# The History and Importance of RRI: Science-Society Relations under Change

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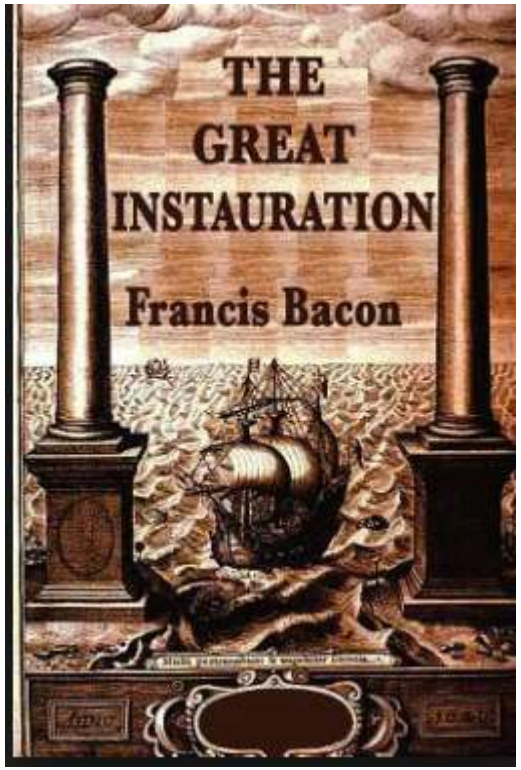
# “Science to Benefit Life”

“Lastly, I would address one general admonition to all—that they consider what are **the true ends of knowledge**, and that they seek it not either for pleasure of the mind, or for contention, or for superiority to others, or for profit, or fame, or power, or any of these inferior things, **but for the benefit and use of life,** and that they perfect and govern it in charity.”

(F. Bacon, *The Great Instauration*, 1620)



# Science-society contract (1)

- Tensions and tendencies

- “Social contract” between science - society
  - Vannevar Bush “The Endless Frontier” - Trust in the social authority of science

- Autonomy of science BUT new demands for social accountability

# Science-society contract (2)

- Growing demand on science to open up towards society
  - <1970: ‘public contestation of science’ (e.g. nuclear power; Chernobyl)

- Changes in society:
  - Highly educated people – articulate, and ever so critical
  - Dilemma of expertise – expert/lay persons

- “Recontextualisation of science in society” (Nowotny, 2011); Responsive forms of governance

- New ‘contract’ between science and society

EUROPEAN COMMISSION

European Research Area

# Preparing Europe for a New Renaissance

## A Strategic View of the European Research Area

First Report of the European Research Area Board – 2009

3. An ERA based on a shared responsibility between science, policy and society, where public policy is based on evidence and underpinned by a 'new social contract' between science and society that emphasizes responsibility for action as well as freedom of thought.

# Responsible Research & Innovation

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## Responsible research & innovation

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Responsible research and innovation is an approach that anticipates and assesses potential implications and societal expectations with regard to research and innovation, with the aim to foster the design of inclusive and sustainable research and innovation.


Responsible Research and Innovation (RRI) implies that societal actors (researchers, citizens, policy makers, business, third sector organisations, etc.) work together during the whole research and innovation process in order to better align both the process and its outcomes with the values, needs and expectations of society.

In practice, RRI is implemented as a package that includes multi-actor and public engagement in research and innovation, enabling easier access to scientific results, the take up of gender and ethics in the research and innovation content and process, and formal and informal science education.

