BRINGING RRI TO LIFE

in Universities and Scientific Institutions

#LivingRRI

Opening research to the needs and values of society

NUCLEUS

NUCLEUS

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About NUCLEUS

WHAT IS RESPONSIBLE RESEARCH AND INNOVATION?

Productive relationships require open communication and respect for values, expectations and goals – and the relationship between research and society is no exception.

Responsible Research and Innovation (RRI) is a process in which stakeholders - such as researchers, citizens and policymakers - work together to align research and innovation with the values, needs and expectations of society. Engaging with a range of stakeholders and working throughout the entire process of knowledge and value creation, RRI is able to address grand societal challenges in a more inclusive way.

NUCLEUS is a four-year project striving to develop a **New Understanding of Communication, Learning and Engagement in Universities and Scientific institutions**. Its main goal is to implement this understanding by embedding RRI into

the governance and culture of research institutions across Europe, China and South Africa.

At the heart of NUCLEUS is the idea that RRI functions in the same way as cells in an organism. The aim is 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 a new understanding of innovation, public engagement, creativity and learning, RRI requires **new structures and formats**, as well as **trainings and support for scientists and stakeholders** – both inside Higher Education Institutions and in the public sphere.

Overview

BRINGING RRI TO LIFE

This document offers you a general overview of the NUCLEUS project and its progress during the first Implementation Phase.

You'll read about the opportunities and challenges that our Embedded and Mobile Nucleus partners have encountered along the way.

Our Consortium

The NUCLEUS transdisciplinary consortium represents 24 partners from three continents, from a wide spectrum of professional experiences, academic backgrounds and disciplines.

> Being part of the NUCLEUS project means, to me, a space, a real one, where a group of committed professionals are placing the key pieces in order to make change happen. The umbrella ideas under which we are working won't be there forever. That's why I would say: change is inevitable, resistance is futile, let's NUCLEUS!
>
> **- Andrea Troncoso** (EUSEA)

> For me, the NUCLEUS project has provided a catalyst to consolidate a range of professional experience and contribute to a disruptive, directed, globally connected, positive, living movement of committed individuals that breaches systemic gaps, finding real, workable ways to broker change and invest in the global knowledge economy for sustained shared benefit!
>
> **- Penny Haworth** (SAIAB)

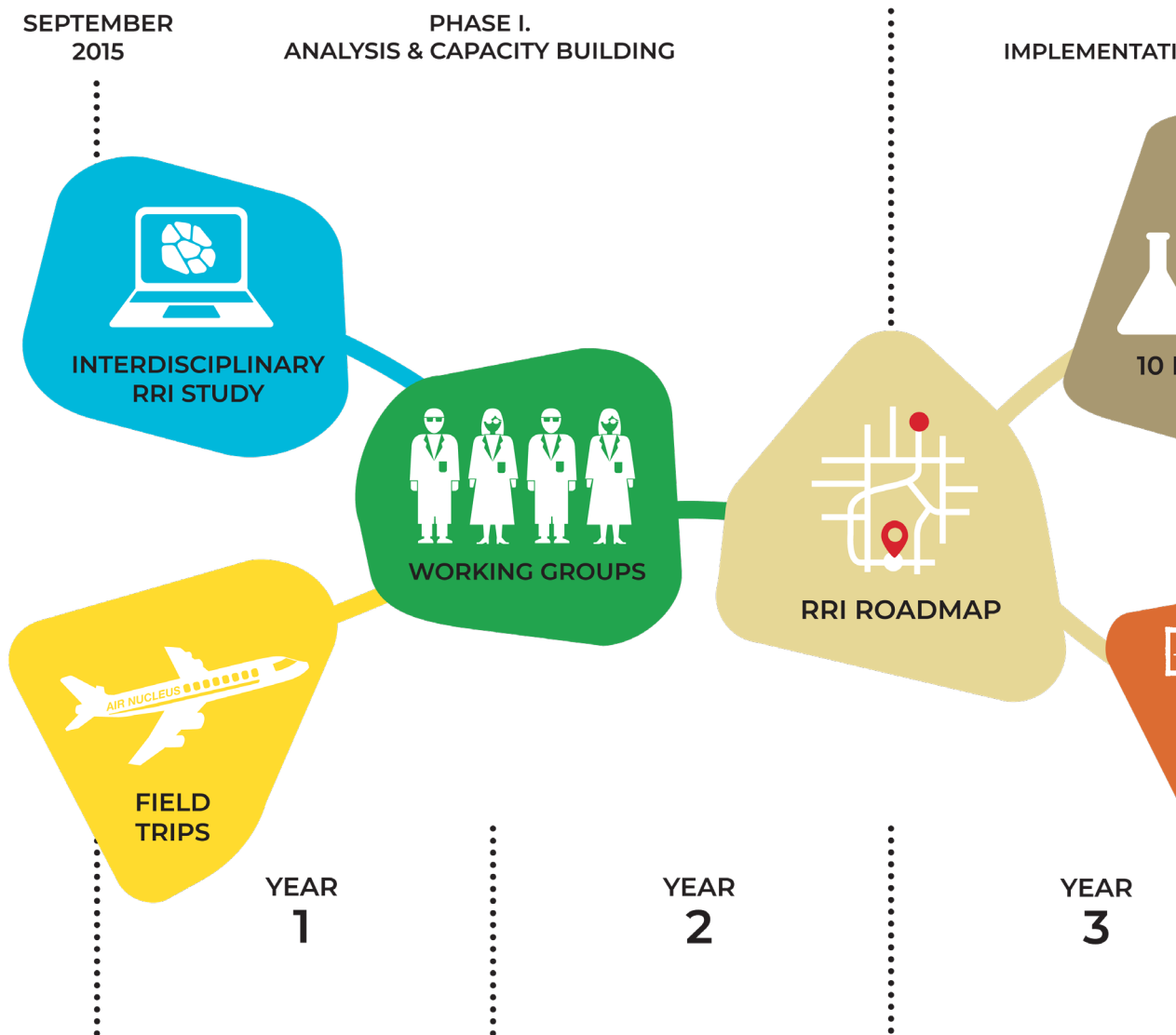> The NUCLEUS journey continuously stimulates me to think and act outside the box. I am thrilled by the way this global, multidisciplinary community encourages a reflective analysis of the RRI approach by linking theoretical concepts to the challenges of practical implementation. Let's keep on building reliable and sustainable bridges between academia, stakeholders and citizens!
>
> **- Annette Klinkert** (HSRW)

NUCLEUS

Bringing RRI to life

The NUCLEUS project has a four-year timeline that covers four stages: the analysis and capacity building through field trips and cross cultural studies, the development of an Implementation Roadmap for RRI, the implementation of such a Roadmap, and an evaluation of the Roadmap's performance in practice.

SEPTEMBER
2015

PHASE I.
ANALYSIS & CAPACITY BUILDING

IMPLEMENTATI

INTERDISCIPLINARY
RRI STUDY

WORKING GROUPS

RRI ROADMAP

10

FIELD
TRIPS

YEAR
1

YEAR
2

YEAR
3

LAYING THE GROUNDWORK FOR RRI

Field trips investigated the barriers to RRI and the opportunities specific to six different stakeholder groups: the media, the economy, public policy, public engagement, civil society and research institutions. **A cross cultural study and interviews** with nearly 100 researchers and research leaders uncovered trends in attitudes towards RRI in academic environments.
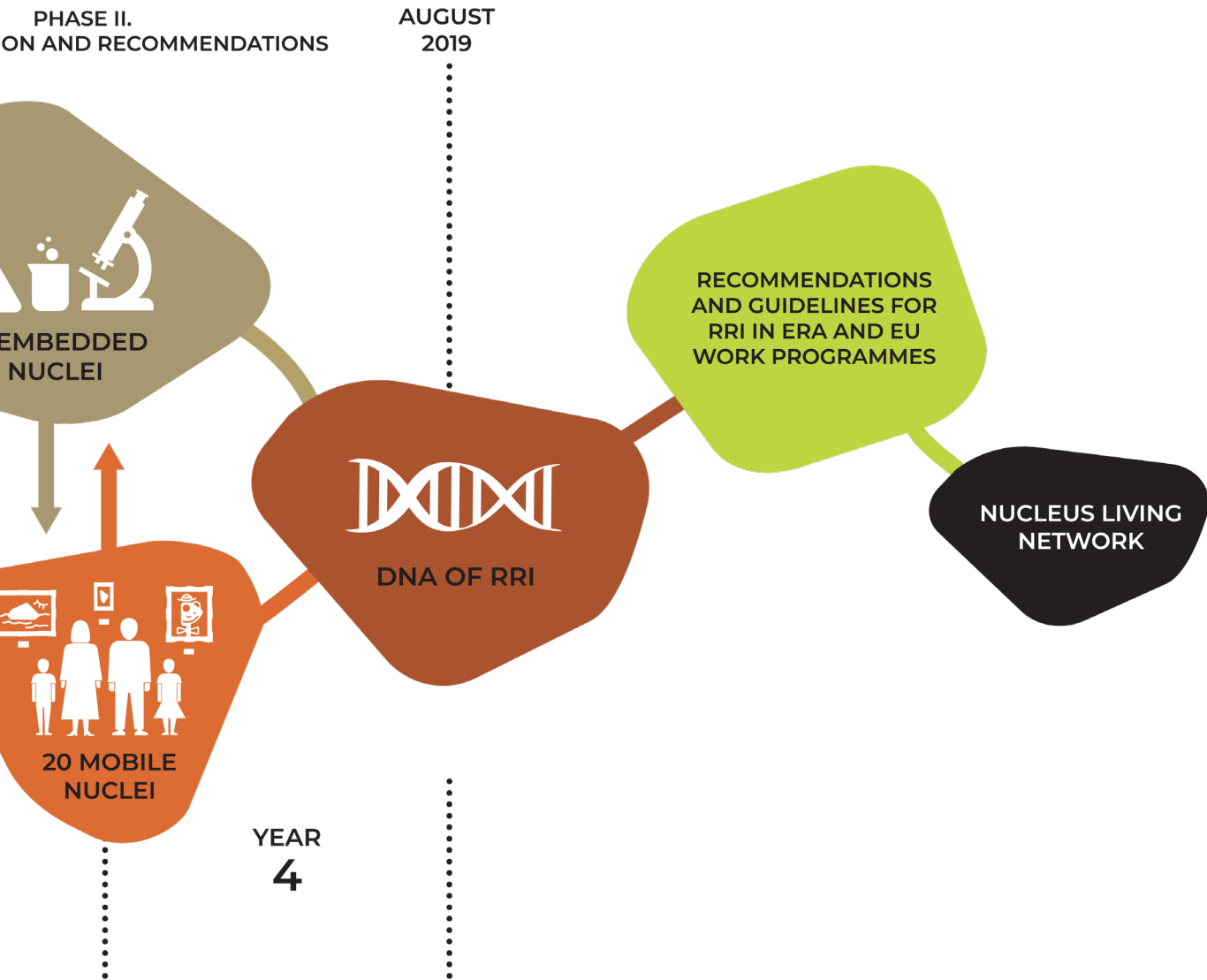
RRI ROADMAP

The **findings and recommendations** from the first two years were pulled together into an **Implementation Roadmap** which has helped partnered universities develop their Embedded and Mobile Nuclei and navigate towards RRI.

BRINGING RRI TO LIFE
IN UNIVERSITIES AND SCIENTIFIC INSTITUTIONS

PHASE II.
ON AND RECOMMENDATIONS

AUGUST
2019

EMBEDDED
NUCLEI

RECOMMENDATIONS
AND GUIDELINES FOR
RRI IN ERA AND EU
WORK PROGRAMMES

DNA OF RRI

NUCLEUS LIVING
NETWORK

20 MOBILE
NUCLEI

YEAR
4

IMPLEMENTATION PHASE

Ten universities and research institutes are hosting **Embedded Nuclei**. These are dedicated units working to establish RRI in the culture and structures of their institutions with support from project mentors.

Twenty partners representing Universities, science festivals and museums act as **Mobile Nuclei**. These partners are integrating modular activities into existing events to support the uptake of RRI by a wider audience.

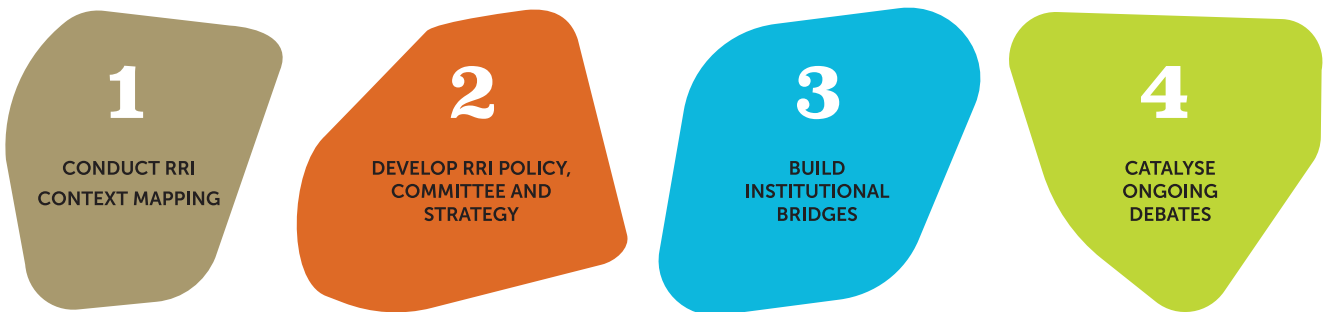## THE DNA OF RRI & A LIVING NETWORK

Practical recommendations for research leaders on how to implement RRI will be the **DNA of RRI**, shaping the growth of a Living Network of partners committed to sustaining RRI beyond the project's lifetime.

Embedded Nuclei

The NUCLEUS Action Framework provides **Embedded Nuclei** with a structured approach for introducing step-changes towards embedding RRI in the local structure and culture in the 10 'test bed' research institutions. Our approach comprises 3 levels: **Establishing** → **Advancing** → **Embedding RRI**.

The seven **NUCLEUS Actions** for Embedded Nuclei implementation are as follows:

1
CONDUCT RRI
CONTEXT MAPPING

2
DEVELOP RRI POLICY,
COMMITTEE AND
STRATEGY

3
BUILD
INSTITUTIONAL
BRIDGES

4
CATALYSE
ONGOING
DEBATES

Mobile Nuclei

A **Mobile Nucleus** is an activity that the host organisation agrees to incorporate into existing events. The concept was developed together with the institutions involved, gathering and integrating their experiences and expectations. Seven different formats are offered to shape a Mobile Nuclei event.

RRI TRAINING

Training scientists in RRI is generally conducted through workshops, where the RRI concept, its background and applicability is discussed with, and among researchers. This format can be very effective in bringing interested researchers, scientists and research mediators or brokers, together to increase understanding of RRI, its usability, its limitations and the opportunities that it presents.

INSTALLATION

An Installation is a setting that creates an environment conducive to discussion and open dialogue among people interested in sharing ideas on a specific topic or issue. An Installation can take many forms, for example it may be a booth-like space, an interactive exhibit, a symbolic installation or even an artistic installation that is related to the topic.
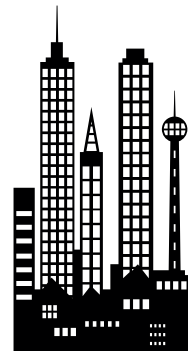
HACKATHONS

A Hackathon is a design 'sprint-like' event where computer programmers and designers come together to collaborate and solve problems. At a scientific hackathon, researchers, developers, designers and those interested in software development, work together in interdisciplinary groups to discuss, craft and develop prototypes of tools and hardware or apps and software which are designed to solve a problem.

