

Fake news and science

Andrea Saltelli

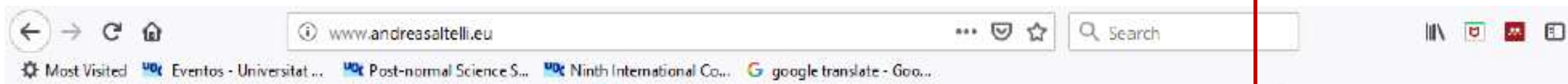
Centre for the Study of the Sciences and the Humanities
(SVT), University of Bergen (UIB), and Open Evidence
Research, Open University of Catalonia



Le Fake News e il ruolo degli esperti nell'agorà digitale
Università di Torino, 29 Novembre 2019, Circolo dei lettori,
Via Bogino 9 - Torino.



Where to find this talk: www.andreasaltelli.eu



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Syllabus: numbers for policy

“Uncomfortable knowledge” can be used as a gauge of an institution’s health. The larger the “uncomfortable knowledge” an institution needs to keep silent about, the closer it is to its ancient régime stage



Ethics of quantification



Science in crisis

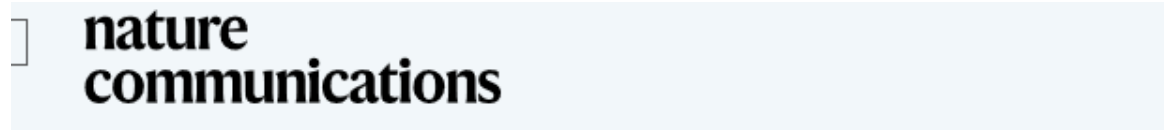
ANDREA SALTELLI Save science from itself



Views from a continent in flux

Nature asked nine leading Europeans to pick their top priority for science at this pivotal point. Love, money, and trust got most votes.

Statistical and mathematical modelling



Comment | [Open Access](#) | Published: 27 August 2019

A short comment on statistical versus mathematical modelling

Andrea Saltelli

Nature Communications 10, Article number: 3870 (2019) | [Cite this article](#)

Fake news in science

(reproducibility crisis; bad science)

or

Fake news by and because of science

(the new nexus)

The Economist

Washington's lawyer surplus
How to do a nuclear deal with Iran
Investment tips from Nobel economists
Junk bonds are back
The meaning of Sachin Tendulkar

OCTOBER 19TH - 25TH 2013

Economist.com

On the radar: October 2013

HOW
SCIENCE
GOES
WRONG

99
Einsteinium



Why Most Published Research Findings Are False

John P. A. Ioannidis

2005



John P. A.
Ioannides

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

Failed replications, entire subfields going bad,
fraudulent peer reviews, predatory publishers,
perverse metrics, statistics on trial ...

... misleading science advice, institutions on
denial, a new breed of science wars

The crisis is methodological, epistemological,
ethical and metaphysical

There is a crisis in the quality control of science
which won't be fixed soon

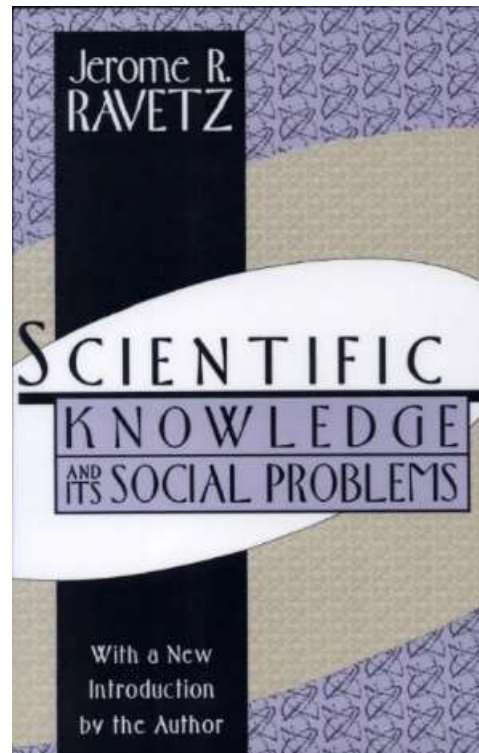
Science's establishment between denial & technical
fixes

