Deliverable D3.1

Protocol desk research barriers & incentives

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1. Introduction

The concept of 'responsible research and innovation' (RRI) seeks to align research and innovation with the values, needs, and expectations of society. This requires integrating multi-actor collaboration and societal engagement initiatives into research and innovation processes, not only from project conception but also, potentially, beyond the end of a project. PROSO seeks to contribute to this work by exploring the barriers and incentives that affect whether or not it is possible to carry out RRI as part of research and innovation, particularly within the three domains of nanotechnology, food and health, and bioeconomy.

The aim of 'Work Package 3: Mapping barriers and incentives for societal engagement under the terms of RRO' (WP3) is to map the barriers and incentives to doing societal engagement in research and innovation by exploring case studies where the principles of RRI were applied explicitly or implicitly, or where RRI principles could have been applied and weren't. The main objectives of this work package are to 1) identify key barriers and incentives for social engagement under the terms of RRI across different R&I domains from the point of view of Third Sector[1] actors and other stakeholders contributing to RRI; and 2) to explore the similarities and differences in the perspectives of the different stakeholders contributing to RRI.

Deliverable 3.1 describes the beginning of this mapping process and provides a standardized, yet flexible, approach to data collection. Section 2 outlines the methodology used to select 9 case studies for investigation – 3 cases within each domain – and the subsequent identification of stakeholders to participate in qualitative semi-structured interviews (up to 45 in total). There were 4 distinct decisions and phases of the case study identification process. These include 1) search criteria, 2) recording criteria, 3) selection criteria, and 4) the final selection of 9 case studies for examination as part of WP3. The consortium partners involved in carrying out the selection of case studies and their investigation through

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[1] **Third Sector 'actors' or organisations (TSOs)**, 'is an umbrella term for various interest groups of citizens, such as civil society organizations and labour unions, as well as religious organisations and informal networks of citizens. …organisations of the third sector are often involved in science in society activities either due to moral, ethical and ideological concerns or in order to represent certain interests of groups of the society'. **Civil society organisations (CSOs)** are TSOs, but they are more specifically defined as being 'non-governmental, non-profit, not representing commercial interest, [and] pursuing a common purpose in the public interest' (European Commission 2009). CSOs are the organisations who often deal with issues related to equality, diversity, and inclusiveness in scientific institutions, and these can include student associations as well as higher education institutions who are involved in implementing equality programmes (European Commission 2012).

stakeholder interviews are the University of Stuttgart, Germany and Optimat, UK (nanotechnology); University of Surrey, UK, with assistance from ARC Fund, Bulgaria (food and health); and OeAW, Austria (bioeconomy, with a specific focus on synthetic biology). Through in-depth qualitative interviews with stakeholders across the selected 9 case studies, WP3 will contribute to PROSO's understanding about what can be done to further the involvement of civil society organizations and citizens in research and innovation.

Section 3 describes the methodology we are using to interview stakeholders from these case studies, and for analysing the data obtained through these interviews. The steps involved in this process include recruiting interview participants from each selected case study, developing interview materials and procedures that can be used both across case studies and cross-culturally, and managing the resulting data with the confidentiality and anonymity of participants in mind.

The report concludes with a discussion of the analysis methodology, including data coding and data analysis, in section 4.

2. Case Study Selection Methodology

The case study investigation in WP3 is designed "To identify key barriers and incentives for societal engagement under the terms of RRI across three domains – nanotechnology; food & health; bio-economy – and from the point of view of Third sector actors and other stakeholders/actors contributing to RRI, including science/technology policy makers, research funders, academics, industry." Our investigation and subsequent analysis of the interviews connected with these nine case studies will explore the similarities and differences in the perspectives of the various stakeholders contributing to RRI.

The case study selection process was developed iteratively and collaboratively with the relevant PROSO project partners. Regular (bi-monthly) meetings were instigated during which the search, recording, and selection criteria were sequentially discussed and timelines for each phase of selection determined. This ensured a transparent, timely and harmonised approach to selection of cases across the three domains. During these meetings, core concepts were being defined and agreed upon (such as the definition of the 'case', 'societal

engagement'). These concepts, as agreed by the WP3 consortium partners, are reviewed in this document.

The starting points and resources for the case study search were:

- Previous projects on societal engagement and RRI (and its conceptual predecessors, like 'science in society'), including Engage2020 and PE2020
- Funding agencies
    - RRI-focused programmes and funding (such as the Netherlands' NWO "Responsible Innovation" programme)
    - Programmes supporting engagement strategies, including BBSRC
    - CORDIS (EU projects)
- Organisations dedicated to societal engagement
    - Collaborations between researchers and Civil Society Organisations (e.g., 'SynBioWatch', funded by SYNENERGENE)
    - Public engagement initiatives (such as the 'Science Shop' at Queen's University Belfast)
- Citizen science platforms (initiatives such as 'Observatree')
- Research within the respective PROSO domain (Bioeconomy, Nanotechnology, Food & Health), including informal interviews with key figures doing societal engagement in science
- Exploratory informal interviews with prominent CSOs
- Major research and innovation activities
    - Funding programmes (e.g. 7th Framework Programme)
    - Major research networks across a range of European countries (e.g. Northern Periphery Programme)

2.1   Desk Research Approach

The aim of our desk research was to find case studies that involved diverse types of engagement, a range of societal stakeholders, and which were from a broad geographic spread. Our approach to identify these potential cases broadly followed three strategies.

First, we drew on colleagues' and PROSO partners' involvement in previous projects across the three domains of study (e.g., INPROFOOD, NanOpinion). This provided a valuable

starting point for the case study search, as well as deepened our knowledge about important developments in each domain, both in Europe and beyond. Partners also utilised their own networks and those of their colleagues as a way to find case studies in each domain.

Second, we complemented and broadened our knowledge through extensive internet research. For example, exploring the research projects profiled on public research funding agency websites across Europe proved to be an effective way to find potential case studies. We also searched the EU database CORDIS ('Community Research & Development Information Service') for research projects with an explicit engagement aspect. We additionally looked at societal engagement from 'the other side' by searching for civil society organisations that specifically address science in society and then established whether and how they were involved in related research and innovation processes. For example, OeAW searched the website of the CSO 'SynBioWatch' and systematically scanned all of their posts. This provided insight into the range and variety of synbio-related activities in which they were involved.

Third, we identified key actors in each domain and then contacted them via e-mail to ask whether they had been or were currently involved in societal engagement in research and innovation, or if they knew about further engagement processes. We also contacted the key informants in particular case studies to learn additional detail about that study, and to ultimately determine whether or not that case was a suitable selection for PROSO.

We applied a series of decision criteria in order to identify and carry out the selection of case studies. These criteria were separated into three categories:

1) Search criteria – this consisted of the mandatory and optional criteria we identified to define boundaries around which cases we decided to record. (Please see section 2.2.) These criteria were not restrictive and we continued the search in a relatively open-ended manner in order to allow a broad range of engagement cases to be captured by the search.

