H2020-Grant Agreement 787289

GRECO

Warm-up: Framing Responsible Research and Innovation (RRI)

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Applying concepts of RRI

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Science and technology bring knowledge, generate well-being and contribute to development…

…but they also pose ethical dilemmas, lead to undesirable effects and generate new challenges.

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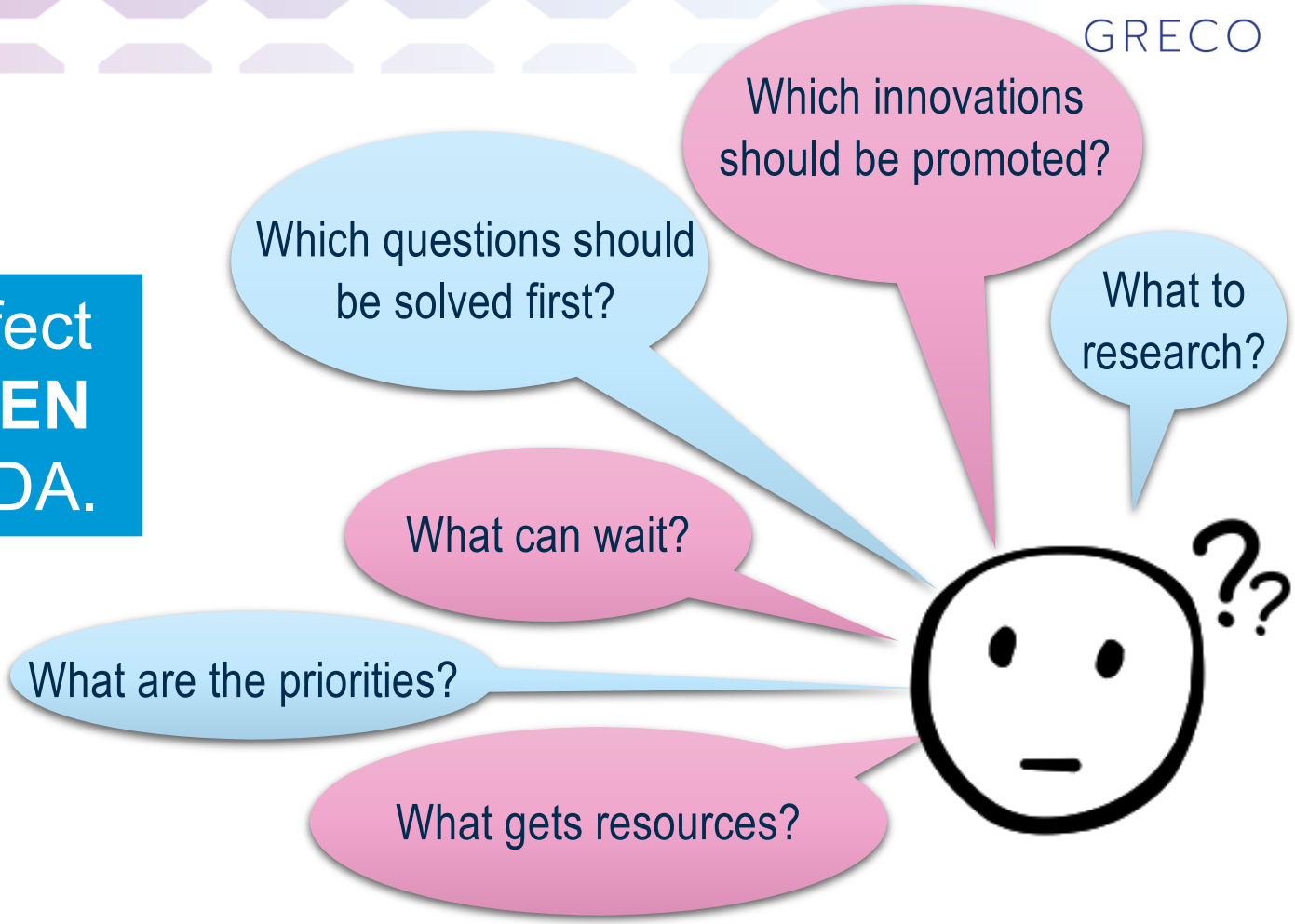
R&D&I process involves **multiple decisions**:

Some questions affect the **WHAT** and **WHEN** → Scientific AGENDA.



