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Responsible Research and Innovation made simple:

A comprehensive toolbox for embedding RRI in SHARED GREEN DEAL activities

SHARED GREEN DEAL

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Executive summary

Responsible Research and Innovation (RRI) is an approach that has become increasingly important in recent years, as researchers and practitioners recognise the need to take into account ethical, social, and environmental considerations in their work. This approach ensures that research and innovation practices are conducted in a way that benefits society and the environment, and takes into account the potential impact of these activities on different groups and communities.

The SHARED GREEN DEAL project recognises the importance of incorporating RRI principles into its activities. Therefore, the project has developed this toolbox to guide its consortium partners and local partners on how to practically embed RRI considerations into their work. This toolbox is designed to be a flexible resource that can be customised to fit the specific needs of different projects.

The SHARED GREEN DEAL RRI toolbox is structured in two parts. The first part provides guidelines and tools for the core members of the project on how to transfer the RRI vision into actionable steps. This section describes different tools and methods to foster the RRI dimensions of anticipation, reflexivity, inclusion, and responsiveness. Additionally, it includes guidelines on gender and ethics considerations during project implementation.

The second part of the SHARED GREEN DEAL RRI toolbox focuses on the evaluation framework for measuring the effects of RRI activities in the project. The purpose of this evaluation framework is to provide a systematic way of measuring the impact of RRI activities on the project. By evaluating the effects of RRI activities, the project can identify areas of success and areas for improvement.

Overall, the SHARED GREEN DEAL RRI toolbox is an innovative approach for embedding RRI into research practice, with the aim of ensuring that the project is conducted in an ethical and sustainable way. It is a critical resource for ensuring that RRI principles are incorporated into the project's activities and provides practical guidance and tools for different participant groups to ensure they can operate in a societally relevant way. By simplifying the operationalisation of RRI principles, the toolbox helps to ensure that research and innovation are conducted in a way that benefits society and the environment.

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1. Introduction

This is the second deliverable of Work Package 6 (WP6); a work package that has two main objectives. Our first objective is to introduce and embed Responsible Research And Innovation (RRI) considerations into the SHARED GREEN DEAL project, and thereby help the partners to adopt a responsible attitude to their research and research-related activities. Our second aim is to evaluate how (well) this introduction and integration of RRI goes within the project.

This second deliverable builds on the first deliverable (D6.1) "*Responsible by choice: An Action Plan for embedding RRI in the SHARED GREEN DEAL project*" (Seus et al., 2022). Whilst that RRI Action Plan introduced RRI in general (e.g. definitions, historical developments) and developed a joint vision of RRI that is specific to the SHARED GREEN DEAL project, this second deliverable is more 'hands-on'. Specifically, this deliverable provides guidance and resources for different participant groups – i.e. the project's consortium partners, local partners, and participants of the project experiments – on how to practically embed RRI considerations in our project work. The deliverable's guidance and resources should be received as ideas to consider, rather than a rigid checklist of points that all must be covered. Indeed, this is why this deliverable is called an "RRI toolbox", which can be drawn upon to support different participant groups in their responsibility aspirations.

All resources provided in Section 2 are building on previous work done during the previous year of the SHARED GREEN DEAL project, as was first summarised in the RRI deliverable, D6.1. If you are interested in knowing the historical developments and conceptual basis of RRI or the specific RRI definition we apply in the SHARED GREEN DEAL project, we invite you to read D6.1. In particular, this deliverables builds on D6.1's "RRI vision", which is available in Annex 1 of this deliverable and also on the project website.

This deliverable is divided into two sections (Sections 2 and 3) that fulfil different purposes:

- *Section 2 "Tools and Resources"* is directed at the core members of the SHARED GREEN DEAL project. It consists of a suite of guidelines and tools that aims to help the member of the project to include RRI considerations in their project activities. The suite of tools starts with the "SHARED GREEN DEAL RRI Vision", which was developed during the first year of the project and has since been published in D6.1.. This section includes, then, guidelines on how to transfer the RRI vision into something which is doable (including different guidelines for different target groups) and describes tools/methods that help to foster the RRI dimensions of Anticipation, Reflexivity, Inclusion and Responsiveness. A separate section is also included on gender considerations during implementation.
- *Section 3 "Evaluating RRI – A preliminary framework"* details the evaluation framework for measuring how (well) RRI has been introduced in the activities of the project and what are the effects of this inclusion, especially with regards to gender and dissemination. The framework draws on existing RRI evaluation frameworks, but has been adapted to the specific needs of the SHARED GREEN DEAL project. We discuss the basis for the data collection tools for the evaluation of RRI effects: survey questions and interview guidelines. This framework needs to be seen as a first proposition for further discussion. Hence, it will be further developed and iterated during the course of the project. The RRI evaluation will be carried out by consortium members involved in Work Package 6, under the lead of Fraunhofer ISI. The data collection tools provided in section 3 will be used mainly by the evaluators.

The primary audience of both Sections 2 and 3 are the SHARED GREEN DEAL consortium members and persons involved in the experiments. In our project – and thus specifically in this Section 2 – we distinguish between the following different member groups of the project: 1) formal members of the SHARED GREEN DEAL consortium, including both research partners and practitioner partners; and, 2) persons involved in the experiments, such as the local partners (subcontractors) running the experiments and also the target participants of the experiments.

Although this core of the deliverable is more directed towards internal use, we have opted to publish it. We feel that the suite of tools, as well as the evaluation framework, can also be useful for other projects – especially those inspired by RRI thinking, but who may be unsure on how to incorporate it into their own research practices.

2. RRI made simple: A toolbox for responsible SHARED GREEN DEAL activities

The Responsible Research and Innovation (RRI) approach is increasingly recognised as a key element in ensuring ethical and sustainable conduct of research and innovation (R&I) projects. The SHARED GREEN DEAL project is committed to incorporating RRI principles into the project activities. To this end, we have developed the RRI toolbox to help consortium partners and local partners conduct experiments in a more responsible way.

The purpose of the RRI toolbox is to introduce RRI considerations into the SHARED GREEN DEAL project activities, including fundamentally acknowledging that 'doing RRI' is a space for (self-)reflection. The toolbox further provides support for embedding RRI principles throughout the project lifecycle, from the initial ideation and planning stages, to the execution and dissimination of the results.

Features of the RRI toolbox:

The RRI toolbox provides a range of resources, guidelines, tools, and templates to help project partners incorporate RRI principles into their considerations and activities. Each of these resources is designed to be a standalone tool that can be used independently, depending on the specific needs of the project and without a predefined order. The following sections will describe in detail the different resources of the RRI toolbox, and how to use them effectively in the project activities. We have outlined for each resource, its intended: a) target group, b) purpose, and c) timing. We hope providing the RRI toolbox will contribute to promoting a culture of responsibility and sustainability in R&I practices.

How to use the RRI toolbox:

The RRI toolbox is a valuable resource for anyone involved in the SHARED GREEN DEAL project, including consortium partners and local partners. To effectively use the toolbox, follow these steps:

1. *Access the toolbox:* The RRI toolbox is accessible via the project website, and all resources are available for download.
2. *Familiarise yourself with the contents:* Take time to review the different resources available, including guidelines, templates, and tools.
3. *Identify which resources are relevant:* Not all resources will be relevant to every project activity. Take time to consider which resources are most relevant to your specific needs and goals.
4. *Customise the resources:* The resources provided in the toolbox can be adapted to fit the specific needs of your project. Take time to customise the tools and templates to ensure they align with your goals and expectations. If you need help, please reach out to the team in charge of the toolbox.

5. *Incorporate RRI principles throughout the project*: Use the resources in the toolbox to guide your considerations and project activities, to ensure that RRI principles are incorporated throughout the project's lifecycle.

What the RRI toolbox does not provide:

While the RRI toolbox provides a range of resources and guidance to support the implementation of RRI principles in the SHARED GREEN DEAL project, it is important to understand its limitations. The toolbox does not provide all the answers, nor does it address every possible situation. Rather, it aims to provide guidance and raise awareness of key issues and considerations to be addressed in the project or the experiments' activities.

It is essential to note that providing resources to include RRI principles does not directly lead to more responsible research. Instead, the resources are meant to highlight potential issues to consider and provide questions to stimulate reflection on one's actions and how to interact and collaborate within the project. Not all resources or issues identified in the toolbox will be relevant to your specific project needs or activities. Therefore, *the guiding questions and methods* provided should be seen as ideas to consider, rather than a checklist of definitive items (or even actions) that all must be covered.

Co-create the RRI toolbox:

The toolbox is an innovative approach for embedding RRI into research practice and therefore will benefit from SHARED GREEN DEAL partners' feedback. SHARED GREEN DEAL is a pioneer with the ambition to truly embed RRI into research practice. Therefore, the RRI/WP6 team aims to constantly learn from partner experiences and from wider feedback/exchange, to then help further improve the toolbox.

2.1. Putting RRI principles into action: Guidelines for responsible project practices

Target group:

All project partners and subcontractors.

Purpose:

Introduce the main RRI principles and their practical embedding in SHARED GREEN DEAL.

When to use it / on which level:

All stages of the project.

General background:

These guidelines provides an overview of the main RRI guiding principles and how they can be applied in the SHARED GREEN DEAL project. These guidelines include practical advice on how to incorporate ethical and sustainable considerations into the project activities. By following these guidelines, project partners can ensure that their activities align with the overall goals of the project and contribute to a culture of responsibility and sustainability. Thus RRI should create benefits for research processes, as it offers learning effects and new ideas for conducting research. The following benefits are expected: increased awareness specific societal needs during the research process and being able to address them adequately. In doing so, the intended outcomes and impacs of the SHARED GREEN DEAL research will be changed in a way to support and generate transformative outcomes.

Where to find it?

See Annex 2 and on the SHARED GREEN DEAL project website.

2.2. Gender responsive practices for SHARED GREEN DEAL: Guidelines for Implementation

Target group:

This section on guidelines for considering gender targets both consortium members and local partners responsible for implementing the social experiments. The former will get guiding questions to reflect on gender mainstreaming throughout the project and include cross-cutting processes such as communication and disseminating results. The latter will find information and recommendations regarding integrating gender issues in the planning and development of their social experiments.

Purpose:

The primary aim of this section is to provide consortium members and local partners with concepts, ideas and guiding questions to examine the extent to which gender issues are being integrated into the project's activities.

When to use it / on which level:

The information in this section is designed to be consulted at different project stages. In the case of local partners, this section will guide them in the planning of the experiment and the recruitment of participants as well as in developing and moderating the planned activities. On the other hand, the consortium partners can use the guide to assess the gender consideration throughout the whole duration of the project.

General background:

The achievement of the SHARED GREEN DEAL objective of supporting a responsible, equitable and desirable implementation of the European Green Deal implies the recognition of the gender dimension across the eight topic areas of the directive and the commitment to address gender as a cross-cutting issue at all stages of the project. Therefore, with public engagement, open access and research ethics, gender equality is one of the four RRI dimensions relevant to the SHARED GREEN DEAL project. SHARED GREEN DEAL's commitment to gender equity has materialised through the project's Gender Action Plan (D10.1), formulating guiding principles as part of the RRI Action Plan (D6.1) and now through this guide for considering gender.

Where to find it?

See Annex 3 and on the SHARED GREEN DEAL project website.