2) Recording criteria – this encompasses the categories we were using to organise the information about the cases in the tables for each domain, as a pre-cursor to the selection process. This was refined with information from the literature review, as well as through the experiences of those searching for case studies. (Please see

'Table 1: Detailed Case Study Recording Criteria' for a description of the criteria we applied.)

3) Selection criteria – this effectively consisted of the boundaries we put around our short-list of case studies to make the final selection.

Our search for case studies was not exhaustive, but included a range of potential cases even if they were not likely to be selected as final cases. This strategy provides three advantages:

- We were able to generate a broader list of potential cases. This provided important information about the context of societal engagement in a domain; in some instances, this included new knowledge about the relationships between engagement activities focusing on the general public and those activities targeting third sector organisations (TSOs). It also provided insight about which phases of the research-innovation process were predominantly targeted as part of social engagement.

- If selection criteria changed during the literature review or during our experiences of searching for case studies, we did not need to begin an entirely new search for potential cases.

- Finally, some of the cases we found and did not select as one of our final nine case studies could be used to create vignettes for discussion in the Citizen Panels that are being run as part of PROSO 'Work Package 4: Citizens' views of engagement in research-related activities'.

2.2   Search Criteria

For the purposes of PROSO, we defined a **case study** as needing to satisfy the following criteria: *A societal engagement initiative associated with research and innovation in the three domains of nanotechnology, food & health, and bioeconomy. This initiative must have taken place between 2011 and the present. It can be entirely publicly funded, or be a recipient of public-private funding.*

Societal engagement was defined as activities or initiatives that include Third Sector Organisations (TSOs, defined on page 3) and/or the general public. This criterion excludes initiatives such as public-private partnerships between a university and industry partners

that do not involve TSOs or the public. This criterion also excludes research projects that <u>only</u> consist of social scientists working with natural scientists in research: <u>TSOs and/or members of the public **must** be involved.</u>

Engagement was understood to denote an initiative or process that allows for (or at least is intended to allow for) genuine two-way interactions between participants. This criterion excluded initiatives and processes that were primarily targeted at informing and educating an audience. *There had to be an indication that the initiative or process aims at gathering the perspectives, concerns or interests of participants and at inducing a dialogue between participants.* This included situations that occurred in person, virtually (on the internet), or through a mobile app. For example, a video posted online that allowed comments from the public was not considered to be 'engagement' because 1) the focus is on the information being provided, 2) the comments expressed are not a dialogue between parties, and 3) they are not being used to inform any other processes.

In the case of social science research, the methods used needed to be a true dialogue with TSOs and public stakeholders. There was a recognition that some situations could be difficult to differentiate, especially in the initial search stage, but if official communication focused solely on providing information the case should not be included. In ambiguous cases, the case was documented and doubts were noted (see Table 1).

"Initiatives" and "activities" are understood broadly. The frame of the societal engagement was not intended to be too restricting for the case search. This meant that *societal engagement could be initiated as a whole programme (with several events or projects over a longer time), as a continuous dialogue platform, or as a single project/event.* When events were part of a broader initiative or programme, the broader initiative or programme was included, rather than listed as a stand-alone event. An 'initiative' may also have included: invited engagement (organized specifically under the label 'RRI' by public organisations); uninvited engagement initiatives, such as activities organised by CSOs; or events initiated by concerned citizens. We also looked for examples of uninvited engagement because they had the potential to provide important alternative framings of responsibility in research and innovation.

Thus potential cases may have involved:

- Participatory activities (e.g. consensus conferences)

- Constructive activities (e.g. scenario workshops with stakeholders)

- Dialogue platforms

- Dialogue series

- Science shops and science shop initiatives

- Citizen science initiatives or projects

- Do-it-yourself and (bio)-hacker communities

- CSO driven engagement (and mobilization) initiatives

- Action Research, which is research done with, and on behalf of, communities or organisations. In these cases the researcher, often a social scientist, is an agent of change who works with participants in ways that are both participative and collaborative (Breakwell et al. 1995: 310-311).

2.3   Recording Criteria

The following information was collected during the search and scanning process in a prepared Excel table (not publicly available). The below table reflects the structure of all of the recording tables, as well as the basic structure that is used for the selection table for the final case studies.

Table 1: Detailed case study recording criteria

Criteria	Information to be recorded	Dimensions of criteria
Project Name/Acronym	Name of the project that the initiatives/activities were part of	----
Domain	(Drop-down menu)	-Nanotechnology -Bioeconomy -Food & Health
Project Organiser /Lead Researchers	Organisations responsible for the initiative; contact person(s)	----
Funder(s)	How the initiative/project is funded (by which organisation and whether it is public or public-private money)	- Publicly funded (tax payer)

		- Public-private funded
Geographic scope	Where the initiative/activities were carried out. (Drop-down menu)	- EU level - National level - Regional level
Timeframe	Period or date of the initiative	- Undertaken in the last five years (2011+)
Main Objective	State the official objective or purpose of the engagement activity (usually quoted from the website/publicity material).	----
Type of Engagement	State the framework of the initiative in terms of its duration, i.e. single event or a process involving many events; differentiate between invited and uninvited engagement. (Drop-down menu)	- Unknown - Single event - Multiple or repeating events • Invited participants • Uninvited participants (open event) • Unknown
Societal Engagement Methods	Detail about the type of engagement method (e.g. workshops, town hall event, dialogue platform; how many people were involved, etc. – usually quoted from website/project report)	----
Depth of Engagement	As detailed in the 'Levels of Public Engagement' diagram from the Engage 2020 e-Anthology (p. 48), from level of least to most engagement	- Dialogue - Consulting - Involving - Collaborating

		- Empowering
		- Direct Decisions
Stakeholder(s) Involved	Who is being engaged with through the activities/initiatives? (**MUST involve either TSOs or public**, but do state additional stakeholders involved as well.)	- TSOs/CSOs - Public/citizens - Researchers - etc.
Reference to RRI?	State whether there is an explicit reference to RRI in the official presentation of the engagement activity, an implicit reference to RRI (such as a focus on solving a societal problem, or addressing societal needs, by involving organisations or individuals who can influence or be impacted by the problem), or no reference to RRI. (Drop-down menu)	- Direct RRI reference - Indirect RRI reference - No RRI reference
Website/Documentation	Links to website and any other key documentation	----
Search Engine/Terms Used/Contact Person	How you found out about this project	----

Some partners chose to keep an additional table to document cases that did not meet the minimum definition, but this was not a requirement. This was particularly the case with USTUTT in their search for nanotechnology case studies because they identified several relevant cases that ended before 2011 and therefore did not meet our minimum selection criteria (see Table 1 above). However, they felt these cases were important to identify in order to understand the history of the development of societal engagement in the domain of nanotechnology. By documenting this history in the recording table, this information will be used to provide a context for the selected case studies within the nanotechnology domain-specific barriers and incentives report ('D3.2: Barriers & incentives in three R&I domains').