### Implementing RRI in Horizon 2020

Responsible research and innovation is key action of the 'Science with and for Society' objective. RRI

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# Six Keys of RRI

(1) inclusive engagement,

(2) a commitment to gender equality,

(3) more science education,

(4) ethics, defined as shared values reflecting fundamental rights,

(5) open access to data and

(6) developing new models of governance


European Commission, DG Research and Innovation 2012

# OVERVIEW

- RRI as a social innovation

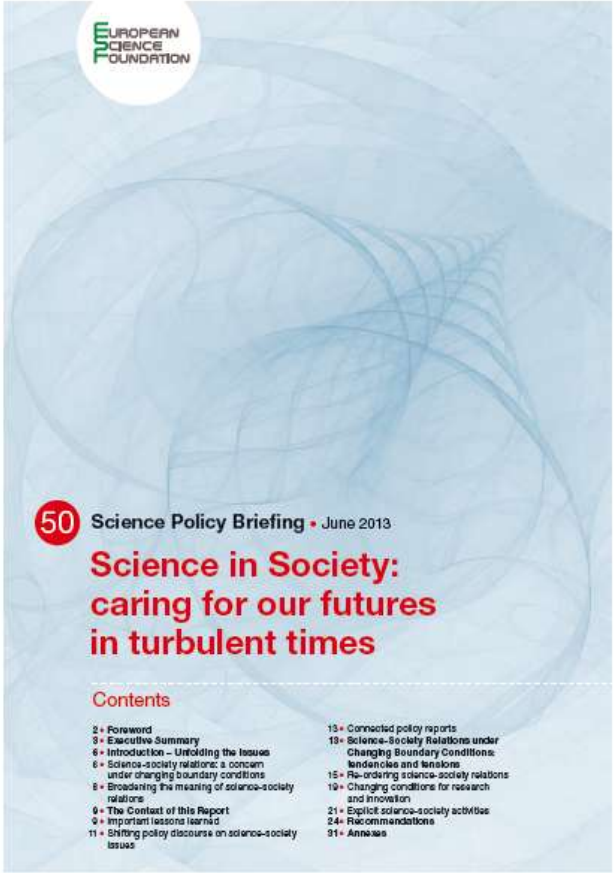
  < Historical-sociological approach; Science and Technology Studies (STS)

  – Roots of RRI – EU science-society governance
  – Lessons Learned for RRI
  – RRI as Practices of Experimentation

# Roots of RRI

< EU science-society governance

- Risk assessment
- Public understanding of science
- Public engagement
- Responsive forms of governance



