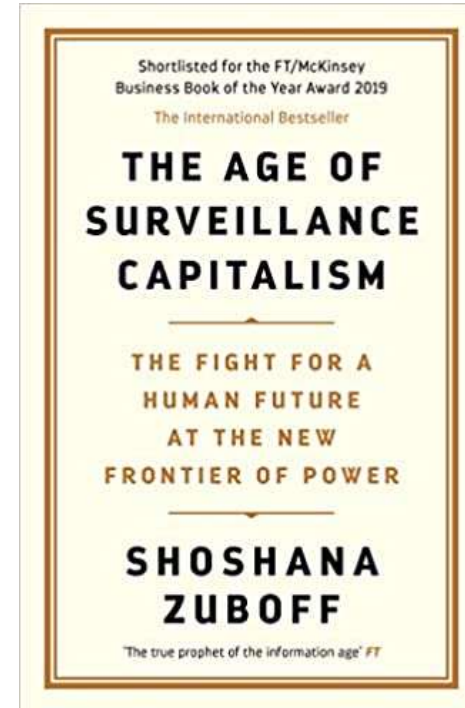
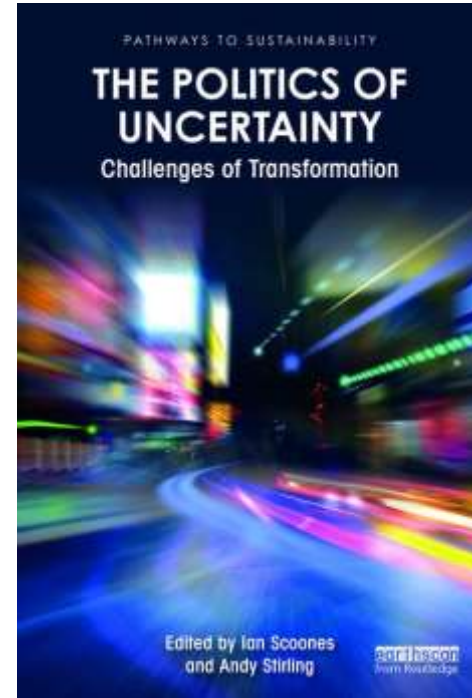
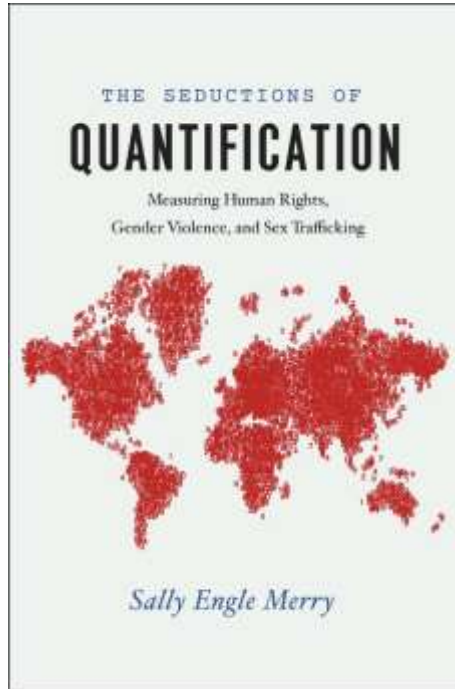
E. Popp Berman and D. Hirschman, **The Sociology of Quantification**: Where Are We Now?, *Contemp. Sociol.*, 47, 257–266, 2018.

And an explosion of works, from
within and without, from many
disciplines

Algorithms, models, metrics, statistics...



Algorithms, models, metrics, statistics...



Is the problem about methods,
epistemologies, ethics, politics &
power?

Methods? Statistical inference,
rating & rankings, mathematical
modelling



Cargo-cult statistics and scientific crisis

Written by Philip B. Stark and Andrea Saltelli on 05 July 2018. Posted in [Science](#)



A. Saltelli (Guest post): What can we learn from the debate on statistical significance?

Posted on November 22, 2019 by Mayo



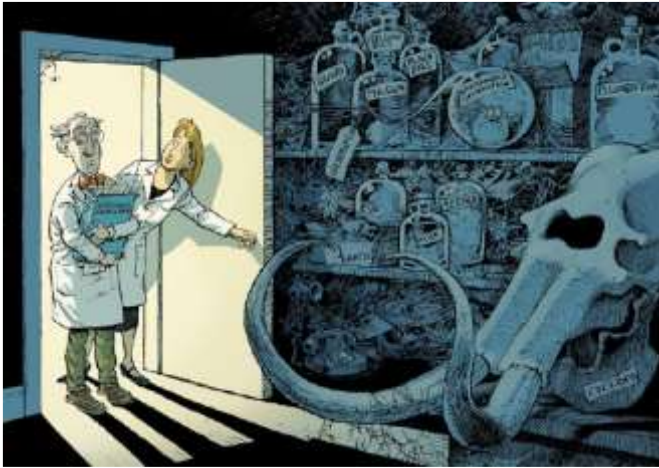
Professor Andrea Saltelli
Centre for the Study of the Sciences and the Humanities (SVT), University of Bergen (UIB, Norway), & Open Evidence Research, Universitat Oberta de Catalunya (UOC), Barcelona

What can we learn from the debate on statistical significance?



Statistics in the wake of the reproducibility crisis

Statistical wars?



COMMENT • 20 MARCH 2019

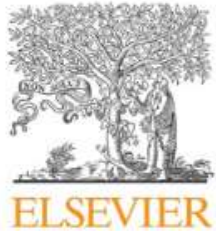
Scientists rise up against statistical significance

Valentin Amrhein, Sander Greenland, Blake McShane and more than 800 signatories call for an end to hyped claims and the dismissal of possibly crucial effects.

Valentin Amrhein , Sander Greenland & Blake McShane

↑
A petition about scientific methodology?

See the discussion on the blog of Andrew Gelman <https://statmodeling.stat.columbia.edu/>



Contents lists available at ScienceDirect

Research Policy

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



Rickety numbers: Volatility of university rankings and policy implications

Michaela Saisana*, Béatrice d'Hombres, Andrea Saltelli

Econometrics and Applied Statistics, Joint Research Centre, European Commission, Enrico Fermi 2749, 21027 Ispra, Italy

University ranking are
volatile ...

Journal of the
Royal Statistical Society



*J. R. Statist. Soc. A (2013)
176, Part 3, pp. 609–634*

... and methodologically
unsound

Ratings and rankings: voodoo or science?

Paolo Paruolo

University of Insubria, Varese, Italy

and Michaela Saisana and Andrea Saltelli

European Commission, Ispra, Italy

Five ways to ensure that models serve society: a manifesto

Pandemic politics highlight how predictions need to be transparent and humble to invite insight, not blame.