BRINGING RRI TO LIFE
IN UNIVERSITIES AND SCIENTIFIC INSTITUTIONS

WANT TO KNOW MORE ABOUT NUCLEUS?

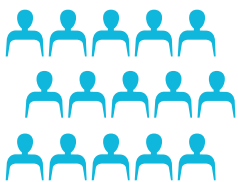Visit our website www.nucleus-project.eu

5
SUPPORT NEW
FORMS OF
TRANSDISCIPLINARY
RESEARCH

6
STIMULATE
CO-RESPONSIBILITY
OF ALL ACTORS

7
QUESTION. & REDEFINE
NOTION OF 'RECIPIENTS'
& 'AGENTS'

OPEN REFLECTION

Open Reflection is a workshop activity, lasting one or two days, where participants explore specific aspects of a topic or plan and possibly implement an activity that is part of a broader process that is already in place. RRI Open Reflection workshops focus on stakeholders' involvement in a particular process.

SCIENCE SHOP

A Science Shop is a single event , that simulates the way the requests and problems of civil society can be transferred into a research environment. Citizens are called clients, in the context of the 'Shop'. Science Shops operate under different names and in different ways throughout Europe and the world.

OPEN TALKS

Open talks are discussion formats for citizens: Fishbowl (a discussion format which is useful to stimulate dynamic discussions) and Reverse Science Café (a discussion event where the dialogue is initiated by experts posing questions and listening to answers from the audience).

CO-DESIGN

Design workshops are a format to develop science communication activities and strategies. They are based on design requirements (wishes and demands) of both people with a background in actual science/engineering, and experts in the field of communication/ collaboration.

Our Embedded Nucleus Partners

From 2017, the project has been establishing a series of test beds in ten institutions to implement the NUCLEUS approach - **to bring RRI to life**.

RHINE-WAAL UNIVERSITY

Founded in 2009, Rhine-Waal University of Applied Sciences (HSRW) is one of the youngest universities in Germany. With more than 7,000 students from over 120 countries, HSRW is also one of the most international universities in Europe. With its two campus locations in Kleve and Kamp-Lintfort, HSRW is a university that is both deeply rooted in the Lower Rhine and connected to the world.

RUHR-UNIVERSITY BOCHUM

Founded in 1962, the Ruhr-University Bochum (RUB) is one of the largest universities in Germany and part of the Deutsche Forschungsgemeinschaft, the most important German research funding organization. RUB is home to more than 41,000 students from over 130 countries, underlining its international importance as well as its broad variety of study programs.

UNIVERSITY OF LYON

The University of Lyon is a COMUE, a community of higher education and research institutes. In France, the purpose of these communities is coordinating training portfolios and research as well as implementing collective strategies on a given territory. The University of Lyon stands out for its alliance of public universities, grandes écoles (prestigious higher education institutions with competitive entrance exams) and research institutions. Its academic and research programs are comprehensive and cover all scientific and artistic fields.

NOTTINGHAM TRENT UNIVERSITY

Nottingham Trent University (NTU) was founded in 1992 and is one of the largest UK universities. With nearly 28,000 students and more than 3.500 staff across four campuses, it contributes £496m to the UK economy every year. The University is home to world-class research, excelling in fields such as sustainable futures, safety and security of citizens and society, health and wellbeing and medical technologies, and advanced materials.

SOUTH AFRICAN INSTITUTE FOR AQUATIC BIODIVERSITY

Situated in Grahamstown in the rural Eastern Cape province of South Africa, NRF-SAIAB has built on a legacy of Ichthyological discovery that began with the ground-breaking discovery of the 'living' coelacanth in 1938. Established as a research institute in 1968, SAIAB is an internationally recognised centre for the study of aquatic biodiversity and in 1999 became a Research Facility of the National Research Foundation. SAIAB is also an Associated Institute of Rhodes University.

Our Embedded Nucleus Partners

UNIVERSITY OF TWENTE

Since the University of Twente's founding in 1961, they have been deeply connected with the rich industrial heritage of the region and the wellbeing of its population. They proudly carry that forward, both at home and internationally. Today they are a catalyst to many high-tech communities and sectors with strong partnerships in a wide range of industries and societal domains. They participate in ground-breaking, globe-spanning networks and programmes.

ILIA STATE UNIVERSITY

Ilia State University (ISU) is the first higher education institution in Georgia to base its core undergraduate curriculum on the principles of liberal education. ISU was established in 2006 on the basis of several different institutions. Currently, over 30 research institutes and laboratories are actively engaged in research and graduate teaching at ISU. The university is committed to internationalisation by attracting top-notch research institutions, policy analysts and field experts as potential partners.

UNIVERSITY OF MALTA

The University of Malta (UoM) succeeded the Collegium Melitensis (1592) by decree of Grand Master Manoel Pinto de Fonseca in 1769. Lying at the cross-roads of the Mediterranean, UoM has been the hub of international academic exchange on the island. The university seeks to carry out academic research and provide a vibrant higher education setting in arts, sciences and the humanities as required for Malta's economic, social and cultural development.

MATHEMATICAL INSTITUTE OF THE SERBIAN ACADEMY OF SCIENCES AND ARTS

The Mathematical Institute of the Serbian Academy of Sciences and Arts (MISANU) was founded in 1946 and is a unique center for mathematically oriented research in Serbia. The main research groups work in mathematical logic, topology and geometry, mechanics and analysis. It employs more than 70 full-time researchers and 250 part-time collaborators at over 40 different institutions and is involved in 8 national and several international projects.

INSTITUTE OF WETLAND RESEARCH

Situated in Beijing, Institute of Wetland Research (IWR), Chinese Academy of Forestry is one of the top research institutes on basic theory and applied technology of wetlands in China. As a government constitute institute, it has a strong relationship with policy-makers, playing an essential role in pushing wetland legislation in Beijing and Suzhou City.

EMBEDDED NUCLEUS

RESULTS FROM THE FIRST IMPLEMENTATION PHASE

BRINGING RRI TO LIFE

IN UNIVERSITIES AND SCIENTIFIC INSTITUTIONS

NUCLEUS Actions

Action 1	Conduct RRI Context Mapping – Identify, extend and enrich the processes that already exist
Action 2	Develop RRI Policy, Committee and Strategy – Engage thought leadership and institutionalized capacity building
Action 3	Build institutional bridges between the research community, stakeholders and the general public
Action 4	Catalyse ongoing debates about the role of science in open societies
Action 5	Develop, nurture and support new forms of transdisciplinary research – External stakeholders have the opportunity to collaborate with researchers when appropriate
Action 6	Stimulate co-responsibility of all actors involved in the process of research and innovation – External stakeholders have the opportunity to collaborate with researchers when appropriate
Action 7	Question and redefine notion of 'recipients' and 'agents' – More researchers are open to working with stakeholders to include diverse range of inputs and opinions into the research decision making process

1 CONDUCT RRI CONTEXT MAPPING

2 DEVELOP RRI POLICY, COMMITTEE AND STRATEGY

3 BUILD INSTITUTIONAL BRIDGES

4 CATALYSE ONGOING DEBATES

5 SUPPORT NEW FORMS OF TRANSDISCIPLINARY RESEARCH

6 STIMULATE CO-RESPONSIBILITY OF ALL ACTORS

7 QUESTION, & REDEFINE NOTION OF 'RECIPIENTS' & 'AGENTS'

NUCLEUS

Rhine-Waal University

Campus Kleve. Photo credit: ©Hochschule Rhein-Waal

OVERVIEW

Founded in 2009 by an alliance of regional stakeholders, Rhine-Waal University of Applied Sciences (HSRW) is one of the youngest universities in Germany. The major goal of the Embedded Nucleus at HSRW is to build upon its 'founding history' by connecting Responsible Research and Innovation processes with regional development strategies and socio-economic challenges in the Lower Rhine region.

BRINGING RRI TO LIFE
IN UNIVERSITIES AND SCIENTIFIC INSTITUTIONS

Klimahaus. Photo credit: ©Hochschule Rhein-Waal

ACTION 1

CONDUCT RRI CONTEXT MAPPING

Between June and October 2017 Rhine-Waal University undertook a series of context mapping exercises to identify the extent to which the institution engages and incorporates elements of RRI in its policies, procedures and culture. The SWOT Analysis took up detailed reflections from the national competition 'Innovative Hochschule' in 2016/2017. In this competition the university was asked to define a) its future mission and b) an enhanced, less linear and more responsive transfer strategy, specifically related to regional needs and challenges. Delegates from the NUCLEUS project were actively involved in this process, bringing the concept of RRI into a series of workshops with the university leadership and transfer department. The results of these meetings were integrated into the universities' Strategic Development Plan (2017 – 2022) published in 2017, in which HSRW expresses a strong commitment to establish ties and pursue ongoing alliances with regional partners and socio-economic development strategies.

ACTION 2

DEVELOP RRI POLICY, COMMITTEE AND STRATEGY

When establishing the Embedded Nuclei (EN) it was agreed that the main partners to establish institutional bridges would be an interdisciplinary Working Group, involving stakeholders from all six cells: University, Civil Society, Policy Making, Media, Economy, Public Engagement. Key partners within the university are the ZFIT (Center for Research, Innovation and Transfer), the HSRW Presidium, the renowned HSRW Public Engagement institutions FabLab, based on the campus Kamp-Lintfort, and the Climate House, based on the campus in Cleves. In order to spread the NUCLEUS concept and approach, the project management developed a 'Strategy Paper: Building Bridges, Framing the Future: Pathways to Open Science at HSRW', summarizing the main tasks of the NUCLEUS Action Plan in a language external stakeholders could easily understand. This document was finalised and shared in spring 2018, with a supporting foreword from the president. Based on expected input from the transdisciplinary NUCLEUS Working Group and the results of the practical implementation of the described actions in the Strategy Paper, the EN team will further explore ways to share RRI policies within the HSRW governance and transfer department, and also among staff and students at the university.

Rhine-Waal University

ACTION 3

BUILD INSTITUTIONAL BRIDGES BETWEEN THE RESEARCH COMMUNITY, STAKEHOLDERS AND THE GENERAL PUBLIC

Between October 2017 and June 2018, a series approximately 20 meetings and one-to-one conversations were held with all institutions fostering knowledge-transfer, relationship management and stakeholder dialogues at HSRW (FabLab, Climate House, Green FabLab, ZDI). The aim was to communicate the EN Action Plan and define ways of establishing and implementing the EN at HSRW, based on the university's Strategic Development Plan. These individual meetings resulted in an interdisciplinary workshop in December 2017. Significantly, when former HSRW-president Heide Naderer presented the NUCLEUS project at a meeting with the mayor of Cleves and the local governance on March 2018 it was agreed to integrate the EN approach in upcoming joint efforts to develop a new transdisciplinary 'Innovation Centre' linking the city and the university.
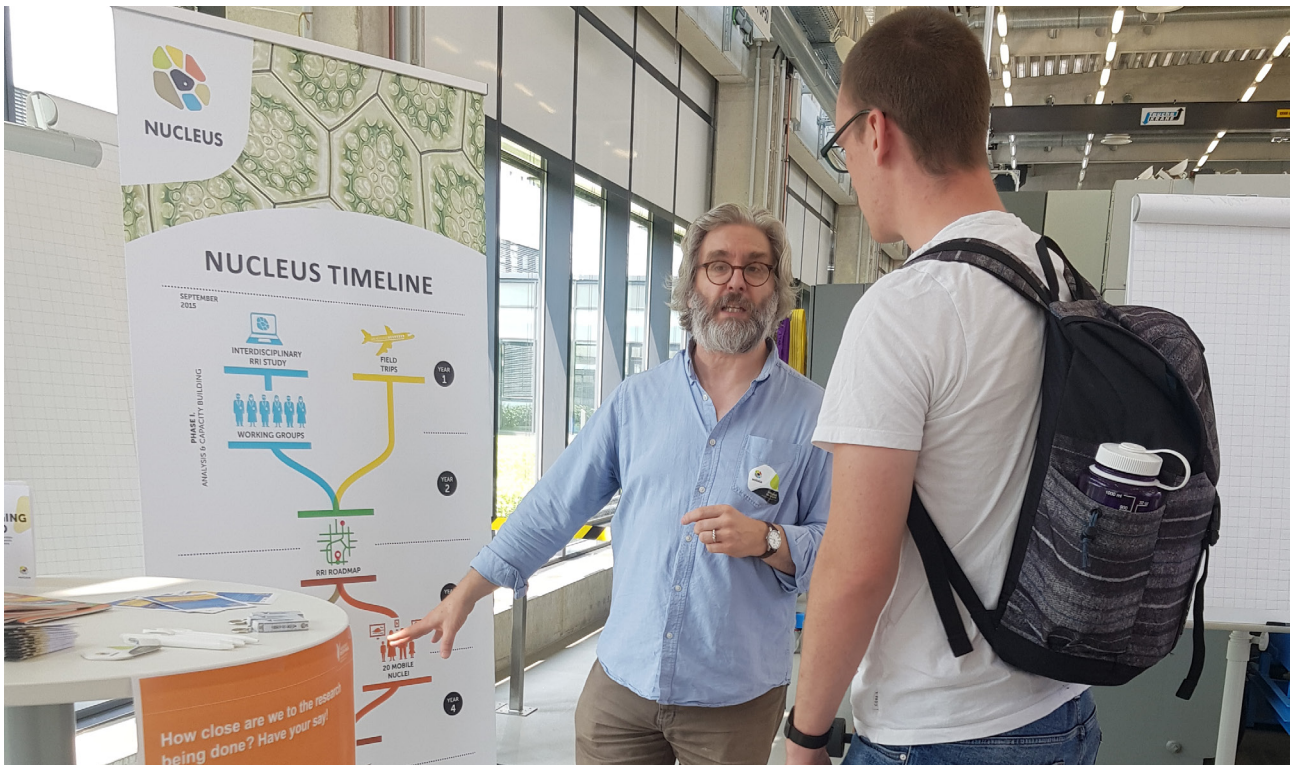
ACTION 4

CATALYSE ONGOING DEBATES ABOUT THE ROLE OF SCIENCE IN OPEN SOCIETIES

In June 2018 selected stakeholders were identified to form a 'NUCLEUS Working Group' at HSRW involving stakeholders from all Cells, representing the region and the university. The first meetings are scheduled for July and November 2018, and for March and July 2019. In order to link research and innovation at HSRW to local and regional challenges and developments, the EN team conceptualized a regular debate-forum entitled 'DenkWerkStadt' (ThinkTankCity/CityLab). After each forum, each topic will be analyzed for potential transdisciplinary research projects. The first forum will be put in place during the second half of 2018.

