

# Post-normal science and developments in the US

Category : Outreach  
Facilitator: Robbie Morrison

Event : Open Energy Modelling Initiative workshop  
Host : Frankfurt Institute for Advanced Studies (FIAS)  
Location : Frankfurt, Germany  
Date : 20–21 April 2017

# Abstract

Post-normal science (PNS) describes scientific analysis under high stakes and high uncertainty. While this is a general problem for modeling complex systems, the current political climate in the United States adds new challenges in relation to misinformation, expert distrust, and the impending and well-signaled assault on government science. One response to these developments is to strengthen academic and crowdsourced analysis, as the TEMOA project, North Carolina State University, is considering.

# Challenges

How to address, as energy modelers:

- the issues raised by post-normal science
- falling public trust in experts
- loss of government information and government science capacity

# Post-normal science (PNS)

- "facts [are] uncertain, values in dispute, stakes high, and decisions urgent"
- initiated in the 1990s by Silvio Funtowicz and Jerome Ravetz
- responses:
  - complex systems science
  - redefine context and role of analysis and advice

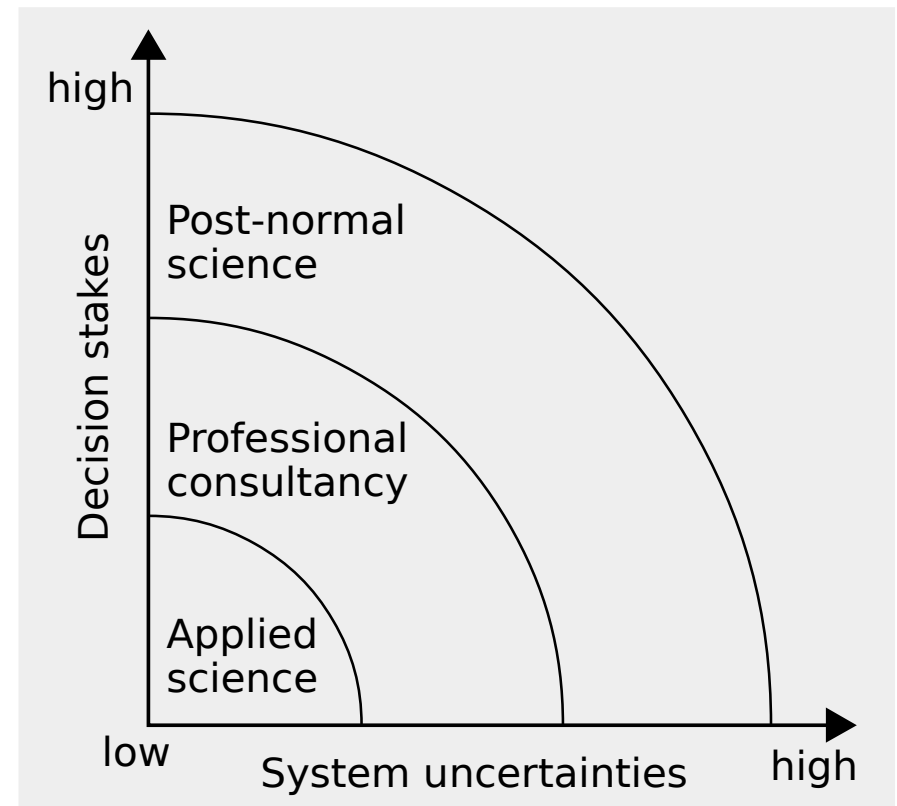


Diagram based on figure in Funtowicz, Silvio and Jerome Ravetz (1993) "Science for the post-normal age". *Futures*. **25**:735–755. doi:10.1016/0016-3287(93)90022-L.

# Anti-expert trend

- "people in this country have had enough of experts"  
(Gove during Brexit referendum)
  - the public is not interested in policy  
(Trump while campaigning)
- 
- social versus scientific consensus
  - personal values and political views, not knowledge, drive attitudes on climate change
  - the social silence on climate change filled by contrarian views in the media
  - the need to change social norms
  - the need to be persuasive as well as right