Post normal science predicted and diagnosed the
crisis in all its dimension

Andrea Saltelli, Silvio Funtowicz, 2017, What is science's crisis really about?
FUTURES, Volume 91, Pages 5-11; Andrea Saltelli, 2018, Why science's crisis
should not become a political battling ground, FUTURES, vol. 104, p. 85-90.

p.22: [...] The problem of quality control in science is at the centre of the social problems of the industrialized science of the present period.”

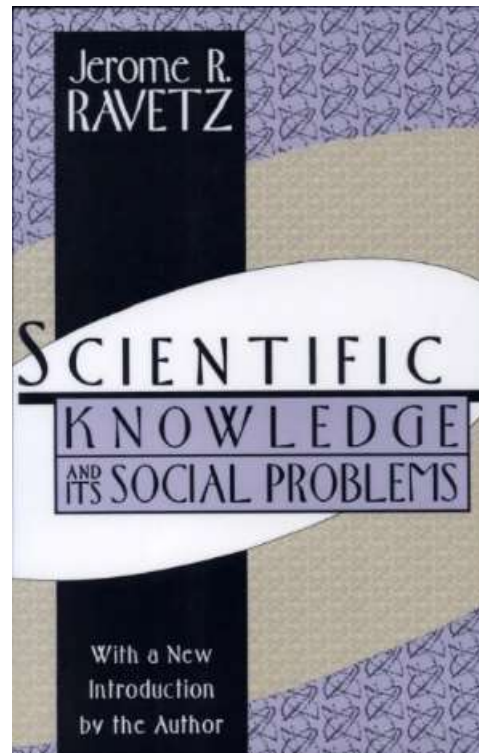
Ravetz, J., 1971, *Scientific Knowledge and its Social Problems*, Oxford University Press.



Jerome R.
Ravetz

“If [science] fails to resolve this problem [...] then the immediate consequences for morale and recruitment will be serious; and those for the survival of science itself, grave”

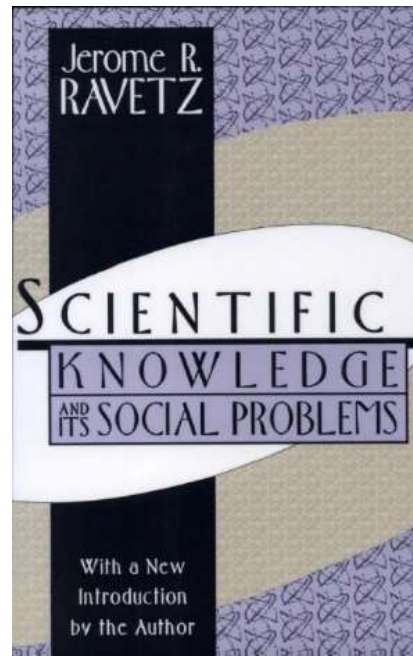
Ravetz, J., 1971, *Scientific Knowledge and its Social Problems*, Oxford University Press.



Jerome R.
Ravetz

p. 179. For it is possible for a field to be diseased [...] reforming a diseased field is a task of great delicacy [...] not even an apparatus of institutional structures can do anything to maintain or restore the health of a field **in the absence of an essential ethical element operating through the interpersonal channel of communication.**

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



Jerome R.
Ravetz

 OPEN ACCESS

ESSAY

June 21, 2017

Why Most Clinical Research Is Not Useful

John P. A. Ioannidis 

Published: June 21, 2016 • <https://doi.org/10.1371/journal.pmed.1002049>

THE POWER OF BIAS IN ECONOMICS RESEARCH*

John P. A. Ioannidis, T. D. Stanley and Hristos Doucouliagos

October 27, 2017

Rather than isolated instances
of corruption now entire fields
of research are found diseased



Futures

Volume 91, August 2017, Pages 5-11



What is science's crisis really about?