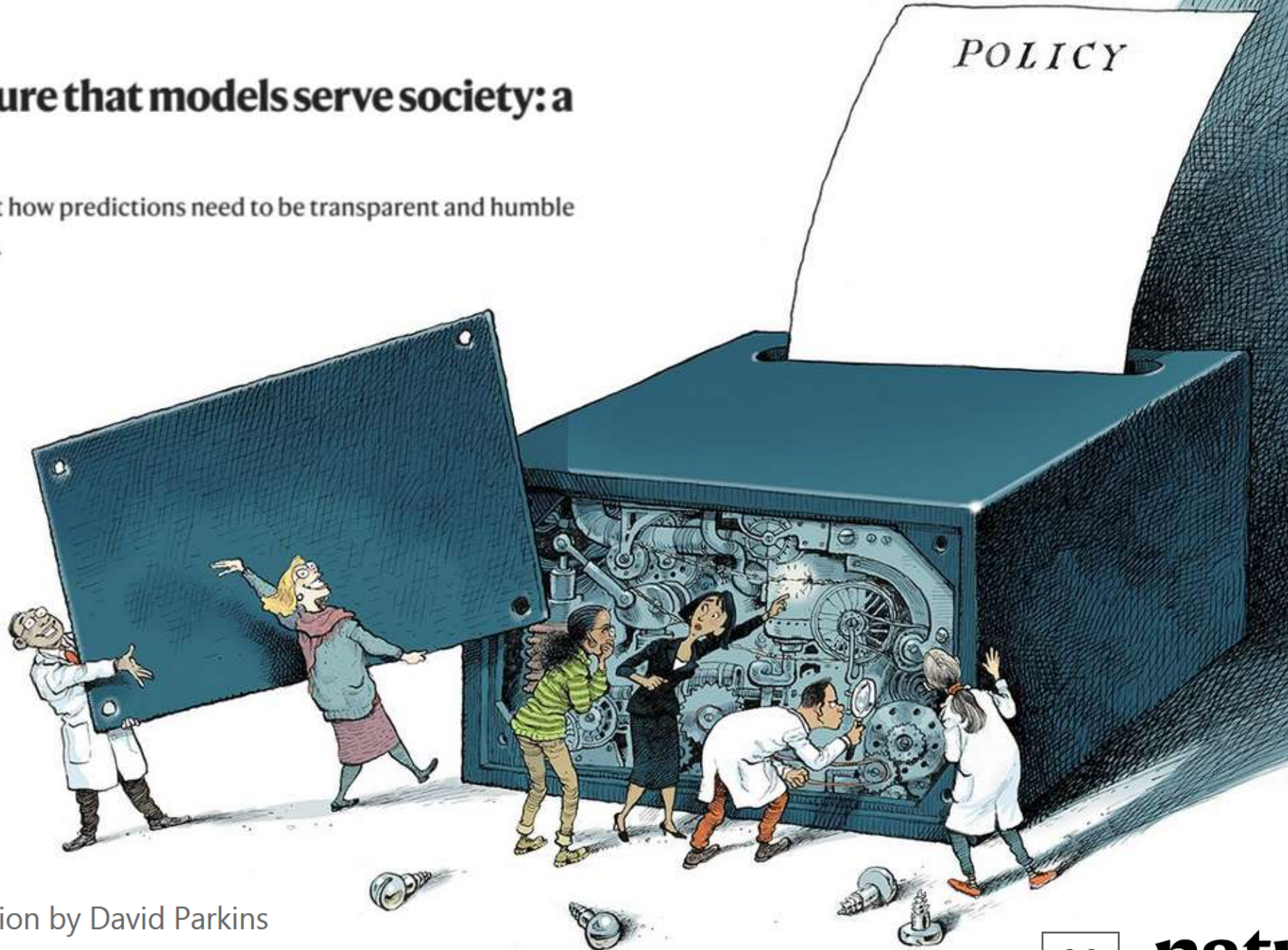


Illustration by David Parkins



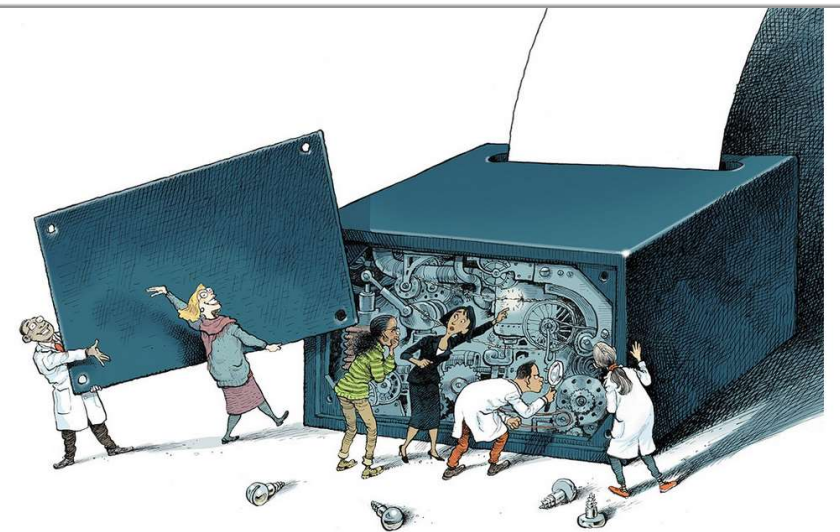


Five ways to ensure that models serve society: a

Andrea Saltelli , Gabriele Bammer, Isabelle Bruno, Erica Charters, Monica Di Fiore, Emmanuel Didier, Wendy Nelson Espeland, John Kay,

Samuele Lo Piano, Deborah Mayo, Roger Pielke Jr, Tommaso Portaluri, Theodore M. Porter, Arnald Puy, Ismael Rafols, Jerome R. Ravetz, Erik Reinert,

Daniel Sarewitz, Philip B. Stark, Andrew Stirling, Jeroen van der Sluijs & Paolo Vineis



Mind the assumptions

Assess uncertainty and sensitivity

Mind the hubris

Complexity can be the enemy of relevance

Mind the framing

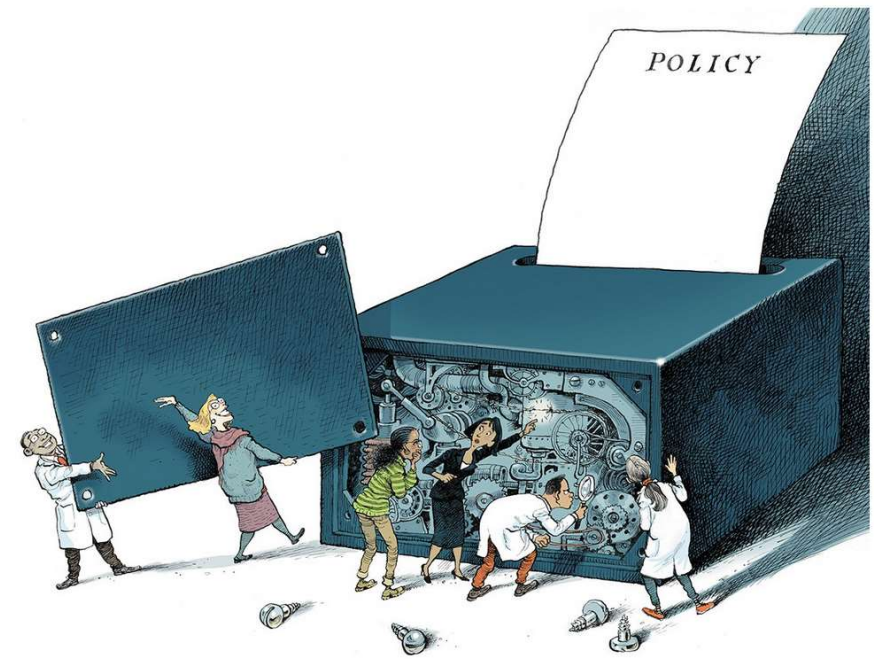
Match purpose and context

Mind the consequences

Quantification can backfire.