EUROPEAN SCIENCE FOUNDATION

50 Science Policy Briefing • June 2013

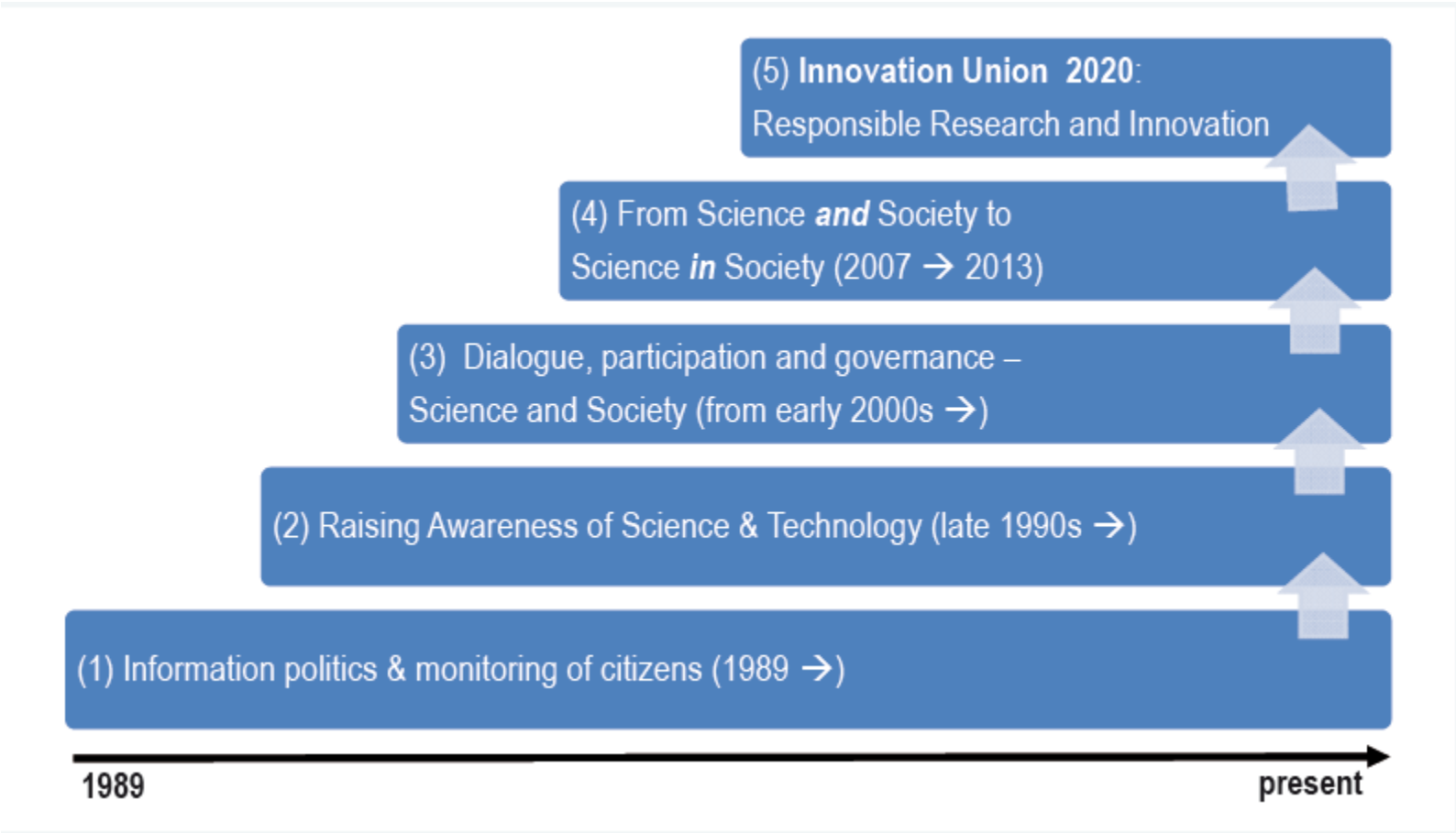
Science in Society: caring for our futures in turbulent times

Contents



(Felt etal, 2013)

# Governance styles EU science-society




Layers in the EU policy discourse on 'science-society' issues (Felt 2010)

# Lessons learned

- Public deficit model
- Participation for what, for whom?
- Linear model of innovation
- Ritualization trap

*NATURE* | COLUMN: WORLD VIEW



عربي

David Ausserhofer/ Leopoldina

# Time to settle the synthetic controversy

**If synthetic biology is to thrive, the world needs to decide now how the field should be regulated and supported, says Volker ter Meulen.**

07 May 2014



The creation of an artificial yeast chromosome shows that synthetic biology is getting closer to what most scientists want: to be able to deliver benefits to society. The field has already found cheaper ways to produce medicines, and is making progress in applications from water purification to materials design.

The topic is, however, controversial, and that is jeopardizing its promise. Environmental groups argue that it poses risks to health and the environment and have called for a global moratorium. We have been here before: exaggerated fears and uncritical acceptance of claims of the risks of


"Finally, the IAP says that funding bodies across the world must anticipate the potential of synthetic biology and invest in the research, and in the researchers involved. The investment should also incorporate **projects in the social sciences and the humanities**, which can, for instance, look at concerns about biologists 'creating life' **and find better ways to communicate the issues.**"

# Mixed reactions to nano

… shows once more “that citizens by no means ‘misunderstand’ nanotechnologies by linking them in a straightforward manner to nuclear energy or agro-biotech – a fear frequently expressed by policymakers. Instead, they embrace a much broader and simultaneously more fine-grained vision of what is at stake…They clearly differentiate…between technological realizations which have a fit with broader values and those which seem disruptive” (Felt, 2013: 16).