Andrea Saltelli ^{a, b}  , Silvio Funtowicz ^a



Futures

Volume 104, December 2018, Pages 85-90



Why science's crisis should not become a political battling ground

Andrea, Saltelli 



Silvio Funtowicz



COMMENT · 21 MAY 2019

Views from a continent in flux

Nature asked nine leading Europeans to pick their top priority for science at this pivotal point. Love, money, and trust got most votes.

[Carlos Moedas](#), [Isabelle Vernos](#) , [Stephan Kuster](#) , [Helga Nowotny](#) , [Andrea Saltelli](#) , [Alina Mungiu-Pippidi](#) ,
[Jan Wouter Vasbinder](#) , [Daniel R. Brooks & Patrick Cunningham](#) 

ANDREA SALTELLI

**Save science
from itself**

All that matters operates
simultaneously in science,
technology, economics, law and
policy

Battles are fought where science,
ideology and special interests
collide

Social media imprint unprecedented
reach and acceleration

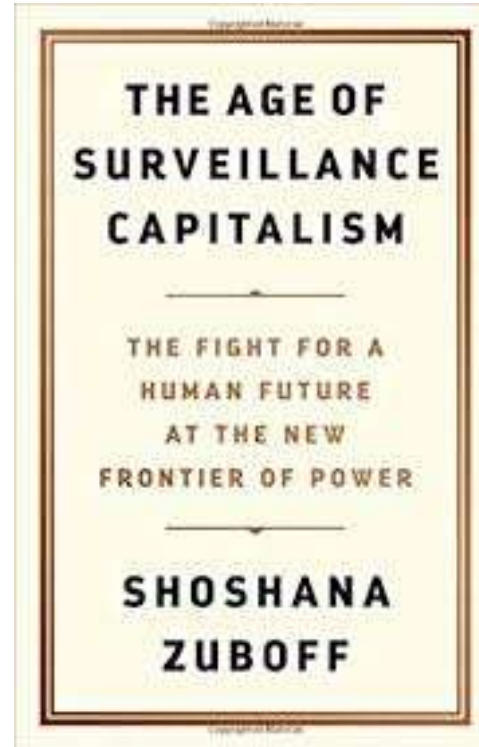
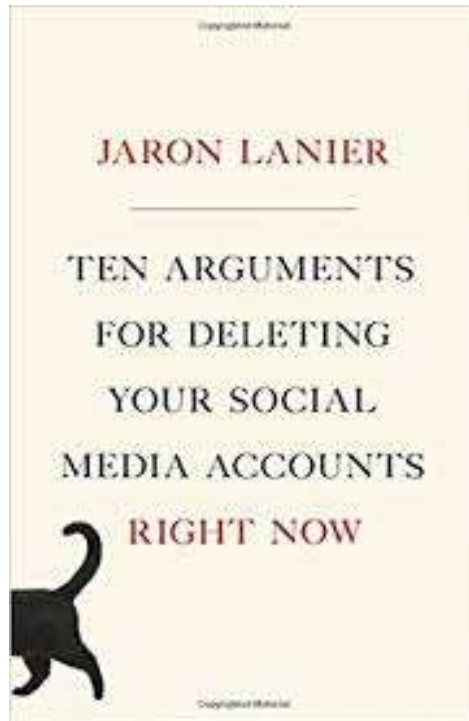
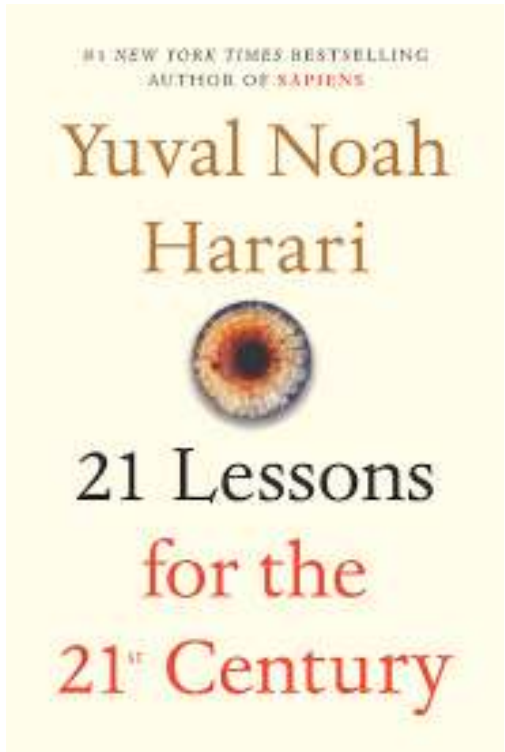
ANDREA SALTELLI
**Save science
from itself**