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Other questions relate to the **HOW**.

Apart from respecting legal and ethical principles, are other shared **social values**, such as inclusiveness and sustainability, being considered?

Is there reflection upon the long term **impact** of research? And upon the impact of the research field? Is someone trying to anticipate and improve such impact?

Does your organisation or the S&T system consider such aspects?

Is research shared with experts from **other fields**? And with end users or different **stakeholders**? Are other opinions considered?

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WHO MAKES THE DECISIONS

A. Someone with funding capacity (**governments, financing agencies, some charities**) determines the priority areas, and researchers make specific proposals to obtain resources.

B. **Researchers** receive financing without fixed objectives and they decide on what to use it.

C. Someone with business or commercial interest (**companies, businesses, investors**) establishes their priorities and directly finances specific R&I activities

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Different **criteria are considered** to take R&D&I decisions:

- Contribution to knowledge
- Need to solve **big challenges**
- Possibilities of individual/business economic benefit
- Contribution to economic development
- “Scientific excellence”
- Strategic criteria (politics)

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¿Sufficient?

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Decisions based on **market responses or economic development**:

- **Ethical dilemmas.** Increased inequality in access to knowledge.
- **Waste of opportunities.** If potential users are not consulted, it is difficult to know what they want, need or expect.
- **Unwanted effects.** If stakeholders are not consulted, unexpected situations may arise: rejection, unexpected success with displacement of other technologies, unexpected uses, etc.

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Decisions based on **Scientific excellence**:

- **Insufficient as they base on bibliometric criteria:**
  - → Does it measure societal impact of research or innovation?
  - → Are the most referenced articles those that have contributed the most to knowledge, advancement of science or solving big humanity problems?
  - → Is publishing the goal *per se*?

San Francisco DORA Declaration on Research Assessment

https://sfdora.org/

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Applying concepts of RRI - Examples

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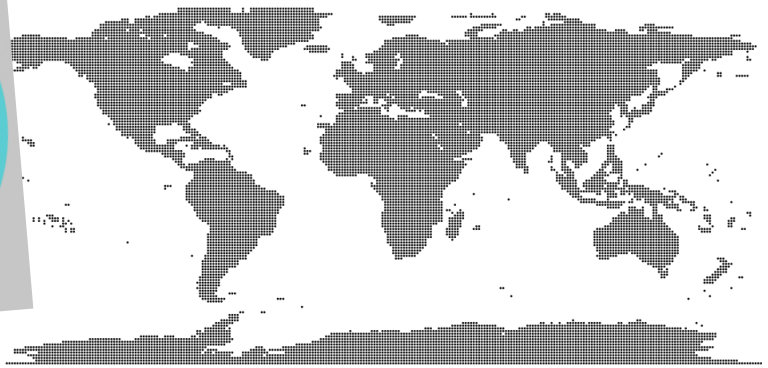
Case 1:
R&D&I decisions that increase inequality

10/90 Health Gap

<10% of worldwide resources devoted to health research in developing countries

Global Forum for Health Research



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Applying concepts of RRI - Examples

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Case 2:
Rejection of a technology once it has reached the market

In Europe, GMFood's opponents outnumber supporters 3 to 1

The 2010 Eurobarometer on the life sciences

George Gaskell, Agnes Allansdottir, Nick Allum, Paula Castro, Yilmaz Esmer, Claude Fischler, Jonathan Jackson, Nicole Kronberger, Jurgen Hampel, Niels Mejlgaard, Alex Quintanilha, Andu Rammer, Gemma Revuelta, Sally Stares, Helge Torgersen & Wolfgang Wager

Affiliations | Corresponding author

Nature Biotechnology **29**, 113–114 (2011) | doi:10.1038/nbt.1771
Published online 07 February 2011

www.nature.com/nbt/journal/v29/n2/full/nbt.1771.html

http://maxpixel.freegreatpicture.com/Stop-Health-Gmo-Sign-Well-Food-Science-Wellness-254539

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Because the community is led (as it should be) by individuals who have succeeded in the *status quo ante*, **investigators at early stages of their careers might judge** (perhaps wrongly) that the best chances of **success** (as defined by their peers) will come from working within and for the system, not by **challenging it**.