2.4   Selection Criteria

After the partners responsible for each domain felt they had found a substantial breadth of case study topics that represented different forms of societal engagement, the recorded case studies were long-listed (up to six case studies per domain). Again, searching for and recording cases was not meant to be exhaustive, but instead illustrative of the research and innovation happening in a given domain, whether or not that was overtly defined as RRI. There were 19 long-listed case studies in total.

After discussing these potential cases in a meeting, the long-list was then pared down by partners to a maximum of 6 case studies per domain in the final short-list, although in the end USTUTT and OPTIMAT worked together to shortlist 4 case studies for nanotechnology, OeAW chose 4 for bioeconomy, and SURREY chose 3 for food and health. These final stages happened in consultation with all of the partners collaborating on WP3, although each partner was ultimately responsible for narrowing the long-list to create the short-list, after a meeting to discuss the cases on the long-list. We had a subsequent meeting to discuss the short-listed cases where each partner justified their decision-making and we agreed as a group as to which would be the final selected case studies. This progressive decision-making process took into account all of the search criteria and the recording criteria. The selection of the final case studies was also further based on the geographic spread of cases (we wanted to ensure the case studies selected did not have an Anglo-Germanic bias), whether they reflected a range of different forms of societal engagement and the core tenets of RRI, and whether or not the case studies were fundamentally interesting.

In our discussion of the short-listed case studies, we further considered whether there were any potential conflicts of interest between those partners investigating each domain and whether they had been in any way involved in one of these case studies. There were two case studies where this was an issue. These situations were openly discussed by the WP3 partners during the selection meeting, and a final decision about each of these two cases was made in conjunction with PROSO's lead coordinator, Marion Dreyer. Ultimately, we decided not to pursue one of these cases because the PROSO researchers investigating the case (USTUTT) were a partner in this case study at one point. However, the second case

(SYNENERGENE) was selected as one of our bioeconomy case studies and the rationale for this decision is described in the next section.

2.5   Selected Case Studies

Nine case studies in total were selected for study as part of PROSO WP3. Each case study is described below within its domain, with the justification for its selection.

The case study selection methodology involved working collaboratively, took into account the latest thinking on RRI, and was carried out in line with good practice. However, we also encountered some challenges in regard to the selection of cases. In particular, it was not possible to follow the ideal '3x3' case study design initially envisioned in the project proposal. This would have resulted in each domain being represented by case study examples of each of the three manifestations of RRI (explicit RRI, implicit RRI, and no RRI). Instead, the partners decided not to choose cases where no RRI was present. This is because project partners felt that exploring cases of implicit or explicit RRI created more opportunities to discuss how aspects of engagement initiatives could have been done differently or reimagined, for example through the lessons that stakeholders learned during the participation process.

2.5.1   *Nanotechnology (USTUTT, OPTIMAT)*

Materials at the nanoscale can have remarkably different properties to everyday materials. While these properties are exploited to enable advances across many different industrial sectors, they also raise questions about potential risks to human health and the environment. As a result, nanotechnology has been the subject of intense public engagement and dialogue events for many years to understand citizens' concerns and help inform the direction of public research programmes. The following case studies illustrate some of these different approaches at both European and national levels.

BMU NanoDialog, including NanoKommission (Germany): NanoDialog is a national dialogue process in Germany under the lead of the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety. Its aim is to support an exchange of ideas between civil groups and stakeholders on the opportunities and risks of nanotechnologies and thus help promote responsible and sustainable use of nanomaterials. High level

representatives of industry, research institutions, ministries, labour unions, environmental and consumer protection organisations are involved in this two-way communication process. Although the process started as early as 2006, it is still ongoing with the fifth phase having started in June 2016. The engagement design changed after the first two phases (2011) in order to adapt to relevant tasks and problems. The process went beyond exchanging ideas; for example, recommendations regarding safety and the responsible use and research of nano materials that resulted from the NanoKommission were applied and became implemented in industry procedures. Due to its early starting point, NanoDialog has no explicit references to the concept of RRI because, effectively, RRI did not exist when it was founded. However, its explicit aim to promote the responsible and sustainable use of nanomaterials clearly shows that **RRI is at least implicit** in the NanoDialog, at a very early stage in the innovation process. This implicit approach to RRI, as well as the long duration of this initiative and its multi-actor design which includes many key stakeholders, makes NanoDialog a key case study for WP3.

NanOpinion (International): Operating from 2012 to 2014, the aim of NanOpinion was to foster public communication and dialogue about nanotechnologies in the European Union. The consortium consisted of partners from 11 countries. In contrast to the other projects in the nanotechnology domain, NanOpinion focused on citizens rather than organizations as the target group (with a special emphasis on hard-to-reach groups) as part of the engagement activities. Going beyond one-way communication in order to raise awareness and enable citizens to make educated choices, the project gathered and monitored the opinions of thousands of European citizens via a huge variety of engagement methods, including both face-to-face and online activities. Using these methods the project aimed to inform policy decisions on nanotechnology through a greater understanding of citizens' concerns regarding specific issues. **RRI was implicit** in the goals of NanOpinion, as the output from the citizen dialogues could help support greater responsibility and accountability in R&I amongst research organisations, industry, and in public agencies funding such research.

Tracing Nano for Downstream Users (Netherlands): In contrast to the German NanoDialog, which deals with a broad field of issues in the nano domain, the Tracing Nano project had a single purpose: to improve the traceability of manufactured nano materials (MNMs) in

products and articles for downstream use. It also focused primarily on the input of third sector organisations. Funded by the Ministry of Infrastructure and Environment, Tracing Nano explored the position of Dutch Civil Society Organizations (CSOs) regarding the problem of openness and the practical use of MNMs in products. The issues that the project sought to address were two-fold. First, that there is a lack of knowledge and understanding about the potential impacts of many MNMs on human health and the environment. This is particularly true in regard to the wide range of uses of MNMs, and the way they are combined with other chemicals and materials. Second, apart from cosmetics and foodstuffs, there is no legal obligation to declare which MNMs may be within a product. While most of these are likely to be safe under the specified use, the project took the position that workers, employers, and consumers had the right to make informed decisions. Through a series of workshops, industry stakeholders had the opportunity to make their demands explicit and have them implemented. Although the engagement process was initially carried out within the Netherlands, the project reached out to CSOs that operated in other European countries and across the whole of Europe, in order to put pressure on the European Commission to establish a framework for traceability. This was an **explicit manifestation of RRI** as the project partners sought to increase transparency from manufacturers on products containing MNMs for the purpose of ensuring that workers, employers, and consumers can make informed decisions.