2.3. Building on RRI experiences: Examples of effective tools and methods

As part of adopting the RRI thinking into the SHARED GREEN DEAL project, it is important to be responsive to emerging needs and findings that may require a change in selected methods. This section provides a list of tools and methods gathered from other RRI projects to help reinforce the four dimensions of RRI in the SHARED GREEN DEAL activities. The aim of this resource is not to impose new tools, but to provide a reference for local and consortium partners to choose alternative methods, if and where needed.

The table categorises the methods based on four questions to help partners choose the most suitable ones.

REFLEXIVE QUESTIONS	WHERE TO LOOK?
Do you need help with including diverse perspectives from different societal actors, including individuals and community groups, in different steps of your research process?	If so, we have methods and tools available to help you incorporate this concept of "**inclusion**" into your project. Check out our table of RRI tools and methods, and look for the ones marked with the inclusion dimension.
Do you want to ensure that your experiment considers all potential effects on the environment, economy, and society? Would you like to explore alternative pathways and prepare for uncertainties that may arise during your project?	If so, we have methods to systematically think about the effects and risks of research, ensuring that you can "**anticipate**" and prepare for any potential outcomes. Check out our table of RRI tools and methods, and look for the ones marked with the **anticipation** dimension.
Do you want to ensure that your research and activities offer the space to reflect on your / the participants' underlying motivations, assumptions and committments? Do you want to review and adapt the project's/ experiment's goals, and adapt the concepts, tools and methods used?	If you're looking to bring "**reflexivity**" into your research process, we have a range of methods that can help. Check out our table of RRI tools and methods, and look for the ones marked with the **reflexivity** dimension.
Do you want to make sure that your research is responsive to the needs and values of all stakeholders, and can adapt to changing circumstances and emerging societal challenges?	If you're exploring methods to promote "**responsiveness**" in your work., check out our table of RRI tools and methods, and look for the ones marked with the **responsiveness** dimension

You can find the tables with RRI tools in Annex 4 and on the project website. Each tool listed in there is accompanied by a brief description, the required time, and the skills needed for implementation. We encourage project partners, especially local partners, to look at this table and choose the most suitable methods that align with their needs, whenever needed.

2.4. Including ethical considerations in your data collection and data analysis activities: Drawing on existing resources

We encourage you to take advantage of the following resources (as well as note the current status from past project work) that has fed into our ethical best practice. These resources are available for all consortium partners on the SHARED GREEN DEAL internal TEAMS folder (under WP11) or in the deliverable, D11.1.

1. ***Ethics considerations for the overall* SHARED GREEN DEAL *project*:** The consortium has elaborated ethics considerations for the overall project that have been published in previous deliverables, namely the three **ethics deliverables: D11.1 (informed consent forms); D11.2 (data protection procedures) and D11.3 (ethical approval)**

   Initial ethical approval for the projects' activities was granted by an ARU ethics committee in April 2022. Where needed (e.g. once the plans for the experiments are finalised), further updates to the ethic considerations will be made and ethical approvals sought on the updates.

   Additionally, the general **Data Management Plan (D10.3)** of the project which gives indication where to store data collected during the project. You can also look at the project's Data Protection statement on the SHARED GREEN DEAL website: https://sharedgreendeal.eu/data-protection.

   ***Ethics considerations for the experimental phase*:** In D2.2, you find a specific section dealing with the **ethics consideration for the experiments (see D2.2, Section 3.4)** and the **specific data management procedure (see D2.2, Section 3.5)**.
2. ***Information sheets and consent forms*:** Informing our data informants (e.g. interview partners, survey respondent and participants of workshops or alike) about the goal of the SHARED GREEN DEAL project and the activity they will contribute to, their rights in the data collection processes and how the information they will provide will be stored and analysed, is a major building block with regards to ethical procedures.

   The consortium has therefore developed different templates for different data collection activities (e.g. interviews, survey, (online) meetings; video recording, publications etc.).

Drilling in more specifically to the experiment delivery in particular, specific resources will be needed in the different experiment streams, and developed before the start of the experimental phase.

Experiment Stream *(with specific ethics-related issues noted)*	**Data Collection Activity**	**Ethics Documents**
All streams	Subcontractor monthly surveys and meetings	Survey front matter including ethics information and how data from meetings will be used (in English only)
	Partner fieldnotes *(may only be used by some streams but available to all)*	Fieldnotes front matter including ethics information (in English only)
Clean Energy	Stakeholder workshops (co-creation events and joint session)	Sign-in sheet which outlines how data will be used
		Slide stating how data will be used
	Interviews	Participant information sheet/consent form
	Feedback survey	Survey front matter including ethics information/ consent tick boxes
Circular Economy	Stakeholder workshops and Circular Award Event	Sign-in sheet which outlines how data will be used
		Slide stating how data will be used
	Surveys (participant / consumer)	Survey front matter including ethics information/ consent tick boxes
	Registration form for the Local Accelerator Hub	Information which outlines the way in which registration data may be used
	Interviews	Participant information sheet/consent form
Efficient Renovations	Knowledge network	Consent form for when members join network which outlines how data will be used
		Sign-in sheet for network events which outlines how data will be used
		Slide stating how data will be used (if hybrid)
	Survey	Survey front matter including ethics information/ consent tick boxes
	Interviews	Participant information sheet/informed consent form

Experiment Stream *(with specific ethics-related issues noted)*	**Data Collection Activity**	**Ethics Documents**
Sustainable Mobility *(incl. young people under 18)*	Forums	Letter of consent from schools
		Parent/guardian information sheet and consent form
		Sign-in sheet (appropriate for young people) which outlines how data will be used
		Slide stating how data from forum events will be used
	Interviews	Parent/guardian information sheet and consent form
		Participant information sheet/informed consent form (appropriate for young people)
Sustainable Food	Assemblies	Consent form for when individuals become an assembly member which outlines how data will be used
		Sign-in sheet for asemblies which outlines how data will be used
		Slide stating how data will be used
	Interviews incl. group interview	Participant information sheet/informed consent form
Preserving Biodiversity *(incl. individuals who experienced isolation in the pandemic)*	Study Circles	Consent form for when members join the Study Circle which outlines how data will be used
		Sign-in sheet for meetings which outlines how data will be used
		Slide stating how data will be used (if hybrid)
	Focus group	Participant information sheet/informed consent form
	Survey	Survey front matter including ethics information/ consent tick boxes
	Interviews	Participant information sheet/informed consent form

Source: Foulds et al. (2023, Appendix 24).

2.5. Guideline to organise a "reflexive session" (during the experiments)

A "reflexive session" (or reflection session; see van Mierlo et al., 2010) is a moment in which different stakeholders of the experiment (especially local partner, subcontractors, potentially also consortium members) come together and discuss the actual status of the experimental processes. It is a time to reflect jointly on what has happened in the past and what the next steps to be taken are. We encourage the participants of the reflexive sessions not only to discuss activities, but also look at the procedures of the experiments.

As a basis for this, you can use the questions raised in the fieldnote templates or in the guidelines (Section 2.1). The aim of a reflexive session is to encourage learning and to foster inclusion along the whole experimental journey. There is no need to discuss (nor answer) all questions raised in the guidelines. We encourage you only to select those questions that are most relevant to your current experimental stage.

A reflexive session is not mandatory to your experiments. However, we encourage you to take the time at least two times during your experiment – or, even better, three times (e.g. beginning, mid-term and end of the experimental phase) – to come together in a reflexive session. These gatherings do not need to be longer than one hour and can be annexed to a regular meeting you would hold in any case during your experiment.

We note that these reflexive moments can occur both between consortium partner and local partner on the one hand, and local partner and experiment participants on the other, and thus we provide the following notes for each of these working arrangements:

- **Reflexive moments between consortium partner and local partner:** As local partner you might also want to discuss with the consortium partners in charge of your experimental stream. These discussions could also be classified as reflexive sessions. Good opportunity for exchange would be: a) the training session, b) the study tour.
- **Reflexive sessions between local partners and participants of the experiments:** These sessions will especially aim at including feedback of participants and discussing (diverse/diverging) motivations, interests and values of participating groups. Reflexive moments could be part of regular gatherings, e.g. by allowing a 15 minutes open discussion at the end or also as an "ice-breaker" moment at the beginning of a meeting with participants.

3. Evaluating RRI: A preliminary framework for assessing research processes and outcomes

This section outlines the preliminary evaluation framework, which we propose to assess the ways in which responsibility considerations have been integrated into the SHARED GREEN DEAL project. This framework is designed to help us understand how well RRI principles have been implemented (particularly in the context of the project's social experiments) and to identify areas for improvements.

When talking about evaluation, we adopt the definition given in the "Evaluation standards for Research, Technology and Innovation Policy" (Kohlweg et al., 2019, p.5):

> [An evaluation is…]" the systematic investigation of the benefits and/or merit of the evaluation object
>
> - a transparent and systematic procedure, based on empirically obtained data; distinct from everyday assessment procedures,
> - firstly as it is a transparent assessment based on specific criteria, undertaken for a specific purpose (study of potential benefits) or on a more general basis (study of merit) – and thus in contrast to pure research studies – and
> - secondly, as the same procedure can be applied to various different evaluation objects. The most important evaluation objects include projects, initiatives and other interventions (programmes), organisations, products (outputs) and evaluations themselves (meta-evaluation)."

We have built this framework by building on existing evaluations of RRI in research projects (especially: Kupper et al., 2015; Loeber & Cohen, 2018; Kiesinger et al., 2018; Yaghmaei et al., 2021) and tailoring it to fit the unique design of SHARED GREEN DEAL project. We want to make sure that the results of this evaluation are useful for everyone involved in the project, as well as other projects that may want to learn from our experience and follow a similar approach.[1]

As well as demonstrating how RRI has been used in SHARED GREEN DEAL, the evaluation will also serve as a learning tool for the participants. The RRI evaluation can thus be seen as an instrument allowing reflexive moments, and as an add-on to the guidelines and tools provided in section 2 on how to implement RRI. In this sense; there is a strong connection between the guidelines to con-

1 Adapting the evaluation framework to the specific project under evaluation is very common in evaluation practice but of specific relevance in the RRI context: "…[T]he criteria and indicators should not be considered as a fixed set of evaluation principles carved out in stone. Changing circumstances or newly developed knowledge might challenge them or require that additional criteria are formulated, and they must be re-thought in the application to a practice in order to become meaningful for that specific practice." (Kupper et al., 2015, p.7).

sortium partners and subcontractors provided in Section 2, with this evaluation framework presented here in Section 3. In particular, we have included the criteria discussed under the process dimensions of the framework (Section 3.3.1) and the guidelines (Sections 2.2 and 2.3).

The evaluation framework will be the foundation for the data collection (and the data collection tools provided in Section 3.4) and also provides the main structure for the subsequent data analysis.

To get the best results, we will evaluate the changes in processes (induced through the introduction of RRI principles) and specific RRI outcomes, such as gender or ethics. We will analyse data at two different levels: the experiment level; and, the consortium level (Section 3.2). This will help us fully understand how RRI is being used in the project. We have derived detailed evaluation questions we intend to answer during the RRI evaluation (Section 3.3). The evaluation framework will be the foundation for our data collection, and we will be using interviews and surveys to gather information (Section 3.4).

The results of this evaluation will not only help us understand the effects of introducing RRI on the SHARED GREEN DEAL project, but will also serve as a learning tool for everyone involved.

