

## “Science cannot solve these problems alone because it helped to create them in the first place”

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Scientists frequently lament the lack of attention paid to “known facts” by decision makers and the public. With Brexit, it appears that a post-factual era has arrived, with politicians like Michael Gove and Nigel Farage openly expressing their disdain for expertise. How and why has this come about?

Science is living through an [unprecedented crisis](#) of reproducibility, with an associated loss of efficiency, [waste of resources](#), and an impressive list of misdiagnoses in fields from forensics to economics, medicine to psychology, and nutrition to chemistry. Science’s internal quality control mechanisms have been seriously impaired by dysfunctional system of incentives, including the use of perverse metrics, and the imperative to publish or perish, creating a dystopian nexus of Gordian complexity. The [specialization of science](#), its [subjugation to market ideology](#), and the [loss of its pristine social fabric](#) have contributed to this process. As a result, trust in science and expertise has suffered. Is such scepticism unjustified?

We still purport to live in the age of the enlightenment. Science can confirm the existence of gravitational waves and place a probe on a comet flying past the sun. Our modernity has led us to live in a world where the functioning of most of what surrounds us, from technologies to institutions, escape our understanding; we no longer have, for example, any real clue as to how our present financialised economy works. Amidst much debate about the failures of the current neo-liberal paradigm, business as usual remains the norm.

We have come to accept that democracy is [dependent on financial manipulation](#). We pretend to make evidence-based policy, but suspect that [evidence is used against us by those who operate the policy machine](#). The enlightenment is collapsing yet its worldview is still unassailable, even as a [new “endarkenment”](#) takes hold. Activists, scientists and citizens may have good ideas and sincere intentions, but their voices hardly register in the cacophony.

Science cannot solve these problems alone because it has contributed to create them in the first place, and it seems to many that the scientific community is [committed to defend what is in place](#). Scientists should not [assume that science is a privileged system of ethical principles](#), nor run ‘class actions’ in support of [controversial policy agendas or corporate interests](#), denouncing legitimate diverse perspectives as “anti-science”. These might increase the conflict between science and democracy, and accelerate the loss of trust in expertise, already stressed by continuous reporting of science advice failures, of which cases in health and nutrition are paradigmatic [examples](#). Scientists’ passion and advocacy is best deployed when they speak from within the confines of their own craft and specialised knowledge, showing humility and awareness of their own ignorance.

Solving this crisis won’t be the task of single individuals, constituencies or institutions. There are already proposals for technical solutions to the present system of perverse incentives which are being put in place by concerned scientists and institutions, on issues ranging from metrics to peer review; and swift action is also needed to address recognised methodological pitfalls ([see ASA statement on P-values](#)). Other problems related to quality, diversity and inclusion need to be addressed and [post-normal science](#) (as suggested by New Zealand’s Chief Science Advisor [Peter Gluckman](#)) may offer the needed bridge between institutions and actors to be [mobilised](#). These, and other creative initiatives, some developed in collaboration with other concerned citizens, will demonstrate (in practice) the interest and determination of the scientific community to engage in [a democratic endeavour](#), reinforcing human rights, and extending them to the excluded.

Still, we have to acknowledge that a complete solution is not possible inside the current state of affairs. A resolution to the current recognised problems, and of anticipated challenges has to address the core set of beliefs from which the present predicaments have emerged. In the 17<sup>th</sup> century, at the dawn of the scientific age, Francis Bacon suggested the need to understand which idols need to be abandoned before we can achieve progress. Bacon's battle against scholasticism would today take the form of a collective and deep debate about the existing idealised vision of science and scientists. Next, having witnessed the failure of economics to anticipate challenges and to solve recent crises, a reappraisal of its role as a master discipline to adjudicate human and societal affairs is called for. For economics to offer useful recipes – including to Brexiters – it need to solve its [own cyclical internal crisis of relevance](#). Our recent experience reminds us that war is a too serious business to be left to elites, either political, security, or military. Similarly, we are still learning that human and environmental affairs are too important to be outsourced to science-based experts, in either the social or natural realms.

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