Macleod *et al.* (2014). Biomedical research: increasing value, reducing waste
http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(13)62329-6.pdf

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Can we do it better?

The road to RRI

"Responsible Research and Innovation"

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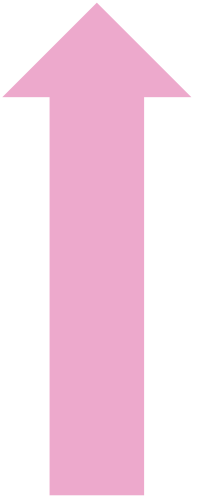
- RRI arose from the confluence of various academic disciplines and from initiatives led by academics, representatives of civil society and the industrial sector, science communicators, etc.



Bottom-Up

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Main **disciplines, initiatives and movement** that address the processes of R&D&I

- Science Ethics & Bioethics
- Research Integrity
- Public Engagement
- Sustainable Development
- Open Innovation
- Gender Equality
- Technology Assessment
- Participatory Research
- Participatory Assessment
- Ethical, Legal, and Social Assessment
- Corporate Social Responsibility
- Public Participation

Focus on:

- stakeholder inclusion
- science's social compromise
- society's principles and values
- responsiveness
- specific aspects: gender,sustainability, etc.

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- On the other hand, RRI is also determined by a **top-down** process…

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Governmental discourse on the Science/Society relationship and the integration of RRI as a strategic element

Owen, Richard, Phil Macnaghten, and Jack Stilgoe. 2012. "Responsible Research and Innovation: From Science in Society to Science for Society, with Society." *Science and Public Policy* 39(6):751–60

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¿Qué es la RRI?

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What is RRI?

https://images.app.goo.gl/54GAwNF8hCj5PHpw6

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What is RRI?

RRI is above all **“an inclusive approach to research and innovation”** that **“aims to better align both the process and outcomes** of [research and innovation] **with the values, needs and expectations** of European society.”

- The European Commission

At [redacted]

Public trust in science and acceptance of scientific innovations

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What is RRI?