3.1. Processes and outcomes as foci of the RRI evaluation

The SHARED GREEN DEAL RRI evaluation will focus on two key aspects: Processes and Outcomes. This differentiation is proposed by Kupper et al. (2015). We used this approach as we found it easy to apply and adapt to the SHARED GREEN DEAL project, and it will help us get a complete understanding of the impact of RRI on the project.

3.1.1. Processes for incorporating RRI into project's activities

The aim of incorporating RRI principles into a research project is to change research practices and make research processes and results more responsible. RRI principles call for new ways of interacting between participants, encourage responsiveness to external needs and developments and prompt each partner to reflect on their motivation and values and the composition of the project. Introducing RRI thinking into the SHARED GREEN DEAL project provides an opportunity to test new ways of working and thinking. The focus on the processes referes to Task 6.2 of SHARED GREEN DEAL, which is about evaluating processes of our transdisciplinary research project.

Following the EU Horizon 2020 RRI Tools[2] concept (Kupper et al., 2015), we propose using four procedural dimensions that are based on the RRI definition by Stilgoe et al. (2013) and our RRI Vision. These dimensions are:

- Anticipation
- Reflexivity
- Inclusion
- Responsiveness

In Section 3.3, evaluation criteria and evaluation questions are proposed that operationalise each of the four RRI process dimensions (see Tables 1-4).

2 https://rri-tools.eu/

3.1.2. RRI outcomes: Understanding the effects of adopting RRI principles

Adopting an RRI approach not only changes the research processes but also leads to results that go beyond the production of scientific knowledge alone. Kupper et al. (2015) suggest three categories of RRI Outcomes:

1. **Learning outcomes:** These are the effects on individuals and organisations involved in the research project. This includes knowledge of RRI and how to apply RRI thinking in research processes and support others in adopting an RRI perspective.
2. **R&I outcomes:** These are research and innovation results that consider the perspectives of different societal groups, including gender and diversity, and are ethically acceptable, accepted by users, and have no harmful effects on the environment and specific societal groups.
3. **Solution to societal challenges:** These are research results that are useful beyond the research and business sectors, providing solutions for current societal problems.

By focusing on these RRI outcomes, we can ensure that our own SHARED GREEN DEAL research and innovation activities not only produce new knowledge but also positively impacts society. The analysis of R&I outcomes relates to the project's Task 6.3 on "RRI impact evaluation".

What do we want to apply in the SHARED GREEN DEAL RRI evaluation?

By focusing on specific RRI outcomes as described in the following, we aim to gain a deeper understanding of the effects of the SHARED GREEN DEAL project and how it has influenced the individuals involved, as well as the ways in which the project has incorporated gender and ethical considerations and effectively communicated its results to stakeholders.

Note that the RRI evaluation will not directly examine the third outcome category, "*Solution to societal challenges*" (3), as the effects related to the topics of the Green Deal will be analysed in Work Packages 4 and 5 of the SHARED GREEN DEAL project. As such, we now discuss the specifics of what 'learning outcomes' and 'R&I outcomes' mean in the context of our project, and in particular the experiment delivery.

Learning outcomes

For the SHARED GREEN DEAL RRI impact evaluation, our focus will be on the *learning outcomes* (1) and specifically on the effects on the individuals involved in the SHARED GREEN DEAL project, including consortium members and local partners (subcontractors). The focus on learning is also emphasised in recent discussions in the RRI community (see Loeber & Cohen, 2018; Braun et al., 2022)

We suggest the following overarching evaluation questions to evaluate the learning outcomes of the SHARED GREEN DEAL project. They will be answered by evidence gathered in the detailed evaluation questions (see Tables 1-4 in Section 3.3)

- Has the knowledge of RRI increased during the project's lifetime?
- How has this new knowledge been applied in the SHARED GREEN DEAL activities?
- To what extent have (research and management) practices been altered during the lifetime of the SHARED GREEN DEAL project in response to introducing RRI considerations in the projects (translated through the RRI guiding principles and the guidelines)?

R&I outcomes

To assess the *R&I outcomes* (2), we will concentrate on several key aspects:

- The inclusion of gender aspects in the SHARED GREEN DEAL project activities and how it has influenced the research results.
- The development and application of ethical procedures, and the usefulness of these procedures.
- The effectiveness of dissemination tools in promoting the uptake of the results produced in the SHARED GREEN DEAL Project.
- Whether RRI considerations have minimises harmful effects on the environment and specific societal groups.

3.2. Two levels of analysis: the consortium and social experiments

The SHARED GREEN DEAL project involves two distinct levels of interaction:

a. *Level A*: Interactions between consortium partners – including academic and practitioner partners – throughout the project's duration, covering e.g. the planning of the experiments; setting research questions; local partner and participant selection processes; data analysis; outputs production (scientific publication and non-scientific communications); and results dissemination and diffusion.

b. *Level B*: Interactions between stakeholders involved in social experiments, including consortium partners, local sub-contractors, and participants.

To effectively evaluate the RRI process and RRI-related outcomes, it is important to differentiate between these two levels of interaction.So doing, the RRI evaluation will provide a comprehensive and nuanced picture of the effects of adopting RRI thinking in the SHARED GREEN DEAL project.

Level A: The consortium level

For the first level, the focus will be on the RRI learning outcomes for the consortium to investigate the individual learning changes in how research is conducted and how to use RRI thinking. Mainly focusing on the following RRI aspects that have been agreed as being the most relevant for the SHARED GREEN DEAL project: a) gender, b) ethics, c) public engagement (dissemination and outreach activities).

Bearing in mind that the MoRRI indicators are not appropriate for the use at project level (see discussion in D6.1., Seus et al., 2022), we nevertheless develop quantitative indicators for the topics covered by the MoRRI indicators (i.e. gender, ethics and dissemination). We will therefore be able to provide indicators indicating how these topics have evolved during the project itself.

Level B: The social experiments level

At this level, the focus will be on equally examining the processes and outcomes. The social experiments are a crucial aspect of the SHARED GREEN DEAL project, involving a new set of stakeholders, including the participants who are not researchers but are involved in the research process through citizen science or action research. Most of the research data will be generated during the

experiments, and our RRI evaluation will specifically analyse the interaction between the consortium members who are designing and steering the experiments and the stakeholders involved in the experiment, such as local subcontractors and participants.

3.3. Evaluation questions for the RRI evaluation

To make the RRI concept more tangible and practical, the EU Horizon 2020 RRI Tools project has broken down the four RRI dimensions into thematic categories and questions. We will use this "*thinking aid*" (Kupper et al., 2015, p.7) to develop specific topics related to our project and organise them in a structured way. Moreover, we additionally use the RRI Tools (Kupper et al., 2015) evaluation framework as a guide for our own evaluation work. We have adapted this framework to better suit the specific needs of our project, particularly the experimental phase. This has involved removing categories that are not relevant to our project and reordering some categories to better align with our definition of RRI outlined in the RRI vision. For example, we have moved some categories related to project management and internal communication processes from the "responsiveness" dimension to the "reflexivity" dimension. This shift reflects the role placed by the SHARED GREEN DEAL project on the experiment participants to act as full members of the project and not just as a link to the outside world and translators of societal needs.

Our adapted framework is represented by the detailed lines of questioning set out in Tables 1-4. However, whilst digesting this evaluation framework, we ask that one also recognised two methodological notes:

- ***Methodological note 1:*** It is important to note that this evaluation framework and the evaluation questions are a starting point and not set in stone. We want to approach the evaluation in a reflexive and responsible manner, so it is expected that the framework will evolve and change throughout the project based on discussions within the consortium and any adjustments that may became necessary. This means that the evaluation, although designed to provide ex-post assessments, will have a formative spirit, with a focus on ongoing improvement.

  The RRI Tools framework from Kupper et al. (2015) is designed for research and development in the technologiy field (as are most RRI projects). Transdisciplinary research means in this setting the involvement of persons with a scientific background from university / research institutes and industry as primary actors. However, the SHARED GREEN DEAL project is different because it focuses on the behaviour of people facing technological changes and the reorganisation of organisations to support sustainability and the European Green Deal. Additionally, the experimental phase at the heart of the project is designed as action research with citizens, NGOs, and businesses playing a central role, rather than researchers.
- ***Methodological note 2:*** To answer the evaluation questions, data from different stakeholder groups will be collected using various methods (outlined in ection 3.4). Those data collection tools will operationalise the evaluation questions and make clear which stakeholder group will answer which questions. A first overview on which evaluation questions will be asked to which stakeholder group and answered with a specific method can be found in Table 5. This will become clearer as the project progresses and the challenges and potential pitfalls become apparent. The selection of in-depth topics for evaluation should be discussed with consortium members. A review takes place halfway through the experimental phase to adapt the data collection methods as needed.

Table 1: RRI Dimension « Anticipation »

	Criteria	Process related Evaluation Questions	RRI Outcomes
1.1.	Variety of "effects"[3]	• To what extent were different options to conduct the research under SHARED GREEN DEAL explored? • Have (un)desirable outcomes and risks been explored?	• Learning outcomes: • (R&I outcomes: uptake/ dissemination)
1.2	Uncertaintly	• To what extent has there been a reflection on uncertainties the project faced at different phases (e.g. set up of the project / the experiment / the implementation of the experiments / data collection / data analysis / disseminating and networking)? • How have these uncertainties been addressed during the project (with which methods, with whom are they discussed)?	• Learning outcomes: • (R&I outcomes: uptake/ dissemination)
1.3	Clarity and relevance of goals	• To what extent and how have the initial goals been sufficiently relevant and clearly formulated to be achievable in the given time / with the given resources?	• Learning outcomes:
1.4	Considering Data protection	• Are ethics and data protection protocol in place? Are they easy to implement and satisfy the needs of the project?	• R&I outcomes: ethics

Table 2: *RRI dimension « Reflexivity »*

	Criteria	Process related Evaluation Questions	RRI Outcomes
2.1	Reflection on the underlying assumption and motivation and values: Needs and goals	• To what extent has there been a recurrent reflection on needs (that the research activities should satisfy) and goals (of the research conducted)? • To what extent have the original assumptions and motivations been challenged during the project lifetime / the experiments?	• Learning outcomes
2.2	Reflection on the underlying assumption and motivation and values: Methods	• To what extent has there been a continuous reflection on the adequacy of methods and tools used? • Has this led to adaptation?	• Learning outcome
2.3	Reflection on the underlying assumption and motivation and values: Values / motivations	• To what extent have different interests and values been taken on board? How? Have they been reflected on and discussed on a sufficiently regular basis?	• Learning outcomes
2.4	Ownership and accountability	• To what extent has the project foster ownership amongst participants?	• Learning outcomes

3 The original version is „variety of impacts". We refrain from using the wording "impact" here.

2.5	Open and transparent internal procedures: Communication policies	• Have policies on sharing information and access evolved during the project's lifetime? • Has it been considered what information can and should be shared with whom? • Have regular updates on results been implemented? To what extent has this enabled different stakeholder to be informed about the project's progress?	• Learning outcomes
2.6	Open and transparent internal procedures: Roles in the project	• To what extent has there been spaces and possibilities to reflect the roles of the different groups in the project? • To which extent have the decision making possibilitie of each group made transparent?	• Learning outcomes