2.5.2   Food and Health (SURREY)

A Healthy Future for the Potato (Netherlands): Potatoes are one of the world's most important food crops, but they are widely susceptible to blight and pests. Solynta, a company out of Wageningen University, has developed a method that allows potatoes to be reproduced more quickly using hybrid seeds. This could increase the speed at which potatoes can be modified through breeding, and thus make improved strains available in the form of seeds. The Rathenau Institute, Wageningen University, and the University of Groningen are working together to study how this new reproductive method might change potato farming, and what possible implications this could have for farmers and other stakeholders. The partners in this project aim to 'involve as many stakeholders as possible from the sector and from society in a debate on the potential implications of this new development in terms of productivity, fairness and sustainability' (Rathenau Institute, 2016).

'A Healthy Future for the Potato' is funded by the Netherlands Organisation for Scientific Research (NWO) and is **explicitly RRI-focused**. We selected this project in part because of this focus, and partly because it began only a few months ago; as such, we have the opportunity to see and understand how RRI is being implemented right now, what processes the researchers are using to engage with which societal stakeholders, and what barriers and incentives are at play in this situation.

EPINET: In-Vitro Meat (International): The aim of EPINET was to engage with the researchers and societal actors who are invested in the small, but growing, field of in-vitro meat (IVM). IVM involves using stem cell research to grow animal muscle tissue in a lab that can then be layered to produce food for human consumption; through this technique, meat is essentially grown outside of an animal. This innovation has primarily been used to grow cow muscle tissue ('beef'), and in 2013 a 'cultured' burger produced by Maastricht University was cooked and tasted at a press conference. IVM has been aligned with addressing a variety of 'societal grand challenges', particularly the health of humans, other species, and the environment through reducing the need for large scale animal farming. Dramatically reducing livestock farming could lower greenhouse gas emissions, and reduce water, land, and energy use; it could contribute to improved human and nonhuman animal health issues by reducing the instance of antimicrobial resistance and zoonotic disease outbreaks; it addresses ethical issues through lessening the number of animals killed in meat production; and, applied on a large scale, it could create economic opportunities through the formation of new industries and jobs that would offset the subsequent decline of the meat industry. However, new techniques to develop IVM more quickly and on a much larger scale would need to be developed for these benefits to be realised. In addition to this, it is also crucial that public opinion on IVM change in order for it to become a socially acceptable alternative to meat.

EPINET was an EU project funded under the 7th Framework Programme that carried out research on IVM as one of 4 case studies. Focusing on policy considerations around the funding of IVM and how the field is being shaped by social factors, EPINET-IVM is a distinctive case study that sought to apply a social science research perspective to the problems facing the international scientific development of IVM. EPINET-IVM has an interest in uniting the impacts of science and technology on society and the environment

with the concerns of innovators, policy makers, and citizens; this implicit RRI approach and engagement with a variety of stakeholders (including societal actors), as well as the international scope of IVM development, were the primary reasons we selected it as a case study. Also, this **implicit RRI** approach is explicitly referred to under the previous 'ELSA' (Ethical, Legal, and Social Aspects) EU framework – the forerunner to RRI – and it will be useful to explore how the shift from ELSA to RRI has occurred in practice (Zwart et al 2014).

Well Now (United Kingdom): Well Now is a programme created by dietician and researcher Dr Lucy Aphramor. The programme focuses on the broad concept of 'well-being' to help people develop a healthier relationship with food and with their bodies. In recognising that obesity is highly stigmatised in our society, and that traditional 'obesity management' programmes focus solely on body weight as a measure of success, Aphramor used her research and personal experience to develop a programme that addresses both of these issues. Instead, Well Now focuses on improving health measures that include diet quality, level of physical activity, as well as mental and emotional health. The programme also takes a social justice and 'weight inclusive' approach that promotes the acceptance of bodies of all sizes. As RRI responds to the 'values, needs, and expectations of society', we see Well Now as a pioneering example of *social innovation* and **implicit RRI** that not only seeks to challenge dominant narratives about the 'obesity epidemic' by refocusing on more holistic health outcomes, but also takes responsibility for the often harmful social, emotional, and physical outcomes of more traditional weight loss programmes. In this regard, it is a unique programme.

Well Now was taken up as a mainstream programme by NHS Highland (Scotland) in late 2014. Through our examination of this case study we will interview stakeholders in Inverness who were involved in: bringing Well Now to NHS Highland; delivering the programme or other related personalised dietetic interventions; evaluating its success; or supporting the programme at a more community-based level. These interviews will help us to understand how changing the philosophy behind the 'healthy weight' programming available through the National Health Service has impacted health service delivery, as well as mental and physical health outcomes for patients. We will also gain a broader understanding of the barriers and incentives to developing and changing programming that are designed to better

meet the needs of society. **Social innovation has been a highly neglected area of study within RRI literature** and this makes Well Now a particularly important case study.

2.5.3   Bioeconomy (OeAW)

Bioeconomy is a broad area of research and innovation, comprised of different and distinct sectors such as agriculture, forestry, the chemical industry, and an even wider range of innovations and technologies. To sensibly focus the case selection and analysis, OeAW chose to narrow down the case area to synthetic biology (synbio). Synthetic biology is an emerging research area set out to rationally design new biological parts and organisms that are not found in nature or to redesign existing biological systems to perform specific tasks. Synthetic biology represents a vibrant research field where there are ongoing conflicts around how to do research and innovation responsibly. On one hand, high hopes are placed on synthetic biology to contribute to the realization of the bioeconomy, for example by advancing the sustainable use of natural resources through specifically designed new organisms (e.g. for a new generation of biofuels). On the other hand, synthetic biology also raises concerns of ethics, risks, and control that are very similar to the previous debate on gene technology.

Ecover/Solazyme (International): Ecover is a company specialized in producing environmentally friendly detergents. In 2014 it announced the introduction of a new material – algal oil – in a test batch of 6,000 bottles of laundry detergent in the UK, which was ultimately intended to replace palm oil (an ethically contentious ingredient) in its products. The algal oil was produced by the American biotechnology company Solazyme Inc. (USA). Several NGOs lead by the ETC Group and Friends of the Earth (FoE) reacted with an open letter opposing the use of synthetically modified bacteria, an online petition to ban Ecover´s genetically engineered laundry detergents, and a demand for a stronger involvement of relevant actors (e.g. NGOs, local farmers etc.) in business innovation and governance processes. Following a debate in British newspapers between Jim Thomas (ETC Group) and Tom Domen and Dirk Develter from Ecover, two deliberation events were organized around this conflict. First, Friends of the Earth UK, the Forum for the Future and the BBSRC organized a roundtable in the UK focussing on the sustainable and responsible dealing with synthetic biology. Second, the so-called Robertsbridge roundtables were initiated by Solazyme in the US and the UK. Both engagement processes were rejected by a

large number of involved CSOs. Ultimately, Ecover opted against introducing the new oil in its products.