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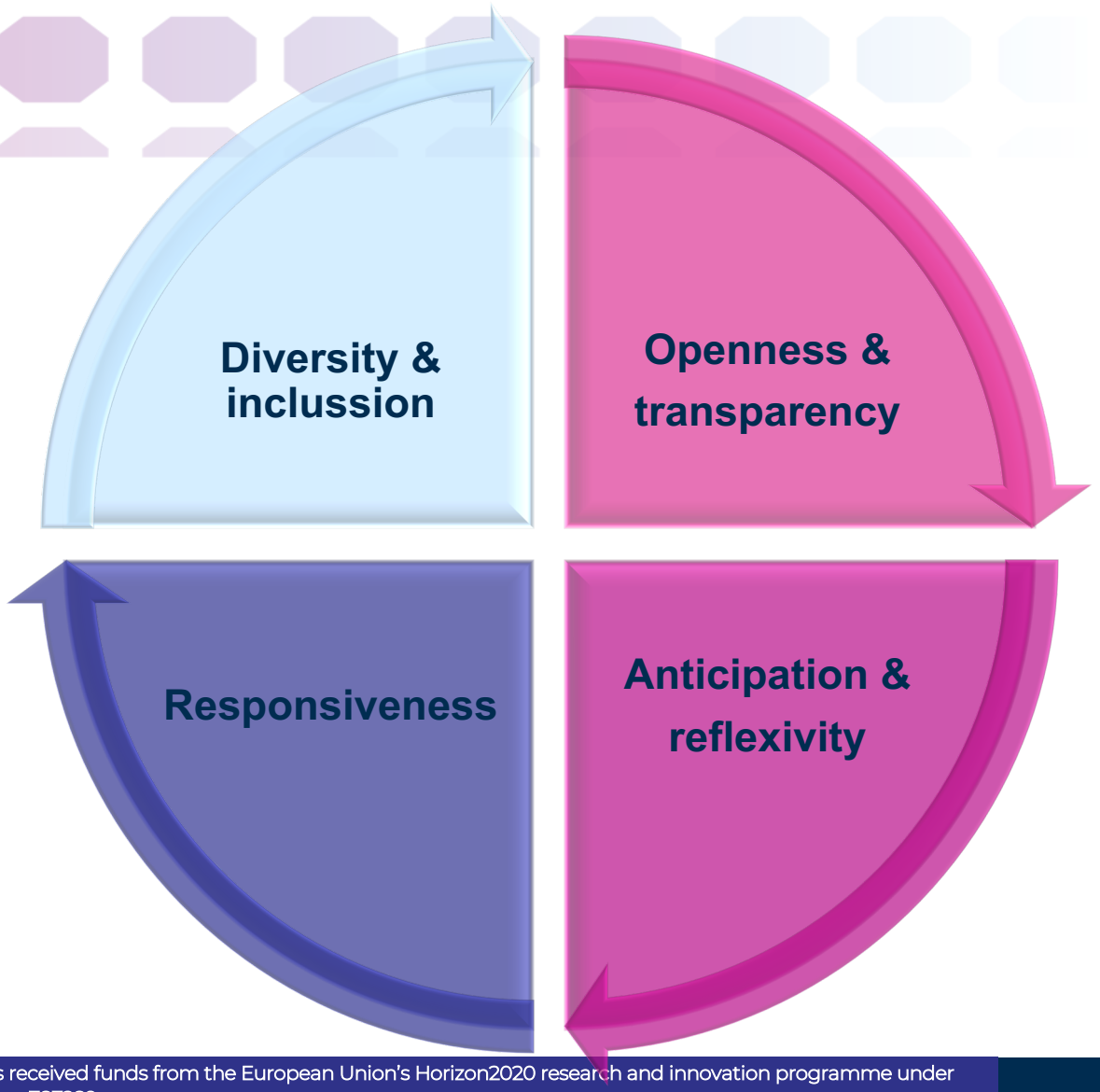
The four dimensions:



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Public engagement

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Public engagement

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nature International weekly journal of science

Home | News & Comment | Research | Careers & Jobs | Current Issue | Archive | Audio & Video | For A

Archive > Volume 541 > Issue 7635 > Editorial > Article

NATURE | EDITORIAL

Why researchers should resolve to engage in 2017

Debates over climate change and genome editing present the need for researchers to venture beyond their comfort zones to engage with citizens — and they should receive credit for doing so.

04 January 2017

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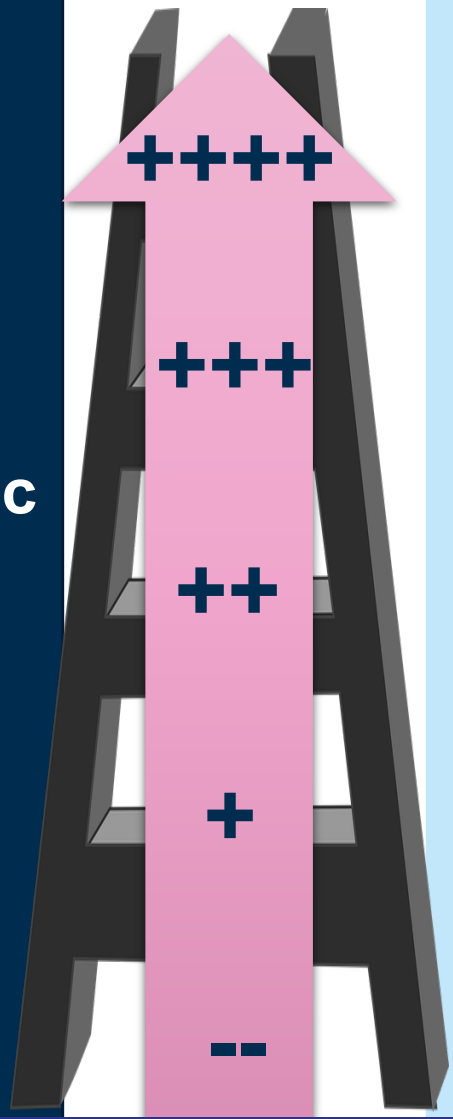
The ladder of Science Communication, Public engagement and Public Participation in Science