Table 3: *RRI dimension « Inclusion »*

	CRITERIA	PROCESS RELATED EVALUATION QUESTIONS	RRI OUTCOMES
3.1	Collaboration and synergies	• Dis the project allow for collaboration across different experiment streams as well as across local partners within one stream? To what extend did it enhance mutual learning? • To what extent has the project brought in experts from different fields to share their knowledge? And how?	• Learning outcomes
3.2	Wide range of and relevant voices included / variety of perspectives	• Did the mix of stakeholders represent diversity in terms of gender, ethnicity, class, age, social status and other factors of intersectionality? • Was the mix of stakeholders with different values and types of knowledge/expertise the right one for the experiment? Why, why not? • Why were certain stakeholders included in the project? Other on purpose not?	• R&I outcomes: gender
3.3	Degree of participation intensity	• To what extent could relevant stakeholders get involved at different stages of the project?	• R&I outcomes: gender
3.4	Training and facilitation	• To what extent were support and training tailored to different participant groups?	• R&I outcomes: gender
3.5	Methods used	• To which extent have different ways for engaging specific stakeholder groups and taking their needs and expectations into account being explored and applied?	• R&I outcomes: gender

3.6	Engagement of the wider public(s)	• To what extent has the project successfully communicated with a wide range of people outside the project? • Has the project used creative means of science communication, to reach a wider audience? If yes, what means have been used and why were they creative (for the project)?	• R&I outcomes: uptake and dissemination

Table 4: *RRI dimension « Responsiveness »*

	Criteria	Process related Evaluation Questions	RRI Outcomes
4.1	Adaptation to (external) changing circumstances	• How willing and capable were stakeholders to put new knowledge, values/norms and skills into practice? • Was the direction of the research changed due to outside factors changes like other research findings or legal changes? • Was the research and innovation process flexible enough to adapt based on interim results or conflicting data?	• Learning outcomes • R&I outcomes: socially acceptable results
4.2	Structure for seeking and incorporating feedback	• To what extent have consortium partners' actively sought input and feedback and from a range of stakeholders? • Have methods to incorporate feedback being explored and implemented?	• Learning outcomes
4.3	Changing responsibilities	• To what extent have partners involved been willing and able to reconsider their views and actions if necessary?	• Learning outcomes

3.4. Data collection methods for the evaluation of RRI effects

The data collection section of the RRI evaluation aims to provide a comprehensive guide on collecting the data needed to answer the evaluation questions outlined in the previous section (Tasks 6.2 and 6.3 of Work Package 6). The primary goal of the data collection methods is to operationalise the evaluation questions and ensure that all necessary data is collected.

The final questionnaires and survey questions are not yet included here, as they must be discussed with selected consortium partners. Furthermore, the experiments are only starting, and we would like to reflect on developments during the experimental phases and adapt to the data collection tools accordingly.

The following sections therefore give a first overview of each tool's purpose, the targeted stakeholder group, and the first methodological thoughts on its application and the data analysis.

Data collection tools

For the consortium level, the following data collection tools are planned:

- Yearly survey to all consortium members, to be filled out before the annual consortium meetings
- Protocols of the reflexive RRI session, held yearly during the consortium meetings
- Interviews with members (with research and practice partners) in the last year of the SHARED GREEN DEAL project.

For the experiment level, the following data collection tools are foreseen:

- Ex-ante survey to subcontractors (to be done during the training)
- RRI-specific questions are included in the monthly fieldnotes (3 questions to be asked every three months).
- Ex-post survey to subcontractors at the end of the experimental phase
- Interviews with consortium members (19 interviews with research and practice partners) after the completion of the experiments.

Stakeholder groups

The following ***stakeholder groups*** will be considered in the RRI evaluation:

- Consortium Partners: This includes both research partners and practice partners
- Subcontractors leading the 24 experiments.

3.4.1. RRI questions included in the monthly progress reporting and fieldnotes entries to subcontractors

The aim of the questions is to provide information on how RRI considerations could be integrated in the experimental process and how the reflection on RRI dimensions has developed. The RRI questions in the fieldnotes will contribute to answering the questions related to the "Learning Outcomes" and to some extent the "R&I Outcomes".

These questions will be answered by the subcontractors of each experiment. The questions will be part of the monthly fieldnotes that the subcontractors have to provide to the consortium. We do not see the need to ask the RRI questions every month, but it would be sufficient to ask them e.g. every three months of the experiment.

The questions and statements of the fieldnote questionnaire can also be used as a resources for subcontractors to discuss RRI consideration with the participants of the experiments, e.g. in a so-called "reflexive session" per experiment (see Section 2.5.5).

3.4.2. Ex-ante survey to subcontractors

This survey is to be filled out by subcontractors before the start of the experiments. It is foreseen to include it as part of the initial training of subcontractors.

The aim of this survey is two-fold:

1. It is a means for subcontractors to be introduced to the RRI dimensions and get guidance how to include RRI considerations in the experiment.
2. It will provide a baseline for the RRI impact evaluation on how RRI is perceived and already included in the experiment.

3.4.3. Ex-post survey to subcontractors

This survey is a major building block of the RRI evaluation, especially for the analysis of the experiment level. It will be designed as an online survey to subcontractors and will take place at the very end of the experiments (March-May 2024). This survey to subcontractors will be the only possibility to get an assessment from the group implementing the experiment.

The aim of this survey is to gather information on how RRI considerations have been included in the experiments, how useful they have been (Learning Outcomes), especially in the view of strengthening R&I outcomes, notably the gender, ethics and dissemination dimensions. Where possible, it will reflect on the developments during the experimental phase, taking the ex-ante survey answers as baseline.

In order to get useful information, the survey will consist of closed questions (asking the status quo), but also include open questions in which the subcontractors will be asked to explain more in details the "why's" and "how's" of the activities conducted during the experiment.

3.4.4. Interview guidelines for interviews with consortium partners involved in the experiments (after the experiments, March/April 2024)

The interviews to the consortium members who have participated in the experiments is also an important building block to assess how RRI has been considered during the experiments.

The aim of the interviews is to collect the views of those stakeholders that have designed and followed the experiments, but have not been actively part of it. In this sense, the answers provided by this group will balance the answers of the subcontractors. Further to questions related to the implementation phase of the experiments, we will also include questions that tackle the design phase of the experiment, such as the application and selection processes of the subcontractors.

In total, 19 interviews are planned with research partners and practice partners. They will be hold via videoconference or phone, and audio-recorded.

3.4.5. Interview guidelines for interviews with consortium partners: end of project interviews

This set of interview aims at gathering information on how RRI considerations have been included during the whole lifetime of the SHARED GREEN DEAL project. It is therefore foreseen in the last third of the project (likely in 2026) and will especially investigate the phases following the experiments, namely the data analysis phase (WP4 and WP5) and the dissemination and network building phase (WP7-9).

The interviews will be done with a selection of consortium members (both research and practice partners need to be considered). They can be done via videoconference or face-to-face during a consortium meeting, with again audio-recording undertaken

3.4.6. Survey questions for consortium partners upfront the yearly consortium meetings

Survey questions will be sent to all consortium members before the yearly consortium meeting. The consortium partners will be asked to answer the questions to assist in the preparation of the consortium meeting's dedicated RRI discussion and exploration session.

The aim of this survey is to attain annual updates and reflections on the how consortium members perceive RRI. The answers analysed throughout the time will provide a good indication of how the understanding of RRI, and the use of RRI in SHARED GREEN DEAL, evolved during the lifetime of the project.

The yearly survey to consortium members will contribute to answering the questions related to the "Learning Outcomes" of the consortium members and to some extent the "R&I Outcomes".

3.4.7. Protocols of the yearly RRI session during the consortium meetings

The evaluator will use the yearly RRI sessions with all SHARED GREEN DEAL partners during the consortium meetings, to collect data on a) the implementation of the RRI processes and b) the learning and R&I outcomes.

As the RRI session will not only serve the RRI impact evaluation – but first of all should be seen as a reflexive tool for the consortium partners and therefore should address the needs of the partners – we cannot fix the discussion topics ex-ante. The topics of each RRI session will be developed in due time before the sessions and in interaction with the consortium members. The topics discussed in those RRI session will, however, be part of the evaluation framework in Section 3.3.

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Annex 1. Our Responsible Research and Innovation (RRI) vision for the SHARED GREEN DEAL project

SHARED GREEN DEAL consortium partners have jointly reflected and agreed on a shared vision of how to integrate principles of Responsible Research and Innovation (RRI) into their activities and work processes within the SHARED GREEN DEAL project. This shared RRI vision outlines our understanding of RRI and the benefit we expect from integrating RRI into work in the SHARED GREEN DEAL project. We aim to implement our project in a way that supports reflection within the team on our approaches and raises awareness for crosscutting issues. For us, RRI can become a powerful tool to achieve the expected impacts of SHARED GREEN DEAL.

This vision includes the guiding principles for the interaction of the consortium members and between the consortium members and partners, stakeholders, and participants in the project and thus offers practical guidance how to 'do' RRI in the end.

Why are we using Responsible Research and Innovation (RRI)?

- We want to produce **research results** that are relevant and useful for society. With our project, we aim to provide solutions for societal challenges and help better implement the European Green Deal.
- We are using RRI to **change our research processes.** RRI allows exploring new interaction practices and test them during the SHARED GREEN DEAL project. These practices, if proven useful, can be further embedded into our research and organisations in the future.
- We encourage a **critical approach to RRI**. While using RRI in our project, we will tailor it to our need and make sure it is used in a way to strengthen the SHARED GREEN DEAL project. We aim at spreading our lessons learnt also to other research projects especially linked to the Green Deal.

What does responsibility mean for the consortium?

We structure our understanding of responsibility and our activities in the SHARED GREEN DEAL project based on the four process dimensions of RRI[4] and their theoretical[5] and practical interpretations[6]. Responsibility in our day-to-day project work means to us:

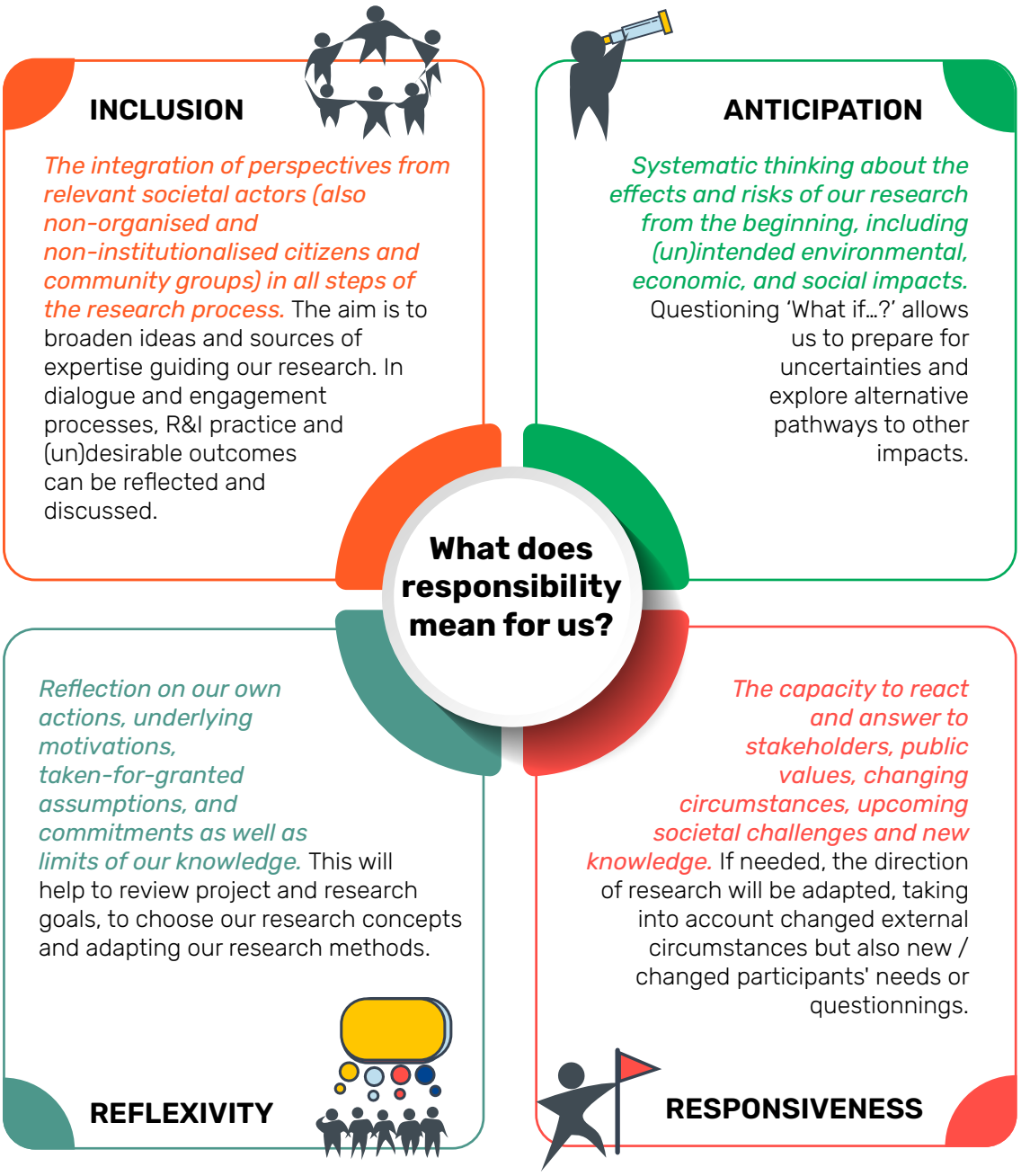

Figure 1. Four dimensions of Responsible Research and Innovation

4 Stilgoe, J., Owen, R., Macnaghten, P., 2013. Developing a framework for responsible innovation, *Research Policy*, 42(9), 1568-1680.

5 Owen, R., Macnaghten, P., Stilgoe, J., 2012. Responsible research and innovation: From science in society to science for society, with society. *Science and Public Policy*, 39(6), 751-760.

6 https://rri-tools.eu/about-rri?p_p_id=2_WAR_kaleodesignerportlet&p_p_lifecycle=0; https://thinkingtool.eu/; https://www.rri-leaders.eu/co-creation-process/

Guiding principles

In the following, we present a set of guiding principles which are derived from the above outlined shared understanding of our understanding of responsibility and the project's objectives to which RRI should contribute to. They have been derived from our common working sessions on RRI during the first Consortium Meeting, February 2022.[7] These principles are fundamental to our research practice as well as to the interaction of the consortium members and between the consortium members and external partners:

We are committed to a socially and environmentally **sustainable research process**:

P1: We use **inclusive, just, and socially acceptable approaches, methods and tools**.

P2: We are **aware of past findings**.

P3: We discuss **how we can contribute** with our action to **sustainability transitions** and make use of this normative perspective. We look at the societal impacts of the project as enabling factors to this transitions.

P4: We reflect on which **stakeholder groups' perceptions are given priority in experiments** and consider **social inequalities**. **We ensure diversity and inclusivity** in the group of participants in our experiments.

P5: Working in different contexts, we take into account **local conditions** in our experiments and use coherent, context-specific specific principles shared by the participants of the experiments and seek a representation of **local actors**

P6: Using **RRI will be learning process** for all consortium members. We strive to build our capacities infor RRI and consider how best it can be applied in our project, while at the same time being aware of its boundaries.

P7: Applying a responsible and reflexive approach to research might generate **unforeseen and negative effects of our research**. We are prepared to address the unforeseen.

7 The content of these guidelines was wholly sourced inductively from the discussion with consortium partners during the first consortium meeting, February 2022. We only took the liberty to reorganise them in the following cluster and adjust wording. The first two clusters are of general nature and were key to a lot of consortium partners with regard to RRI and in general responsible project work. This is why they are named first. In order to align with the six EC RRI dimensions, the last four clusters are dedicated to the four RRI dimensions that are most relevant to the SHARED GREEN DEAL project.

We aim for **responsible internal project management**:

P8: We seek **reliability and accountability** in our project management, such as completing tasks on time and taking ownership of our work.

P9: We **acknowledge** our own and the team's work, pay attention to the **team's wellbeing** and cultivate **respectful and mindful interaction**.

P10: We are **aware of difficulties in the research practice**, like recruiting for the social experiments and have practical **alternative plans.** We acknowledge the **right to fail** in reaching the effects we have aimed for during the experiments and to commit ourselves **to reflect and draw conclusions** from unintended consequences. Being responsible also means being **flexible and adaptive to changes in our own processes**.

P11: We aim for a **clear set of measurements** and a transparent definition allowing to include RRI right from the start. Our measurements are **adaptable to the different disciplines** in the project, allow meaningful comparisons across the six streams and are quantitative as well as qualitative, according to the needs.

P12: We aim to contribute to **environmental sustainability** and use environmental friendly products and processes (e.g. travels) in our internal project management.

The European Commission understanding of RRI resonates also in the SHARED GREEN DEAL project. The following four dimensions are of particular relevance for the Share Green Deal project: Thus, we…

… are committed to **PUBLIC ENGAGEMENT**:

P13: We seek **transparency** on the project's goals and results as well as our interests and values.

P14: Our research results shall be **useful and usable by end users.** They should especially provide evidences for future policy making (of the Green Deal). Therefore we **actively involve external stakeholders – citizens and intermediate organisation** such as grassroots organisations or local administrations during the experiments and **policy makers** for the uptake of the project's results – in our research and pay attention to **balance different requirements.**

P15::We reflect regularly with participants on whether the **research is taking into consideration needs, concerns and values** of all participants.

P16: We ensure **equality of roles** between researchers, participants, stakeholders and further partners. This includes jointly discussing and elabarating (research') problem definition. We aim for **co-creation during the different stages of the research** process, not only at the end of the project.

… aim for **OPEN ACCESS** to our research and **DISSEMINATION** of our results to different societal stakeholders

P17: **Research data and analysis are shared** wherever useful to the research community and with sufficient anonymisation, explanations and metadata.

P18: Results are **disseminated to a wider public** in a sensitive but impactful way.

P19: We attach great importance to a **simple understanding and practical use of our results**, for example with easy-to-read and accessible publications and target-group adapted communications.

… comply with the standards of **research ETHICS** in our research work and collaborations internal and with external partners:

P20: This includes **informed consent** as well as **awareness of (our own) power positions** and possible biases.

P21: We agree on the **formal ethic commitments** that the consortium has subscribed to, in particular concepts such as anonymity and confidentiality of participants. We adhere to the internal work processes of quality review and internal deadlines.

P22: We think of possible unintended **consequences and unforeseen future risks** of our research and publications.

… recognise that **GENDER EQUALITY** adds value to research and innovation in terms of excellence, creativity, and societal relevance of the knowledge produced[8]:

P23: We promote equal opportunities for women and men and gender balance in the teams in academic and non-academic partner organisations

P24: We ensure the **inclusion of women´s expertise in the internal structures of the project** including managing positions (WP leads), general assembly, and advisory boards.

P25: We aim to reflect on and integrate **gender dimensions in the content of the project activities**, identifying and addressing gender inequalities and needs in the context of the experimental streams.

P26: We acknowledge that gender interacts with other categories of identity and adopt an ***intersectional* approach** to issues of equity and justice.

8 Gender is a one of the key cross-cutting topics of the SHARED GREEN DEAL project. Thus, separate there is a separate gender action plan, gender guidelines and gender training. However, as gender is an integral part of RRI thinking, we chose to introduce it also here and to re-state its key principles.

Annex 2. A Guide to Responsible Social Experimentation

Guidelines for all SHARED GREEN DEAL partners (consortium partners and local partners) on how to translate the RRI guiding principles into action

The aim of these guidelines is to translate the guiding principles of our shared RRI vision into practical actions.

Applying these guiding principles can ensure that the:

- results of the experimental process are relevant and useful for both the participants and society more widely, through how the results provide solutions for addressing societal challenges (e.g. related to the e.g. European Green Deal);
- experimental process is inclusive (e.g. every participant has their say), reflexive, adaptive and responsive to the (changing) needs of the experiments' participants as well as to developments external to the experiments.

Notes:

- We have clustered some of the guiding principles when they addressed related aspects and can be discussed together.
- Not all guiding principles may be applicable to your project activity or role. Please choose as appropriate.

Our 26 SHARED GREEN DEAL

Guiding Principles for planning and implementing responsible social experiments

We are committed to conducting our experiment in a (socially and environmentally) **sustainable way**:

Guiding Principle 1

We use inclusive, just, and socially acceptable approaches, methods and tools.

Things to keep in mind!

- Try to use methods that allow all stakeholder groups to raise their points and articulate their needs and expectations.
- Is everyone agreeing to use the proposed approach on how to conduct the experiment?
- Reflect on how well the experiment has worked so far: Which approaches and tools have worked well with the participants? What kind of challenges arose?

- Discuss these points with the participants of the experiments in, for example, a "reflexive session".
- For more inspiration on tools and methods to be used in your experiment, check the RRI Tools table in Annex 4 of the RRI toolbox.

Guiding Principle 2

We are aware of past findings.

Things to keep in mind!

Stay up to date! Look at what other researchers, innovators, and practitioners are doing in the field. Make sure to use the most recent information available when designing and conducting your experiment. Examples include:

- Review relevant literature and studies.
- Ask experts in the field for their opinions on the current state of knowledge.

- For sure, you have already done this work during the application phase. But consider these points also from time to time while conducting the experiments. Knowledge is evolving and answers to your initial questions might be different at different times.

Guiding Principle 3

We discuss how we can contribute with our action to sustainability transitions and make use of this normative perspective. We look at the societal impacts of the project as enabling factors to this transition.

Things to keep in mind!

- Identify the societal needs and challenges that the experiment aims to address. Needs at the (local) level of the experiment might need a more specific focus, compared to societal needs defined at other levels (e.g. national, international). It is good to establish a link between the needs identified at the level of the experiment and the more overarching needs at other levels.
- Take into account societal needs and challenges in the design and implementation of the experiment.

- It is important to involve different stakeholders in the problem definition activities. Do not take any problem orientation (or solution) for granted.
- Discuss with your project participants what would their contribution to a sustainable transition process be (in the topic of your experiment).

Guiding Principle 6

Using RRI will be a learning process for all consortium members. We strive to build our capacities in RRI and consider how best it can be applied in our project, while at the same time being aware of its boundaries.

How to implement?

- *This principle is not relevant for the experiments.*
- RRI is a concept with no final definition, and it needs to be operationalised for each project and project task. What RRI means to you, is likely to change during the lifetime of the project and depending on the activities.

- Use the "RRI session" during the consortium meeting to ask questions and critically discuss with the consortium new ideas and opinions.

Guiding Principle 7

Applying a responsible and reflexive approach might uncover unforeseen and potentially negative effects of our activities. We are prepared to address the unforeseen.