OeAW selected this case study because it combines different forms of engagement and controversy at the level of innovation. The case particularly promises deeper insights into the activities and rationales of critical CSOs in relation to an emerging technology, an aspect that is neglected in RRI literature. The case includes the bottom-up activities and strategies (protests, petition, media interaction) of CSOs and their interaction with other actors from the science and innovation system, in this case private companies. The case study is also particularly interesting because it involves a company that has been known for its sustainable, or 'environmentally friendly', products – a claim that was challenged by the CSOs when the company introduced the algal oil. In this respect, the case may increase our understanding of the role of framing and the contestation of what 'responsible' or 'sustainable' means in research and innovation debates. There is no explicit reference to the concept of RRI, but **RRI is implicit** in the dialogue events. That a number of CSOs rejected the invitation to participate in the roundtables has the potential to reveal the barriers and incentives these organisations perceive in regard to participating in RRI, as well as the requirements such processes should fulfil for broad societal engagement.

SYNENERGENE (International): SYNENERGENE is a central project for the European Commission's exploration and implementation of the RRI concept in the area of synthetic biology, funded under the seventh framework programme. SYNENERGENE aims to initiate and foster public dialogue on synthetic biology and mutual learning processes across a wide range of stakeholders from science, industry, civil society, education, art, and other fields. The project is an **explicit example of RRI** in that it explores and reflects on novel approaches to inclusive governance frameworks for RRI, particularly in regard to societal engagement. In the context of the project, numerous and diverse engagement events have been organized, ranging from stakeholder workshops, to student competitions, to film festivals or theatre performances. While there is no link to immediate decision-making, SYNENERGENE aims to shape research and innovation in synthetic biology by establishing an open dialogue and networks between stakeholders concerning the potential benefits and risks of synthetic biology. The project is based on the 'mobilization and mutual learning action plan' (MMLAP) approach, which is conceived as a central mechanism for societal engagement under RRI

that is explored by the EU in three projects on emerging technologies. Through an analysis of SYNENERGENE, we can contribute to the debate about how far MMLAP approaches align with the idea of RRI, and which challenges may arise. Ultimately, studying the SYNENERGENE case study will enable us to look at a range of diverse engagement activities in different countries and contexts that are all focused on synthetic biology, and it will allow us easy access to a range of key actors in the area of synthetic biology, including stakeholders who have critical perspectives about this technology.

Although OeAW is the PROSO partner investigating this case study and they were also involved with SYNENERGENE, their role in the latter project consortium was solely to observe and analyse events organized by the other partners. In this task they adopted a quite distanced and critical view that will benefit the analysis of this case study. Additionally, an argument in favour of selecting this case is that OeAW's wealth of connections to the partners involved in SYNENERGENE will help them to access many stakeholders for interview. It is likely that their 'insider' status will result in richer empirical material.

UK Synthetic Biology Strategic Plan 2016 (United Kingdom): In 2012 the UK Government established the Synthetic Biology Leadership Council (SBLC) as a governance body to assess progress, update recommendations, and shape priorities for the implementation of the synthetic biology roadmap for the UK. According to its official mission statement, the SBLC will coordinate between the funding agencies, the research community, industry, government sponsors and other stakeholders, including societal and ethical representatives (SBLC 2016). The governance council was established to facilitate this task. The main activity of the SBLC has been developing the *UK Synthetic Biology Strategic Plan 2016: Biodesign for the Bioeconomy,* an update of the 2012 Synthetic Biology roadmap. This strategic plan is a result of consultation processes with the stakeholder community between 2015 and 2016.

The SBLC promises to be an illustrative case study of a governance process that is focused on advancing synthetic biology and the respective engagement strategies. In an overview of SBLC and its activities we found **explicit reference to RRI** and the involvement of societal actors. At this point, however, the engagement activities seem largely limited to research and industry actors with an a priori positive stance on synthetic biology, and so far the involvement of civil society organisations appears to be marginal. The only CSO we found to

be involved in the governance group is Genetic Alliance, a national UK charity working to improve the lives of patients and families affected by genetic conditions, and which is an alliance of more than 180 patient organisations. Within this context we are interested to learn more about the interpretation and implementation of RRI and engagement in this governance body. Some of the questions we will ask through this case study are: Have other CSOs been approached? If they haven't why weren't they considered to be relevant? If they have been approached why did they decline? In general, what or who hinders the engagement with civil society organisations in this process?

3. Stakeholder Interview Methodology

Following the extensive desk research done as part of the case study selection process, a series of interviews will be conducted with the stakeholders linked to each of the 9 case studies. The following section details the approach taken in WP3 to finding and selecting interviewees for each case, recruiting them, and interviewing using the attached draft interview schedule (Appendix 4) by early 2017. It also briefly discusses the challenges of analysing cross-national qualitative data.

3.1 Approach

Semi-structured in-depth qualitative interviews will be carried out with stakeholders who are associated or directly involved with each case study. A stakeholder is defined as an individual or an organisation who can 'affect' or 'be affected by' a given situation (Freeman 1984: 46). For the purposes of WP3, we include the public and other non-organised and organised 'societal actors' in our definition of stakeholder. However, not all case studies will involve interviews with participants who were non-organised citizens or members of the public. Participants will be interviewed as representatives of their organisation who were involved in a case study that can help us to better understand the barriers and incentives to engaging society in research and innovation. These interviews will help us to acquire an in-depth understanding of how societal engagement activities were carried out, what affected the outcome of each case, and whether or not they could be considered 'successful'.

3.2 Participant recruitment and research ethics

The stakeholders we recruit for interviews will be either publicly affiliated with the selected projects, or we will find them through snowball sampling with other interviewees.

Establishing who these individuals are, and which interviews will be of most value for the purposes of PROSO, will require further desk research. The recruitment process will involve using publically available contact details in most cases, although we may obtain contact details from other informants in the case of snowball sampling. We will instigate contact by email (see the recruitment email template, Appendix 1) and follow-up with a second email or phone call one to two weeks later, if there has been no response.

In addition to the recruitment email, a participant information sheet (Appendix 2) and the informed consent document (Appendix 3) will also be emailed to all prospective participants prior to the interview. The University of Surrey Ethics Committee reviewed this project and granted it a favourable ethical opinion (UEC/2016/031/FHMS; the confirmation of ethical opinion was granted 19 July 2016). This ethics application incorporated the recruitment email template, participant information sheet, participant consent document, and draft interview schedule – please see Appendices 1-4. Partner institutions were responsible for ethics application within their own respective countries as part of PROSO Work Package 9. They will carry out interviews using their own participant information and consent documents, depending on the requirements of their home ethics institution.

Where the interview takes place in-person, we will obtain the signed consent form at that time (bringing a form with us for them to sign). If the interview takes place over telephone or VoIP through conferencing software, we will ask participants to scan and email us their signed form. If they do not have access to a scanner, we will mail them a copy of the form with a stamped self-addressed envelope so they can return the signed form to us at no cost to them. We will verbally reconfirm consent at the beginning of the telephone interview. An interview will not take place if the consent form has not been signed.

