

# SPECIAL FEATURE

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RI  
**Responsible Research**

**Disseminate - Con**



# RI rch and Innovation

**Communicate - Educate**



# EXPERIMENTS GUIDING POLICIES FOR THE FUTURE OF RRI

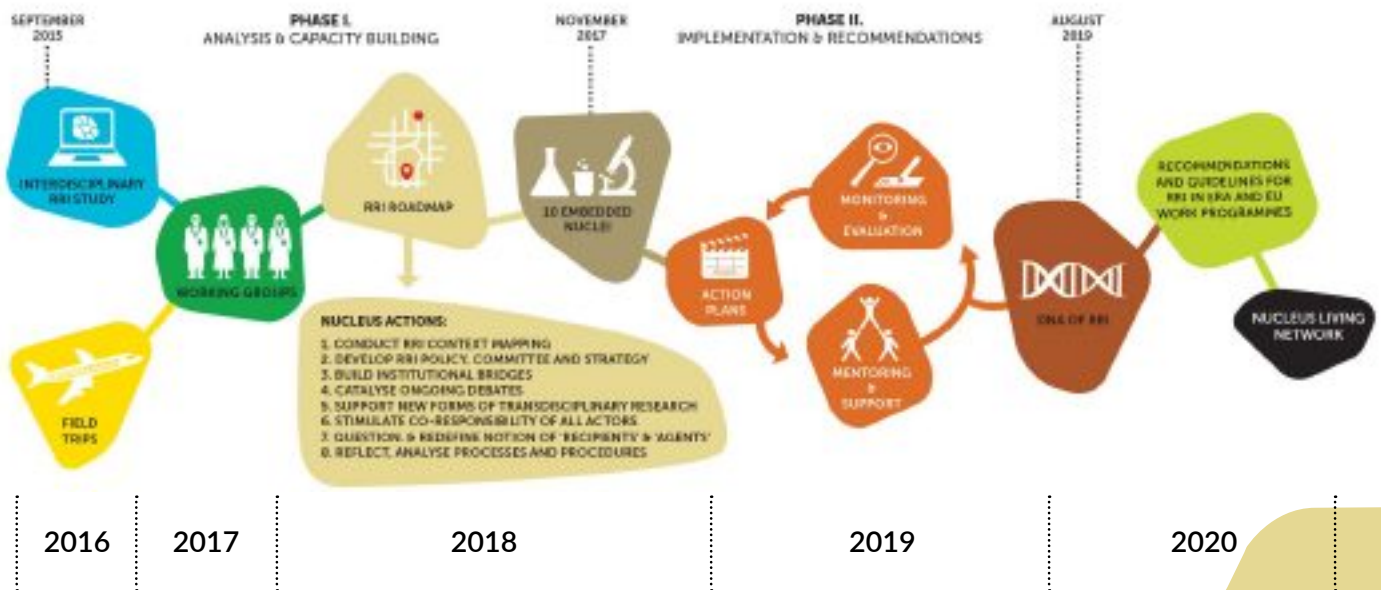
Professor Alexander Gerber  
Rhine-Waal University, Germany

**Learnings from the global four-year NUCLEUS project**

"We seek to embed RRI through transformation, effective dialogue and strategic planning, aligning its activities with NRF values and localising the UN's sustainable development goals. NUCLEUS has encouraged us to look inward, to reflect on what we are doing, and see ourselves differently. We have realised through this process that we have many strengths in an RRI sense and that we do not need to reinvent wheels but continue to build on our strengths and work on any weaknesses."

Dr Angus Paterson, Managing Director, South African Institute for Aquatic Biodiversity (SAIAB)

# EMBEDDED NUCLEI TIMELINE



How can we best **place public interests at the heart of research and innovation**? How can the **systemic change** be achieved that would be required for such a fundamentally transformative endeavour as RRI, **challenging many established policies and practices**.

Decades of research, to a large extent funded by the EU through programmes such as Science with and for Society (SwafS), have provided us with an **evidence-base** for researchers to **anticipate the implications** of their work and **include relevant stakeholders** upstream, in order to **reflect and respond** to those stakeholders' concerns and expectations. Hence what are the practical and policy recommendations towards supporting research institutions and the academic community in building **strong and sustained partnerships with stakeholders** during the research process?

From the experience of the institutions that participated in NUCLEUS, the project proposes the following recommendations to overcome some of the most commonly identified barriers regarding the integration of RRI into institutional practice, governance and culture:

## RRI is only successful if it is promoted and supported, with STEM at different levels

These levels are within the operational, governance and decision-making structure of academic institutions as well as from local and regional governments and cities to national and European policymaking. Promotion of STEM is still crucial, but **RRI needs to be embedded within STEM and other disciplines**, cocreating between them.

## RRI should be understood as a process in context

It does not necessarily need to be called 'RRI', as this can create barriers of language and hierarchy, and raise defence mechanisms. The central principle is that **research and innovation should connect and communicate with the context in which they are produced and circulated**.

To implement RRI, the NUCLEUS governance experiments in ten research performing organisations worldwide, point towards four steps that should be taken.

"One of the goals of the university is to open research to societal needs and to stimulate co-responsibility of all actors involved in research and innovation. We've been on this path for some time but through NUCLEUS we've had the opportunity to further develop and deepen our relationships with new actors in the community, and importantly we've institutionalised this approach."