Guiding Principle 10

We are aware of difficulties in the research practice, like recruiting participants. Therefore, we have practical alternatives. We acknowledge the right to fail in reaching the effects we have aimed for during the experiments, and commit ourselves to reflecting on and drawing conclusions from unintended consequences. Being responsible also means being flexible and adaptive to changes in our own processes.

Things to keep in mind!

- Think about the (un)desirable outcomes and risks of the experiment's activities.
- Be aware of potential difficulties in implementing your experiment and think about practical alternatives. Unforeseen external developments pose additional barriers and opportunities that need to be addressed.
- Think about possible alternative methods, design choices or goals to conduct your experiments. What alternative effects might be achievable by changing setups or processes?
- Be mindful of unintended effects on the experiments' participants or on non-participating groups, e.g. on social groups, on the environment.

Try not to answer these questions by yourself or with a restricted steering group. Instead, try to hear the participants' opinion on future outcomes and negative effects. Use the reflexive sessions (see Section 2.5, in the Deliverable 6.2) to keep regular contact with the participants.

In case initial plans need changing, communicate this in time and to all relevant stakeholders (participants and consortium members) and seek agreement for the changes.

We aim for **responsible internal project management**:

Guiding Principle 8

We seek reliability and accountability in our project management, such as completing tasks on time and taking ownership of our work.

Things to keep in mind!

Accountability is not only the responsibility of the overall project management team or the work package leader. We all contribute to good project management by respecting timing and deadlines.

Changes might happen! Be open in your communication with your project colleagues.

Guiding Principle 12

We aim to contribute to environmental sustainability and use environmentally friendly products and processes (e.g. travels) in our internal project management.

Things to keep in mind!

- Have you considered environmentally friendly products for the catering of your gatherings?
- Choose local/regional, organic and plant-based foods for catering

Encourage your experiment team/participants to use low-carbon means of travelling.

Guiding Principle 13

We seek transparency on the project's goals and results.

Things to keep in mind!

- Is the communication flow towards the participants and within the management team transparent and open? Especially if timing or procedures have to be changed?
- How does communication allow for feedback? How is feedback integrated in the decision-making?
- Have the participants of the experiments all the information they need?

Use the reflexive sessions to engage in a discussion with the participants whether they feel adequately informed on the implementation of the experiment.

Guiding Principle 9

We acknowledge both our own and the team's work, pay attention to the team's well-being, and cultivate respectful and mindful interaction.

Things to keep in mind!

- Are you ensuring the well-being of all of your participants and co-workers?

This could, for example, be through asking at the beginning of each meeting how people are feeling ('check in'), or through having a clear idea about everyone's time and personal capacities within the projects, through addressing challenges of equal engagement and needs concerning the work-life-experiment balance

Check the gender guidelines with regard to the aspects of diversity and intersectionality.

Guiding Principle 4

We reflect on which stakeholder groups' perceptions are given priority in experiments and consider social inequalities. We ensure diversity and inclusivity in the group of participants in our experiments.

Guiding Principle 15

We reflect regularly with participants on whether the experiment is taking into consideration needs, concerns and values of all participants.

Guiding Principle 5

Working in different contexts, we take into account local conditions in our experiments and use coherent, context-specific specific principles shared by the participants of the experiments and seek a representation of local actors.

Things to keep in mind!

- Ensure diversity and inclusivity in the group of participants in your experiment and seek a proper representation of local actors
- Identify the key external stakeholders that can benefit/lose from the results of the experimentation.
- Try to understand the perspectives, needs, and interests of different participants. Consider social inequalities when determining which stakeholder groups' perceptions are given priority.
- Keep in mind that participants can have different ways to express their opinions and might not feel comfortable speaking in large groups or in the presence of specific groups or representatives

- Check the guidelines on gender for more information on how to apply a gender-sensitive and gender-responsible approach, and for tools that can be used to ensure a diversity of participants.
- Use the reflexive sessions to engage in a discussion with the participants on the decision-making during the experiment.

We aim for **responsible internal project management**:

Guiding Principle 16

We ensure equality of roles between researchers, subcontractors and participants. This includes jointly discussing and elaborating the goals and implementation of the experiments. We aim for co-creation during the different stages of the experimental process, not only at the end of the project.

Things to keep in mind!

- Make sure that every participant is aware of their roles and responsibilities in the project implementation.
- Try to allow for co-creation with the participants; this includes discussion with the participants on the goals of the experiments and the ways of conducting the experiment.
- Are all participants of the experiment willing and equipped to apply new forms of knowledge? Knowledge forms could be e.g. including practical knowledge on renovating small things in the houses within the knowledge sharing networks?

- Use the reflexive sessions to engage in a discussion with the participants on their roles and responsibility during the experiment.
- You could try out methods of sharing practical knowledge between participants and directly include the participants as co-creators (e.g. through co-design of group sessions and interviews).

... aim for **DISSEMINATION** of our results to different societal stakeholders

Guiding Principle 18

Results are disseminated to a wider public in a sensitive but impactful way.

Guiding Principle 19

We attach great importance to a simple understanding and practical use of our results, for example with easy-to-read and accessible publications and target-group adapted communications.

Things to keep in mind!

- Think about who (which group) will be interested in the results of your experiment.
- Think about what will be the best way to communicate results to these groups.
- Think about when the communication towards project-external stakeholders should best start.

- Think about your target groups and how to communicate the results of your experiments to them from the start of the experiment, not only at the end.
- You can get support from the ICLEI, the consortium partner in charge of communications.

... comply with the standards of **research ETHICS** in our research work and collaborations internal and with external partners:

Guiding Principle 20

This includes informed consent as well as awareness of (our own) power positions and possible biases.

Guiding Principle 21

We agree on the formal ethic commitments that the consortium has subscribed to, in particular concepts such as anonymity and confidentiality of participants. We adhere to the internal work processes of quality review and internal deadlines.

Things to keep in mind!

- Are you using the templates and informed consent forms that have been prepared by the consortium partners?
- Are they suited to the needs of your experiment / to the specific stakeholder groups you work with?

- Familiarise yourself with the guidelines and templates written for the SHARED GREEN DEAL project. You can find them in Section 2.5 of the RRI toolbox.
- Explain the needs for and the values of using adapted ethical forms to your participants.

... recognise that **GENDER EQUALITY** adds value to research and innovation in terms of excellence, creativity, and societal relevance of the knowledge produced:

Guiding Principle 23

We promote equal opportunities for people from any gender, and gender balance in the teams in academic and non-academic partner organisations.

Guiding Principle 24

We ensure the inclusion of women´s expertise in the internal structures of the project including managing positions (WP leads), general assembly, and advisory boards.

Guiding Principle 25

We aim to reflect on and integrate gender dimensions in the content of the project activities, identifying and addressing gender inequalities and needs in the context of the experimental streams.

Guiding Principle 26

We acknowledge that gender interacts with other categories of identity and adopt an intersectional approach to issues of equity and justice.

- Please read the separate section on “gender” definition and gender guidelines in this document.

Annex 3. Guidelines for considering gender

Introduction

Gender is a fundamental cross-cutting topic for improving the quality and societal relevance of research outcomes. Thus, the production of gender-inclusive and responsive research is core to the SHARED GREEN DEAL's RRI vision and guiding principles.

The gender dimension is closely related to each of the dimensions that guide the understanding of responsibility at SHARED GREEN DEAL and the day-to-day project work. Analysing project processes and activities with a gender lens will allow for better actions for 1) **including** the perspectives of all relevant stakeholders; 2) evaluating and **reflecting** on the project work and adapting research methods; 3) anticipating (un)intended impacts of the research process; and 4) responding to the priorities, needs and capabilities of all involved stakeholders. This implies, for example, identifying and addressing potential (gendered) barriers to participation for groups that have been excluded from deliberative and participatory processes.

According to the EU RRI policy framework[9], the integration of the gender component in responsible research and innovation processes encompasses the implementation of transformative actions that, on the one hand, lead to gender balance (through an increase in the participation of women) in research teams and decision-making bodies and, on the other hand, strengthen the gender dimension in the research content. There is a vast body of work aimed at achieving structural change in research institutions towards gender equality that has resulted in the formulation of comprehensive guidelines, tools and indicators, such as the GENOVATE toolkit "Promoting Sustainable Change- A Toolkit for Integrating Gender Equality and Diversity in Innovation in Research Systems", the INTEGER "Guidelines for Gender Structural Change in Higher Education and Research Organizations", or the recommended resources for gender equality of the RRI Tools Project.

In order to measure the effects of each RRI key, the most widely used concept is referred to as MoRRI indicators, which were developed in the project "Monitoring the Evolution and Benefits of Responsible Research and Innovation – MoRRI"[10]. While giving a good overview of the status and evolution of the integration of the RRI dimensions in Europe, the MoRRI indicators focus on the national level in order to achieve policy changes in member states that lead to greater social benefits, and thus, their use to measure change and evaluate practices at the project level at a project level is challenging. Additionally, the literature is scarce when it comes to integrating the gender component into research content and everyday research practices[11].

9 Archibugi, D., et al., 2015. The Contribution of Science and Society (FP6) and Science in Society (FP7) to Responsible Research and Innovation. A Review. Conference on Science, Innovation and Society: achieving Responsible Research and Innovation. 19-21 November 2014, Rome, Italy.

10 Viola, P., et al., 2018. *Monitoring the evolution and benefits of responsible research and innovation: Summarising insights from the MoRRI project.* Brussels: European Commission.

11 Bührer, S., Wroblewski, A., 2019. The practice and perceptions of RRI—A gender perspective. *Evaluation and Program Planning*, 77(101717), 1-10.

For this reason, after carrying out an extensive review of existing materials and assessing their relevance and possibilities for adaptation to the needs of the SHARED GREEN DEAL project, WECF developed this toolbox aiming to provide **consortium members and local partners** with comprehensive guidelines for the integration of gender in the project activities, which will result in raised awareness and the necessary strengthening of gender competence. In Section 2, this guide offers some basic concepts and insights on gender and three main approaches on how to integrate gender into research processes. Section 3 focuses on guiding consortium partners (Section 3.1) and local partners (Section 3.2) through the process of gender integration, thereby helping them examine and actively address gender-differentiated needs, expectations, and realities.

Key concepts

In order to ensure that the gender perspective is adequately addressed throughout the project activities, it is crucial to create awareness for gender-related topics in order to reach gender mainstreaming (achieving gender equality through the process of systematically recognising and taking into account gender issues within all areas and at all levels of core activities of projects and programmes' cycles). Therefore, this section is divided into three sections to understand gender-related concepts, gender inequalities, and gender integration approaches.

What is gender?

Gender is a sociocultural construct that describes society's ideas about the roles, responsibilities, behaviours, attributes as well as (self-) identity of women, men, and gender-diverse people. These perceptions determine what is expected and allowed for each gender in a given context, influencing social relations and power dynamics (between genders). Gender is produced, learned, and maintained through social processes and can vary significantly across cultures and change over time. Gender differs from **sex**, as the latter refers to a person's biological attributes, the physical, anatomical, and physiological differences that distinguish a person as male, female, or intersex.

Note that gender does not exist in isolation but interacts with other categories such as age, class, race, religion, or migration status. The interconnection between those identity categories is known as i**ntersectionality**[12]. The concept describes how gender inequalities intersect and overlap with other social and economic disparities to create unique experiences of privilege or disadvantage for a person or a group.

12 Crenshaw, K., 1989. Demarginalizing the Intersection of Sex and Race. A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics, *University of Chicago Legal Forum*, 1989(1), 8.