Buechertisch. Photo credit: ©Hochschule Rhein-Waal

BRINGING RRI TO LIFE
IN UNIVERSITIES AND SCIENTIFIC INSTITUTIONS

Dr. Peter Broks explaining the NUCLEUS project to a student during Open Day. Photo credit: Daniela Martin

ACTION 5

DEVELOP, NURTURE AND SUPPORT NEW FORMS OF TRANSDISCIPLINARY RESEARCH

In December 2017, during meetings with the ZFT Transfer Department, a proposal was put forward for the creation of a prize for transdisciplinary research at HSRW. Also, the same department in collaboration with the new Public Engagement Unit at HSRW suggested that the HSRW Campus in Kamp-Lintfort could focus on integrating the upcoming Federal State Gardening Exhibition to encourage new forms of collaboration related to Sustainability, Tourism and Green Economy. This exhibition will be the largest event in the region for the coming years, with tens of thousands of visitors expected to attend. Collaboration options involve a 'Green Maker Faire' during the Gardening Exhibition, with a 'Green Mini Maker Faire' at the HSRW Open Day 2019 as a starting point for new collaborations between actors from the university and the region. To further support new forms of transdisciplinary research, Dr. Peter Broks and Dr. Annette Klinkert will conduct RRI trainings at the university. If successful they could be integrated into the academic curricula at HSRW.

ACTION 6

STIMULATE CO-RESPONSIBILITY OF ALL ACTORS INVOLVED IN THE PROCESS OF RESEARCH AND INNOVATION

To foster new collaborations between the university, civil society and policy makers, the EN team developed the new concept of 'Student Parliaments Lower-Rhine Region'. These parliaments will, on a regular basis (twice within the project, if successful annually afterwards), invite students from regional schools to discuss research topics related to a specific challenge of the Lower-Rhine region with scientists and regional policy makers. In participating in these Student Parliaments, HSRW researchers will learn to see themselves as responsive partners in citizen-dialogues and contributors of evidence to challenge-driven questions, in the context of informing policy decisions. The topic of the first Student Parliament from 1st -3rd February 2019 will be 'The Future of Energy'. The final debate will be held at Cleves City Hall. The NUCLEUS Project was presented at the HSRW Open Day on June 2018 where the team was present and active to share the RRI approach and planned activities in the coming months.

Rhine-Waal University

ACTION 7

QUESTION AND REDEFINE NOTION OF 'RECIPIENTS' AND 'AGENTS'

In order to foster RRI-oriented research processes an RRI training module was developed for students and researchers. This training will be announced and offered at HSRW in the second half of 2018. A formal training certificate will be provided by HSRW to encourage participation. In addition, together with the university governance/transfer department, the EN team has created a new incentive for RRI-oriented Research and Innovation at HSRW: At the 'Academic Annual Celebration' a prize for 'RRI/ Open Science' Projects or Initiatives is planned to be announced by the university. Also, in order to experience changing roles of decision-making processes in practice, the EN team developed a detailed concept for a Student Parliament (see Action 6) in Cleves and Kamp-Lintfort, together with Prof. Kisters, Vice Dean at the Faculty of Technology and Bionics and Dr. Doris Gerland, Head of the School Network at HSRW.

Student Parliament

Ruhr - University Bochum


Photo credit: ©RUB, Marquard

OVERVIEW

The Ruhr-University Bochum (RUB) was founded in 1962. Their Corporate Communications Department is in charge of running the Blue Square, a building in the city center, where researchers present their findings in a way that is easily understood by people from all walks of life. Audiences are given the opportunity to talk to the researchers and to ask questions. Experts share their views on current social issues with the visitors. For the NUCLEUS project, the Corporate Communications Department and the RUB Research School collaborate in order to introduce the concept of RRI, especially to doctoral researchers.

NUCLEUS

Science College. Photo credit: Annette Klinkert

ACTION 1
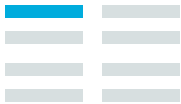
CONDUCT RRI CONTEXT MAPPING

Due to the size and broad variety of disciplines at RUB, there are several actors on the individual level who already engage successfully in activities that fall within the scope of RRI. There are also extraordinarily successful public outreach initiatives, such as the Collaborative Research Centre 874, and in transdisciplinary research, SecHuman. At an organisational level, RUB maintains several co-operations with institutions in the region and is engaged in further improving the educational structure in the Ruhr area. Furthermore, RUB cooperates closely with other universities and with the City of Bochum for the benefit of the region. RUB also maintains regular dialogue with leaders from politics, economics and culture. Although most of the aforementioned initiatives are well equipped and strong in their communication, there is no overarching concept that interconnects them. Thus, a main goal of the Embedded Nucleus (EN) will be to introduce the relevant internal and external stakeholders to the RRI concept and its benefits for researchers and the general public.

ACTION 2

DEVELOP RRI POLICY, COMMITTEE AND STRATEGY

RUB is preparing an RRI policy to align the current university strategy when possible. There has been an open discussion forum with Mentors, the Research School, the Department of Science Communication and Dr. Annette Klinkert to find ways to embed RRI principles into the institution practices. RUB has identified good practice examples of RRI and will document these and actively communicate via the SciComm Department's media channels. In the coming months, the team will highlight the benefits of RRI for researchers (i.e. funding, wider audiences, new perspectives etc.) and will aim to establish a reward structure (e.g. credit points for doctoral researchers) within the university.

Ruhr - University Bochum

ACTION 3

BUILD INSTITUTIONAL BRIDGES BETWEEN THE RESEARCH COMMUNITY, STAKEHOLDERS AND THE GENERAL PUBLIC

The team is currently identifying existing networks between internal and external stakeholders in order to establish mechanisms to place researchers into external organizations or businesses to work on a specific problem with external stakeholders. They also attended one-to-one meetings with representatives of different cells to discuss RRI and identify common goals and potential projects. The team is currently planning an event at the Research School to highlight the benefits of RRI (as mentioned in Action 2). During the next months, the team will work with internal and external stakeholder groups and milestones will be highlighted. They will also continue to foster networking activities between researchers and external stakeholders.

ACTION 4

CATALYSE ONGOING DEBATES ABOUT THE ROLE OF SCIENCE IN OPEN SOCIETIES

In order to foster the function of the BlueSquare as a forum for interactions between researchers and societal actors, the team intends to organise a panel discussion on the importance of communication between academia and society. As part of the Research School curriculum, the team will organise a series of lectures on inventions that changed everyday life and will also host an event where RRI will be presented to doctoral students and researchers. This event will provide a forum for discussion on RRI, and will promote awareness and reflection of relevant ethical and societal issues.

Photo credit: ©RUB, Marquard

NUCLEUS

Audimax. Photo credit: ©RUB, Marquard

ACTION 5

DEVELOP, NURTURE AND SUPPORT NEW FORMS OF TRANSDISCIPLINARY RESEARCH

The team aims to identify existing formats and actors already practicing transdisciplinary research. They are currently discussing appropriate approaches to transdisciplinary research with doctoral students and senior researchers to increase the awareness and understanding of how this type of project works in practice. They will also develop materials and conduct training on how to conduct transdisciplinary research, its benefits and the potential and practical steps for embedding RRI in the Research School curriculum. In the coming months, RUB will meet with government research representatives and representatives of funding bodies (e.g. Friedrich-Ebert-Stiftung) to raise awareness of RRI and to discuss the focus of future themes and directions. RUB is also developing a certificate for doctoral students which acknowledge excellent RRI practice.

ACTION 6

STIMULATE CO-RESPONSIBILITY OF ALL ACTORS INVOLVED IN THE PROCESS OF RESEARCH AND INNOVATION

RUB held a meeting with the UniverCity network to discuss opportunities for collaboration and to establish their expectations, attitudes and willingness to contribute to RRI. In addition to this, the team will hold a meeting with key actors from the media and academia cells to pursue the same goal. They are also preparing the Research School for consulting doctoral students in RRI-relevant aspects to encourage them to engage with the public. Finally, they will include comprehensive information on RRI and NUCLEUS on their webpage.

BRINGING RRI TO LIFE

IN UNIVERSITIES AND SCIENTIFIC INSTITUTIONS

Ruhr - University Bochum

ACTION 7

QUESTION AND REDEFINE NOTION OF 'RECIPIENTS' AND 'AGENTS'

Identification of stakeholder representatives, who are interested in working with scientists, is underway. These stakeholders will then be invited to lecture scientists on the non-scientific aspects of their research topics. A survey will be conducted to inform the design of an engagement process that is acceptable to scientists. Finally, they will create an inventory of successful initiatives on RRI-relevant topics and projects and provide training for Research Support Staff in RRI.

Science College. Photo credit: Annette Klinkert

NUCLEUS

University of Lyon

Site des Quais Berthelot. Siège de l'UdL vue du patio 1. Photo credit: Desvigne Conseil

OVERVIEW

The University of Lyon (UdL) stands out for its alliance of public universities and research institutions. Structured around 12 member institutions and 25 associated institutions, UdL identifies five priorities for expanding its research potential: strengthening scientific excellence; enhancing the quality of scientific results; extending the international visibility and attractiveness of laboratories and institutes; assessing the University of Lyon's leading role in the regional and national development schemes; and implementing research cooperation between academic teams and the Lyon Saint-Étienne socioeconomic actors through the means of specific entrepreneurship programs.

BRINGING RRI TO LIFE
IN UNIVERSITIES AND SCIENTIFIC INSTITUTIONS

European Lab Forum. Photo credit: Gaetan Clement

ACTION 1

CONDUCT RRI CONTEXT MAPPING

After completing a comprehensive SWOT analysis, the team identified that the strength of the Department involved in the project is linked to the fact that it is part of a big educational institution. While this is an advantage, it also demands a big effort in terms of policy alignment. The Self-Assessment Tool revealed that the strongest area of UdL is the one linked to public engagement due to the events regularly organized and the trainings implemented, events targeting not only students but also researchers. Amongst the weakest areas there were the ones concerning gender policies. Also, the tool permitted to underline the need to implement an ethical platform as well as open access tools. During the next months, the Department will continue the analysis of the local and institutional backgrounds while proposing not only initiatives and scenarios of development but also implementation of new policies.

ACTION 2

DEVELOP RRI POLICY, COMMITTEE AND STRATEGY

The team has held regular meetings with partner institutions in order to raise the awareness of RRI while collecting the best practices at the local level. Apart from face to face meetings, the Pop Sciences Seminar was organised in December 2017 where an atelier on the role of researchers in public engagement and science education was implemented. Three events were scheduled in March and June 2018. The first one focused on NUCLEUS and the areas of possible implementation of RRI, the second one targeted the Programming Committee in order to continue discussion on RRI and identify initiatives already developed, and the third one was an atelier targeted at institutions and local contributors. For the upcoming months, regular meetings with partner institutions will be boosted.

University of Lyon

ACTION 3

BUILD INSTITUTIONAL BRIDGES BETWEEN THE RESEARCH COMMUNITY, STAKEHOLDERS AND THE GENERAL PUBLIC

UdL held face to face meetings with the Conseil de Développement, the Métropole de Lyon, and CESER to evaluate the potential involvement of local policy makers in the initiatives implemented by the Department. These entities will be invited to relevant events and will also be proposed as members of the steering committee of the Social Innovation Lab (the final name of this entity is at the time of writing under discussion), which will take place once a year. Also, a training series was implemented to help researchers build a more fruitful exchange with society while conducting research. In the future, regular meetings with local policy makers and CSOs will continue to take place. In the framework of the Social Innovation Lab an orientation committee will be created, and will be operative soon. Moreover, a Science Shop project will be built in collaboration with a big French health research institute, INSERM.

ACTION 4

CATALYSE ONGOING DEBATES ABOUT THE ROLE OF SCIENCE IN OPEN SOCIETIES

The team has designed and launched a digital magazine focusing on the topics of the political agenda in the field of RRI. June´s issue focuses on the concept of Artificial Intelligence. In this context, a hackathon on the topic of cancer and patients´ care was organized as well as the bi-annual Pop Sciences Seminar mentioned in Action 2. The website keeping audiences up to date about the events carried out by the Department has been improved in terms of usability. The website of their Science Shop is updated regularly with the carnets de bord of their interns. The Department will continue to regularly implement dissemination events as well as updating their websites in order to reach a larger audience.

Pop Sciences. Photo credit: Visée.A

BRINGING RRI TO LIFE
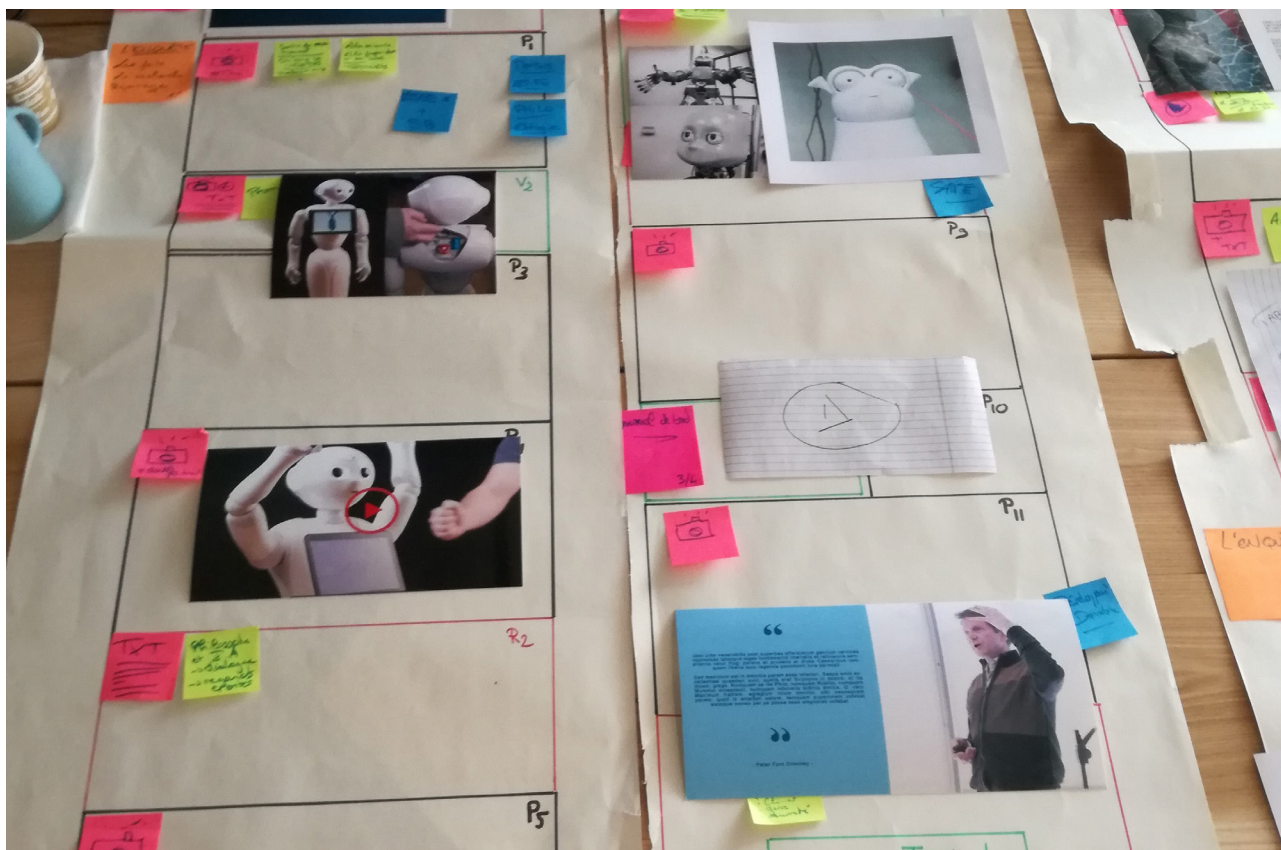## IN UNIVERSITIES AND SCIENTIFIC INSTITUTIONS

Photo credit: Université de Lyon

ACTION 5

DEVELOP, NURTURE AND SUPPORT NEW FORMS OF TRANSDISCIPLINARY RESEARCH

As mentioned in Action 4, UdL designed and implemented a digital magazine focusing on the topics at present on the political agenda in the field of RRI. They also started the implementation of a Social Innovation Lab (the final name of this entity is at the time of writing under discussion) where every actor will have a voice in the discussions. During the upcoming months, UdL will continue building a solid network of policy makers and researchers in order to involve them in the activities of the strategic orientation committee of the Lab. The Department has also conceived a mobile exhibition on the results of the Science Shop's projects with the aim of disseminating research outcomes and approach challenging neighborhoods.