Mind the unknowns

Acknowledge ignorance

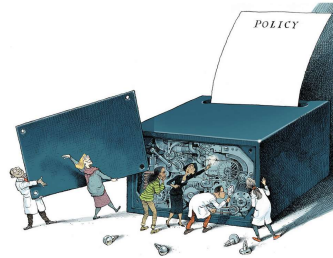


SUPPLEMENTARY INFORMATION

1. Additional information and references

>260 references

COVID-19 policies dictated by
'science' with several digits
precision in the presence of
fundamental uncertainties

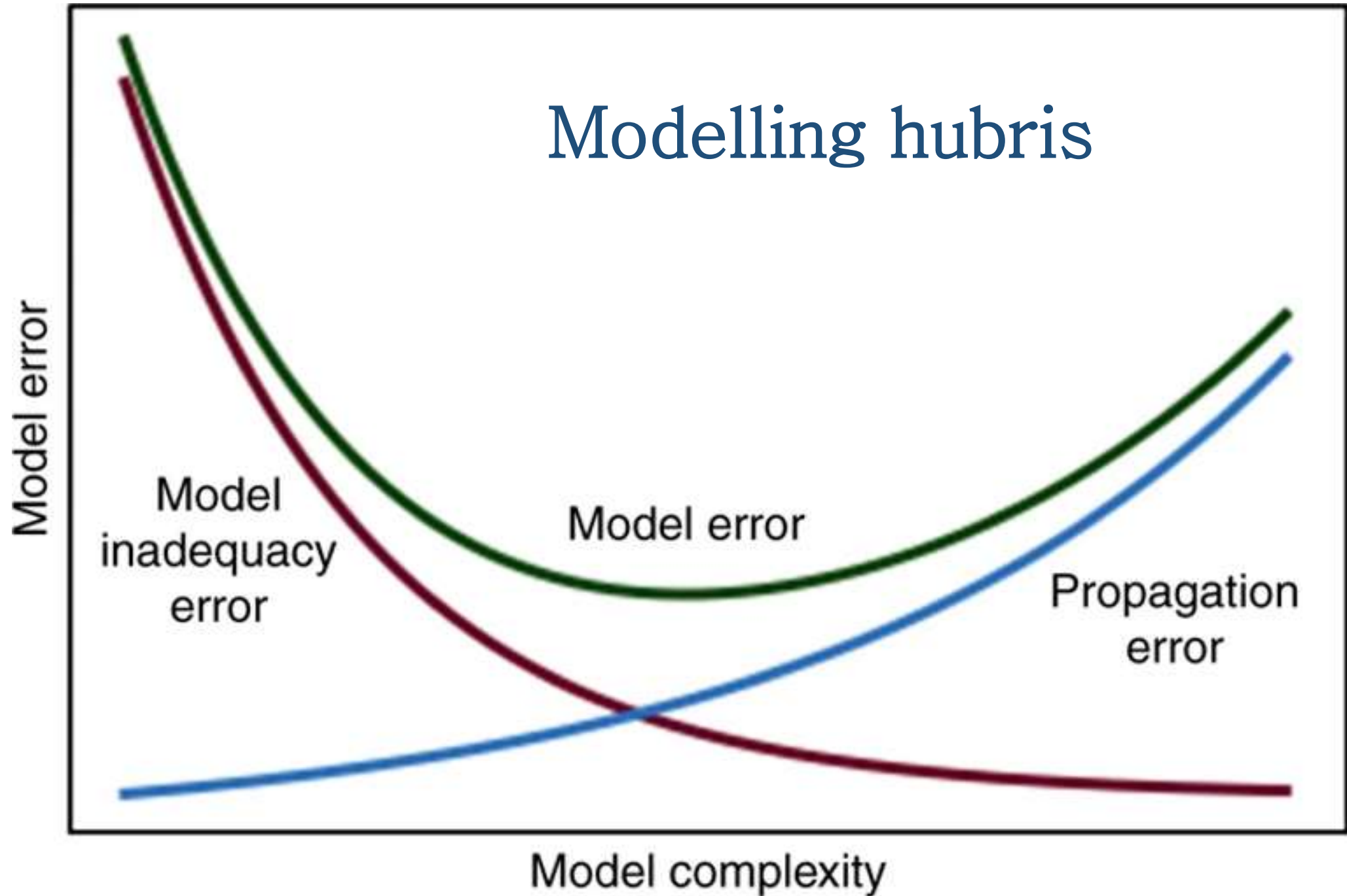


Undocumented research code used
as a policy tool (chameleon models)



Pfleiderer, P. Chameleons: The Misuse of Theoretical Models in Finance and
Economics. *Economica* 87, 81–107 (2020).

Modelling hubris



Power?

Numbers and their ‘reactivity’
(Espeland and Sauder, 2016)

Incumbent numbers affect what society will
measure in the future (Merry 2016)

Numbers “create the environment that
justifies their assumptions”
(O’Neil, 2016)

Too much is being read in the OECD–PISA data

IJCED
19,1

Do PISA data justify PISA-based education policy?

Luisa Araujo

*Department of Human Capital and Employment,
European Commission Joint Research Centre Ispra Sector, Ispra, Italy*

Andrea Saltelli

*University of Bergen, Bergen, Norway and
Universitat Autònoma de Barcelona, Barcelona, Spain, and*

Sylke V. Schnepf

*Competence Centre on Microeconomic Evaluation,
European Commission Joint Research Centre Ispra Sector, Ispra, Italy*



International Journal of
Comparative Education and
Development
Vol. 19 No. 1, 2017
pp. 20-34
© Emerald Publishing Limited
2396-7404
DOI 10.1108/IJCED-12-2016-0023

20

Received 14 December 2016
Revised 17 February 2017
Accepted 24 February 2017

Through PISA, the OECD has (a) gained epistemic authority and (b) framed a trajectory for education

Mathematics? Beyond possible misuses:

Predominant status assigned to geometry and mathematics as an element of education and regimentation

**The Ethics of Mathematics: Is
Mathematics Harmful?**

Paul Ernest

© Springer International Publishing AG, part of Springer Nature 2018
P. Ernest (ed.), *The Philosophy of Mathematics Education Today*,
ICME-13 Monographs, https://doi.org/10.1007/978-3-319-77760-3_12