Box I: *Three dimensions crucial to the definition of gender*

Gender norms refer to the attitudes, roles and behaviours deemed appropriate for women, men and gender-diverse individuals. They are **produced** through social institutions and interactions.

Gender identity reflects an individual's perception, experience and presentation of their gender, which **may or may not** align with their birth-assigned sex.

Gender relations explain how gender shapes **social interactions** in private and public settings and determines, for instance, the distribution of power and the access to and control over resources. Thus, gender produces and reproduces hierarchies and inequalities in society.

Concepts for understanding gender inequalities

Gender inequality refers to unequal access to or enjoyment of rights, freedoms, and opportunities for women, men or gender-diverse people[13]. Gender inequalities are determined by social, cultural or legal norms and affect all areas of life. Three concepts help us to analyse how gender inequalities operate in a society: gender bias, gender gaps and gender blindness.

Box II: *Concepts related to gender inequalities*

Gender bias describes any prejudiced situation in which one gender is favoured over another. Gender bias encompasses **gender stereotypes** (beliefs leading to generalisations that reduce an individual's identity to specific roles and behaviours based on their gender) and **gender discrimination** or the systematic, unfavourable treatment of individuals based on their gender, which denies them rights, opportunities and/or resources.

Gender gap(s) describes any disproportionate disparity in the conditions of women and men, as well as other gender identities, due to their position or role in society. E.g. gaps in terms of participation, opportunities, rights, power to influence and make decisions, incomes and benefits, and control and use of resources or time.

Gender blindness means failing to recognise and acknowledge that roles and responsibilities are gendered and assigned in specific social, cultural, economic, and political contexts.

Gender Integration Approaches

Incorporating gender into research design and implementation has proven to enhance the quality and validity of the research. Gender analysis adds new dimensions to research that favour interpretation, validation, reproducibility, and generalisability of the findings,[14] thereby providing more benefits to society.

13 European Commission, 2004. *Toolkit on Mainstreaming Gender Equality in EC Development Cooperation*. Brussels: EuropeAid Cooperation Office and the European Commission Directorate-General for Development.

14 Tannenbaum, C., Ellis, R.P., Eyssel, F., Zou, J., Schiebinger, L., 2019. Sex and gender analysis improves science and engineering. *Nature*, 575(7781), 137–146. DOI: 10.1038/s41586-019-1657-6.

The integration of gender in research requires the equal participation of women and diverse gendered individuals in research as well as incorporating the gender dimension in the research content. Gender is a key analytical and explanatory variable that should be considered in the strategic (establishing priorities) and operative (e.g. question formulation, research design, data collection, interpretation, and dissemination of results) stages.

There are different levels at which gender can be integrated into ruling out gender disparities and bringing in gender mainstreaming. Based on how much weightage has been given to gender as a cross-cutting aspect or interwoven in the process, three levels of integration have been created.

Box III: *Levels of gender integration*

The **Gender-sensitive approach** acknowledges gender as a relevant variable in research and aims to identify differences between genders but does not address gender inequalities. It is usually operationalised through the gender/sex disaggregation of data.

The **Gender-responsive approach** acknowledges and considers differential gender needs, roles and access to resources. It relies on gender analysis to build an understanding of gender-unequal outcomes.

The **Gender-transformative approach** analyses and addresses the causes of gender-based inequalities and works to transform gendered roles, norms and power relations.

The SHARED GREEN DEAL's social experiments must ensure that the carried-out activities are **at least gender sensitive**. It is also important to assess to what extent the social experiment can be implemented using a gender-responsive or transformative approach. For that, in this toolbox, we provide our local partners and consortium members with ideas and reflection tools to facilitate the integration of the gender approach. By providing guiding questions, we aim to raise awareness of a wide range of actions that can be considered in daily work to respond to gender concerns. Moreover, the answer to the questions will help our partners to assess the degree to which they are incorporating one or the other approach **towards gender integration (sensitive, responsive, transformative)** and in which areas they could **still reflect more** and improve. The guiding questions will also set the baseline to assess concrete actions during our workshop on gender integration.

Gender integration in SHARED GREEN DEAL

In order to integrate gender into our project and processes and actively work against gendered inequalities, we are presenting to you our gender guidelines. You can learn about gender integration for consortium members in Section 3.1 or directly jump towards Section 3.2, where the guidelines address our local partners. Whilst the checklist for reflecting upon planning and implementing gender-just social experiments is mainly directed towards local partners, consortium members will benefit from reviewing the questions in order to guide their partners towards a gender-sensitive, gender-responsive, and/or gender-transformative approach.

Gender guidelines for consortium members

SHARED GREEN DEAL's consortium is committed to promoting **gender equality** at all project levels and all stages. As stated in our RRI guiding principles, "we recognise that **gender equality** adds value to research and innovation in terms of excellence, creativity, and societal relevance of the

knowledge produced."[15] In line with this conviction, we strive to reach an internal gender balance and have integrated the following principles:

1. We promote equal opportunities for women and men and gender balance in the teams in academic and non-academic partner organisations.
2. We ensure the inclusion of women´s expertise in the project's internal structures, including managing positions (WP leads), general assembly, and advisory boards.

Actions and measures to adhere to these principles were carried out during the setting up of the consortium and formally incorporated within the project's Project Management Handbook in the form of the Gender Action Plan. Nevertheless, compliance with these principles is not a tick-box exercise that focuses on achieving a particular share of women and men in the project but is instead a commitment to integrating their expertise and knowledge that should be enhanced and observed during the project implementation.

To enhance our commitment to gender equality at all project levels and stages, SHARED GREEN DEAL:

- Promotes the creation and implementation of gender mainstreaming policies like Gender Equality Plans, Diversity and Inclusion Policies, and Gender Action Plans in partner organisations.
- Provides training for gender awareness strengthening for all partners.
- Attempts to identify and recognise potential preconceptions and biases as it helps us address and overcome them in the project.

In line with the previous two considerations, our RRI guiding principles include two other principles related to gender equity that are mainly focused on gender mainstreaming in all project activities:

1. We aim to reflect on and integrate **gender dimensions in the content of the project activities**, identifying and addressing gender inequalities and needs in the context of the experimental streams.
2. We acknowledge that gender interacts with other categories of identity and adopt an **intersectional approach** to issues of equity and justice.

Adhering to these principles involves a systematic observation of gender issues throughout the whole duration of the project, including the planning of the experiments, participants selection process, data analysis, and outcomes and results communication and dissemination. The following table contains useful questions to reflect on the integration of gender issues in the different project processes.

15 Seus, S., et al., 2022. *Responsible by choice: an Action Plan for embedding RRI in the SHARED GREEN DEAL project.* Cambridge: SHARED GREEN DEAL.

GUIDING QUESTIONS TO INTEGRATE GENDER	
Planning of social experiments	• Did the experiment team contemplate how the European Green Deal (EGD) topic is potentially gendered? (e.g. it is a topic traditionally understood as a female/ male domain) • Did the experiment team reflect on the potential gender and intersectional impacts of the social experiment? • Did the experiment team consider possible (gendered) barriers to participation in the experiment activities?
Local partners selection	• Did the experiment team share guidelines with local partners to ensure adequate representation and participation of men, women and gender-diverse people in the experiment? • Do the local partners have their own gender policies in place?
Data analysis	• Is gender included as a variable for data collection? Does the data collected allow gender disaggregation? • Is gender included as an analytical and interpretative variable? • Do gender norms, roles, and relations influence participants' experiences and practices? • Is an analysis included to identify the intersection of gender with other socio-demographic categories? • Does the data allow the identification of gender gaps and inequalities? • Is it necessary to re-contact local partners or interviewers in order to solve questions related to gender equality and justice?
Communication	Are communication materials (reports, newsletters, press releases, articles, and multimedia materials) following the principles of gender-sensitive communication? Are the materials being reviewed in order to avoid reproducing gender stereotypes and to ensure the inclusion of all genders while addressing any issue? In project meetings, is the plurality of gender identities respected and normalised? In project meetings, are the moderators aware of the possibility of gender-based participation differences in sharing experiences, decision-making and /- or task distribution? For communication in local languages, are gender particularities of the language considered and addressed (e.g. avoiding the use of the generic masculine in gendered languages such as German or Spanish)? Does your report, workshops, and social media content contain gender-inclusive icons, illustrations and images?
Dissemination of results (academic and non-academic publications)	Are reported results disaggregated by gender and intersecting variables? If gender disaggregation is omitted from the reported results, is there a justification for doing so? Is there gender balance in the authorship of scientific articles among project partners? (Considering indicators such as the number and share of female and male authors) Are reports and publications following the principles of gender-sensitive communication?
Network creation	Did the stakeholder mapping and selection include organisations with a focus on gender? Were gender and intersectional justice considered among the network priorities? Do the selected stakeholders have gender equality instruments in place? Are they willing to implement gender equality statutes?

Gender guidelines for local partners

The social experiments are an integral part of the project aimed at being innovative and participatory. Therefore, gender-just RRI integration in social experiments becomes crucial in their planning and execution. The gender perspective promotes and can ensure to deliver a high quality of experiments and inclusive participation.

There are several important gender considerations that you, as a local partner and as the person responsible for conducting the social experiment, should take into account. To guide you in that process, in this section, we include, first, some ideas to consider in each of the phases of the experiment (Section 3.2.1) and, second, a checklist of questions that will help you assess the extent to which you have integrated gender issues into the conduct of the experiment and the relationship with your stakeholders (Section 3.2.2).

General considerations for gender integration in the social experiments

- **Key groups identification and participants selection**

The first stage of the experiment aims to identify key individuals and organisations and engage them in the activities. Each of the six experimental streams has defined target groups of citizens and professionals for implementing participatory tools (energy communities, local business accelerator hubs, knowledge networks, mobility labs, food assemblies, and study circles). Regardless of the determining characteristic of the group for participation in the experiment (age, disability, people in vulnerable positions), gender and intersectionality should be considered in the mapping of stakeholders and the selection of participants in order to ensure representation of women, gender-diverse people, and men. Therefore, already in the recruitment process, it is important to engage communities who live in, for example, economically disadvantaged neighbourhoods or are members of single-parent groups, and collaborate with local gender-specific organisations.

- **Facilitation of the experiment activities**

Whether creating a knowledge network or organising local assemblies or co-creation events, the experimental streams require the subcontractors to facilitate and moderate group activities. Within all group activities, the well-being of the participants must be given. Therefore, it is helpful to have an overview of people's capacities and address possible challenges of unequal engagement and needs concerning work-life-experiment balance. Considering gender in particular, the development of such activities implies a reflection on how gender roles and gender division of labour, especially care work, might restrict or favour participation in citizen meetings. Thus, it is recommended to avoid planning meetings during primal working hours, make sure that children or older adults are cared for, and that every participant is comfortable with the meeting hours, especially considering the way back home. On the other hand, it involves putting strategies in place to ensure that all voices are heard and addressing the potential imbalances in involvement. To be more concrete, this means considering gendered needs towards the content of the experiments, e.g. sustainable renovation or mobility, as well as towards the form of the integration. It is gender sensitivity that is needed to prepare, implement and evaluate meetings and other group activities. And it is openness to diverging forms of knowledge and knowledge sharing that should be addressed through trying out various methods, such as co-design of group sessions and interviews, eye-opener workshops to enhance gender sensitivity etc.