Prof. Nathalie Dompnier, Vice President Culture, Science and Society, University of Lyon



“The collaboration with stakeholders from the university, and the dialogue with a range of experts from our region, was productive and inspiring. We see these kinds of multi-stakeholder activities as highly beneficial for the sustainable and innovative development of our region - and we will be happy to continue our collaboration with the university in the future.”

Herbert Looschelders, Social and Ecology Foundation, Kleve, Germany



## Self-assess

Undertake a self-assessment exercise which indicates the level an institution is at with regards to RRI integration: (i) Identify your RRI within your institutions, among your partners, (ii) analyse what you can do to increase RRI in your institution.

- Understand that RRI is a **process in context**, requiring professional facilitation, communication and organisation in the governance of research and innovation within an institution or region.
- Understand that RRI needs to work as a set of **outputs and outcomes**: workshops, MOOCs, training, rewards and resources, HR awards schemes that incentivise researchers to do more RRI and that embed responsibility in all co-created research.
- Understand the local and **connecting global contexts**. Understanding existing cultures and practices (both internal to the institution and external) gives the foundation for the introduction and sustained growth of RRI principles.



## Plan

Develop an action plan based on the self-assessment. The action plan can also serve as a strategic planning tool for the institution. From experience, we have found it useful to:

- **Identify RRI champions** both inside the institution and outside who are already aligned with RRI concepts, particularly at the top level of a research organisation to advance and embed the principles of RRI—'top-down to bottom-up'.

- Establish a **Research Engagement Committee** that acts as a forum for all stakeholders to co-create RRI together.
- **Have mentors** to help you through the process.
- Carefully articulate the **alignment between RRI principles and institutional strategic objectives** and responsibilities when seeking management buy-in.
- **Increase inter- and transdisciplinarity** that brings the sciences, the arts and humanities together, reimagining the concept of 'research excellence' with associated indicators.



## Act

Implement the action plan. Here the specific circumstances and audiences are fully contextualised to help support change in the institution.

- **'Walk stealthily'**, working with your own 'institutional DNA'; map out common engagement activities, scope them and identify where the RRI components can be aligned.
- Societal partners needs come first but then **respond co-creatively**, ethically, gender-sensitively, inclusively and professionally on shared solutions.
- Participate and co-create at all times to enable participatory co-design of research and innovation. This is how RRI comes alive—through **building trust**.
- Include **expert-driven mentoring** and group mentoring in developing, critically (self)evaluating and monitoring action plans. Expertise may also come from publics, media experts, policy experts, CSOs and enterprise agencies.



## Reflect

Self-reflection is necessary to continue an iterative process; implement critical institutional reflection, analysis, evaluation, learning and improvement at key stages, and mutual learning with new and collaborating partners. Analyse, act then 'walk stealthily' some more, until engagement activities are linked to senior management decision-making.

- Let the RRI DNA, eventually, 'take over the host': this means **structure change** that now normalises RRI; if there are enough critical points, the culture eventually changes.
- Link up RRI nuclei regionally and globally, for a **living RRI network**, through similar projects and initiatives.

...and keep doing it: RRI is a **continuing process, not a final outcome**.

The NUCLEUS project used the analogy that RRI functions in the same way as cells in an organism. There are six cells within the organism, and the university is the central cell in which a nucleus is embedded and linked to a cluster of others cells: public policy, public engagement, civil society, media and economy. The aim has been to develop and nurture a productive 'metabolism' that integrates all these cells, fostering RRI processes which can **respond to diverse needs, values and socio-cultural environments**.

In order to achieve a new understanding of innovation, public engagement, creativity and learning, RRI requires new structures and formats, as well as training and support for scientists and stakeholders—both inside higher education institutions



Image: Field trips and extensive data analyses in China, including a 2-year governance experiment in a local research institute, have led to unique country reports such as Cultural Adaptation Study for RRI outside of the EU context. Consortium pictured above.

and in the public sphere. Through a team of people—our embedded nuclei—the NUCLEUS project tested the principles of RRI through real-time experiments in ten research institutions across Europe, and in South Africa and China. These experiments, shaped by our empirical research, involved implementing approaches and activities that would help to **overcome institutional obstacles and demonstrate the benefits of RRI** to each institution.

Ultimately, NUCLEUS aimed to develop practical recommendations for research

leadership teams on how to implement RRI in their institutions. The true success of the project will be realised through the **living network of partners committed to sustaining the principles of RRI** beyond the life of the project.

The project also supported the activities of 21 mobile nuclei, one-off activities where participants in the consortium tested innovative approaches to reflect the concept of RRI in different contexts.

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## SUMMARY

As one of the largest EU-funded projects on Responsible Research and Innovation (RRI), NUCLEUS was unique in making the concept of RRI an actual reality in ten RPOs worldwide by means of social experiments in institutional change. It was a project which led far beyond the original prescription of the five RRI 'keys'.

## PROJECT LEAD PROFILES

Alexander Gerber is Full Professor of Science Communication at Germany's Rhine-Waal University. The spectrum of his research crosses the divide between scholarship and practice, towards science communication as an agent of social change. The vision: science and innovation co-producing knowledge inclusively with their stakeholders. Professor Gerber is coordinating Work Packages in four Horizon 2020 projects other than NUCLEUS.

## PROJECT PARTNERS

The project consortium represented a particularly wide and transdisciplinary range of 24 academic and non-academic partners from three continents, also including research funders and municipalities, CSOs and associations.

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