Literature on mathematization of economics and of the social sciences



Wolfgang Drechsler



Erik S. Reinert



Paul Romer

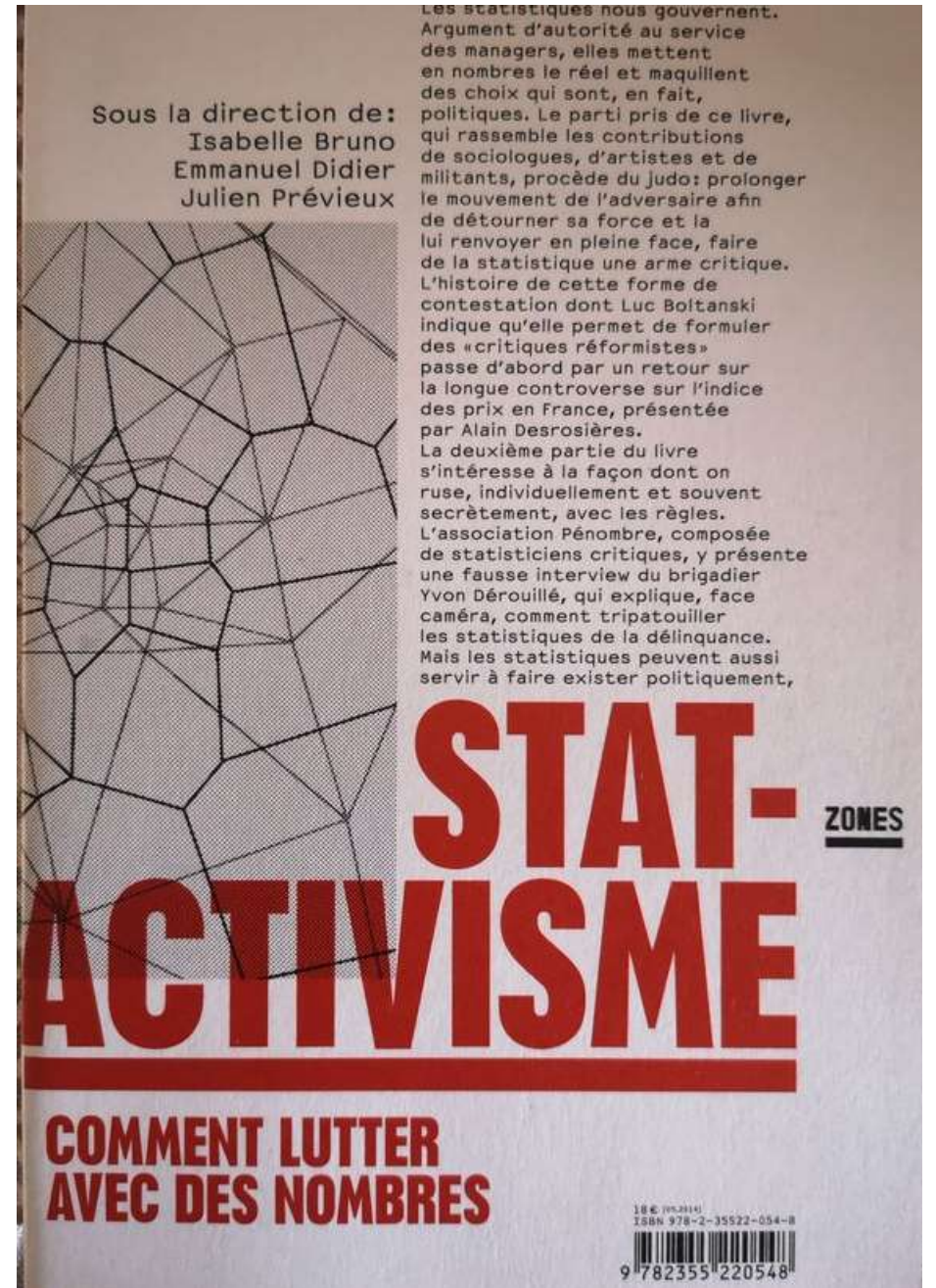
W. Drechsler, “On the possibility of quantitative-mathematical social science, chiefly economics,” *J. Econ. Stud.*, vol. 27, no. 4/5, pp. 246–259, 2000.

E. S. Reinert, “Full circle: economics from scholasticism through innovation and back into mathematical scholasticism,” *J. Econ. Stud.*, vol. 27, no. 4/5, pp. 364–376, Aug. 2000.

P. Romer, “Mathiness in the Theory of Economic Growth,” *Am. Econ. Rev.*, vol. 105, no. 5, pp. 89–93, May 2015.

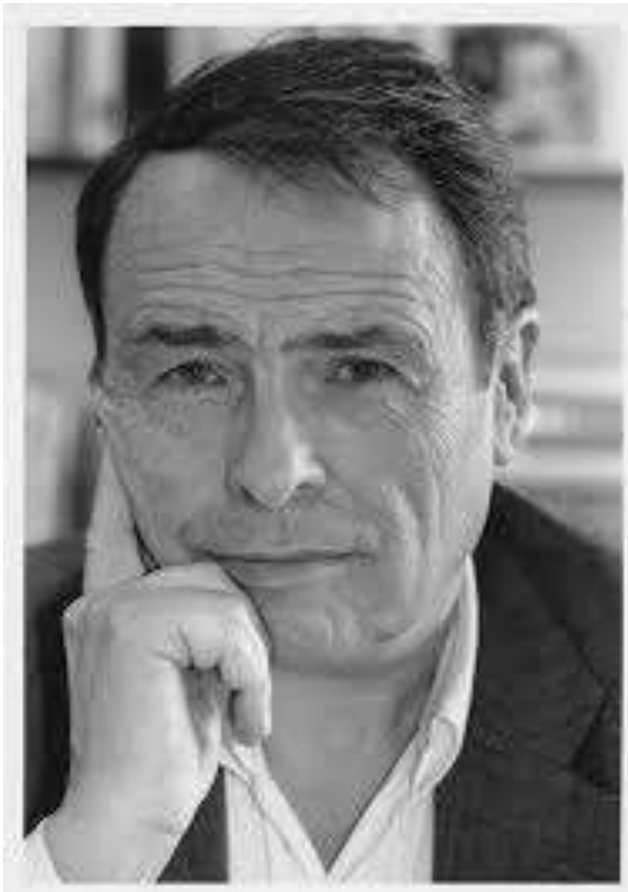
Do we need a movement of resistance?

I. Bruno, E. Didier, and J. Prévieux, Stat-activisme. Comment lutter avec des nombres. Paris: Zones, La Découverte, 2014



How to be a "statactiviste"?

1. Deconstruct existing metrics, including using irony (Pierre Bourdieu, *Les héritiers*).



La sociologie,
ça doit être
rigolo

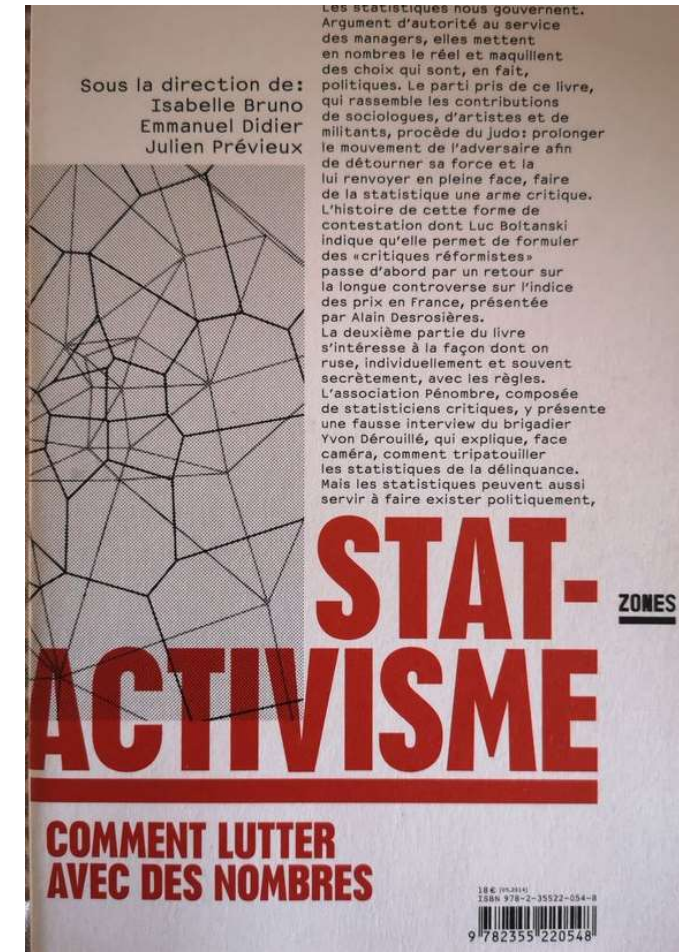
(Sociology must be fun)



How to be a "statactiviste"?

2. Gaming metrics (statistical judo) – use Goodhart's law to your advantage – or make the ruse public.

- Police statistics in NY



How to be a "statactiviste"?

3. Bring to the surface what is hidden / unsaid/ excluded – new social classes, marginalization, minorities:

- ‘Creative class’ or ‘precarious intellectuals’?



How to be a "statactiviste"?