- **Citizen participation in experiments, data collection, experiences**... Citizen Science, Community Based Research, Science Shops, Living Labs
- **Formal Engagement** and Participation (Citizens Panel, referendum), Participative Technological Assessment (PTA), Public Consultation (surveys, focus groups)
- **Informal Public Engagement**: Mutual Mobilization and Learning Exercises (MML), Science Cafés, World Café, Decide Game, Role Play Activities, Makers and DIY actions...
- **Some dialogue:** social media
- Information and **one direction science communication**: media actions, website and newsletters, talks, open days, books, exhibitions…
- **No information**, no communication

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RRI outcomes

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Community outcomes	R&I outcomes	Societal impacts
• Engaged publics • Responsible actors • Responsible institutions	• Ethically aceptable • Environmentally sustainable • Socially desirable innovations	• Contribution to **solve societal challenges** (e.g. Grand Challenges EU or SDGs)

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Public engagement & social values

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Applying concepts of RRI - Examples

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Case 3:

Why are we overlooking civil society in the innovation process?

The global challenges we are facing are complex and call for new constellations to find solutions.

Traditionally the innovation process has been dominated by the industry, the public sector and research. However, the civil society also possesses great creative competences and we need to include this overlooked actor in order to let innovative solutions flourish.

17 PARTNERSHIPS FOR THE GOALS

http://riconfigure.eu/

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Applying concepts of RRI - Examples

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http://www.ideasparaelcambio.gov.co/

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Applying concepts of RRI - Examples

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Case 5:

ACTIVATING INNOVATIVE IoT SMART LIVING ENVIRONMENTS FOR AGEING WELL

10 REDUCED INEQUALITIES

3 GOOD HEALTH AND WELL-BEING

http://www.activageproject.eu/consortium/

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Applying concepts of RRI - Examples

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Case 6:

PUTTING OPEN SCIENCE INTO ACTION IN AN ENGINEERING PROJECT

Our world is changing rapidly. Addressing these enormous challenges require new ways of performing science.

MORE INFOS ABOUT THE PROJECT

https://www.greco-project.eu/

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RRI in everyday research practice

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Why?

- Broadening problem framing
- Generating new research strategies
- Ensuring your research is valuable (or not harmful)
- Stimulating creativity and new ways of thinking/doing
- Gaining visibility
- Personal satisfaction?

(more inclusive, more open, more reflective, thus more robust)

(Pain, 2017).

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RRI in everyday research practice

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Got concerns?

- Does it sacrify academic freedom?

- Does it oppose basic research?

(Pain, 2017).

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RRI in everyday research practice

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Got concerns?

- Does it sacrify academic freedom?

  No. It is about listening when it is necessary.

- Does it oppose basic research?

  No. RRI principles apply differently to each discipline.

(Pain, 2017).

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RRI in everyday research practice

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Challenges

- Abstract concept
- Contradictory sometimes with how research usually works (anticipation vs. uncertainty)
- Competition and secrecy, temporary contracts and time pressure unfavorable conditions for RRI.
- **Not (yet) sufficiently rewarded → Not enough incentives**

(Pain, 2017).