ACTION 6

STIMULATE CO-RESPONSIBILITY OF ALL ACTORS INVOLVED IN THE PROCESS OF RESEARCH AND INNOVATION

To stimulate co-responsibility, they implemented trainings on ethical issues for PhD students. A MOOC on the same subject was released in September 2018. The Department has also started a process to increase their partner institutions' awareness on RRI topics. At the national level, they are part of the ALLISS network which is currently in the process of soliciting the CPU (Conference of Universities' Presidents) about the relevance of participatory research and RRI. In the next months the Department will continue the discussion with partner institutions about the possibility of launching a learning module on RRI targeting students.

NUCLEUS

University of Lyon

ACTION 7

QUESTION AND REDEFINE NOTION OF 'RECIPIENTS' AND 'AGENTS'

Apart from the implementation of trainings, the Department has collected a series of documents concerning RRI and is currently gathering content from partner institutions about best practices already implemented. On their Science Shop website there is a section dedicated to bibliographic resources which will be nurtured with other documents concerning participatory research and engagement of students and researchers in RRI practices.

Photo credit: Université de Lyon

Nottingham Trent University

Photo credit: Nottingham Trent University

OVERVIEW

Nottingham Trent University (NTU) was founded in 1992 and is one of the largest UK universities. With nearly 28,000 students and more than 3,500 staff across four campuses, it contributes £496m to the UK economy every year. The University is home to world-class research, excelling in fields such as sustainable futures, safety and security of citizens and society, health and wellbeing and medical technologies, and advanced materials. Nottingham Trent University has a 2020 strategic plan which aspires to create the University of the Future. As part of this strategic plan there are five key strategic themes which include: creating opportunity, valuing ideas, enriching society, connecting globally and empowering people. These strategic aims strongly align to the underlying core principles of RRI.

NUCLEUS

The Green Academy: Teaching Climate Change and Sustainability. Photo credit: Kathrin Detter

ACTION 1
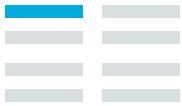
CONDUCT RRI CONTEXT MAPPING

NTU undertook a series of context mapping exercises to identify the extent by which the institution engages and incorporates elements of RRI in its policies, procedures and culture. The self-assessment revealed that NTU engages in numerous activities that incorporate elements and principles of the RRI agenda. However, many of these initiatives and activities occur at a localised level and are often restricted to their individual organisational silo. The combination of these context mapping exercises revealed that whilst NTU has established structures and policies for many of the core RRI principles (i.e. open access, ethics), the engagement of both staff and student communities with these policies and structures is limited, and communication is often fragmented and hindered by the silo culture. The Embedded Nucleus team will undertake an additional self-assessment in November 2018 to identify the impact the NUCLEUS project has had on the institutional landscape, as well as identifying potential new opportunities for enriching RRI practices already occurring at NTU.

ACTION 2

DEVELOP RRI POLICY, COMMITTEE AND STRATEGY

A series of internal meetings were held with many of the key stakeholders identified in the context mapping exercises to discuss potential collaborations which would not only strategically embed RRI at NTU but also enhance existing agendas. The team met with an Equality Diversity and Inclusivity Officer to address gender equality at NTU, and with the Green Academy team to explore the potential overlap with the RRI and sustainable development agendas. They also held a meeting with a Careers Consultant from the Employability team to identify the current approaches used by NTU to engage students and staff with external stakeholders, and with the Head of Doctoral School to discuss the potential for integrating elements of RRI into Postgraduate Research (PGR) compulsory training. From this series of internal meetings, the Embedded Nucleus (EN) team obtained an enhanced understanding of the current institutional landscape as well as the departmental and institutional priorities. NTU will continue to liaise with key stakeholders about the progress of the NUCLEUS project, foster and maintain collaborations, and build a network of engaged stakeholders.

Nottingham Trent University

ACTION 3

BUILD INSTITUTIONAL BRIDGES BETWEEN THE RESEARCH COMMUNITY, STAKEHOLDERS AND THE GENERAL PUBLIC

After the meeting with the Careers Consultant from the Employability team it was agreed to build bridges with the research community through the development of a PGR Alumni network. Additionally, the EN team plans to hold Alumni networking events with postgraduate researcher students. NTU is also active in coordinating and running the STEMcity network: they are responsible of organizing the Festival of Science and Curiosity, an eight day long half-term special full of STEM engagement activities and events taking place across the city centre and the neighbourhoods, all aimed at encouraging children, young people and their families to get curious and explore science and technology. The team will explore opportunities for integrating additional elements of RRI into the long-term strategic vision of the STEMcity network.

To identify and develop existing internal and external networks, the EN team adopted two strategies. The first one focused on attending events that align with RRI principles to identify key contacts and stakeholders, and to promote and disseminate information about the project. They attended several seminars, workshops, conferences and congresses in the UK. The second strategy focused on convening meetings with key stakeholders. They held meetings with the Civic Exchange team to discuss the concept of a Civic University; with the Head of Nottingham Business School to discuss a potential new model of PGR training; with the School of Science and Technology Administrator to discuss the links between RRI and the European General Data Protection Regulation (GDPR); among others. The team also identified an overlap of the NUCLEUS project and the work that the Partnerships, Local Engagement and Commercial Services (PLECS) department is undertaking on the SMART cities agenda to foster it at NTU.

21st Century Scientist: Engaging Scientific Writing Workshop. Photo credit: Nottingham Trent University

NUCLEUS

Nottingham Trent University Library. Photo credit: wakka93

ACTION 4

CATALYSE ONGOING DEBATES ABOUT THE ROLE OF SCIENCE IN OPEN SOCIETIES

One of the barriers identified for embedding RRI at NTU was the poor communication between individual 'silos'. Therefore, the EN team ultimately aims to create a platform which provides opportunities for disseminating information, and promoting and catalyzing discussion on RRI principles for internal stakeholders. This is being achieved by scheduling regular meetings, and presenting RRI at external conferences and assemblies. Also, in order to build capacity of researchers to engage and communicate with external stakeholders, the team designed and implemented a series of workshops to improve scientists' communication skills. These were done in collaboration with two lecturers in Physics and were targeted towards STEM staff, students and medium-sized enterprises.

ACTION 5

DEVELOP, NURTURE AND SUPPORT NEW FORMS OF TRANSDISCIPLINARY RESEARCH

Since NTU introduced in November 2017 five Key Strategic Research Themes within the institution, it was crucial for the team to obtain an understanding of the goals, barriers and opportunities of each Theme. They held a series of meetings with the Research Team Leads as well as with the Strategic Theme Lead for the Medical Technologies and Advanced Materials to discuss the potential links between the NUCLEUS project and the Connecting Capabilities Fund (CCF), as well as the potential opportunities of increasing academic engagement with external stakeholders. Also, the team held a meeting with NTU´s Green Academy team to explore the potential overlap with the RRI and sustainable development agendas. This resulted in the establishment of a Living Lab: a platform for collaboration between researchers, students, external stakeholders and the Estate Department to develop creative and innovative approaches to complex social responsibility and sustainability problems. In order to explore opportunities for developing transdisciplinary research collaborations with stakeholders the team aims to convene meetings with the Strategic Research Theme Leads and to confirm the potential collaboration between the NUCLEUS project and the CCF Impacting Business by design project.

BRINGING RRI TO LIFE
IN UNIVERSITIES AND SCIENTIFIC INSTITUTIONS

ACTION 6

STIMULATE CO-RESPONSIBILITY OF ALL ACTORS INVOLVED IN THE PROCESS OF RESEARCH AND INNOVATION

To identify approaches to stimulate co-responsibility of stakeholders involved in research processes, the team attended a workshop on 'Developing a Strategic Participatory Action Research (PAR)'. The report is being done by the Civic Exchange team and will be submitted to the Associate Dean of Research for the School of Social Sciences. The team also attended and facilitated the Mobile NUCLEUS 'SMART because of you' workshop at Nottingham City Council, where they discussed RRI with Universities/researchers, policy-makers, civil society groups and business leaders. Finally, to address the links between researchers and the media, a meeting was held with the Press and Public Affairs Manager to explore possible contributions towards a series of events co-hosted by NTU on the Nottingham Women Expert Network. For the upcoming months, the team aims to collaborate with the Civic Exchange team to establish a Civic Exchange Steering Group which would include members from civil society, NGOs, businesses and Universities, and its aim would be to help shape a University strategic offer on PAR.

ACTION 7

QUESTION AND REDEFINE NOTION OF 'RECIPIENTS' AND 'AGENTS'

After a meeting was convened with the Research Governance and REF Manager, two separate working groups were formed: a Research Ethics Working Group to focus on research ethics structures and systems, and a Research Policy Working Group to review the research integrity policies and practice. Thus, the team will explore the opportunity to integrate RRI into key policy documents such as the Code of Practice for Researchers. Along these lines, a detailed content analysis of annual statements for compliance to the Universities UK Concordat to support research integrity was conducted. The result has enabled the formation of an evidence-based framework to propose solutions to current barriers facing responsible conduct of research and RRI at NTU. Finally, a meeting was held with the Head of Doctoral School to discuss opportunities for embedding RRI training within each stage of the Doctoral Plus Program (DPP). The team will deliver PGR training in the 2018/19 academic year. Finally, a meeting was held with an Equality Diversity and Inclusivity Officer to address gender equality at NTU. Since then, a member of the team has actively participated and contributed towards activities within the women's staff network.

The Nottingham Festival of Science and Curiosity. Photo credit: Ignite!

NUCLEUS

SAIAB

The South African Institute for Aquatic Biodiversity

OVERVIEW

The South African Institute for Aquatic Biodiversity (SAIAB) is an internationally recognised centre for the study of aquatic biodiversity and a Research Facility of the National Research Foundation (NRF). SAIAB is highly leveraged in the research community and involved in many multi-institutional and multi-disciplinary projects. Researchers are regularly involved in providing advice to policy makers in both the marine and freshwater sectors.

Through its Marine Platforms and African Coelacanth Ecosystem Programme (ACEP), SAIAB runs an established marine science transformation programme which provides specialist equipment and training to equip the next generation of scientists and managers with tools to understand and manage environmental change. SAIAB also hosts the DST/NRF Research Chair in Inland Fisheries and Freshwater Ecology.

Through these platforms SAIAB interacts with a broad range of universities and local and national government regarding real-time environmental issues which require the integration of science with management. SAIAB's scientists are increasingly sought out to provide advice that can be applied in the formulation of national environmental policy. This is likely to continue with increased socio-economic development, water security issues, ecosystem degradation and the influence of climate change on food security.

Teams reviewing/reflecting on what is currently working for SAIAB and what is not working that needs to be improved

ACTION 1

CONDUCT RRI CONTEXT MAPPING

The Self-Assessment Tool revealed that SAIAB's structure and policies were very good, and that the organisation has a high-functioning level of ethics. Also SAIAB works on an open-access to information paradigm. RRI was not entirely embedded, but progress was further along than expected. To keep the momentum and ensure engaged institutional transformation, SAIAB has embarked on a strategic initiative of its own which recognises a broad spectrum of leadership potential within the institute through which to drive transformation. During the first phase of implementation, SAIAB organised a workshop for identified leaders within the institute in November 2017, resulting in an elected Transformation Committee; as well as a workshop with all staff, interns and students in April 2018 from which issues to be addressed were identified.

ACTION 2

DEVELOP RRI POLICY, COMMITTEE AND STRATEGY

In October 2017 all staff, students and interns were invited to review and revise the organisation's Mission and Vision statement, and in November 2017 an externally facilitated workshop was held to develop a Transformation Framework specific to SAIAB as a rural national facility. SAIAB is a Participating Institute of the South African National Biodiversity Collections Facility, and also operates an Animal Ethics Committee (AEC) to ensure that all research projects are implemented responsibly and with due care. To build towards RRI implementation, SAIAB recruits, supervises and trains postgraduate students through research, internships and placements. SAIAB also promotes the NRF values in English and in the local language. The organisation is currently developing its Strategic Plan for 2019-2025 which aims to entrench the principles of RRI into research planning.
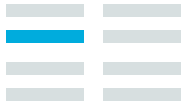
NUCLEUS

SAIAB

ACTION 3

BUILD INSTITUTIONAL BRIDGES BETWEEN THE RESEARCH COMMUNITY, STAKEHOLDERS AND THE GENERAL PUBLIC

SAIAB has conducted several workshops to engage with local and national communities such as the 'Public Engagement and Dialogue' workshop by Heather Rea, and the 'Optimism for Science Communication in South Africa' talk by Rachel Rayner. Also, SAIAB participated in a workshop on the Community Voice Method (CVM) which is used to engage communities in the establishment and sustainable management of marine protected areas, as well as an introductory workshop led by CEN Integrated Environmental Management Unit which focused on community participation in the development of a Coastal Management Programme for the local district municipality.

Other events that helped promote the agenda of RRI were the Annual Smith Memorial Lecture (September 2017) entitled 'From the Smiths to Social Media' by Dr. Judy Mann-Lang, the Water World Pop-Up Science Centre at SciFest Africa (March 2018), the Rhodes University/Durban University of Technology's Community Engagement and Social Innovation Symposium (May 2018), hosting the book launch for 'Fishes of the Okavango' by Mike Bruton and Paul Skelton (July 2018), a display during National Science Week (July-August 2018), and the nationally coordinated Dignity Drive for National Women´s Month (August 2018), during which SAIAB collected disposable and reusable sanitary pads for learners at Grahamstown Primary School. For this year's International Mandela Day (18 July) SAIAB adopted a local crèche as the beneficiary. The SAIAB team prepared a cooked meal and made donations of various educational items.

Through various research projects, SAIAB works with NGOs and other research institutes that have strong public engagement agendas. SAIAB is a Networking Partner of the WWF´s South African Sustainable Seafood initiative (WWF-SASSI) which is a consumer awareness project that seeks to change the way consumers, retailers and restaurateurs approach making choices about the fish they buy. SAIAB has provided the fish illustrations that populate the SASSI Fish List.

SAIAB has internal mechanisms that build towards full RRI implementation such as the Director's Scientific Advisory Committee, the Collections Advisory Group; the Risk, Health and Safety and Environmental Committee; the Equity Committee and the Transformation Committee.