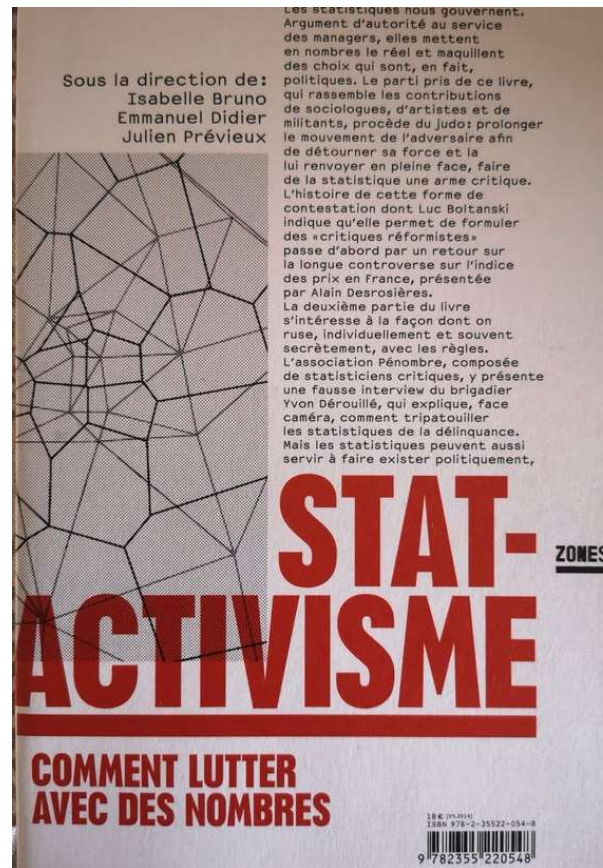
4. Measure something different.

- Suicides at France Telecom;
- BIP 40, a new French measure of poverty/inequality



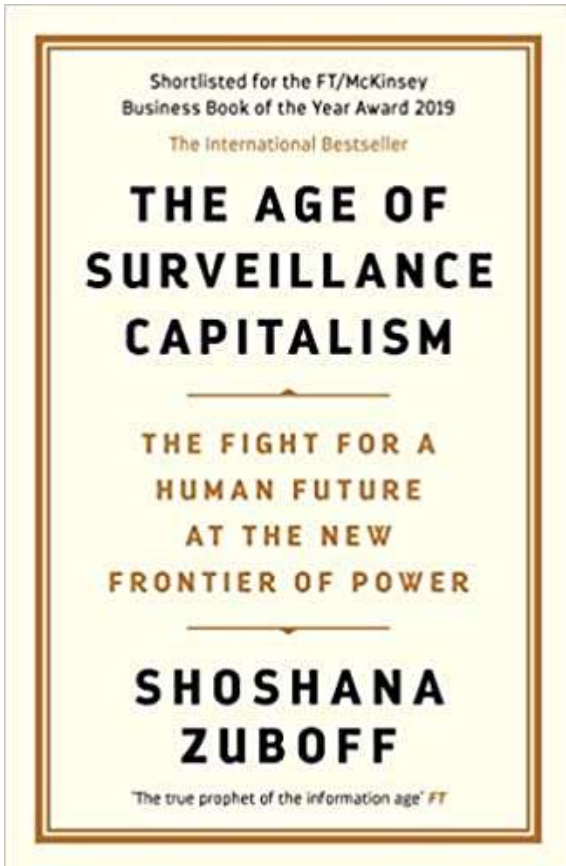
Important:

“Quantification should not be abandoned to the advantage of exalting qualities, singularities, and the incommensurable. Such an abandon would be a tactical error” (p.29)

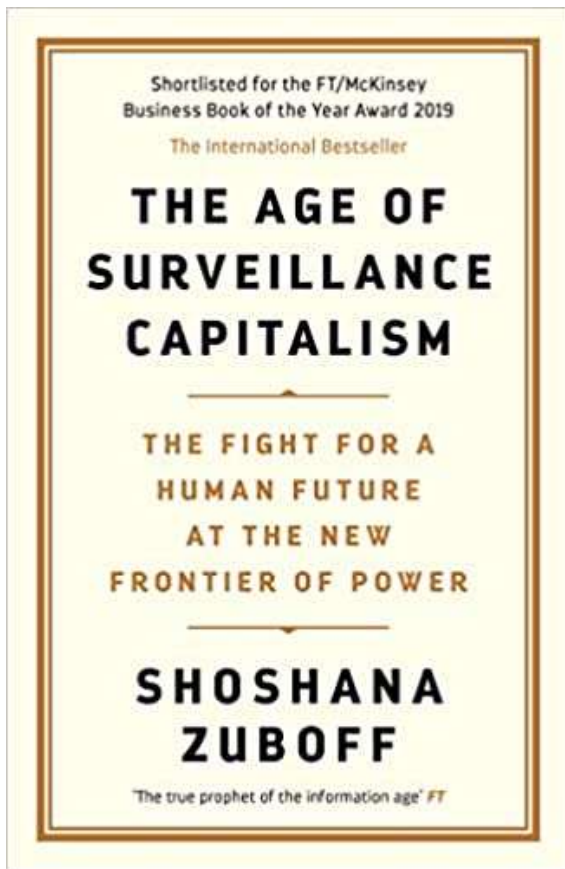




A project of domination of consumers and voters is made possible by artificial intelligence, big data & cognitive psychology



Inequality, power asymmetries and the world of surveillance capitalism



Chapters 11 & 12

Instrumentarian
power



Chapter 10

Néorationalism d'importation

*La trollisation de l'espace
public*

Cognitive psychology
and evolutionary
psychology

A project of domination?



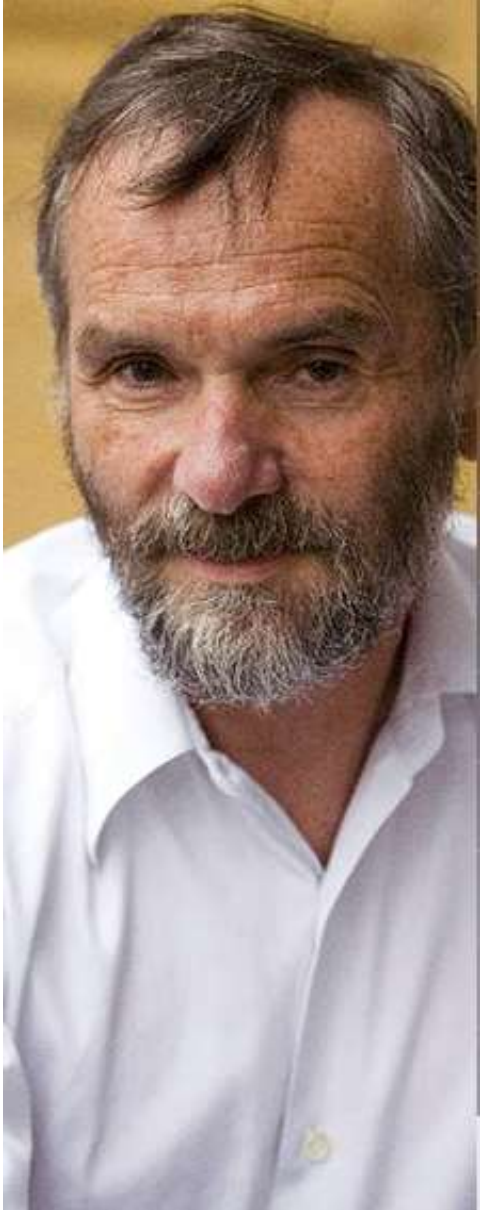
Making algorithms
'good' or 'transparent'
is beyond the point.
Algorithms create new
norms of good or bad.