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RRI in everyday research practice

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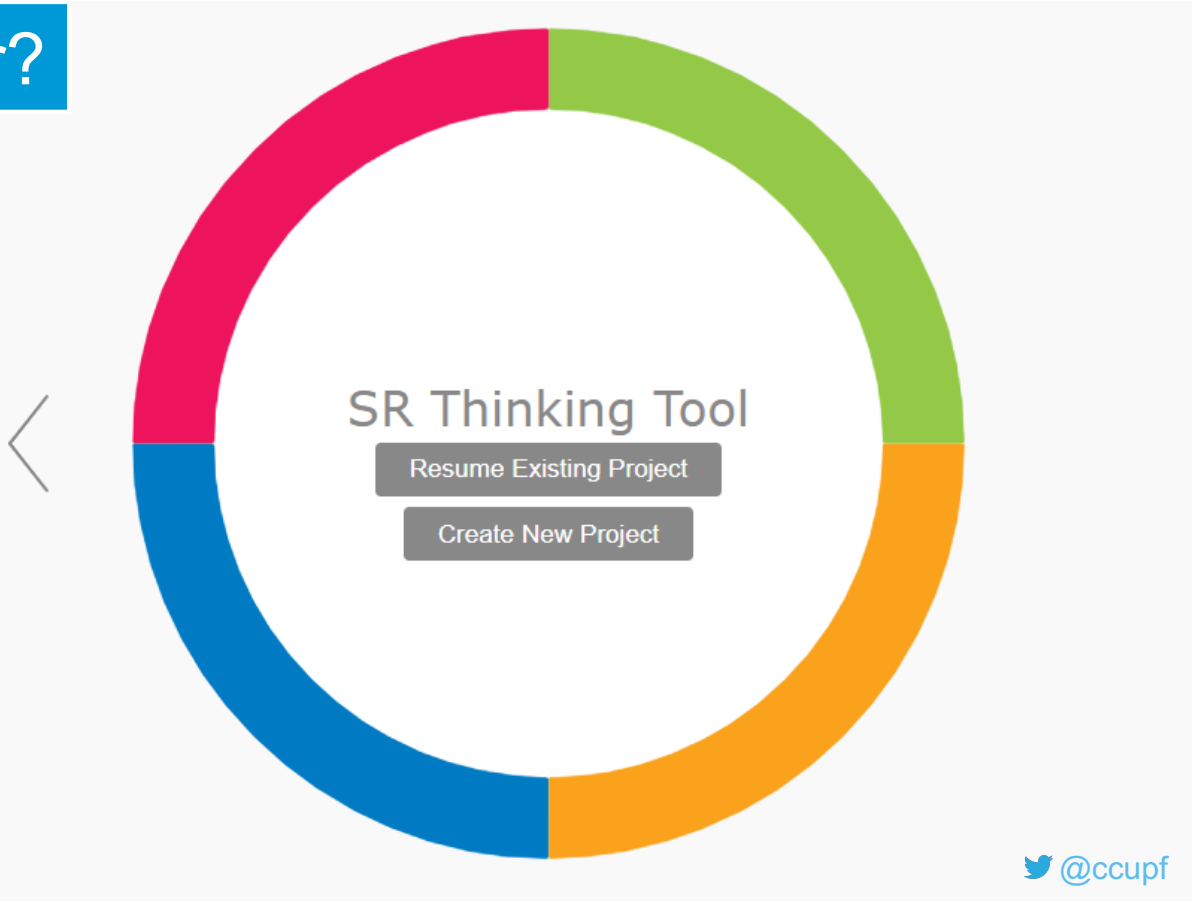
Want to explore it further?

https://thinkingtool.eu/



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Applying concepts of RRI – Final Remarks

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Responsible Research and Innovation (RRI) represents a *movement for change* in the current science and technology system.