Dignity Drive for SA's National Women´s Month (August 2018) – Ferdy Jacobs, Carolene Brooks, Francesca Porri and other SAIAB staff members engaging in discussions with the learners at Grahamstown Primary school on life orientation, gender base issues and sex education

Zinzi Somana, research student from SAIAB explaining the work done at SAIAB's Genetics
Laboratory and how molecular techniques are applied in identifying aquatic animals

ACTION 4

CATALYSE ONGOING DEBATES ABOUT THE ROLE OF SCIENCE IN OPEN SOCIETIES

During SciFest Africa, SAIAB partnered with the DST/NRF South African Research Chair in Biotechnology Innovation & Engagement at Rhodes University, Prof. Janice Limson, to host a workshop entitled 'RRI: What role can science communicators play?' Participants ranged from pre-service teachers to the director of South Africa's largest science centre. To foster and capture debates around the role of science, SAIAB conducted a RRI Workshop at the National Arts Festival (July 2018) entitled, 'Science and Society. Can Art close the gap?' and will be present at the Highway Africa Conference (November 2018).

ACTION 5

DEVELOP, NURTURE AND SUPPORT NEW FORMS OF TRANSDISCIPLINARY RESEARCH

The African Coelacanth Ecosystem Programme (ACEP) managed by SAIAB is a national flagship marine research platform funded by the Department of Science and Technology. ACEP provides access to research infrastructure and associated funding to facilitate research along the east coast of South Africa. On a research cruise undertaken in mid-2018, ACEP technical staff, SAIAB interns and students, a team of marine scientists, a local environmental NGO, WILDOCEANS, and a film-crew from Off the Fence (OTF) were involved in filming an episode entitled 'Our Oceans: Dinosaurs in the Deep' which documents a range of threats to the coelacanth's ecosystem from overfishing to mining, pollution and climate change. The full series of documentary films will feature other iconic marine species such as sharks and whales which are under similar threat, and look at research being done on them.

All SAIAB's research platforms have multi-stakeholder engagement. Multidisciplinary research is entrenched and transdisciplinary research is gaining traction as a necessary component of the science endeavour. As a way of addressing and transforming the demographics of the marine science community, ACEP runs a development programme called ACEP Phuhlisa (Development) which ensures the training of black postgraduate students and their supervisors from four Historically Black Universities – the University of Fort Hare, Walter Sisulu University, University of the Western Cape and University of Zululand. The students are equipped with life skills through special courses such as swimming, skipper training, field safety and first aid. Academic writing courses for second language science students are also offered. Whilst much attention is given to student development, the reality is that as students move through the system, the supervisors remain. In some cases research staff from SAIAB are involved in co-supervising students, but the major thrust of ACEP Phuhlisa is to contribute to continued in-service development of the academic staff in these institutions. ACEP Phuhlisa aims to enable these supervisors to improve their teaching through facilitating access to research equipment that would otherwise not be available to them and networking with academics in other national and international universities and research institutions.

NUCLEUS

SAIAB

ACTION 6

STIMULATE CO-RESPONSIBILITY OF ALL ACTORS INVOLVED IN THE PROCESS OF RESEARCH AND INNOVATION

SAIAB staff meetings are held quarterly and are run as information sharing sessions which encourage engagement and provide recognition for achievements among the staff as a whole. For internal reporting, SAIAB has developed new templates which ask for information regarding Engaged Research using the 'cells' identified by NUCLEUS to guide researchers' responses and encourage them to view all their interactions and partnerships as important. There is also access to the NRF Policies for all staff.

ACTION 7

QUESTION AND REDEFINE NOTION OF 'RECIPIENTS' AND 'AGENTS'

During the globally celebrated World Fish Migration Day (April 21st) SAIAB's Freshwater Research team held a fish identification workshop with South African National Parks (SANParks) and Drs. Paul Cowley and JD Filmalter from SAIAB's Acoustic Tracking Array Platform (ATAP) gave two evening public presentation entitled 'Understanding the movement behaviour of South Africa's icon estuarine fish species'.

As an outcome of its partnership with SAASTA, SAIAB hosted an exhibition of the winning images from SAASTA's photography competition 'SA Science Lens' during the National Arts Festival (July 2018) and SAASTA staff ran a science communication workshop for SAIAB students and interns at the same event.

Rachel Rayner from SAASTA hosting a science communication workshop for SAIAB students and interns

University of Twente

Photo credit: University of Twente

OVERVIEW

The University of Twente (UT) is a public research university located in Enschede, the Netherlands. It offers degrees in the fields of social sciences, exact sciences and is highly specialized in engineering. The UT collaborates with Delft University of Technology, Eindhoven University of Technology and the Wageningen University and Research Centre under the umbrella of 4TU and is also a partner in the European Consortium of Innovative Universities (ECIU). The UT Action Plan focuses on raising awareness of and capacity building for RRI amongst researchers and students. Building a community of practice is important because it will catalyse embedding RRI into the practices of researchers and students at the UT. This community is being formed, amongst others, via meetings (formal and informal), training (including lectures), and mentor and peer interactions.

NUCLEUS

Science2Design4Society event

ACTION 1 — CONDUCT RRI CONTEXT MAPPING

One of the current strengths for embedding RRI at the university is the focus on fostering the science-society relationship at the policy level. At the policy level, societal impact – being societally relevant – is emphasized. Challenges are at the practical level where individual researchers see the wish to engage with society but where other pressing issues often prevail. The UT is conducting context mapping throughout the project life-time in order to feed into the actions.

ACTION 2 — DEVELOP RRI POLICY, COMMITTEE AND STRATEGY

The UT hired staff and developed an Action Plan based on Action 1. This allowed the team to organize meetings with stakeholders and officials to talk about NUCLEUS to a) raise awareness of RRI and b) show connections to already existing policies. The team also lobbied for training and courses at the master and doctoral education curriculum managing to make, for example, a training on academic integrity mandatory for all new PhD students from 2018 onwards. In addition, they developed and taught a course on communication, innovation and society for Research Honour Master students and PhD students.

University of Twente

ACTION 3

BUILD INSTITUTIONAL BRIDGES BETWEEN THE RESEARCH COMMUNITY, STAKEHOLDERS AND THE GENERAL PUBLIC

According to the Action Plan, the Embedded Nucleus team worked with internal stakeholders, discussed aspects of RRI at meetings, invited experts to develop training, built relationships with other projects, and liaised between various networks. The networks include the Twente Graduate School, DesignLab, other European projects like RUNIN, SIENNA and GONANO; the university library, and researchers from various faculties.
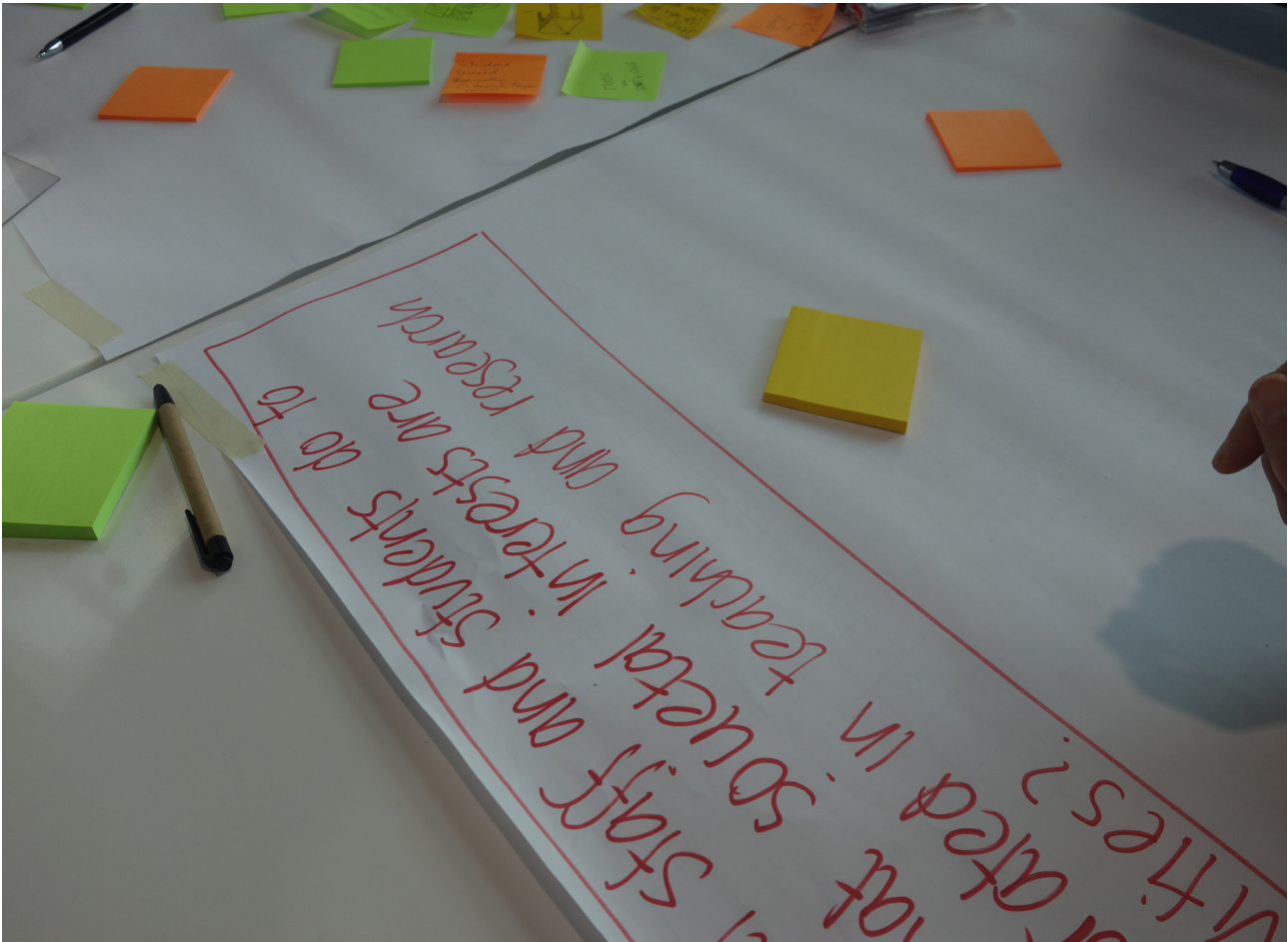
ACTION 4

CATALYSE ONGOING DEBATES ABOUT THE ROLE OF SCIENCE IN OPEN SOCIETIES

During 2017-2018, the course on communication, innovation and society for Research Honour Master students and PhD students was developed and taught. This course explicitly focused on aspects of RRI. In June 2018, they held a ThinkTank event with different stakeholders to gather suggestions for concrete activities and highlight where additional research will be needed to improve the way the UT contributes to meeting societal needs. The focus was on two overarching questions: how can universities meet societal expectations and desires regarding their contributions? And how can the University practically include societal needs in current and future research projects? They are currently working on the results which will be presented to the Board of the University.
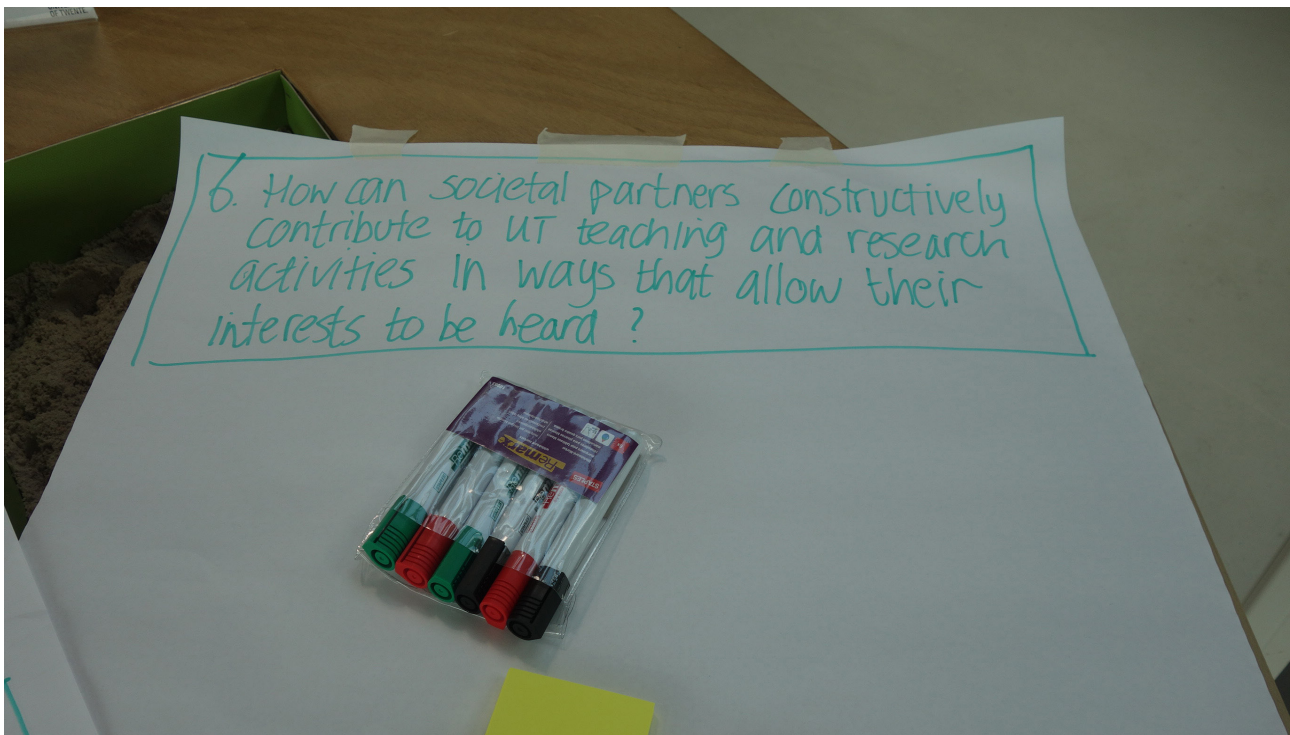
ACTION 5

DEVELOP, NURTURE AND SUPPORT NEW FORMS OF TRANSDISCIPLINARY RESEARCH

For their first in depth-case, they are interviewing both early career as well as senior robotics researchers to track and compare their responsiveness. This case will contribute to the RRI DNA by generating insight into whether this method can catalyse RRI awareness amongst researchers.

ACTION 6

STIMULATE CO-RESPONSIBILITY OF ALL ACTORS INVOLVED IN THE PROCESS OF RESEARCH AND INNOVATION

Although they did not specify activities for this Action during the first implementation phase, the UT is stimulating the uptake and practice of RRI in order to increase awareness of co-responsibility through the other Actions. During the second half of 2018, the activities at the UT will remain focused on capacity building and catalysing a community of practice with various groups including RRI-related themes in their activities or research.

University of Twente

ACTION 7

QUESTION AND REDEFINE NOTION OF 'RECIPIENTS' AND 'AGENTS'

The UT is currently interviewing robotics researchers as part of their first in-depth case, which is currently in progress as described in Action 5. They also have initiated a co-creation workshop which will be connected to Action 4 and for their second in-depth case they will organize more workshops.

DesignLab workshop during the Science2Design4Society event. Photo credit: Peter-Paul Verbeek

NUCLEUS

Ilia State University

OVERVIEW

Ilia State University (ISU) was founded in 2006 as a result of a merger of six different academic institutions with long and varied histories. Currently, it is one of the leading research and educational institutions in Georgia. ISU is a rapidly developing university thanks to its innovative approaches in creating scientific and technological progress. The university is host to several public engagement events, such as Science Cafés and the Science Picnic.