# Participation for whom? For what?

- ‘the public’ does not exist – plurality of actors and views
- Different publics…. Invited vs. ‘other’ un-invited
- ‘Engagement fatigue’
- …. Public participation is no panacea for success! No guarantees there…

# Linear model of innovation

- Tension in RRI: principle moral responsibility vs. Innovation market?
  - Original goal of creating a mutually responsive society (e.g. van Schomberg, 2011) vs. the imperative of speeding up innovation to produce immediate economic growth (Innovation Union – 'accelerating innovation**'; 'technology readiness')**

- RRI as ensuring smooth take-up ; = assumption that successful uptake of a product or service proves that it is socially beneficial

- RRI Public consultation as: 'preparing the product for the market and the market for the product' vs. RRI's capacity for innovating innovation policy

- → reconfiguring 'responsible' as ethically, and socially **desirable**, rather than merely **liable**

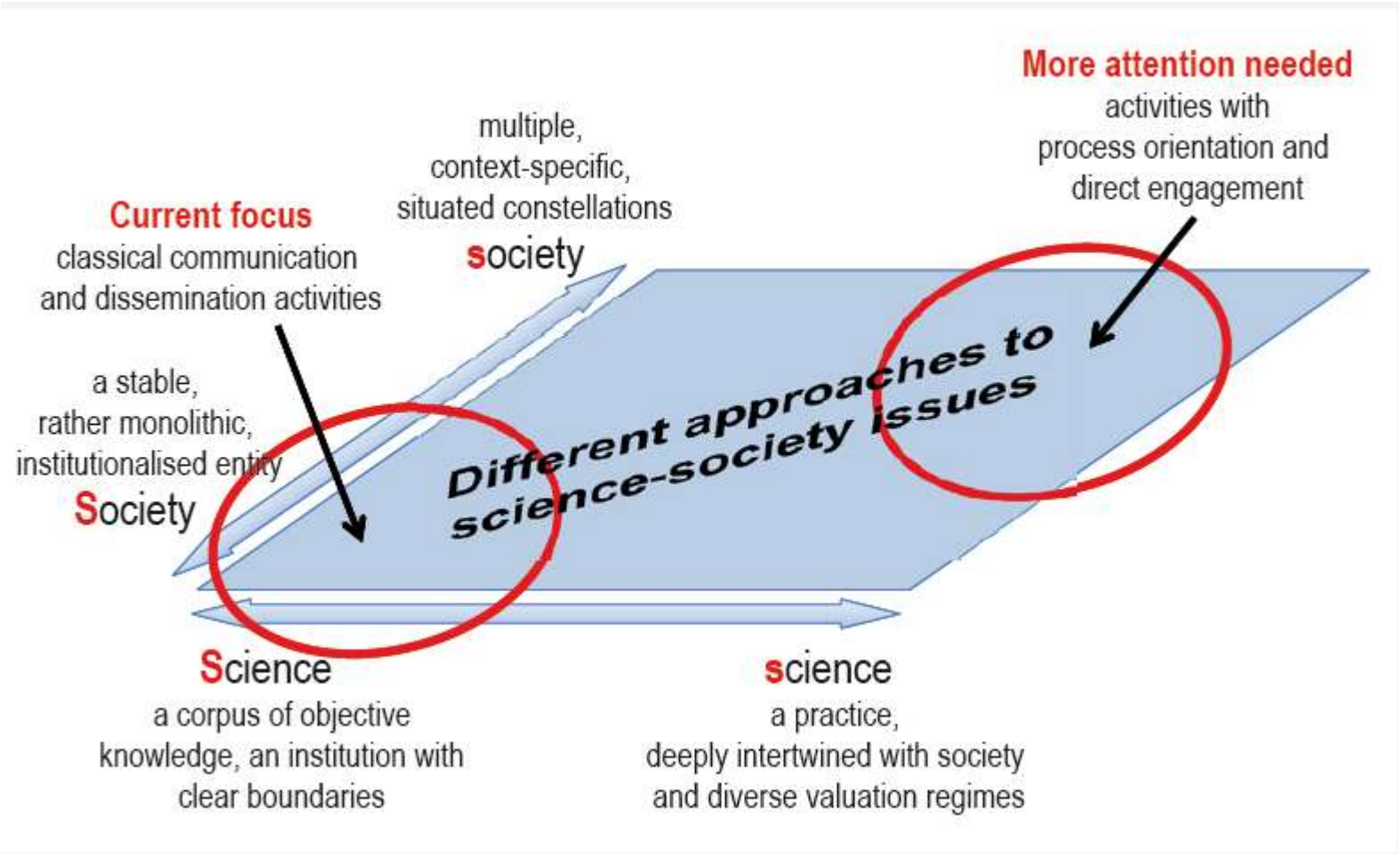
# Ritualization trap

- ‘Perform it by the book’
- ‘Perform it as a new  and ‘extra’ layer’
- Avoid benchmarking/ standardization…
- Risk of RRI reduced as ‘tick off- box’
- Risk of ‘add on’ in research projects

# RRI as practices of experimentation

- RRI as work-in-progress : RRI as a process necessarily experimental and open-ended
- RRI doesn't show itself – look for experiments…
- Situated accounts of sciences and of societies
- Look at existing practices science-society (TA; civil society; industry; research)