Science to inform policy decisions
versus science lending a veil of
rationality to the same decisions

Science as a source of emancipation
versus science as the currency of
lobbies

Artificial intelligence & big data foster
inequality and power asymmetries in
platform and surveillance capitalism

Fake news and post truth are the result of an *apprenti sorcier* technoscience escaped to our control



"Have you seen those zombies who roam the streets with their faces glued to their smartphones? Do you think they control the technology, or does the technology control them?"

Yuval Noah
Harari



Yuval Harari, 21 Lessons for the 21st Century, 2018, Jonathan Cape publisher; for autopoietic technology see also W. Brian Arthur, 2010, The Nature of Technology, Free Press.



From deepfake to Cambridge Analytica, to algorithmic abuse the scope for damage has expanded

Deepfake videos 'double in nine months'



Rory Cellan-Jones
Technology correspondent
@BBCRoryCJ

🕒 7 October 2019



BBC

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Trump & the Russian intelligence exploit the new technologies for soft warfare in full



Donald J. Trump 
@realDonaldTrump

Twitter released 9 million tweets from one Russian troll farm. Here's what we learned.

The massive data dump reveals how trolls disrupt and destabilize local and global politics.

By Aja Romano | @ajaromano | Oct 19, 2018, 12:40pm EDT

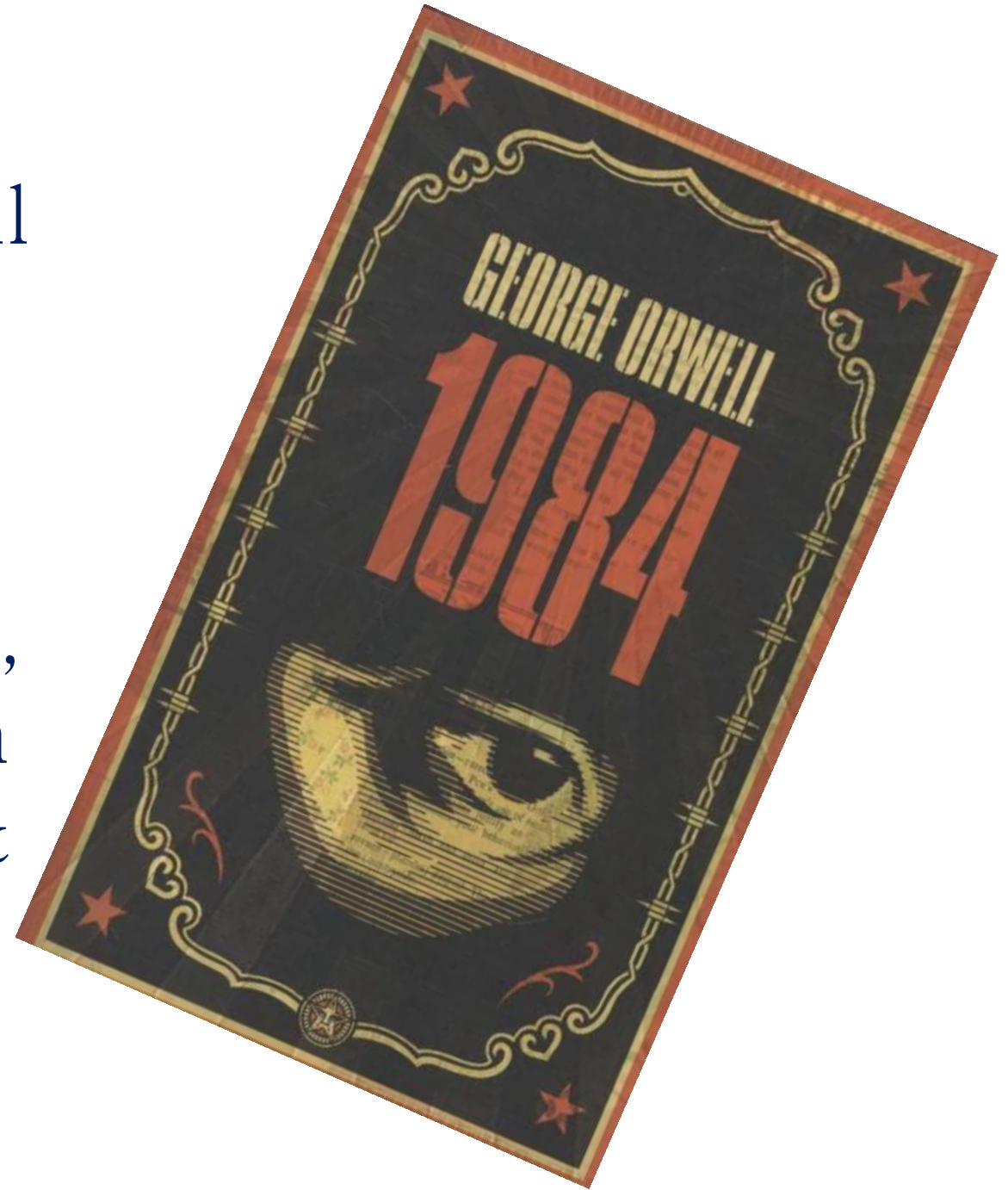
The Vox logo, featuring the word "Vox" in a bold, black, serif font, centered on a bright yellow rectangular background.

Whose dystopia:
Huxley or Orwell?