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Thanks for your attention

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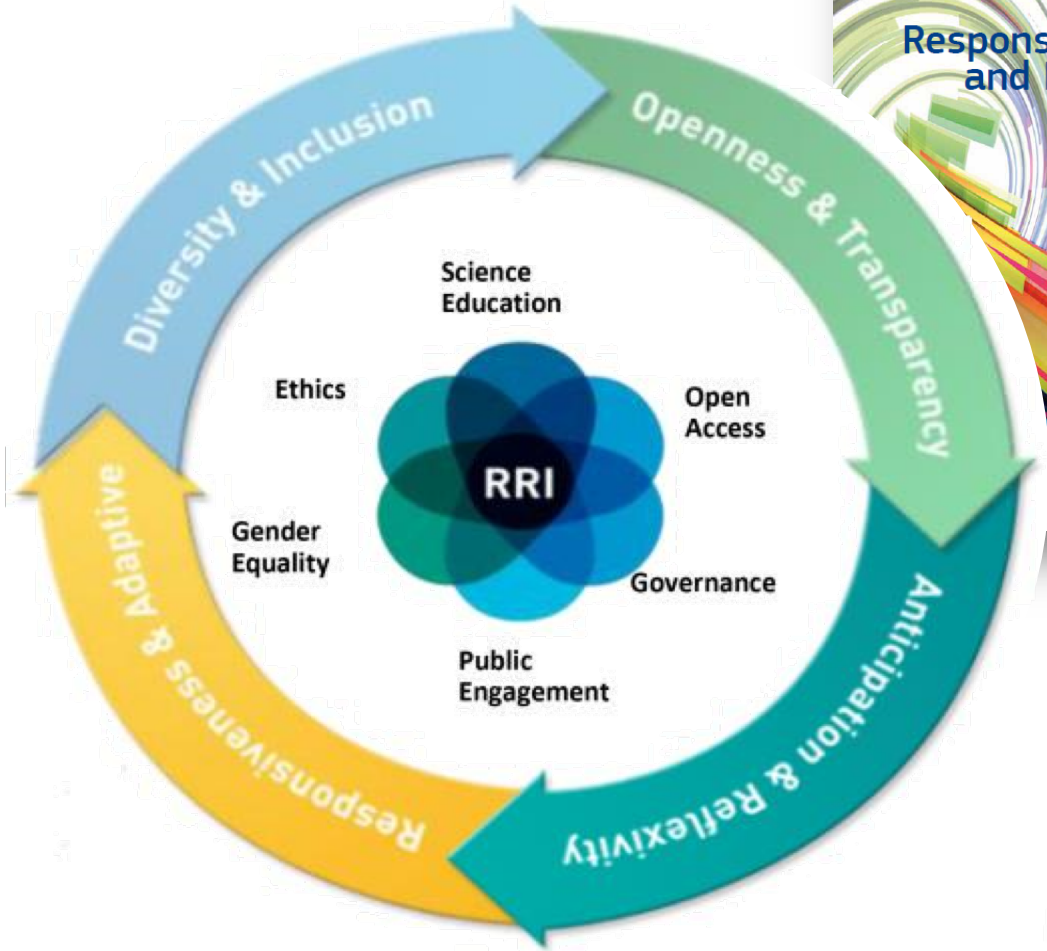
Applying concepts of RRI

The **6 key issues:**

1. *Public engagement*
2. *Gender equality*
3. *Science education*
4. *Open access*
5. *Ethics*
6. *Governance*



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RETOS Y LIMITACIONES

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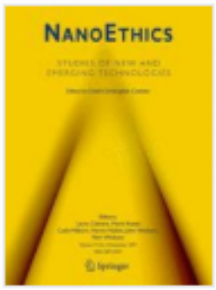
SpringerLink



NanoEthics
December 2017, Volume 11, Issue 3, pp 213–228 | Cite as

Responsible Research Is Not Good Science: Divergences Inhibiting the Enactment of RRI in Nanosafety

Authors | Authors and affiliations

Lilian van Hove ✉, Fern Wickson

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RETOS Y LIMITACIONES

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Aspectos de la RRI

- Conducta ética
- Anticipación de impactos y evaluación de alternativas

De acuerdo, y operacionalizable

- Divulgación científica
- Transparencia
- Reflexión crítica

De acuerdo, pero con limitaciones

- Utilidad social
- Colaboración con *stakeholders*

De acuerdo, pero en desacuerdo

van Hove, L. & Wickson, F. Nanoethics (2017) 11: 213.

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