

RRI in FLAG-ERA HBP

WORKSHOP

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NORSUS
Norwegian Institute for
Sustainability Research

#RRI
inHE

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Background – why RRI?

Europe wants research and innovation in order to create jobs, find solutions to societal problems, be a knowledge-based society and continue as a powerful global actor

BUT European states and the European Union need to show that research and innovation is in the interest of the people to justify strong public investments

- * Experiences, such as with GMOs, have led to public resistance to new technologies
- * Research scandals or perceptions of biased research have led to public skepticism
- * Social skepticism to scientific establishment 'elites'
- new such experiences must be avoided
 - by developing research policies that stimulate new reflections on responsibility within science and innovation environments themselves and by facilitating informed dialogue between scientists, innovators and the public

Trust in science is at stake!



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for Sustainability Research

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RRI – a response



Funders have been responsive to this situation



Responsible Research and Innovation (RRI) is one response



co-creation, citizen science, open science are other responses

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A bit of history

Responsibility and emerging technologies has been on the agenda for 30 years in research and innovation policy

- Biotechnology – The Human Genome Project 1990 (ELSI program)
- Nanotechnology, ICTs
- ELSI seen as add-on and hostile to tech (looking for problems) → Since 2011 RRI has been an overall framework for responsibility in emerging technologies in Europe – as a way to do S&I right
 - Promoted by research funders
- RRI is both a theoretical, policy and practical approach

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Fundamental topics for RRI

1. AVOIDING THE WRONG IMPACTS OF S&T

Technological development appears everywhere and in liberal, capitalist societies this is possible as long as it is not in conflict with risk regulations

- For emerging science and technologies (biotechnologies, nanotechnologies, ICTs) the development takes place so quickly that risk regulation lags behind

→ How can we make sure that science and innovation don't create problems now or down the road?

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Fundamental topics for RRI

2. CREATING THE RIGHT IMPACTS OF S&I

Our society have some grand challenges that R&I needs to contribute to solving

→ How can we make sure that science and innovation contributes to what is good for society?



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Fundamental topics for RRI

3. WHO ARE TO DECIDE WHAT ARE THE RIGHT (AND WRONG) IMPACTS OF SCIENCE AND INNOVATION, ANYWAY?

Scientists and innovators are experts in justifying (and hyping) their inventions; we are trained in spelling out the benefits of our research and toning down the potential problems

One cannot assume that the scientists' and innovators' own assessment represents a neutral assessment of the benefits and burdens of the inventions for society

→ How can societal groups/the public be involved in discussions about science and innovation so that the researchers and innovators take a broader view?

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Fundamental topics for RRI

4. THE RESPONSIBILITIES OF RESEARCHERS AND INNOVATORS

- 'Science takes the credit for penicillin, while society takes the blame for the bomb'

(Jerry Ravetz 1975)

→ Many actors are involved in the innovation process, what are the responsibilities of the individual scientists or innovators versus all the other actors that modify how innovation meets the world?

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What is RRI? → EC's approach

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.



What is RRI? → UK and Norwegian approach

The screenshot shows the EPSRC website with a navigation menu at the top. The main content area is titled 'Framework for Responsible Innovation'. A green arrow points to the 'Anticipate, reflect, engage and act (AREA)' section in the left-hand navigation menu. The main text on the page includes the following:

EPSRC is committed to developing and promote Responsible Innovation. This site reaffirms our own commitment and sets out our expectations for the researchers we fund and their research organisations.

Introduction

Responsible Innovation is a process that seeks to pursue creativity and opportunities for science and innovation that are socially desirable and undertaken in the public interest. Responsible Innovation acknowledges that innovation can raise questions and dilemmas, it often anticipates in terms of processes and realisation and unpredictable in terms of impacts, beneficial or otherwise. Responsible Innovation creates spaces and processes to explore these aspects of innovation in an open, inclusive and timely way. This is a collective responsibility, where funders, researchers, stakeholders and the public all have an important role to play. It includes, but goes beyond, considerations of risk and regulation, important though these are.

As a public funder of research, we have a responsibility to ensure that our activities and the research we fund, are aligned with the principles of Responsible Innovation, creating value for society in an ethical and responsible way. EPSRC does not wish to be prescriptive about how Responsible Innovation is embedded in the research and innovation process. We recognise that some researchers are already well engaged with this agenda. We also recognise that different approaches might be required for different research areas. There may be instances where detailed consideration is preferable or even unavoidable. In other areas of research, a responsible innovation approach may be highly recommended, or even required. As such we recommend that all researchers demonstrate awareness of and commitment to, the principles of Responsible Innovation. Taking an approach that encompasses the following steps, should

Jack Stilgoe, Richard Owen & Phil Macnaghten: Framework for Responsible Innovation