BRINGING RRI TO LIFE
IN UNIVERSITIES AND SCIENTIFIC INSTITUTIONS

ACTION 1

CONDUCT RRI CONTEXT MAPPING

ISU completed a comprehensive SWOT analysis and Self-Assessment tool. The team identified that their strength relies on the University's public engagement events. Also their website and social media accounts are used to communicate and disseminate their progress and to receive feedback from the public and stakeholders. The weakest areas were the ones concerning gender policies. In the upcoming months, they will continue analysing the local and institutional backgrounds while proposing not only initiatives and scenarios of development but also implementation of new policies.

ACTION 2

DEVELOP RRI POLICY, COMMITTEE AND STRATEGY

The team is currently developing a RRI Policy focused on the University's development and how RRI should be embedded within the institution. They also held a series of internal meetings with several heads of laboratories and faculties, as well as with the PR department and PhD students to talk about options to develop RRI policies within the University. During the next months, regular meetings with partner institutions, stakeholders and research institutes will be boosted. They also scheduled a TV broadcast with the Institute of Earth Science to discuss the arising local problem of massive building projects. Their institute has the ability to make recommendations regarding this issue in order to tighten regulations for this kind of urban development. They plan to tackle other societal problematic issues in future broadcasts.

NUCLEUS

Ilia State University

ACTION 3

BUILD INSTITUTIONAL BRIDGES BETWEEN THE RESEARCH COMMUNITY, STAKEHOLDERS AND THE GENERAL PUBLIC

For successful involvement of external stakeholders, ISU held a Media Workshop in June 2018 in order to involve the media cell. During this workshop the participants learnt about the concept of RRI, the project and the role that media can play to align societal needs with the research developments in ISU. The team is planning to have a follow-up webinar in the near future. The team also met with National Geographic's Editor in Chief to talk about RRI and discuss a possible collaboration, and with the head of Institute of Earth Science to plan the TV collaboration mentioned in Action 2. During the next months, ISU will continue fostering networking activities between researchers and external stakeholders.

ACTION 4

CATALYSE ONGOING DEBATES ABOUT THE ROLE OF SCIENCE IN OPEN SOCIETIES

On a digital dimension, ISU created a Facebook page to share resources and events, keep the audiences up to date in RRI related topics, and receive feedback from stakeholders. Also, their digital strategy includes the development of a website to support the dialogic interactions between citizens and the University. As already mentioned, ISU hosts the annual event Science Picnic, the only large-scale event in Georgia that helps popularize science amongst every age category. They also invite different cells (media, government and economy) to Science Café talks and STEM lectures to open up the discussion around scientific research. Each Wednesday from May to July 2018, ISU held the STEM-Academy where professors and researchers talked about scientific topics in an interactive way. Finally, they also held an Annual Reporting of Research Institutes where the university researchers met each other, and shared their results and experience.

BRINGING RRI TO LIFE
IN UNIVERSITIES AND SCIENTIFIC INSTITUTIONS

ACTION 5

DEVELOP, NURTURE AND SUPPORT NEW FORMS OF TRANSDISCIPLINARY RESEARCH

The team applied for national and European funding's to gain more resources to support the kind of activities mentioned in Action 4 within the university. This type of project has proven to encourage external stakeholders to collaborate with researchers. For the upcoming months, ISU will map out and set up a database on all the transdisciplinary projects taking place at the university in order to identify formats and actors involved in each one of them. They will also meet with research agencies and funders to discuss national plans on transdisciplinary research.

ACTION 6

STIMULATE CO-RESPONSIBILITY OF ALL ACTORS INVOLVED IN THE PROCESS OF RESEARCH AND INNOVATION

ISU held meetings with experienced and early career researchers to invite them to be more actively involved in science communication activities and NUCLEUS events. They explained the importance of their role for developing co-responsibility in the process of research and innovation. In the near future, the team is planning to integrate a Science Communication module in their curricula. They will also meet with University departments to discuss opportunities for co-responsibility, establishing their expectations, attitudes and willingness to contribute to RRI.

NUCLEUS

Ilia State University

ACTION 7

QUESTION AND REDEFINE NOTION OF 'RECIPIENTS' AND 'AGENTS'

The team will work with a doctoral training group and early stage researchers to engage/create dialogue about RRI principles and activities within the project and within the University. In terms of ethics, ISU is planning to introduce official guidelines and standards on this matter. In the upcoming months they will talk with the Ethics committee members in the University in order to increase the ethics importance in research process and embed peer review for research proposals.

University of Malta

Gateway Building

OVERVIEW

Lying at the cross-roads of the Mediterranean UM has been, over its 400-year history, the hub for international academic exchange on the island. The University seeks to carry out academic research and provide a vibrant higher education setting in the arts, sciences and the humanities, as required for Malta's economic, social and cultural development. Research is being conducted in a variety of areas, including innovation management, innovation communication, entrepreneurship, creativity and idea generation, future studies (foresight), and startups from a variety of fields.

NUCLEUS

Meeting with the University of Edinburgh

ACTION 1
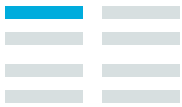
CONDUCT RRI CONTEXT MAPPING

UM completed a comprehensive SWOT analysis and Self-Assessment tool. The team identified that their strength relies on their innovative communication efforts but also identified the lack of institutional support for several aspects of RRI as their major weakness. This information is still being processed and will be used as a basis for planning and developing a local RRI Roadmap.

ACTION 2

DEVELOP RRI POLICY, COMMITTEE AND STRATEGY

The UM team held a series of meetings with various stakeholders and sought to align their efforts with the goals of NUCLEUS. They also initiated a NUCLEUS Core Committee comprising pro-rectors and other people in senior leadership, as well as collaboration with the University of Edinburgh to build on the mentoring relationship established as part of the project. They are currently developing a roadmap to align university policies with RRI. In the coming months, the team will meet with key people within the library, Human Resources, ethics and gender equality to seek commitment for the inclusion of RRI actions. They will also identify RRI champions within the University whose research and focus is on public engagement, diversity/gender equality, economy, media and public policy and profile them on social media and THINK magazine.

University of Malta

ACTION 3

BUILD INSTITUTIONAL BRIDGES BETWEEN THE RESEARCH COMMUNITY, STAKEHOLDERS AND THE GENERAL PUBLIC

The team and the mentor from the University of Edinburgh met with stakeholders from all external cells to discuss the interaction between the UM and each of them with respect to RRI. They also discussed possible areas of collaboration. The setup of a NUCLEUS Think Tank with external cells will form the basis of continuing efforts to catalyze these bridges and overcome the barriers between the cells. They plan to hold regular bimonthly meetings of the NUCLEUS Think Tank.

ACTION 4

CATALYSE ONGOING DEBATES ABOUT THE ROLE OF SCIENCE IN OPEN SOCIETIES

Since UM is hosting the 2018 NUCLEUS Annual Conference, the team has been actively involved in planning the event. During the conference, there will be an open activity involving the public to discuss the project and launch further dialogue regarding this field. Apart from this NUCLEUS event, the team is planning to organise seminars on RRI with invited speakers from external stakeholders at the University, as well as RRI sessions at public science events, in order to open up the discussion with society about societal and ethical issues.

Signing of the Memorandum of Understanding with the University of Edinburgh

NUCLEUS

ACTION 5

DEVELOP, NURTURE AND SUPPORT NEW FORMS OF TRANSDISCIPLINARY RESEARCH

UM has had a series of discussions with researchers about their best-practice research projects in order to identify forms of collaborations and ways to institutionalise them. To further develop new forms of transdisciplinary research, UM is aiming to support best-practice collaborations by opening them up to other researchers.

ACTION 6

STIMULATE CO-RESPONSIBILITY OF ALL ACTORS INVOLVED IN THE PROCESS OF RESEARCH AND INNOVATION

The team submitted a proposal for an RRI focused workshop for doctoral students. The main goal of this training is to empower researchers to embed and include RRI within the research process. These training seminars will be held at the Doctoral School, with an option to to extend the seminars to more researchers and faculties.

ACTION 7

QUESTION AND REDEFINE NOTION OF 'RECIPIENTS' AND 'AGENTS'

The aforementioned NUCLEUS Think Tank (Action 3) will be used to catalyze the notions of 'recipients' and 'agents', and will help to overcome the barriers between the cells. The team expects that the NUCLEUS Think Tank's networks will bring these (recipients and agents) societal actors together for effective action.

BRINGING RRI TO LIFE
IN UNIVERSITIES AND SCIENTIFIC INSTITUTIONS

MISANU

Mathematical Institute SASA. Photo credit: Dragan Aćimović

OVERVIEW

The Mathematical Institute of the Serbian Academy of Sciences and Arts (MISANU) was founded in 1946 and is a unique center for mathematically oriented research in Serbia. The main research groups work in mathematical logic, topology and geometry, mechanics and analysis. MISANU is beginning the process of integrating RRI throughout all its activities.

NUCLEUS

Embedded Nuclei Working Group in Belgrade (Serbia), SASA, 2017. Photo credit: Dragan Aćimović

ACTION 1

CONDUCT RRI CONTEXT MAPPING

MISANU completed a comprehensive SWOT analysis and a Self-Assessment tool. The results indicated that the institute is beginning the process of integrating RRI throughout all its activities. When considering RRI within the culture and governance of MISANU, the team recognise that there is an ongoing reflection, discussion and consideration in public and academic circles about the role of society in the research process; as well as established platforms and opportunities that create and foster dialogue, communication and dynamic relationships between the institutions and the 6 stakeholder 'cells'. In the coming months the team will sign a Vision Statement with the Mentoring Institution.

ACTION 2

DEVELOP RRI POLICY, COMMITTEE AND STRATEGY

The team is planning to create an RRI policy which will be aligned to the institution´s current mission and regulations. Following the RRI Info Day held on June 18th, 2018 an RRI Committee is being established. One of the Committee's first tasks will be to discuss the best format and structure for sharing updates with senior leadership. They will also invite key personnel from Human Resources, ethics, Public Relations, library and research schools to encourage their engagement with RRI and to embed RRI into their practices, and to meet regularly. Finally, their project entitled 'RRI Champions' seeks to show how RRI can be implemented in the research process by profiling researchers and their experience, practical information and best practices via a new website.

MISANU

ACTION 3

BUILD INSTITUTIONAL BRIDGES BETWEEN THE RESEARCH COMMUNITY, STAKEHOLDERS AND THE GENERAL PUBLIC

MISANU will invite Dr. Lazar Velimirovič to organise a meeting with the Serbian Chamber of Commerce to help bridge the gap between industry and academia, and to encourage the establishment of more joint projects. MISANU will create a partnership with the Serbian Office for Cooperation with civil society in order to establish networks with organisations linked to science engagement. In terms of ethics, a working group comprising a number of researchers will develop an ethical code of conduct. MISANU will also create schemes for students and researchers to physically spend time at partner organisations, and will hold regular seminars about careers in research.

ACTION 4

CATALYSE ONGOING DEBATES ABOUT THE ROLE OF SCIENCE IN OPEN SOCIETIES

MISANU will conduct social media training for researchers to provide them with skills and confidence to engage in social media platforms, which could add societal value to their research. In collaboration with the Center for the Promotion of Science, MISANU will also organise the May Month of Mathematics 2019 and create a National Center for Cyber Security and Privacy aimed at improving understanding of data privacy issues and motivate nonacademics to share their personal data for research purposes. Finally, they will develop a proposal for the Ministry of Education, Science and Technology (EST) to require open science measures to boost the engagement of Serbian research institutions in this matter.

Exhibition 'Mihailo Petrović Alas, the Progenitor of the Serbian School of Mathematics', SASA Gallery, 2018. Photo credit: Veselin Milunović Aćimov

Poster presentation at US-Serbia & West Balkan Data Science Workshop, 2018. Photo credit: Maja Novaković

ACTION 5

DEVELOP, NURTURE AND SUPPORT NEW FORMS OF TRANSDISCIPLINARY RESEARCH

The team is working on a pilot project with the Ministry of EST and the Association of Serbian Banks and Visa Inc. to include financial education in the school curricula. They will propose to the Ministry of EST to dedicate RRI resources in the next call for national scientific project proposals in order to motivate those developing proposals to include RRI activities. They will create the central digital register in partnership with the Ministry of Culture and Telekom Serbia to digitize the cultural heritage of Bač and its surroundings. Finally, MISANU aim to develop a project with local industry which will enable students and young researchers to develop skills, knowledge and experience in accordance with market demands.

RRI Info Day, Mathematical Institute SANU, 2018. Photo credit: Dragan Aćimović

ACTION 6

STIMULATE CO-RESPONSIBILITY OF ALL ACTORS INVOLVED IN THE PROCESS OF RESEARCH AND INNOVATION

MISANU plans to meet with the Coordination Body for Gender Equality of the Government of the Republic of Serbia to execute the first analysis of gender and mathematics performance in the country, in order to improve gender and minority equality in science and innovation. The university is currently collaborating with external stakeholders to develop a Gendered Research Strategy in Serbia.

MISANU

QUESTION AND REDEFINE NOTION OF 'RECIPIENTS' AND 'AGENTS'

MISANU plans to hold at least one training session with Government Officials in the Ministry of EST in 2018 to improve their understanding of RRI principles and benefits to the culture of research and science in Serbia. They also are developing a webpage that will outline the key RRI terminology along with practical examples for implementation. Finally, the team is establishing an Ethical Code working group, comprising researchers and internal and external stakeholders, to develop an Ethical Code of Conduct for MISANU.

May Month of Mathematics (2012 - 2018), Belgrade. Photo credit: Jasmina

NUCLEUS

Institute of Wetland Research

Institute of Wetland Research

OVERVIEW

Situated in Beijing, Institute of Wetland Research (IWR), Chinese Academy of Forestry is one of the top research institutes on basic theory and applied technology of wetlands in China. Research at the IWR mainly focuses on natural sciences, but has been incorporating social sciences in recent years as well. As a government constitute institute, it has a strong relationship with policy-makers, playing an essential role in pushing wetland legislation in Beijing and Suzhou City. IWR also has intensive cooperation with other cells such as universities, media and public engagement.

Visiting a wetland with NGO volunteers

ACTION 1

CONDUCT RRI CONTEXT MAPPING

After completing a comprehensive SWOT analysis, IWR identified its strong connections with central and local government (policy makers) as well as the absence of defined RRI policies and strategy within the institution. These results enabled IWR to develop an Action Plan aimed at fostering a more open and two-way dialogue mechanism in the strategic development plan and research project design.

ACTION 2

DEVELOP RRI POLICY, COMMITTEE AND STRATEGY

IWR organized face-to-face meetings with directors and senior researchers to introduce the NUCLEUS project and gain their support to implement RRI practices within the institute. Based on the outcomes of those meetings, IWR developed an Action Plan which outlines the institute activities during the implementation phase. So far the director agreed to include RRI-related policies in the institution's Strategy Plan for 2019. During the next months, the team will continue to lobby the senior leadership to sign MOU + Vision Statement containing RRI practices and actions.