→ **PRACTICES OF RRI** – 'doing governance'




Shifting our attention in approaches to science-society issues (Felt etal, 2013)

# Conclusions

- RRI as innovating innovation policy
- Role of social scientists, citizen science and citizen scientists

# Recommendations on doing RRI

- RRI as integral to research projects
- RRI uptake in regulatory and advisory science boards (e.g. EFSA)
- RRI as ‘collaborative research’ vs. ‘technology readiness’ (LERU, 2016)
- RRI as situated practices of experimentation
- Share experiences of RRI e,g. RRI Toolkit

NATURE | COLUMN: WORLD VIEW



John Houlihan/Univ. York

# Recognize the value of social science

**A professional body for UK social scientists can help to improve research practice — and not just in public engagement, says Andrew Webster.**

05 April 2016



If the science community is serious about integrating social science into its thinking and operations — and statements by everyone from *Nature* and the UK government to Paul Nurse, former president of the Royal Society, indicate that it is — then we social scientists must do more to make this happen.

Our input is necessary because, too often, the reach and influence of research is discovered only with hindsight. Lessons are 'learned' only after the social implications of new domains of science and technology have provoked controversy or challenged existing norms. Social science can help to predict these implications and plan for them. It can also help to frame science questions to make them more sensitive to economic, cultural and