George Orwell

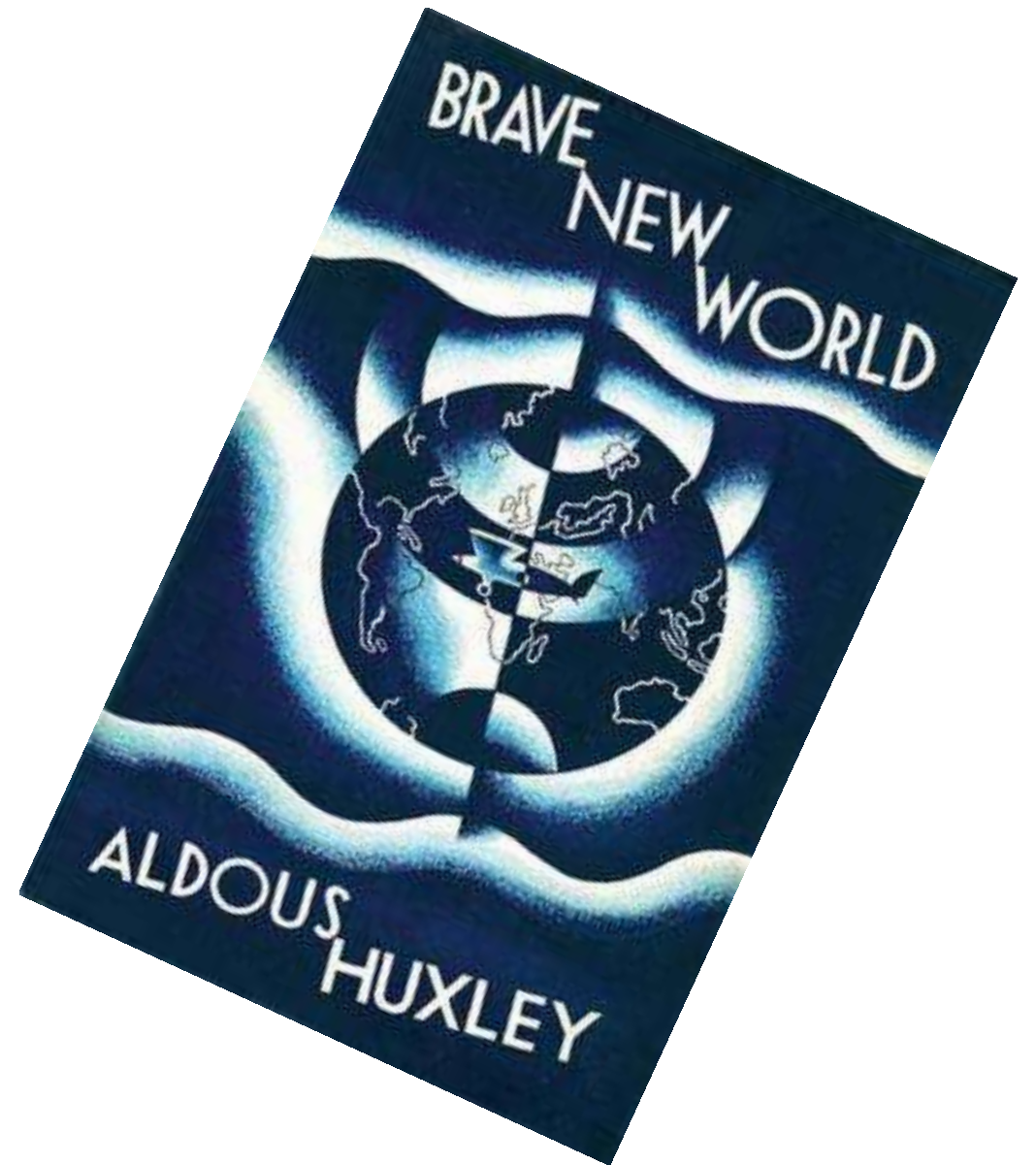
1949; a regimented society,
Big Brother in charge of an
omnipresent surveillance &
propaganda machine





Aldous Huxley

1932; a regimented world where drug takes care of consent



What shall thus happen now?

Collapse of trust?

‘System trust’, is social system theory:

“The reduction of complexity
[made possible by generalized media of
communication as money, power and truth]
assumes trust on the part of those
who are expecting such reduction
and of those who are supposed to
accept it once it is accomplished”



Niklas Luhmann

N. Luhmann, Trust and Power. Polity Press, 2017.

“ [System trust thus permits] the bank to lend more money than it possess, the state to issue more commands than it can enforce using the police, that more information is divulged in professional advice than could be backed up empirically or logically”.



Niklas Luhmann

N. Luhmann, Trust and Power. Polity Press, 2017.

‘the essential fiduciary status’ of science= Trust in science is necessary for the general society to continue to support it, materially and with recruits.

And mutual trust within science is necessary for its systems of quality assurance to function



Jerome R.
Ravetz

Is science's institutional culture, and its official self-image as a special sort of activity, about to be further eroded?



Jerome R.
Ravetz

Given that governments and even industries can continue to function somehow while being seriously corrupt, why couldn't science get away with it too?