NUCLEUS

Institute of Wetland Research

ACTION 3

BUILD INSTITUTIONAL BRIDGES BETWEEN THE RESEARCH COMMUNITY, STAKEHOLDERS AND THE GENERAL PUBLIC

Over the last eight months, several consulting workshops were held between IWR researchers and different groups of stakeholders in order to increase the cooperation between them and understand their demands in the early design stage of the research projects. On the World Wetlands Day 2018, IWR held a science communication event with more than 100 attendees from research institutes, universities, local government, wetland reserves, and local newspapers to enlighten the cooperation among the mentioned cells. For the upcoming months, the team will work with the Beijing Municipal Bureau of Landscape and Forestry on supporting regulation formation that meet Beijing local need on wetland conservation and restoration.

ACTION 4

CATALYSE ONGOING DEBATES ABOUT THE ROLE OF SCIENCE IN OPEN SOCIETIES

IWR proposed to establish an ecological committee within the China Science Writers Association (CSWA). This committee will be formed by 30 scientists, science writers, publishers and media to promote science communication in a national scale. The formal inaugural meeting will be held on 28th October 2019. The team is also working on an interactive online forum where people can comment on the research conducted by IWR researchers.

Beijing Wetland Day

Participatory design workshop on World Wetland Day

Paintings from the book 'What We Know about Aquatic Plants in Beijing'

ACTION 5

DEVELOP, NURTURE AND SUPPORT NEW FORMS OF TRANSDISCIPLINARY RESEARCH

The institute organized a transdisciplinary project on coastal wetland restoration that brought together ten different research, administrative, education and industry organisations. This project encourages a transdisciplinary research design and cooperation. For example, the subproject that focuses on water quality improvements (university cell) also develops clean aquatic products (economy cell); and the model simulation subproject not only simulates the ecosystem, but also provides feedback for government decision-making. IWR will continue this project in the coming months and will hold a review meeting during 31st October and 1st November to analyse RRI practices during its implementation.

ACTION 6

STIMULATE CO-RESPONSIBILITY OF ALL ACTORS INVOLVED IN THE PROCESS OF RESEARCH AND INNOVATION

In the project 'Beijing Wetland Conservation Law Interpretation', IWR organized several FGDs with different groups of stakeholders in order to review a manuscript of law. The government explained the background of the legislation, the legislative institution improved the understanding of some articles, the law enforcement agencies introduced the challenges of implementing the law, and the general public helped the interpretation to be easier to understand. In addition, IWR signed a working contract with a volunteer who works in Beijing Wildlife Rescue Centre as the painter of IWR new wetland book: 'What We Know about Aquatic Plants in Beijing'. The team will continue to promote the consulting workshop as a formal process of research design and will encourage the researchers to invite external stakeholders to participate in their research.

NUCLEUS

Institute of Wetland Research

ACTION 7

QUESTION AND REDEFINE NOTION OF 'RECIPIENTS' AND 'AGENTS'

The interviews to evaluate the perception of RRI after embedding the project within the institute are still in preparation. IWR will conduct a series of interviews with researchers to understand their attitudes towards 'recipients' and 'agents', and also with external stakeholders to determine whether they have been more involved in IWR's research during the implementation phase.

The EN team working with Gaode Map company to design a wetland map

The EN team designing the format of science popularization products

MOBILE NUCLEUS

RRI IN TINY FORMATS

Mobile Nuclei

Do you sometimes wonder what kind of activities may be most helpful or appropriate when responding to questions related to our involvement in science? Whether you are a member of a city council, a medical researcher or a manager of an NGO related to gender, ethics or mobility, there is always a need to connect, engage, inform, share and reflect together on issues that directly affect us. And there is no escape, everything is related to science!

In the NUCLEUS project we are working towards a cultural change in how research institutions think about and undertake their research. This means looking at things from other perspectives and daring to do things in different ways. Through Mobile Nucleus (MN) we encourage participants to try formats that bring together different people from many parts of society that have a say, a concern or an interest in scientific issues. There are seven open formats that can help facilitate new or improved ways of working and communicating among us.

RRI TRAINING

INSTALLATION

HACKATHONS

OPEN REFLECTION

SCIENCE SHOP

OPEN TALKS

CO-DESIGN

Mobile Nucleus (MN) consists of a minimum of twenty units to test innovative RRI approaches in different settings and environments. They aim to share and reflect the concept of RRI in the context of research and its relations with various stakeholders outside the consortium. In this chapter you will find a series of interviews with some of our MN partners relaying their MN experiences.

Science City Hannover

Hannover City Council / November 2017

Overview

Inner-urban air quality is an urgent political issue for policymakers and the City administration of Hannover.

To comply with EU rules, we must develop action plans to reduce emissions of air pollutants – such as nitrogen oxide or particulate matter.

While researchers scrutinize the effects of particulate matter on health or develop new techniques for e-mobility, policymakers and the City's administration must find near-term solutions which meet the expectations of their voters and citizens.

WHY DID YOU CHOOSE TO RUN THIS EVENT AS A MOBILE NUCLEUS? WHAT IS YOUR PURPOSE?

Our starting point was: take an urgent societal task or relevant political issue to gather scientists, policymakers, stakeholders, society and the media. Then facilitate discussions and a process of further political and scientific development.

We believe that RRI can be achieved within the reliable structures of the Hannover Science Initiative by including many different societal actors - or Nucleus Cells. We therefore started the Mobile Nucleus as a process:

1. INSIDE

Prof. Haverich – a famous German cardiac surgeon and transplantation researcher – introduced his research process to Mrs. Sabine Tegtmeyer-Dette, Director of the Department Economy and Environment of the City of Hannover. Both agreed to present research results in an open public session. In addition, Mrs. Tegtmeyer-Dette, who is also in charge of the management of public buildings, helped scientists to get access to these premises for further research programs (Schools, Sports fields, etc.).

2. OUTSIDE

Public discussion with an interdisciplinary panel of researchers, policymaker and economy (Volkswagen) 14. Nov 2017. Titel: 'Particulate matters – technical

and biological solutions for our health 'Das Problem Feinstaub – technische und biologische Lösungen für unsere Gesundheit'. 160 people, representing a wide range of stakeholders, took part in the public event that was shortly disturbed by a small demonstration during the input of Prof. Dr. Jürgen Leohold, head of AutoUni and Volkswagen AG.

The discussions were reported through print media and radio follow-up letters to the scientists and politician kept the discussion ongoing both within the City administration and the researchers' institutions. With participating scientists calling for better research funding, some of these letters from stakeholders or citizens to national research funders might lead to more support in this field.

3. ACTION

Before starting our Mobile Nucleus, we hoped that more scientists would be invited to the City Council Committees in order to participate in the process of developing action plans. And indeed, the media impact of our first event in November 2017 was really fruitful. Prof. Haverich and other scientists took an active part in the last City Council Committee meeting in May 2018 on urban development, economy and environment. This meeting was also reported by the media.

WHAT MADE THIS EVENT AN RRI EVENT? WHAT MADE IT SUCCESSFUL?

• Building institutionalised bridges between the research community and different stakeholders: The 'Wissenschaftliche Sozietät zu Hannover e.V.', the Hannover Science Initiative and the City of Hannover worked with leading policy makers and representatives of the economy.

• Catalysing ongoing debates about the role of research in open societies: Significant media coverage and letters of inquiry from stakeholders and citizens after the event demonstrated good support for the RRI process.

• Developing, nurturing and supporting new forms of transdisciplinary research: The cardiac surgeon/researcher, Prof. Haverich, and Geobotanik researcher, Prof. Pott, introduced their single research paths, discussed connections and influence of the economy on research results and finally asked the public for further support and lobbying for funding future research of particulate matter.

• Stimulating co-responsibility of all actors involved in the process of research and innovation: An emotional discussion about research outcomes and use for political actions in the first event attracted media attention. This again resulted in local policymakers inviting the scientists into the official City Council Committees.

WHAT ARE THE NEXT STEPS?

The Hannover Science Initiative is the cooperation framework of scientists, City administration, policymakers, societal partners and public audience. We will continue to link scientific research with the challenges of urban development planning in Hannover. We expect more scientists to be invited to City Council Committees or integrated into urban developing processes. This will contribute to creating a positive climate of academic exchange, scientific excellence and ultimately fact-based or oriented politics for a healthy and wealthy future of Hannover.

Bristol Natural History Consortium

COMMUNICATE Conference / November 2017

Photo credit: Communicate

Overview

The opportunity offered by the NUCLEUS project matched brilliantly with the British Natural History Consortium (BNHC) objectives and was of particular relevance to the activities undertaken through our 2017 COMMUNICATE conference programme.

Two 'open discussion' events were held bringing practitioners, community stakeholders and researchers together to discuss and debate latest issues, practice and knowledge in behavioural science; allowing opportunity for both practice and research to be lead and develop on reflection of one another.

WHY DID YOU CHOOSE TO RUN THIS EVENT AS A MOBILE NUCLEUS? WHAT IS YOUR PURPOSE?

'Changing Minds: Tools from Behavioural Science', a one-day Communicate 2017 satellite event, 3 October and 'Changing Minds: Tools from Behavioural Science', a session within the main Communicate 2017 conference programme, provided an opportunity for both practice and research to be discussed followed by reflection from one another. The main goal of the events was to promote RRI through bridging the gap between researchers and societal actors.

The first 'sell-out' event, with 90 delegates, involved a wide range of stakeholders, each with their own pathways into research and society. The open discussion format was adaptable throughout the day, with a strategic round table format that could facilitate both podium presentations, open floor discussion and fluid interaction during workshop/discussion activities on table and throughout the room.

This format enabled research and practitioner perspectives to be presented and openly discussed. The event also facilitated networking throughout in order to work towards meaningful development.

The second session was full – standing room only, and as above, featured and was led by researchers, practitioners and delegates. The format built on the above without a podium. Presenters moved around the room to encourage intermittent open discussion. Tactically placed round tables helped facilitate input from the floor, as well as intimate discussion/activity. Networking and reflection was again maximised throughout the conference.

NUCLEUS

WHAT MADE THIS EVENT AN RRI EVENT? WHAT MADE IT SUCCESSFUL?

Both events involved representatives from educational institutions and researchers across the sector, who joined the debate as delegates, as well as directly facilitating discussion and disseminating learning as part of the event programmes. This offered a unique opportunity to both influence practice through diverse pathways into society and engage with practitioners and learn from case scenarios – what works and what doesn't work in practice – to help guide research and better translate from the laboratory to the real world.

We contributed directly to catalyzing ongoing debates about behavioural sciences and by demonstrating to different societal actors that new forms of transdisciplinary research are possible, needed and useful.
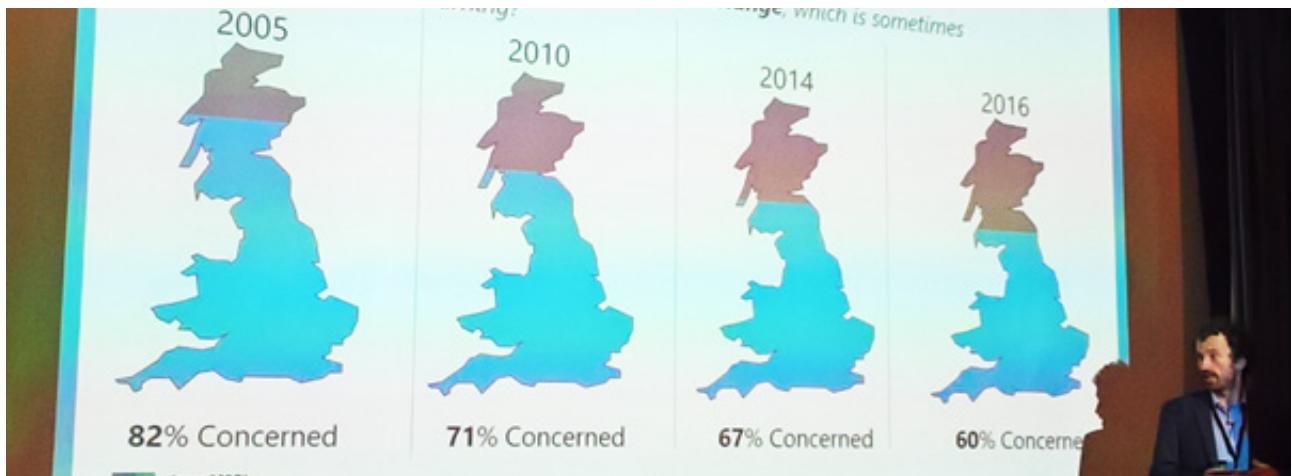

Tim Silman from Ipsos Mori discussing the environmental views of the UK population. Photo credit: Greenhouse

WHAT ARE THE NEXT STEPS?

Our Conference is the result of the cooperation with multiple stakeholders. We will continue to link communications to scientific research and the societal needs related to nature and a healthy environment. The NUCLEUS approach is very relevant to our needs.