3.3   Interview Materials

Stakeholder interviews will be comprised of semi-structured open-ended questions. These stakeholders will be recruited through their role as representatives of their organisation, rather than in a personal capacity, and the interview questions will reflect this. No personal information outside of their name, contact information, and professional affiliation will be collected.

The semi-structured interview should take one to two hours; please see the draft interview schedule for researchers (Appendix 4). This interview schedule was structured to be not only adaptable to a variety of case studies and stakeholders, but to also allow us to compare data across quite different case studies through the analysis process.

Whilst questions will be somewhat tailored to each individual case study and stakeholder selected for interview, the overarching questions and categories were designed to help us to understand each case study and the inter-group dynamics of the various stakeholders who were part of it. The questions were also created with the key tenets of RRI in mind, which include trust, responsibility, co-responsibility, and engagement with society. These questions were ultimately developed to help us understand the barriers and incentives to carrying out RRI in research and innovation projects, and the questions are designed to target that information in ways that are both obvious and more subtle. The questionnaire provided will be adapted for a range of stakeholders and their perspectives vis-à-vis the case in question (such as CSOs who were involved in the project), which will reflect their role in RRI projects.

The interview schedule will be piloted in English with two "types" of stakeholder: a TSO representative and a researcher. Interviews will largely be conducted in English. We anticipate that the stakeholders invited to interview will be conversant in English due to the international nature of many of the selected cases. However, there may also be participants who will prefer to speak in their first language, or who will not have the necessary English language proficiency. These participants will be interviewed in native languages. For this purpose, the interview schedule will be translated and back translated (in order to maintain the intended meaning of the questions) by the partners involved in the study.

3.4 Interview Procedures

Stakeholder interviews will be recorded by the interviewer using both handwritten notes and audio recording. Wherever possible, interviews will be conducted in English so as to avoid problems with translating abstract concepts, and to facilitate the sharing of data to all partners if required. This will also reduce transcription and translation costs.

3.5   Data Management

The researchers will comply with the 'Guidelines on Data Management for Horizon 2020' (European Commission 2016) which asserts that publicly-funded research data are produced in the public interest and should therefore be as openly available as possible.

However, the data that is created through PROSO (both raw transcripts of the audio recordings and interview summaries) will be stored on secure servers and dealt with in the strictest manner in order to ensure participant anonymity and confidentiality, at each institution where data is collected. In order to comply with the UK Data Protection Act 1998, all of the data resulting from the stakeholder interviews will be given participant codes. No one outside of the research team will have knowledge of participant identities. As the lead on WP3 (stakeholder interviews), Surrey will have all of the data that is collected through the stakeholder interviews stored on the secure servers at Surrey. Only the three core members of the PROSO research team at Surrey will have access to participant information. Any paper-based data that is part of WP3, such as signed consent documents, will be locked and only the WP3 Principal Investigator, Lada Timotijević (SURREY), will have access to the raw data after the project is completed in 2018.

4. Analysis Methodology

The analysis stage will follow several phases (see Table 2 below). First, the interviews will be carried out and the audio files from the interviews will be transcribed by a professional transcription service (Phase 1). The transcripts will be analysed and interpreted by Surrey to develop a coding tree and this will then be circulated to partners so they can apply the coding tree to their own transcribed interview data (Phase 2). Next, this process of identifying and applying key themes will be discussed at a meeting with all partners (Phase 3). Further analysis will be applied after the meeting and each partner will write a domain-based summary document (Phase 4). These domain-specific reports will be sent to Surrey, along with the coded data (Phase 5). Surrey will compile these documents and submit the deliverable, 'D3.2: Barriers and incentives in three R&I domains' (Phase 6). These materials will then be used by Surrey to write a synthesis report ('D3.3: Synthesis report barriers and incentives') about the themes that emerged from the data across all three domains (Phase 7). These phases are illustrated sequentially in the table below.

Table 2: Phases of analysis for stakeholder interviews

	Surrey	Partner Countries
1	Construction of the interview guide and piloting	
2		Translation of the interview guide and piloting
3	Qualitative interviews and verbatim transcripts (Phase 1 of Analysis)	Qualitative interviews and verbatim transcripts (Phase 1 of Analysis)
4	Surrey codes own data and develops a coding tree which is circulated to partners (Phase 2)	
5		Partners apply it to their data, though are mindful to report on all instances where the coding tree does not apply (Phase 2)
6	All partners meeting: Discussion of the analytical framework – the process of identifying and applying key themes. (Phase 3)	
7	Further analysis of the data according to the thematic coding; writes up results of the food and health domain for D3.2 (Phase 4)	Further analysis of the data according to the thematic coding tree; partners write up domain-based results for nanotechnology and bioeconomy for D3.2 (Phase 4)
8		Results for D3.2 are sent to Surrey, plus the coded raw data for deliverable submission (Phase 5)
9	Surrey compiles the 3 reports for each domain and submits D3.2 (Phase 6)	
10	Surrey collates raw data and summarises reports to write the synthesis document (D3.3) (Phase 7)	

4.1   Thematic Coding

We will be using thematic analysis (Braun and Clarke 2006) because it is applicable cross-culturally and allows for flexibility. This type of analysis will assess typical as well as extreme examples of phenomena of interest to PROSO, and points of divergence as well as points of convergence.

The interview data will be approached inductively (rather than deductively), meaning that identified themes are strongly linked to the data itself. We will look for semantic, rather than

latent themes: this means the themes will be identified within the explicit or surface meanings of the data. We will not look for anything that is beyond what a participant has said in the form of underlying ideas, assumptions, or ideologies that could be theorised as shaping the semantic content of the data.

4.2   Detailed Data Analysis

There will be two stages of data analysis. The first stage of analysis will be carried out by each WP3 partner and includes reading, tabulating, analysing, and summarising the interviews from the domain for which they are responsible. The second stage of data analysis will be done by Surrey and it includes the coded raw data of all countries. The latter analysis may be carried out using NVivo or a similar software package. The table below describes the specific steps involved in establishing thematic codes and applying them to each data set to carry out the analysis.

Table 3: The thematic coding & analysis method in detail

	Surrey	**All Countries**
Step 1	Becoming familiar with the data	Transcribing, reading and re-reading the data, noting down initial ideas
Step 2	Systematically generating initial codes across the entire data set	Code = most basic segment of the raw data that can be assessed in a meaningful way
Step 3	Gathering codes into themes	Theme = codes that relate meaningfully to each other; there should be clear and identifiable distinctions between themes. Consider the prevalence of themes appearing in each individual interview or several times across the data set (e.g. is a theme evident in one stakeholder group but not the other?)
Step 4	Defining and naming the themes	Analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme
Step 5	Reviewing the themes	Check if the themes work in relation to the coded extracts and the entire data set, thereby generating a thematic 'map' of the analysis

| Step 6 | Producing a report | Selection of vivid, compelling interview extracts, which are linked back to the literature and result in a final analysis of the selected text |

(Adapted from Braun and Clarke 2006)

5. Timeline & Summary

Provided that ethical approval has been obtained from the relevant institution (in line with the requirements for PROSO Work Package 9), partners will begin contacting people to arrange interviews as soon as possible (from July 2016). The interview schedule will be piloted in August and finalised at the Consortium Meeting in Glasgow on 7 September. From this point, it will be translated into other languages (as necessary, although interviews will still ideally be carried out in English). Key stakeholders will be identified by late October 2016. The interviews should be complete by January 2017, in line with 'Milestone 3.2: Case Study Interviews' and transcribed by the end of that month (Phase 1 of Analysis, as listed in Table 2).