Algorithm =
ethicopolitical
arrangement of
values, assumptions,
and propositions about
the world



Louise Amoore

Alain Supiot

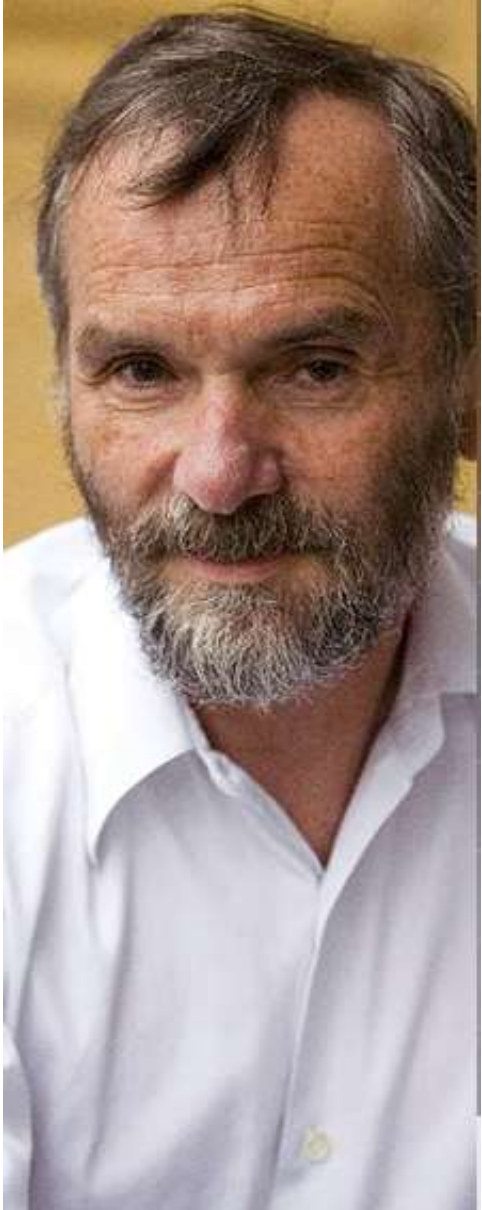


An indictment of the Total Market and the normative uses of economic quantification

<https://www.college-de-france.fr/site/en-alain-supiot/Governance-by-Numbers-Introduction.htm>



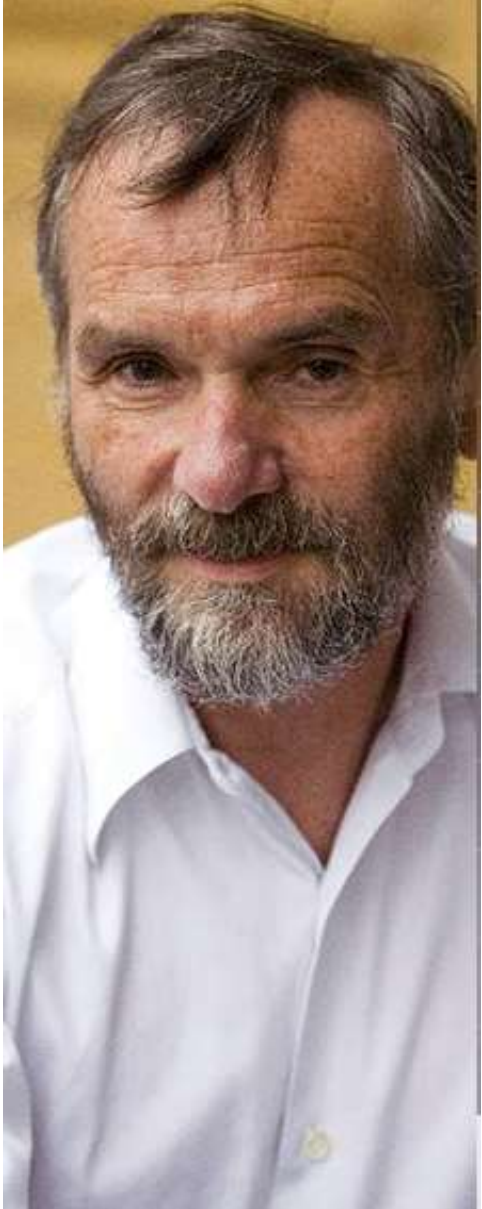
Alain Supiot



...we have entered the era of the cybernetic imaginary, which revives the West's age-old dream of grounding social harmony in calculations.

Repudiating the goal of governing by just laws, this new discourse advocates in its stead the attainment of measurable objectives efficiently