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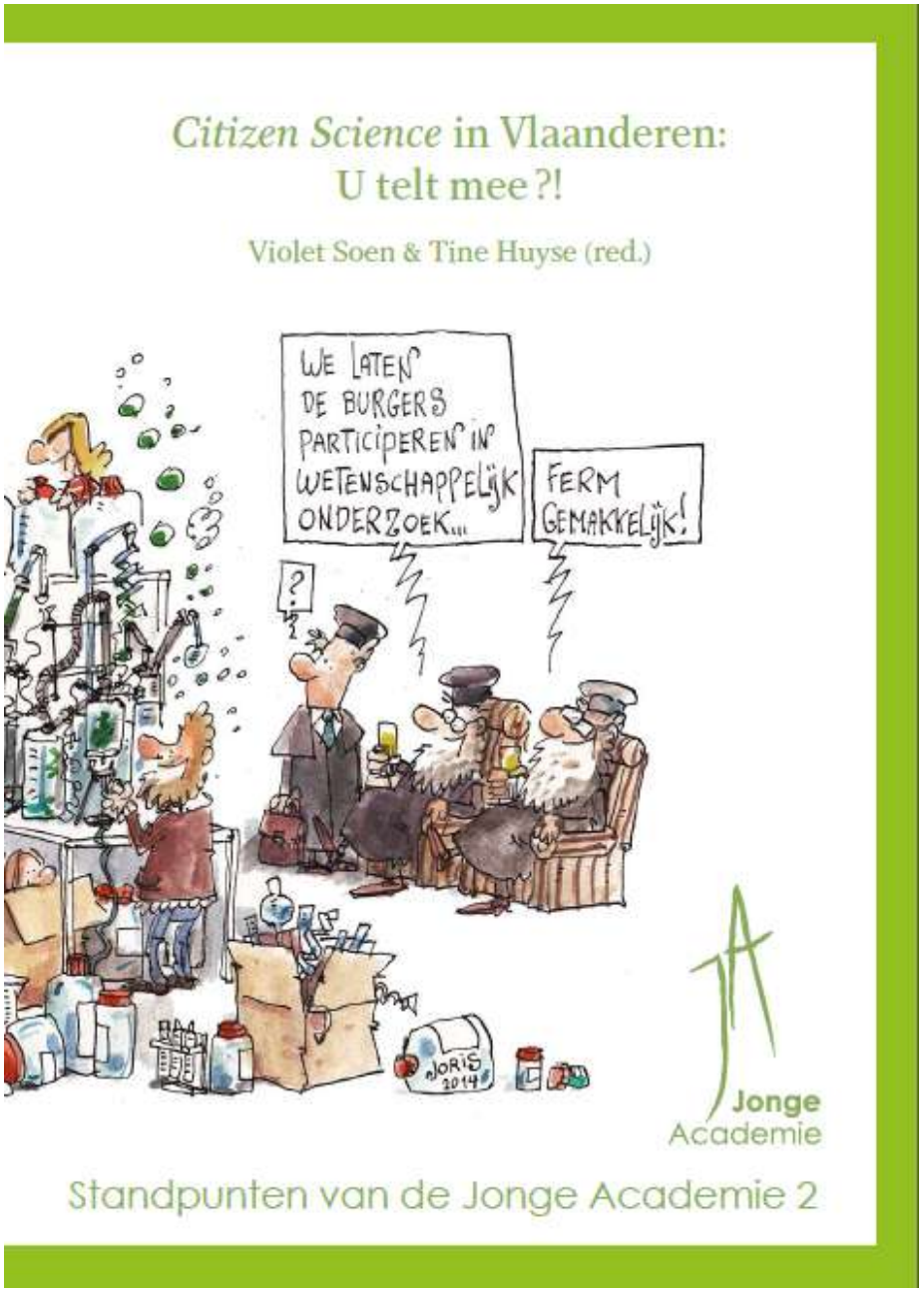
- Integration of social science into research is crucial

# Citizen Science



# Citizen scientists

All scientists are citizens, but not all scientists are Citizen Scientists. Citizen Scientists are the people who intertwine their work and their citizenship, doing science differently, working with different people, drawing new connections and helping to redefine what it means to be a scientist.

(Stilgoe, 2009)

# Questions/Discussion

- What does RRI mean in practice?
- How do we know it when we see it?
- What does irresponsible research and innovation look like?
- What are the limitations of RRI?
- How can we enforce RRI or make it a reality?
- What Innovation, for whom? **What Benefit of Life?**

# Sources

- B.STS : Belgian Science, Technology & Society Network (www.bsts.be)

- Journal of Responsible Innovation


(Nowotny, 2011; Felt etal, 2013; Jasanoff, 2006; Rip, 2014; Stilgoe, 2012; van Oudheusden, 2015; de Sailly, 2015; Landeweerdetal, 2015; Owen, 2015)