Impressions from researchers: Dr. Cora Boushel – ClairCity, University of the West of England '**I'm here at the Changing Minds conference in Bristol for two reasons; to share our work and what we are learning so that other projects in the region, and nationally, get to learn from us and our mistakes. And to learn from others so that we can share that back through our project, across Europe, and make sure that we are staying at the cutting edge of developments in behavioural science.**'
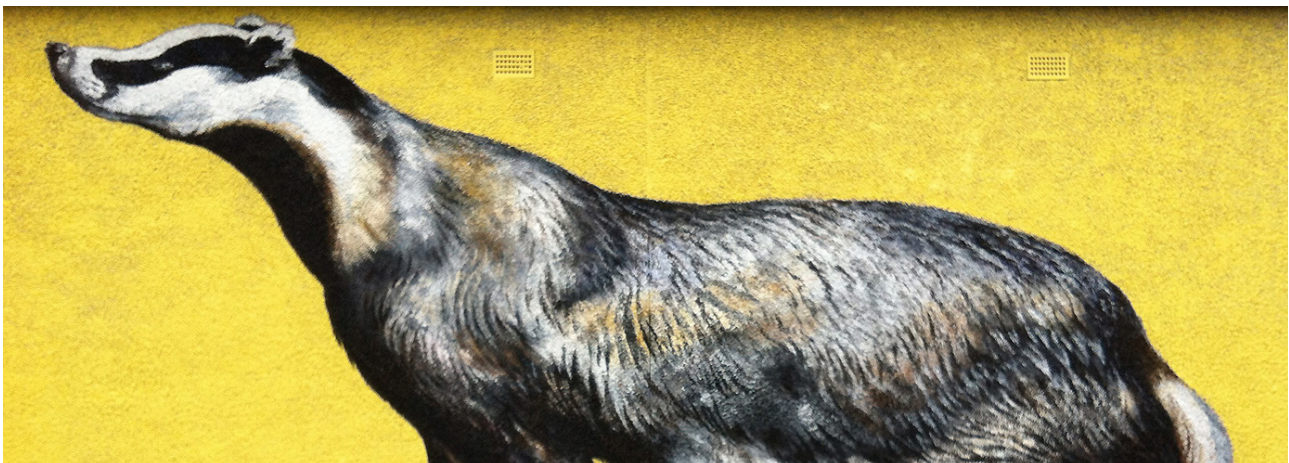
ATM Street Art talked about how art changes people's attitudes towards the importance of nature in our lives. Photo credit: ATM
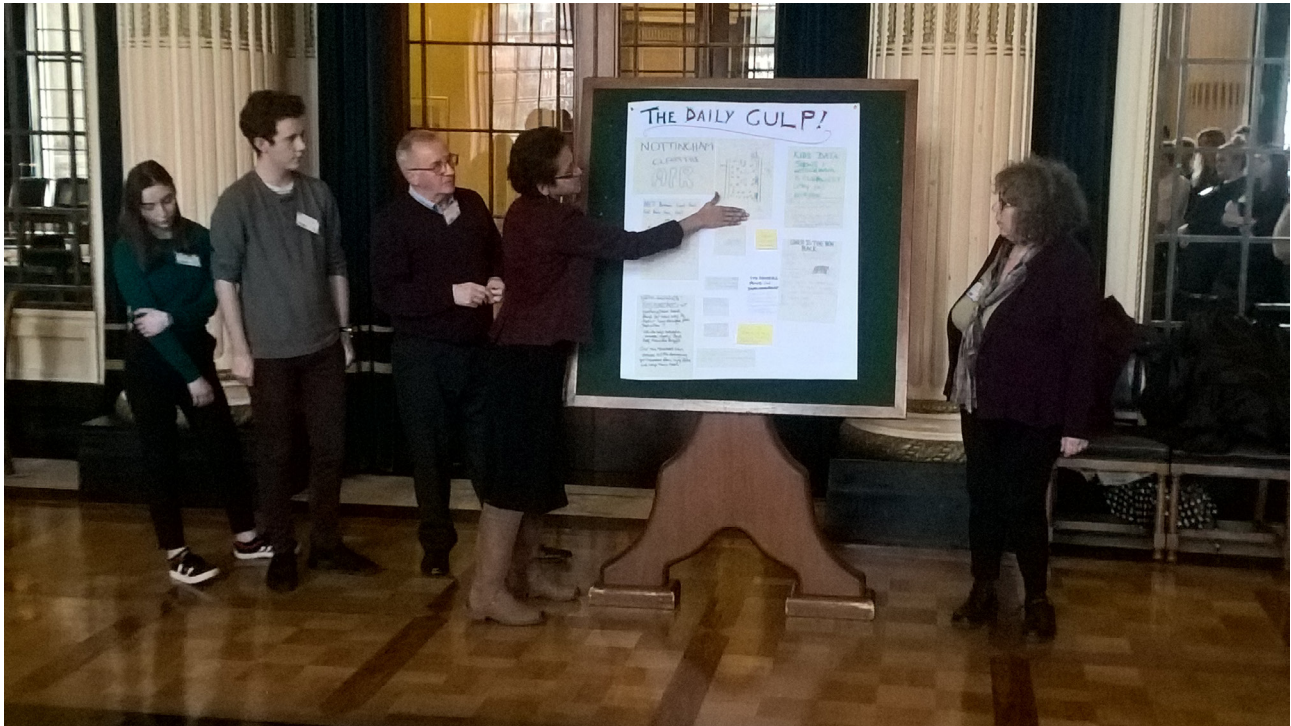
Nottingham City Council

Smart Because of You Conference / February 2018

Overview

'Smart Because of You' was a Mobile NUCLEUS half-day conference held to explore co-creation between researchers and citizens in Smart City projects.

The conference looked at examples of good practice locally in Nottingham and scoped possible ways forward for future participatory Smart research activity.

The societal challenge of air pollution was chosen as the example through which citizens, technologists, strategists and open data owners could work together in a civic technology partnership to address and ameliorate this concern.

WHY DID YOU CHOOSE TO RUN THIS EVENT AS A MOBILE NUCLEUS? WHAT IS YOUR PURPOSE?

The aim of 'Smart Because of You' was to bring together different stakeholder groups in Nottingham, engage them practically, and enable them to jointly collaborate on common goals (i.e. create a good future for the citizens of Nottingham) around the three priority themes of health, transport and energy.

The conference brought together representatives from each of the following NUCLEUS stakeholder groups: university/researchers, policy-makers, civil society groups and business leaders.

Stakeholder groups represented included:

1. University research teams engaged in the development of Smart City technologies and applications.

2. Members of civil society, voluntary sector and citizen participation groups.

3. Elected members, policy makers and sector lead officers from local government.

4. Education partners from schools, colleges and other research institutions and societies.

NUCLEUS

5. Representatives from health, transport and energy bodies and other statutory organizations.

6. Technology sector and other business and community representatives.

By looking at what enables stakeholders to co-produce, and exploring how RRI-practice can support Nottingham's future Smart City research and innovation initiatives, the conference succeeded in building capacity for an RRI-principled approach to Smart City research. It has given Nottingham City Council (NCC) a platform for future collaborative working and the expansion of the Smart City/RRI networked community in Nottingham and wider Local Economic partnership area, and emphasised the importance of Smart City as part of our science culture identity.

WHAT MADE THIS EVENT AN RRI EVENT? WHAT MADE IT SUCCESSFUL?

The conference began with a scene-setting speech from Cllr Sam Webster, Portfolio Holder for Business, Economy and Skills at Nottingham City Council, who laid out the vision for Nottingham as a place where Smart City innovation is underpinned by a strong ethos of engagement and participation with citizens. The 'Smart Because of You' approach ensures citizens' views, experiences and ideas for change inform and shape the research, development and application of innovative, digitally-enabled products and processes. The context of Responsible, Research and Innovation was provided in a keynote speech by Annika Doering from Ruhr Universitat Bochum, Germany, a member of the NUCLEUS project consortium. Following the keynotes, three participatory discussion workshops were used to explore learning and identify how smart projects can best involve citizens in the co-creation of things that involve technology-enabled change in Nottingham.

In the Remourban workshop, led by Ruth Stallwood from Nottingham City Council, delegates shared and discussed information about a programme to retrofit social housing using Smart and energy efficient technologies to make them carbon-neutral. In the Smart health workshop, Dr. Neil Chadborn, from the University of Nottingham's Horizon Digital Economy Research Institute, shared the findings of a long study into older people's attitudes to Smart health technologies; while in his workshop fellow Horizon researcher Dr. Ansgar Koene discussed the work of the UnBias project in engaging young people in active research into algorhythmic bias.

The workshops enabled delegates to develop not only awareness about the work already underway around Smart technology in Nottingham, also but the value and challenges of conducting genuine research and development under co-productive principles, where citizens are engaged as early as possible in the scoping of a project and then included as stakeholders throughout the project lifetime. The learning was then applied to the final activity, the Front Page visioning exercise.

BRINGING RRI TO LIFE
IN UNIVERSITIES AND SCIENTIFIC INSTITUTIONS

The Front Page visioning exercise that followed the workshops provided an opportunity to bring in delegates own ideas about Smart technology products and processes and to make plans for how they could be implemented to tackle the societal challenge of air pollution.

The activity required teamwork between small groups of 4 to 6 colleagues, in which all participants and stakeholder groups collaborated regardless of their personal or professional background. United by different Smart aspects (health, energy, transport) of the common goal (a good, clean future of the city of Nottingham) – colleagues collaborated with each other to produce a range of unique proposals to ameliorate air pollution, and presented these to conference.


WHAT ARE THE NEXT STEPS?

All participants got practically into RRI within just 4 hours through. Through the introductory speech and background materials they were informed about RRI and the NUCLEUS-project. This gave great value to everyone´s ideas by assuring that the conference is interactive, a part of the NUCLEUS-project and that its results will be part of the project´s feedback to its funder, the European Commission.

The workshops provided opportunities to share and develop knowledge about how research engages with the public, understand ways in which communities can be engaged and communicated with, and challenging research ideas made explicable and accessible to all.

An important number of ideas emerged for further exploration with research teams and the various other stakeholder groups in the network and these will now be worked up.
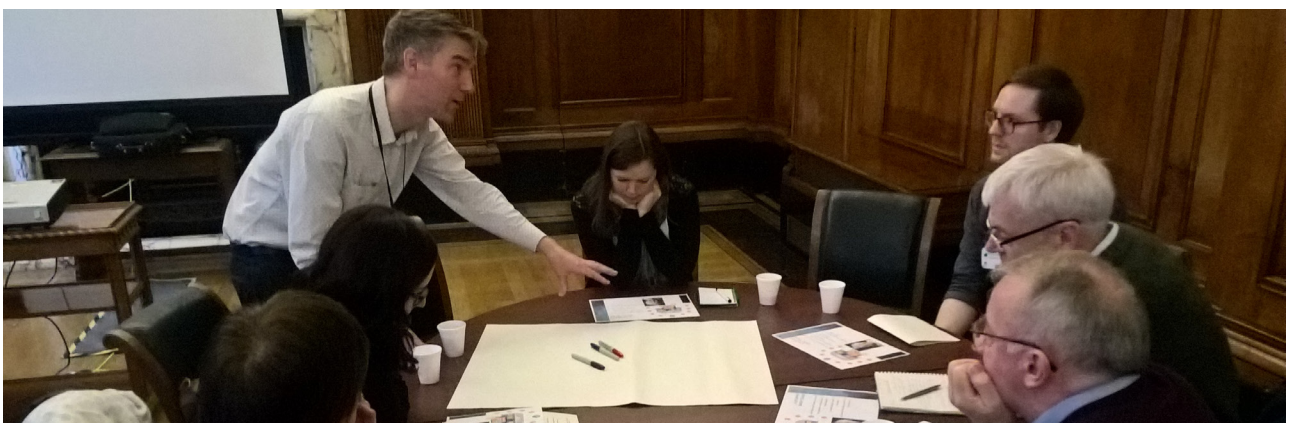
NUCLEUS

Wellcome Genome Campus

BioHackathon / July 2018

Photo credit: Wellcome Genome Campus

Overview

The Wellcome Genome Campus in Cambridgeshire might be the NUCLEUS project's newest partner, but teams at the campus have been quick to embed #LivingRRI into a major multi-stakeholder event.

Held from 1 – 2 July, the genomes and biodata hackathon (#BioDataHack) was the first of its type to be held on the campus, bringing together researchers, technicians, software developers and bioinformaticians to develop new and usable solutions to healthcare challenges.

BIOHACKATHON

Held in July 2018, topics being 'hacked' were put forward by 5 major companies including AstraZeneca and Microsoft, and included:

- How can clinical trials be designed around the patient's home?

- How can existing drugs be repurposed to treat new conditions?

- How can AI help map drugs to disease?

WHY DID YOU CHOOSE TO RUN THIS EVENT AS A MOBILE NUCLEUS? WHAT IS YOUR PURPOSE?

Importantly for #LivingRRI and our NUCLEUS journey, the event had a strong entrepreneurial element and brought together not just academia and industry, but also people who could provide patients' perspectives. This latter ambition was championed through the MOBILE NUCLEUS support of the event. Through NUCLEUS funding we were able to provide bursaries for five attendees who would bring user-oriented perspectives. Among the NUCLEUS funded attendees were parents of a child living with a genetic condition and representatives from a local charity supporting people with rare genetic diseases.

BRINGING RRI TO LIFE
IN UNIVERSITIES AND SCIENTIFIC INSTITUTIONS

WHAT MADE THIS EVENT AN RRI EVENT? WHAT MADE IT SUCCESSFUL?

User perspectives were given particular prominence, with a plenary talk in the scene-setting session and the close out ceremony, where one of the winning teams talked about how their solution was inspired by the patient input. In addition, representatives from the campus working on the NUCLEUS project helped mentor the teams throughout the two days of the event.

Dr. Kenneth Skeldon, Head of Public Engagement and NUCLEUS project lead at the Wellcome Genome Campus said 'The MOBILE NUCLEUS work plan introduced an important dimension to the BioHackathon – namely the involvement of potential beneficiaries of the coding challenges being hacked. They include patients, carers and other healthcare workers who all have a different type of expertise than the software coders to bring, but equally relevant.'

Dr. Sarion Bowers, Policy Lead for the Wellcome Sanger Institute, from where many of the hacking contributors came added 'Having the views of multiple stakeholders in creating new interventions and solutions is key to success. If new tech and design is too top-down, solutions won't work in the real world. Influencing the design of the event deliberately echoed the interplay between stakeholder cells in the NUCLEUS approach.'

Kenneth Skeldon and Sarion Bowers of the Wellcome Genome Campus

NUCLEUS Testimonials

SHADRACK MKANSI
NRF/SAASTA

NUCLEUS gave me an opportunity to learn from an international team from different cultures. It strengthened a most significant yet challenging relationship I have with our funded researchers. I feel better exposed through this RRI project.

NINO SHARIKADZE
ILIA STATE UNIVERSITY

Being part of the NUCLEUS project for me means to meet and to be a member of a big team which has brilliant, very qualified, professional people from different Universities and Institutions. To see the changes and the process for how institutionalised bridges are being built between the research community, stakeholders and the general public is very impressive.

LEI YINRU
INSTITUTE OF WETLAND RESEARCH

Being part of the NUCLEUS project for me means to be part of an international family where professionals from different fields share a common passion and goal - to build reliable and sustainable bridges between academia, stakeholders and general public. For IWR, the NUCLEUS project has provide a precious opportunity to improve its RRI-related policy, research design and staff involvement, to grow and be a better, socially responsible research institute.

NUCLEUS Testimonials

AMALIA VERZOLA
UNIVERSITY OF LYON

Exchanging, learning, acknowledging that we are not alone in this challenge. This is what the NUCLEUS project teaches us every day. Being part of this inspiring community of practice is such a chance for our institution. We have the opportunity to look at our practices from another perspective, while learning from each and every action implemented by our partners. Making an effort to fashion research that is more responsive to the needs of society also provides the opportunity to modernise our practices. Experimenting on a daily basis with RRI, and doing so collectively, is a great opportunity.

ANNE DIJKSTRA
UNIVERSITY OF TWENTE

NUCLEUS is an interesting and challenging project and being part of it already contributed to more nuanced insights of how in various cultural contexts the relationship between research, or researchers, and society is shaped. At the University of Twente we try to build a community where this science-society relationship is fostered.

EDWARD DUCA
UNIVERSITY OF MALTA

I strongly believe in the power of dialogue and engagement, bringing different stakeholders together and realising their shared goals. Being part of NUCLEUS is a great opportunity to make this happen, empower communities, and transform the way universities and society as a whole think about research.

What happens next?

This booklet contains a general overview of the NUCLEUS project, as well as the case analysis of the ten Embedded Nucleus and several Mobile Nucleus. **But what happens next?** Now that the project is entering its fourth and final year it will be crucial to keep tackling the challenges and exploiting the opportunities to implement RRI.

Implementing RRI in the governance and culture of scientific institutions is allowing universities to better respond to societal challenges. Since RRI is a process in which a variety of academic and non-academic stakeholders work together during the whole research and innovation process, the implementation of this concept requires new structures and formats, as well as trainings and support for scientists and stakeholders – both inside Higher Education Institutions and in the public sphere.

During 2018-2019, all partners will continue implementing RRI within their institutions. The final goal is that they reflect the needs of societal actors and integrate them into the strategic plans and policies as well as in the values and actions of their academic and administrative practices. This is what we call **#LivingRRI**

LEARN MORE NUCLEUS ONLINE

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THANK YOU FOR RRIING WITH US!

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BRINGING RRI TO LIFE

in Universities and Scientific Institutions

#LivingRRI

Opening research to the needs and values of society

NUCLEUS