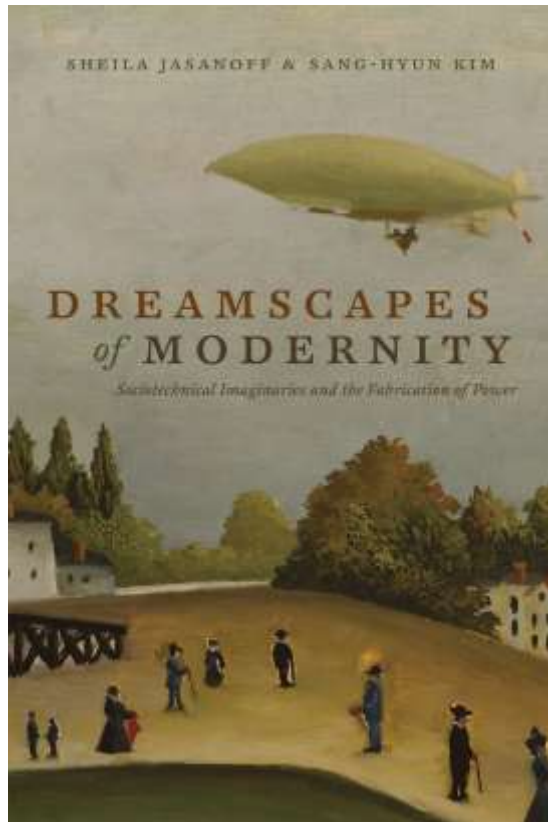
Alain Supiot



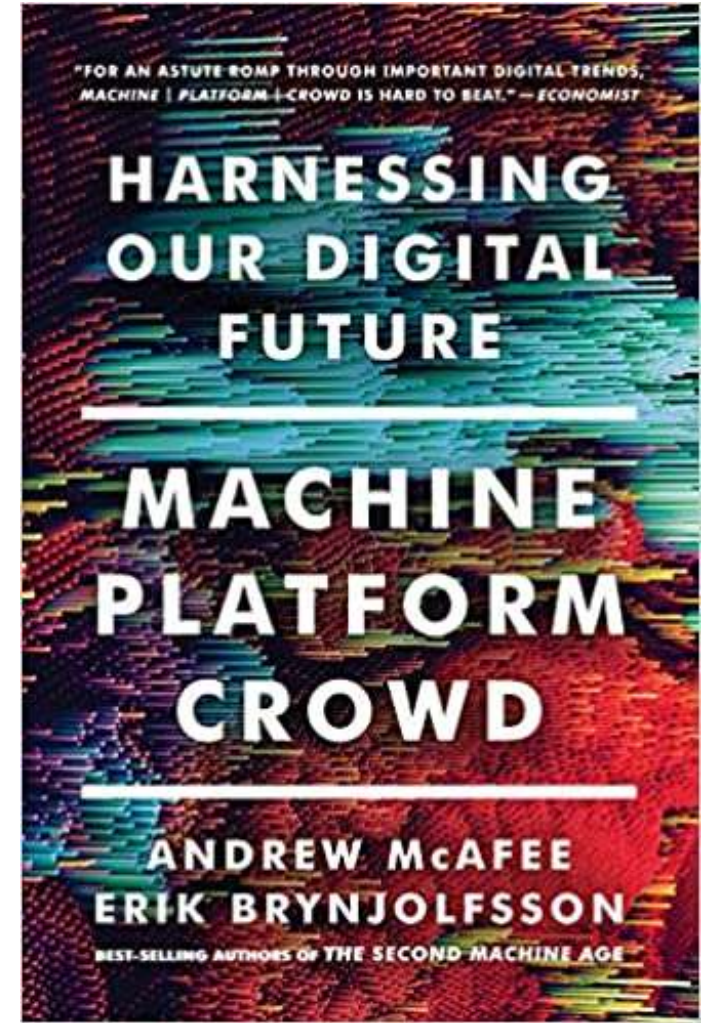
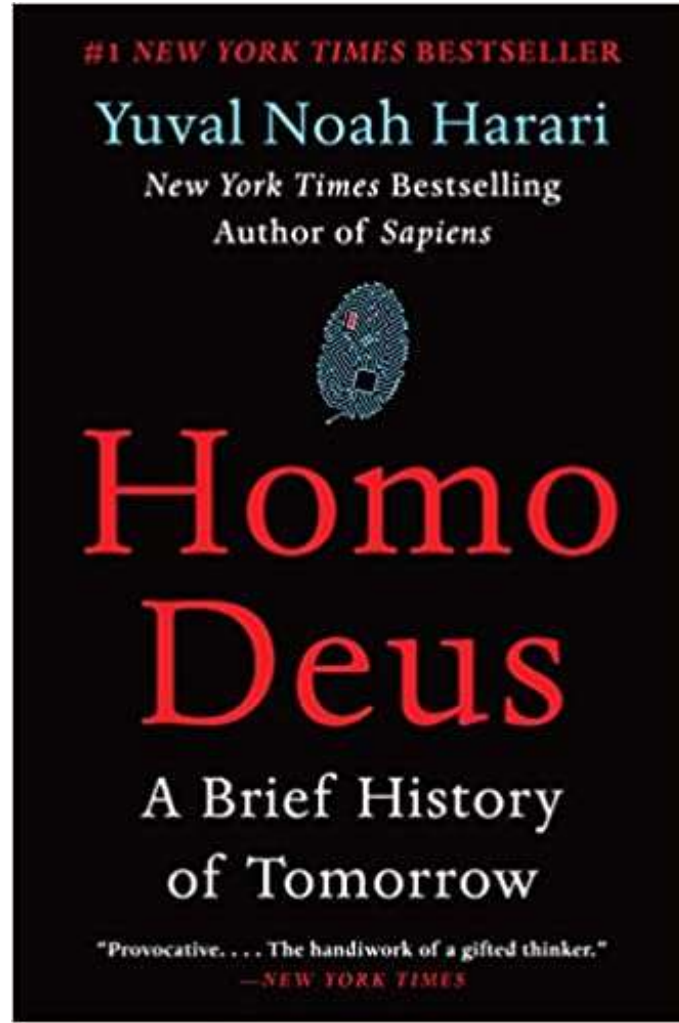
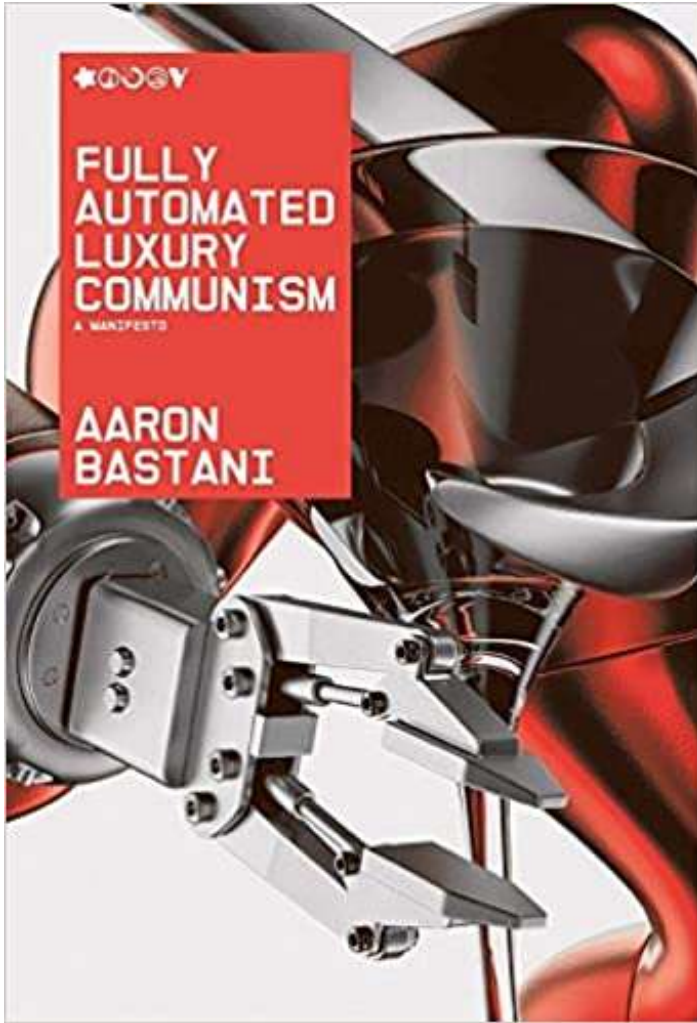
... This leaves no option open to populations or countries than to ride roughshod over social legislation, and pledge allegiance to those stronger than they are

And yet ... which is the
prevailing sociotechnical
imaginary?

How visions of scientific and technological progress carry with them implicit ideas about public purposes, collective futures, and the common good



Sheila Jasanoff



Good news!

‘Decisionism’ is mainstream

“Often, immersion in the facts often makes value disagreements feel much less relevant” (C. Sunstein)



Cass Sunstein, winner of the 2018 Holberg Prize

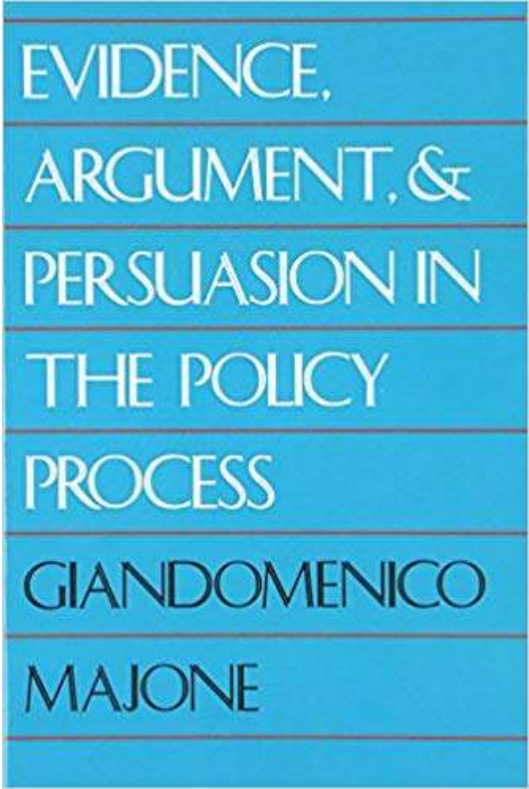


Minority view

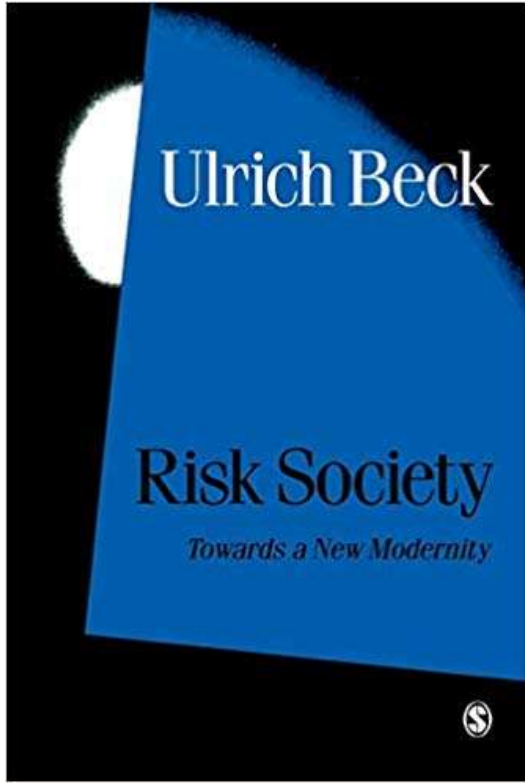
From Ulrich Beck to Giandomenico Majone: the technique is never neutral