Surrey will develop a coding tree through their initial analysis and circulate it by the end of January (Phase 2); partners will carry out an initial coding. There will be a meeting with all WP3 partners in mid-February to discuss the coding tree and discuss whether some codes need to be added or removed, based on their experience of coding the data to date (Phase 3). Partners will analyse the interview data using the finalised coding tree by late February 2017 and then write domain-specific reports (Phase 4) that will be finished and submitted to Surrey with their coded raw data by mid-March (Phase 5). Each of the three domain-based reports will be compiled into the deliverable ('D3.2: Barriers and incentives in three R&I domains') and submitted at the end of March (Phase 6). Surrey will review the coded raw data from each partner and write a synthesis report ('D3.3: Synthesis report barriers & incentives) that will be submitted by 31 May (Phase 7).

This deliverable has reported on the case study selection methodology used in our desk research, on the stakeholder interview methodology that will be used to investigate the selected case studies over the coming months, and on the analysis methodology that we will employ to process the interview data. We have employed a transparent approach to developing search, recording, and selection criteria for case studies across PROSO's three

research domains. We have also provided sound rationale for why we chose our final nine cases and outlined how each case study will contribute towards our exploration of societal engagement in research and innovation under the terms of RRI.

The desk research completed to date has established a strong foundation to help us meet both of the main objectives of WP3, which are to 1) identify key barriers and incentives for social engagement under the terms of RRI across different R&I domains from the point of view of Third Sector actors and other stakeholders contributing RRI; and 2) to explore the similarities and differences in the perspectives of the different stakeholders contributing to RRI. To accomplish these goals over the coming months, we will follow the stakeholder interview methodology and analysis methodology outlined in the latter sections of this document. In particular, this will require attentiveness to adapting the interview schedule through piloting, and for all partners to follow the guidelines we have outlined for interviewing, thematic coding, and analysis. This will result in data that is comparable across domains and cultures, and which will provide needed insight into how societal engagement is enacted in these domains of research and innovation.

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Appendices

Appendix 1: Stakeholder Recruitment Email Template

Date

Dear {stakeholder title and name},

We are part of a group of researchers across Europe working on a project called PROSO: 'Promoting Societal Engagement under the Terms of Responsible Research and Innovation (RRI)'. This project focuses specifically on RRI within the three domains of nanotechnology, food and health, and bioeconomy.

In particular, we are keen to explore stakeholder understandings of the concept of RRI, and to better understand the incentives and barriers faced to implementing RRI more broadly across research and innovation. Based on your role in _{case study title}_, we would like to interview you as part of PROSO. The interview should take one to two hours and we will find a time and place that is convenient for you, either in person or over the phone.

We have attached an information sheet and consent form for you to read which provides some basic information about the project and outlines your rights as a participant. We would be pleased to answer any questions you might have about the interview process, or about PROSO more broadly. If you decline our invitation we will not contact you again. This study has been reviewed and received a Favourable Ethical Opinion (FEO) from the University of Surrey Ethics Committee.

Please let us know when you might be available, and we look forward to hearing from you.

Best wishes,

Lada and Emily

Dr Lada Timotijević and Dr Emily Porth
Food, Consumer Behaviour & Health Research Centre
School of Psychology
University of Surrey
01483 686895

Appendix 2: Participant Information Sheet
Stakeholder Interviews

Promoting Societal Engagement under the Terms of Responsible Research and Innovation (PROSO)

Introduction

We would like to invite you to take part in a research project. Before you decide you need to understand why the research is being done and what it will involve for you as a participant. Please take the time to read the following information carefully and ask questions about anything you do not understand. Talk to others about the study if you wish.

What is the purpose of the study?

This study explores what citizens and organisations understand and know about 'responsible research and innovation' (RRI). We are particularly interested in what you see as the barriers and incentives to participating in RRI, and in exploring your experiences (if any) of participating in RRI.

Why have I been invited to take part in the study?

You have been invited to take part in this study because you are, or have been, involved in a project/role that will help PROSO researchers to better understand the barriers and incentives to doing RRI.

Do I have to take part?

No, you do not have to participate. You can withdraw your participation at any time. You can request for your data to be withdrawn up to 30 days after the interview without giving a reason and without prejudice.

If you withdraw from the study, both identifiable and anonymised data will be destroyed. No further data would be collected in relation to you.

What will my involvement require?

Your involvement requires participating in an in-depth interview with one of the researchers who is part of PROSO. This interview should take no more than 1 to 2 hours of your time. Data will be collected through audio recording and note-taking during the interview.

If you agree to take part, we will ask you to sign a consent form. You will have copies of this information sheet and the consent form, and you can request a copy of your signed consent form.

Research data (obtained from our interview with you) are stored securely for at least 10 years following their last access. Project data (e.g. your signed consent form) will be stored securely for at least 6 years, in line with the University of Surrey policies. These data will be stored separately to protect your anonymity and confidentiality. Your research data will only be shared with members of the project team, who will store it securely according to their institution's research ethics protocol.

Personal data (your name and contact information) will be handled in accordance with the UK Data Protection Act (1998). Your personal data will not be shared outside of the research team and will be kept separately from your research data.

What are the possible disadvantages or risks of taking part?

We do not foresee any risks or discomforts from your participation in this research.

What are the possible benefits of taking part?

This project has the potential to provide valuable insight into how research and innovation can better engage with the needs of society. Through speaking with us, you could reflect on how you can influence, or be affected by, research and innovation.

What if there is a problem?

Any complaint or concern about any aspect of the way you have been dealt with during the course of the study will be addressed. In the first instance, please contact Dr Lada Timotijević, Principal Investigator, by phone at 01483 686946, or by email at l.timotijevic@surrey.ac.uk.

You may also contact Prof Derek Moore, Head of the School of Psychology, by phone at 01483 686933, or by email at d.g.moore@surrey.ac.uk.

Will my participation in the study be kept confidential?

Yes. Your details will be held in complete confidence and we will follow ethical and legal practice in relation to all study procedures. Personal data (name, contact details, and audio recordings) will be handled in accordance with the UK Data Protection Act 1998 and unauthorised individuals will not have access to them.

Your personal data will be stored securely. You will not be identified in any reports or publications resulting from this research *unless you request this,* and to the fullest extent possible, we will endeavour to ensure those reading these documents will not know who has contributed to it.

