

# Science Policy Research Report: New Directions for Impact – Broader Impacts 2.0

J. Britt Holbrook<sup>1</sup> and Robert Frodeman<sup>2</sup>

<sup>1</sup>New Jersey Institute of Technology, <sup>2</sup>University of North Texas

This material is based upon work supported by the National Science Foundation under Grant Nos 1724705 and 1724682. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.



## Broader Impacts 2.0 – the Bottom Line

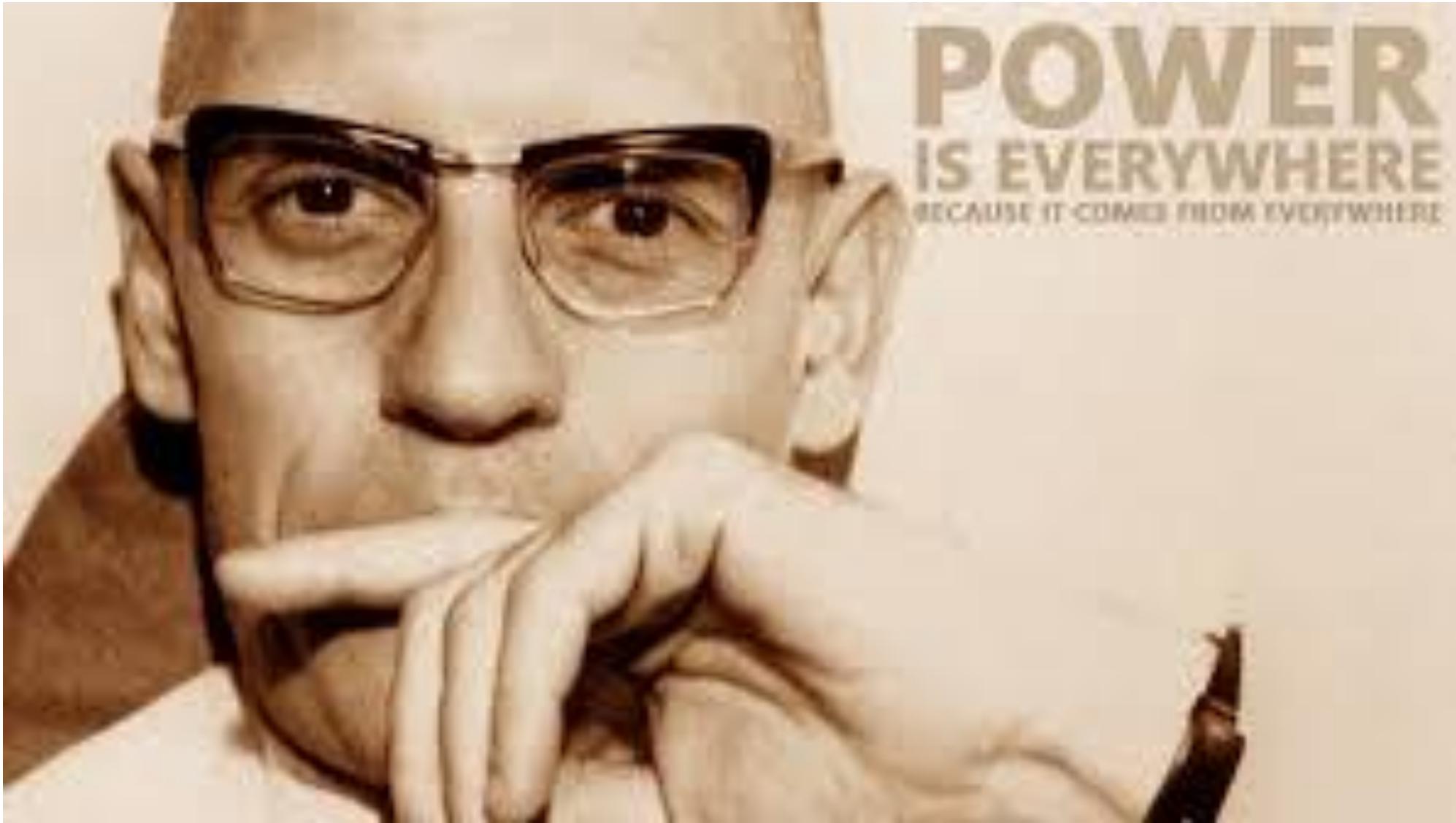
Next generation broader impacts:

- 1) Expand remit to include the ‘demand side’ of broader impacts.
- 2) Require the assessment of potential ‘grimpacts’.
- 3) Address the entire ecosystem of broader impacts.