4 dimensions of RRI in Engineering and Physical Sciences Research Council (EPSRC)

To be responsible, R&I needs to engage in:

1. Anticipation – assessing potential future implications of the research
2. Reflection – reflecting on values affected by the research and own motivations
3. Engagement – involving others in these reflections and anticipations
4. Action/Responsiveness – being prepared to change and adapt the planned research in response of new knowledge or stakeholder concerns

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What is RRI

- Addressing societal needs
- Avoiding undesirable side effects
- Responsibility integrated into research and innovation practices → responsibility cannot be outsourced (but collaboration is good!)
- Responsibility related to
 - *social, environmental, ethical or political issues*

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Why is RRI important in projects related to FLAG-ERA HBP?

HBP related projects can have social, environmental, ethical or political implications

- ❖ How can this research contribute to solving real needs?
- ❖ How can we avoid that new applications create new environmental, health or social uncertainties?
- ❖ How does this research impact on our understanding of human beings, consciousness, etc.?
- ❖ Potential dual use
- ❖ Privacy issues, and other issues related to AI
- ❖ Animal welfare issues
- ❖ How can we embed this research in society to increase possibility for stakeholder input, and – ultimately – the right/responsible uptake of this research in real world practices

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RRI keys

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The RRI keys, and beyond

1. Gender & diversity
2. Open Science (open access and open data)
3. Science education (increasing public understanding of science)
4. Ethics (research ethics and integrity)
5. Public Engagement
- ...
1. Sustainability and the SDGs
2. Societal fairness and equity



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Results from the survey

- All the keys are considered relevant (scores between 3.6 and 4.7)
- The keys you would like most assistance with is Open Science and Public engagement
- The support you have asked for is guidelines, infrastructure, money, time and expertise
- Some quotes:
 - We have clear in our mind that delivering concrete benefits to society is our primary goal.
 - It will be essential to involve [...] subjects in a way that engages them in our project not merely as test subjects, but also as active participants
 - Potential worry: Animal experimentation is always a controversial aspect, yet one that is essential to reach our research objectives. Given its controversial nature, it is likely to engage sectors of the public that are not normally interested in neuroscientific research.
 - Identified need: Public engagement for data center that sustains storage and organize imaging datas in an open access

→ Can we will nudge you to take a broader view on the keys?

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A broader view on the RRI keys

- ❖ Gender → Diversity in general, assessing the way the research may influence differences in society
- ❖ Open science → Not only about data repositories, but can potentially impact on how you view IP issues etc?
- ❖ Science education → Can this also mean that you learn more about other disciplines?
- ❖ Public engagement → Is one-way dissemination enough, or is it about learning from the publics or other stakeholders?
- ❖ Ethics → Is it only about not breaking research ethics rules? Can ethics also mean a reflection on the potential ethical issues the research can have longer term? Privacy, new scientific uncertainties, dual use, change of production systems, impacts on human identity, etc.?

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Some tools for further reflection when you 'get home'

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The screenshot shows the 'RRI Tools' website. At the top, there are navigation tabs: 'LANDING ON RRI', 'TOOLKIT', 'TRAINING', 'RRI COMMUNITY', and 'REGISTER/LOGIN'. Below the navigation is a search bar with the placeholder text 'I am looking for...' and a search button. A filter sidebar on the left allows users to filter resources by 'Type' (Text, Training Practice, Project, Library Element) and 'Useful for' (Policy Makers, Research Community, Education Community, Business & Industry, Civil Society Organisations). The main content area displays a grid of resource cards, including 'Special Issue on "Tackling artificial intelligence, ethical, legal and technical issues/burden and challenges"', 'Statement on Artificial Intelligence, Robotics and Autonomous Systems by the European Group on Ethics in Science and New Technologies (EGE)', and 'The 100 most critical issues for those concerned in science, technology and innovation systems'. A 'G1' logo is visible in the bottom left corner of the screenshot.

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Societal Readiness Thinking Tool

The screenshot shows the 'Societal Readiness Thinking Tool' interface. At the top, there are navigation tabs for 'Gate 1', 'Gate 2', 'Gate 3', and 'Gate 4'. The main area features a large circular diagram with 'Gate 1' in the center and the text 'Select a question'. On the left, there are 'Entry points' (e.g., 'Think about responsibility as an integral part of it'), 'Keys' (Public engagement, Open access, Science education, Gender, Ethics), and 'Conditions' (Articulate, Reflect, Include, Inspire). On the right, there is a 'Questions' and 'Answered' list with several questions and their status. A 'G1' logo is visible in the bottom left corner of the screenshot.

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Our role today

- * Give feedback based on the survey and the presentations
- * Reflection partners in the group sessions
- * General feedback in the plenary session