Full contact details of researchers

Dr Lada Timotijević
l.timotijevic@surrey.ac.uk
01483 686946

Dr Emily Porth
e.porth@surrey.ac.uk
01483 686895

Prof Monique Raats
m.raats@surrey.ac.uk
01483 689431

Can I request a summary of the findings from this study?

Yes, you can request a summary of the findings by contacting the researchers involved using the above information. A summary will be available by October 2017.

Who is organising and funding the research?

This research is organised by the University of Surrey and funded by the EU through the Horizon 2020 Research and Innovation Programme.

Who has reviewed the project?

This research has been looked at by an independent group of people, called an Ethics Committee, to protect your interests. This study has been reviewed by and received a favourable ethical opinion from the University of Surrey Ethics Committee.

Thank you for taking the time to read this Information Sheet.

Appendix 3: Participant Consent Document
Stakeholder Interviews

PROSO - UEC/2016/031/FHMS

Please initial each box

- I have read and understood the Information Sheet provided (Version 3, 6 July 2016). I have been given a full explanation by the investigators of the nature, purpose, location and likely duration of the study, and of what I will be expected to do.

- I have been advised about any risks to my well-being from my participation and I will inform the investigators immediately if I have any concerns.

- I agree to comply with the requirements of the study as outlined to me to the best of my abilities. I have been given the opportunity to contact the research team and ask questions on all aspects of the study.

- I agree for my anonymised data to be used as part of this study, which has received all relevant ethical approvals.

- I give consent for this interview to be audio recorded.

- I give consent for my quotes from the interview to be used in documents relating to this project. Please check one box below:

  ➢ I would like my quotes and any other data I provide to be fully anonymised ☐

  ➢ I would like my quotes and any other data I provide to be attributable to me ☐

- I understand that all project data will be held for at least 6 years and all research data for at least 10 years in accordance with University policy and that my personal data is held and processed in the strictest confidence, and in accordance with the UK Data Protection Act (1998).

- I consent to my data being shared with the EU project partners, who will store it securely according to their institution's research ethics protocol.

- I understand that I am free to withdraw from the study at any time without needing to justify my decision, without prejudice, and without my legal rights being affected.

- I understand that I can request for my data to be withdrawn within 30 days of my participation in this interview. Following any such request, all data already collected from me will be destroyed.

- I confirm that I have read and understood the above and freely consent to participating in this study. I have been given adequate time to consider my participation.

☐

Name of participant:
(in BLOCK CAPITALS)   ……………………………………………

    Signed

                                        ……………………………………………

    Date

                                        ……………………………………………

Name of researcher taking consent:
(in BLOCK CAPITALS)   ……………………………………………

    Signed

                                        ……………………………………………

    Date

                                        ……………………………………………

Appendix 4: PROSO Stakeholder Interview Schedule

For Researchers, Scientists, & Programme Organisers

Note for interviewers - We are asking **interviewees** to think about the concept of RRI and how, why and in which ways it was or was not applied to a particular project. Depending on who the interviewee is and at what stage they are involved, you may not get extensive answers to some questions. However, ask all of the questions anyway. The extent to which people involved at various points have a sense of the overall project/programme is itself informative.

Introduction to be stated to interviewee:

PROSO is focused on promoting societal engagement in research and innovation. To do this, we are seeking a better understanding of the barriers and incentives to carrying out 'responsible research and innovation'. The project is intended to examine how to link research and innovation with the needs and values of broader society. In particular, we are interested in understanding whether/how each selected case study has been invested in implementing the core principles of RRI, and whether they have been successful.

Interview schedule

Objective (please read and be aware of objectives before you conduct the interview)	**Questions** (please ask all of these questions)	**Prompts** (Used to encourage further dialogue. Will not always be necessary, use only if appropriate)
Introduction	First, please tell me about yourself.	→*Career, professional interests, etc.*
Overview of Case Study	We are interested to speak with you because of your involvement in the _____ project/programme. Could you please tell us more about the project? (aims, duration, etc.)	*What role did you play in this project/programme?* *How did you become involved in the project?*

	Why do you think there is/was a need for this project/programme?	*Did you want to become involved?*
		Who initiated this project/programme?
	How did it go/has it gone so far?	*Who is it funded by?*
Initiating Engagement	Have members of the public, community representatives, or particular interest groups been involved in this programme/project?	*How did they become involved?*
		How did they participate?
		Could people have participated differently?
		What will be/has been done with the data/feedback provided by the participants with whom you engaged?
		(If no) Why was there no societal engagement?
Identifying Barriers	What were some of the challenges of working with different participants on the same project?	
	Are there other organisations and members of society who you think should be/ have been involved in this project/programme, but are/were not?	*(If yes) Who are they?*
		(If yes) Why should they have been involved?
		(If yes) How should they be/ have been involved? At what points?

	Was someone involved who should not have been?	
		Why is it important they are involved?
	Do you think this was the right time to engage with the public/organisations?	*What specific benefits would they add to the project?*
	Do you have concerns about how to consider the values, needs, and expectations of society?	
		Do you have concerns about the process of engaging the public in research or innovation?
		Do you have concerns about how to consider the short- and long-term consequences of research or innovation?
Identifying Incentives	From your experience, what are the best ways to encourage members of the public/organisations to engage in research?	*Are there methods of engagement that work best?*
		Should rewards/incentives be used to encourage people to participate?
	What do you think motivates researchers/institutions to want to engage with the public or more broadly address the values and needs of society?	

Now we are going to switch tracks and focus on some questions that are more theoretical…

Concepts of 'responsible research and innovation' and 'engagement'	What is the first thing that comes to mind when you hear the term 'responsible research and innovation'?	
	What does 'responsibility' mean to you?	
	Do you think engaging with interest groups and members of society is a necessary part of 'responsibility?	
	Do you think 'trust' plays a role in engaging with participants?	
	What does it mean to be 'transparent' in research and innovation?	
Outcomes	When you were beginning this project/programme, did you discuss its potential future impacts on society?	*(If yes) Who was involved in this process?* *(If yes) What was this process like?* *(If no) Why not?*
	Do you think this project/programme is aligned with the values and needs of society?	*Do you feel this project/programme has created more or less impetus to change your organisation to being more focused on the values and needs of society?*
If time… and particularly for projects that are explicitly RRI-focused…		
Embedded understandings of RRI	What does RRI mean to you, within the context of your work?	*To what extent do you think the principles of RRI are part of your project/programme's decision-making?*

Future-thinking about RRI	Is RRI an achievable ideal? What do you think is the future of RRI as a framework for research and innovation?	*What might hold back this type of initiative?* *What could push it forward?*
Other barriers and incentives to RRI	What do you think are the biggest concerns your colleagues have about doing projects that involve RRI?	
Conclude	Is there anything else you would like to add?	
Thank you	Thank you for your time!	