Ulrich Beck
(1944 –2015)



1989



1992 (1986)



Environmental Science & Policy

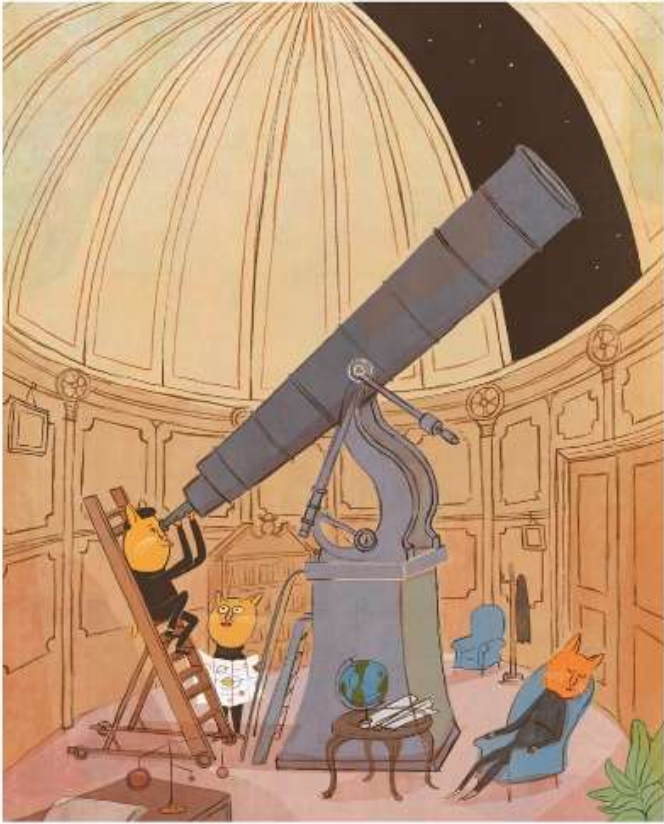
Volume 106, April 2020, Pages 87-98



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}

An observatory to do what?



- Spoken and unspoken framing and assumptions;
- Missing numbers and blind spots in the public discourse;
- Intellectual home for various forms of data-activism, model-activism and stat-activism;
- ‘Data inertia’ and ‘experts inertia’;
- ... Mostly in case studies

Concerns



[Project] SSSQ - Society for the
Social Studies of Quantification



• • • Data
• — • Justice
• — • Lab
• • •

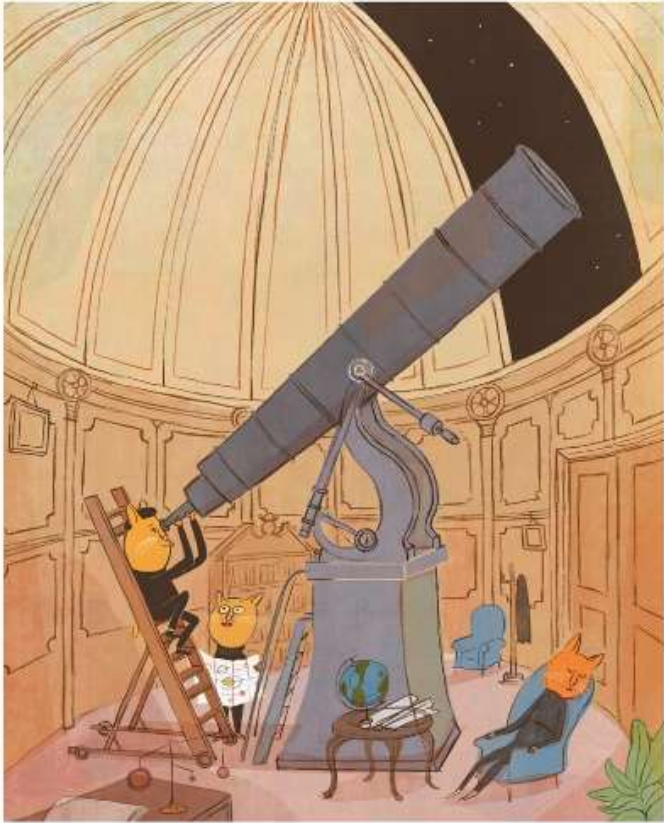


STOA - C4AI



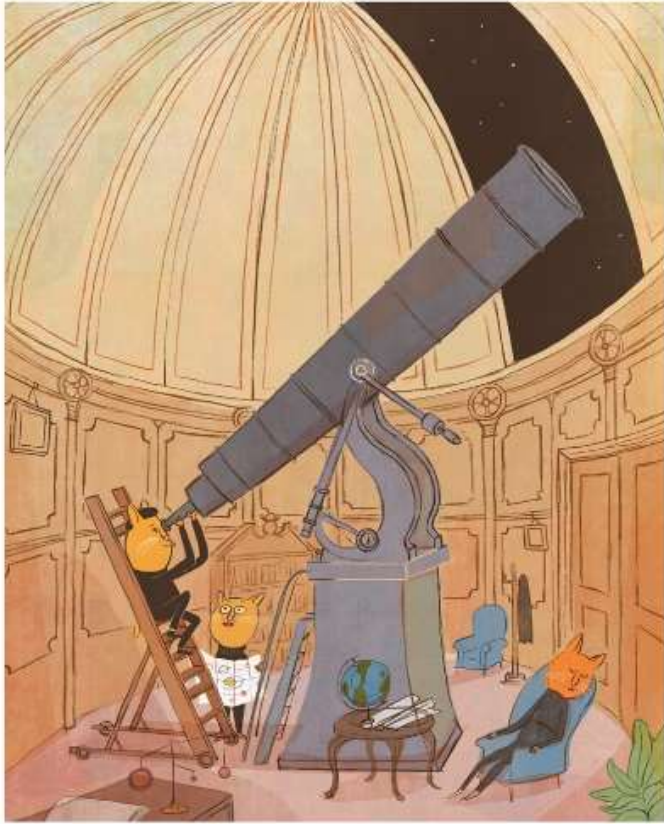
...

Looking at



- Ratings of higher education
- Public investments
- Evaluation of research and researchers
- Responsible statistical inference
- Numbers of COVID-19
- The numbers of international organizations (FAO, WEF, WB)
- ...

Pilot studies



(Astroturfing)²

- Conflicts in the post-truth age
(‘Gardiens de la Raison’ of Foucart et al. 2020)
- Ethics washing

Colonizers of ethics

Dangers

Metzinger, Thomas. 2019. “EU Guidelines: Ethics Washing Made in Europe – Politik – Tagesspiegel.” *Der Tagesspiegel*, April 8, 2019. <https://www.tagesspiegel.de/politik/eu-guidelines-ethics-washing-made-in-europe/24195496.html>.

The End



@andreasaltelli