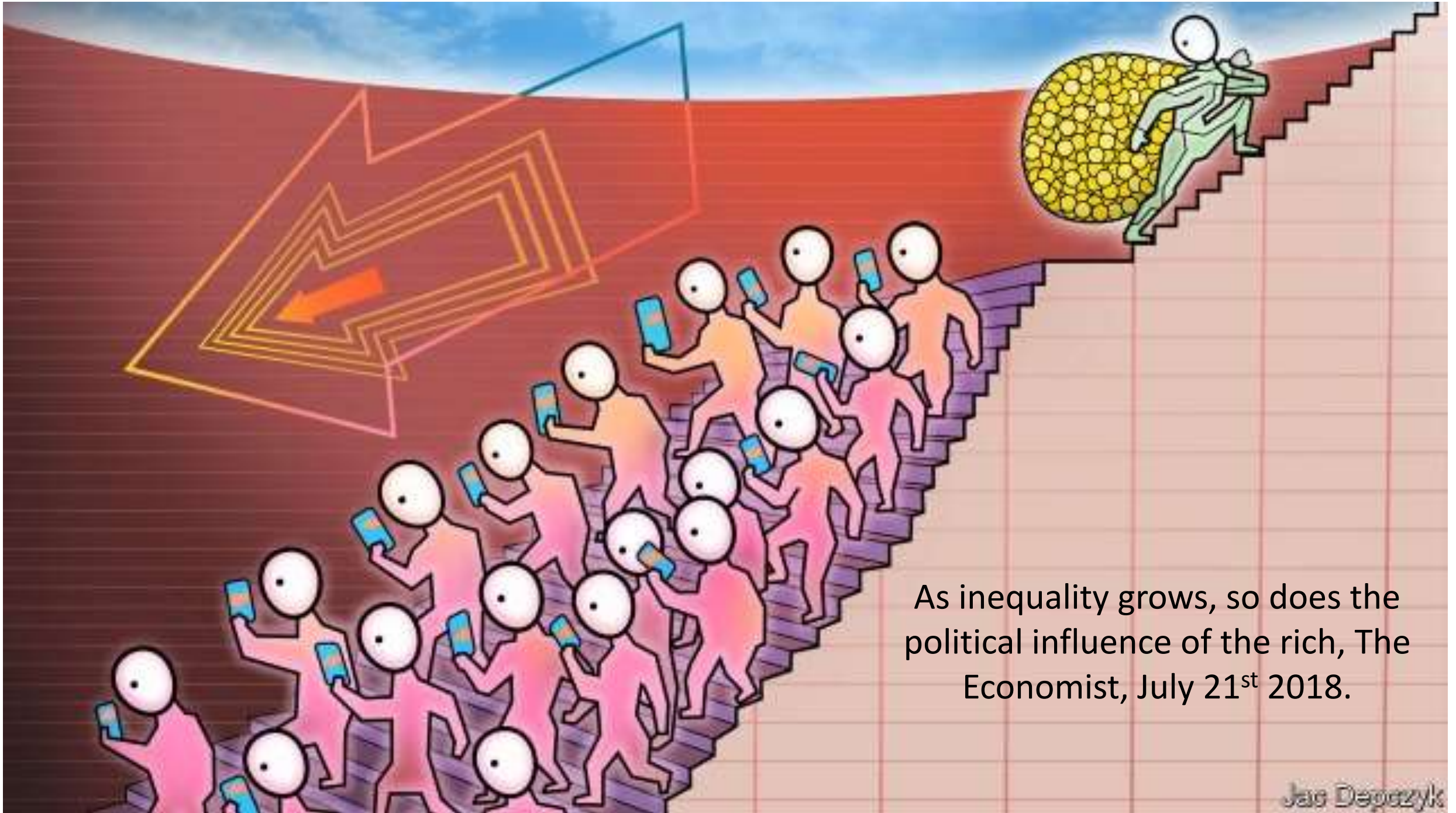
The vaccines controversy has all the marks of a systemic failure of science and its institution to maintain trust



Andrea Saltelli and Paul-Marie Boulanger, Technoscience, policy and the new media. Nexus or vortex?, Futures, to appear, 2019.



Paul-Marie Boulanger



As inequality grows, so does the political influence of the rich, The Economist, July 21st 2018.

Reformation or resistance?

PNS 5 Symposium

Knowledge, Science Practices and Integrity:
Quality through Post-Normal Science Lenses.

University of Florence (Florence, IT)

Palazzo Fenzi-Marucelli

21-23 September 2020

The End



@andreasaltelli