# Broader Impacts – The Evolution of Our Thinking



## Broader Impacts – The Evolution of Our Thinking



# Broader Impacts – The Evolution of Our Thinking



## Government Performance and Results Act of 1993 (Public Law 103-62)

- Part of a series of laws in the 1990s aimed at improving federal government management
- Requires federal agencies to develop
  - **strategic plans** with long-term goals
  - **performance plans** with annual goals and measures
  - **performance reports** on prior year performance
- Also requires a **governmentwide performance plan**, intended to provide a single, cohesive picture of federal performance

# Broader Impacts – The Evolution of Our Thinking



**REF2014**  
Research Excellence Framework

**The research of 154  
UK universities was assessed**



They made **1,911** submissions including:

- **52,061** academic staff
- **191,150** research outputs
- **6,975** impact case studies



The **overall quality** of submissions was judged, on average to be:

- ★★★★★ **30%** world-leading (4\*)
- ★★★★ **46%** internationally excellent (3\*)
- ★★★ **20%** recognised internationally (2\*)
- ★ **3%** recognised nationally (1\*)

# Broader Impacts – The Evolution of Our Thinking



# Broader Impacts – The Evolution of Our Thinking



Open Innovation, Open Science, Open to the World  
*- a vision for Europe*

# Science vs. Post-truth?

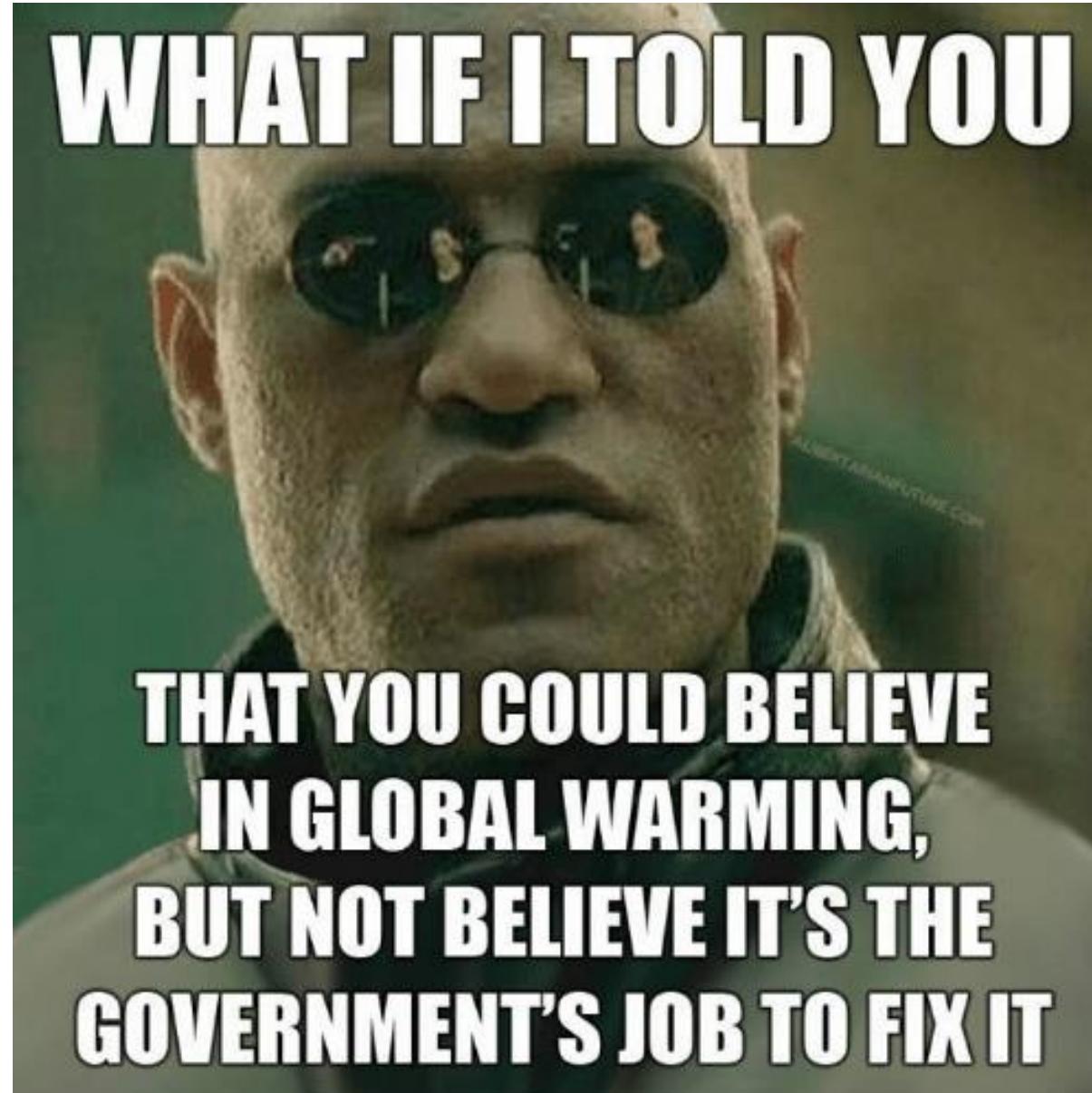


BRYAN R. SMITH/AFP/GETTY IMAGES

# A Better Account – Narrative and Scientific Discourse



## Broader Impacts 2.0



# Broader Impacts 2.0 – Recommendations

I. Future research on broader impacts must account for both:

- 1) the original terms of debate surrounding broader impacts (accountability vs autonomy, peer review and metrics) and