# Loss of government information and government science capacity

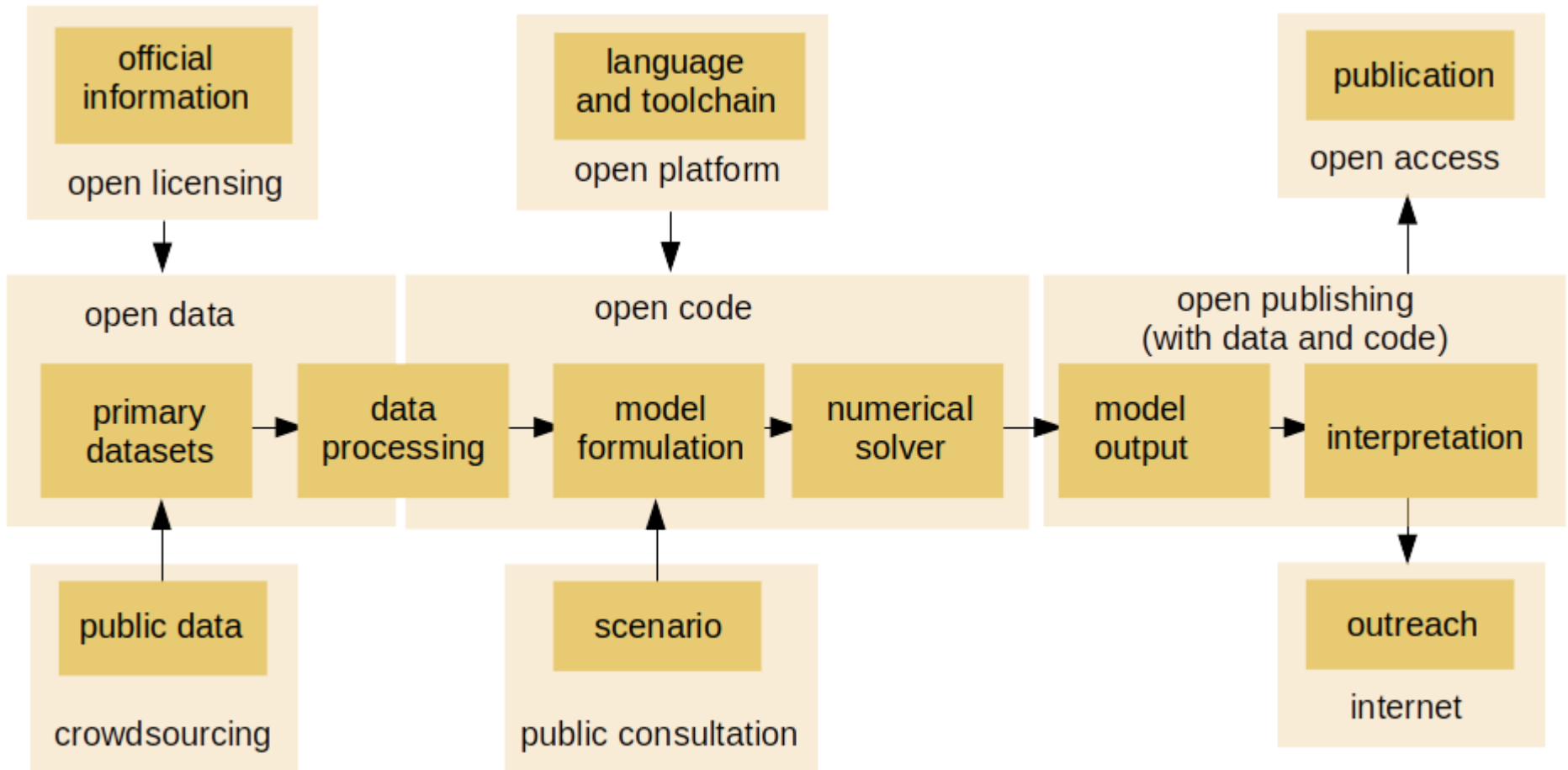
- purges of web documents and datasets (Canada, USA)
- terminated collection programs (NOAA signaled)
- reduced analytical capacity (UK DECC)
- reduced interest in science-led policy appraisal (UK Foreign Office, Trump administration)

Regarding point one, see Herrmann (2017)  
DECC was the Department of Energy and Climate Change

# TEMOA project

- Tools for Energy Model Optimization and Analysis
- North Carolina State University, North Carolina, USA
- Code license: GPLv2
- programmed using the Pyomo Python library
- project leader: Joe DeCarolis

# Public-oriented energy modeling





# Outcomes

- break-out group to determine

# References

Corner, Adam (31 March 2017). "Is it socially acceptable to challenge climate denial?". *The Guardian*. London, United Kingdom. ISSN 0261-3077. Retrieved 2017-04-11.

Corner, Adam and Jamie Clarke (2017). *Talking climate: from research to practice in public engagement*. London, United Kingdom: Palgrave Macmillan. doi:10.1007/978-3-319-46744-3. ISBN 978-3-319-46743-6.

Herrmann, Victoria. (28 March 2017). "I am an Arctic researcher. Donald Trump is deleting my citations". *The Guardian*. London, United Kingdom. ISSN 0261-3077. Retrieved 2017-04-11.