- 2) the ongoing changes in the overall cultural receptivity of science.

## Broader Impacts 2.0 – Recommendations

II. Broader impacts evaluation criteria should also include an account of the possible negative impacts – or ‘grimpacts’ – of technoscientific advance.

## Broader Impacts 2.0 – Recommendations

III. Funding agencies should address the ‘ecosystem’ of broader impacts by creating venues for ongoing dialogue with higher education policy groups, professional societies, and other stakeholders to realign the higher education reward system with Broader Impacts 2.0.

## Broader Impacts 2.0 – the Bottom Line

Next generation broader impacts:

- 1) Expand remit to include the ‘demand side’ of broader impacts.
- 2) Require the assessment of potential ‘grimpacts’.
- 3) Address the entire ecosystem of broader impacts.

# References

European Commission 3 Os image: [https://ec.europa.eu/digital-single-market/sites/digital-agenda/files/newsroom/13315226\\_115575761111182\\_6219712296940042991\\_n\\_13981\\_3.jpg](https://ec.europa.eu/digital-single-market/sites/digital-agenda/files/newsroom/13315226_115575761111182_6219712296940042991_n_13981_3.jpg).

Jean-François Lyotard image: <https://vimeo.com/112680362>.

Kamensky, John. GPRA image: <https://www.slideshare.net/JMKamensky/gao-gpra-modernization-act-overview>.

March for Science image: <http://www.cnn.com/2017/04/22/health/global-march-for-science/index.html>.

Morpheus meme: <https://me.me/t/global-warming?since=1486436103%2C9159538>.

President Icinghower image: <https://www.altmetric.com/blog/meet-president-icinghower/>.

Research Excellence Framework 2014 image: <http://www.ref.ac.uk/2014/>.

Vannevar Bush image, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=1633052>.