- **Data collection**

In addition to the participatory methods specific to each experiment, all the streams will collect data through interviews, participant observation, fieldnotes, and surveys. Considering gender in data collection aims to ensure the used methodologies allow for an adequate representation of women, gender-diverse people and men in the sample and capture their different realities and gendered differentiated impacts. Moreover, the selected collection tools should be sensitive to gender in two regards. First, they reflect on the existing gender norms, relations, and identities in a particular context. Second, the language used during data gathering should equally address women, men and gender-diverse people. The following are specific recommendations for each of the methods mentioned above.

GENDER CONSIDERATIONS FOR DATA COLLECTION METHODS	
Surveys	• Collect gender-disaggregated data using tools in compliance with the GDPR and local regulations on data protection. • Include other socio-demographic variables to reflect on the intersection of gender with other categories (socioeconomic status, age, migration status, among others) • Include variables that allow gender inequalities to be identified (e.g. those related to paid and unpaid work) • Make sure that the questions in the questionnaire are relevant to both men, gender-diverse and women. • Formulate questions using gender-sensitive language and be aware of language issues in the local context.
Interviews	• Include women, gender-diverse and men with different situations and experiences concerning the research topic. • Collect data on issues specific to men and women and on perceived differences between them. • Use the interview as a tool to collect data across gender dimensions (norms and relations) and intersecting factors. • Reflect on the potential gender dynamics between the interviewer and interviewee.
Participant observation and fieldnotes	• Collect information on participants' gender so that it can be used for creating sex-disaggregated data for analysis in the later stages of the project. • Consider who has the power or the most significant share in conversations and group activities and who decides and is acknowledged. • Pay attention to reoccurring gender stereotypes, how they impact the situation, and whether they are addressed within the group of participants or not.

Checklist for gender just and inclusive social experiments

Planning of Social Experiments
• Have you used gender-neutral and responsive language in your call for participants to ensure the diversity of participants? Did you continue to use gender-neutral and responsive communication with possible participants during their recruitment?
• Did you set up a gender quota (a defined share of women/men and gender-diverse participants) for participant recruitment? Have you identified potential barriers to the quota fulfilment?
• Did you approach and collaborate with local organisations, such as local feminist organisations, to directly target and invite women to participate in the experiment activities?
• Do you use an intersectional approach to identify and encourage underrepresented social groups to participate in the social experiments?
• Are you aware of gendered power imbalances in the context of the social experiments and how they might affect participation structures and influence the results?
• Are you considering flexible meeting possibilities with your participants due to their care and labour work duties, restricted mobility, or to meet the needs of specially-abled people?
• Does your organisation have a formal agreement to achieve gender equality and justice?
Implementation of Social Experiments
• Has the facilitation team been introduced to gender awareness and sensitivity?
• Have you identified potential factors hindering the active participation of women, diverse gender, and men in group activities?
• Do you provide a discrimination-free, safe space for all genders for collective learning and exchange during your social experiments? Do you speak out against discrimination of all kinds?
• Do you provide a refuge for participants who need to breastfeed, need a quiet space to calm down (mental health issues), lie down (menstrual cramps), pray (regarding religious practices taking place several times a day), etc.?
• Do you have a defined procedure followed by the department or a team dealing with internal cases of assault, sexual harassment, and intersectional discrimination? Did you appoint an awareness person within your team?
• Is the activity location accessible for everyone? Are your meeting locations accessible via public transport and for specially-abled people?
• Are you ensuring the well-being of all of your participants and co-workers?
• Have you discussed your (regular) meeting hours within the group of participants before deciding on them so that everyone can participate in the sessions?
• Are your workshops, living labs, eco-home tours etc., planned in an inclusive way?
• Do you include diverse knowledge forms in the social experiments?
• Do you provide a gender-responsive workshop moderation that challenges gender stereotypes? Do you avoid hierarchal structures in the discussions? Do you thoughtfully consider the diverging perspectives on the given topic, including gendered needs towards, e.g. renovation or mobility?
• Do you ensure that participants can have different ways to express their opinions in case they feel uncomfortable speaking in large groups?
• Are gendered needs and perspectives reflected in the group's non-verbal communication?
• Are you ensuring diversity in external experts concerning age, gender, educational background etc.?
• Do the visual materials shown or shared convey gender diversity, inclusivity, and balance?

Reflection upon Social Experiments (also during the implementation phase)
• Did the experiments, interviews, and discussions go as you imagined? What were the differences, and did you get to discuss the procedures with your participants?
• Did you evaluate the data gained from your activities through a gender lens?
• Were you attentive to the discussed gender inequalities, stereotypes, biases etc., during your notetaking?
• Did you collect gender-disaggregated feedback from the participants?
• Are the results and information gathered throughout the social experiments accessible to the public?
• Are the results understandable and relatable for the given audience, e.g. children or lesser educated or lesser literate people? Are they written in a gender-neutral or sensitive manner?

Further reading

Gender dimension in RRI

European Commission, 2011. *Structural Change in Research Institutions: Enhancing Excellence, Gender Equality, and Efficiency in Research and Innovation.* Luxembourg: Office for Official Publications of the European Communities.

Fältholm, Y., Wennberg, P., Nilsson, Å.W., 2016. Promoting Sustainable Change: A Toolkit For Integrating Gender Equality and Diversity. Bradford: GENOVATE.

Viola, P., et al., 2018. *Monitoring the evolution and benefits of responsible research and innovation: Summarising insights from the MoRRI project.* Brussels: European Commission.

Integration of gender in research and innovation projects

European Commission, 2011. *Toolkit Gender in EU-funded research*. Luxembourg: Publications Office of the European Union.

European Commission, 2020. *Gendered Innovations 2: How Inclusive Analysis Contributes to Research and Innovation*, Luxembourg: Publications Office of the European Union.

Korsvig, T., Rustad, L.M., 2018. *What is the Gender Dimension in Research? Case studies in interdisciplinary research.* Lisaker: Kilden.

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Gender and the European Green Deal

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Annex 4. Responsible Research and Innovation (RRI) tools

Tool name	Sources	RRI dimension	RRI EU Key	Phase of the project	Timeframe for imple-mentation	Skills and further requirements	Used in the SGD experiments	Name of the tool in the experiment	Target group in the SGD project:
World Café	http://engage2020.eu/media/D3-2-Public-Engage-ment-Methods-and-Tools-3.pdf	Inclusion	Public engagement	Project definition and development/ formulation of activities Experiment imple-mentation	2-3 hours	Facilitation skills, Event organisation skills	Clean Energy	Community-based visioning work-shops	research team; subcontractor; participants; broader public
Short description	A world café is a method for engaging groups, both within internal processes and in the public sphere that is variable depending on context, numbers, purpose, location, etc. How to: •Welcome and an introduction in the process and the "Café Etiquette" •Several rounds (ca. 20 minutes) of conversation for the small group at the tables, after the first round each member of the small groups moves to another table •Moderation and documentation: Person from the previous round is table host for the next round, giving briefly update •After the small groups: Sharing results in plenary								
Open Space Technology	http://engage2020.eu/media/D3-2-Public-Engage-ment-Methods-and-Tools-3.pdf	Inclusion	Public engagement	Project definition and development/ formulation of activities Experiment imple-mentation	depending on scale of the event	Skills: Facilitation skills; Project management skills; Event organisation skills	Clean Energy	Co-construction (of the social experiment)	research team; subcontractor; participants; broader public
Short description	Method to organize participation events basically of large and medium scale (5 to 1000 and more participants); The method is based on the principles of passion, responsibility and commitment, bearing in mind the assumption that the most productive way to work is to work on a topic for which one cares; Within the method participants can propose topics on the overall one and offer themself sessions in which the participants can then take part.								
Round Table	RRI Tools - A Prac-tical Guide to Re-sponsible Research and Innovation (https://www.fosteropenscience.eu/node/2111)	Inclusion	Public Engage-ment; Open access; Science education; Gender; Ethics	Monitoring & Eval-uation		Skills: Facilitation skills; Event or-ganisation skills			
Short description	Bottom-up participatory approach for addressing ethical issues of research and innovation. Based on the idea of mutual learning. Could be used as an interactive and deliberative teaching approach that brings together students and researchers from different disciplinary backgrounds as well as other societal groups (ap-proach's focus could be expanded beyond ethics to other dimensions of RRI). How to: Moderated, open format, promoting a dialogue between different actors;								

Tool name	Sources	RRI dimension	RRI EU Key	Phase of the project	Timeframe for imple-mentation	Skills and further requirements	Used in the SGD experiments	Name of the tool in the experiment	Target group in the SGD project:
Focus Groups	http://engage2020.eu/media/D3-2-Public-Engage-ment-Methods-and-Tools-3.pdf;	Inclusion; Reflexion	Public engagement	Experiment imple-mentation	workshop time: 1-2 hours	Skills: Sub-ject-matter exper-tise; Facilitation skills	Preserving Biodi-versity	Focus Groups	participants
Short description	Qualitative method which is used to determine the preferences of people or to evaluate strategies and concepts; **How to:** a planned discussion among a small group (4-12 persons, selected according to certain characteristics in common that relate to the research topic) of stakeholders facilitated by a skilled moderator; aim: identify user requirements specification, generate or evaluate hypotheses and ideas in conjunction with a quantitative method, or as a primary data-collection method.								
Needs Survey among CSOs	http://engage2020.eu/media/D3-2-Public-Engage-ment-Methods-and-Tools-3.pdf	Inclusion; Reflexion	Public engagement	Project definition and development/ formulation of activities	few months	Skills: Sub-ject-matter exper-tise; Faciliation; Project manage-ment			
Short description	Method to show which field they potentially have research questions and can lead to follow-up discussions to articulate research questions (see separate fact sheet). How to: A survey is sent to all registered CSOs/NGOs in a region. A more informal approach is to go and talk with umbrella organizations in a specific field (e.g. health; environment).								
Inter-disciplinary/ Stakeholder Working Groups	http://engage2020.eu/media/D3-2-Public-Engage-ment-Methods-and-Tools-3.pdf	Inclusion; Reflexion	Public engagement	Project definition and development/ formulation of activities	typically 6-8 months	Skills: Facilitation skills; Project man-agement skills	Clean Energy	Co-construction (of the social experiment)	research team; subcontractor; participants
Short description	The purpose of the method is partly to take professional stock of the situation and partly to propose possible courses of action to ensure, initiate, promote or check development in the area. The work of the group is rooted in the existing knowledge base. The interdisciplinary work group is independent, problem-oriented and focuses on solutions – not only assessment. The method is suitable for intersecting topics, traditional institutional and disciplinary lines and creates holistic robust recommendations. Useful for political/strategic development.								
Science Shop	https://project.scishops.eu/wp-content/uploads/2018/08/SciShops.eu_D4.2_Practi-tioner_roadmap_and_methodolo-gy_toolkits.pdf	Inclusion; Respo-siveness	Public Engage-ment	Project definition and development/ formulation of activities Experiment imple-mentation	3-6 months with existing infrastruc-ture	Skills: Facilitation skills; Project man-agement skills			
Short description	Science Shops (small entities based within universities and research instiutute or run by non-profit organisations/ coompanies) carry out independent, participatory scientific research in re-sponse to concerns experienced by citizens and local civil society; Involves researchers working closely with civil society organisations (CSOs) or other members of society to co-create new knowledge that can be used to better understand or tackle societal issues; varying degrees of community and other stakeholder involvement; wide range of disciplines and sectors								

Tool name	Sources	RRI dimension	RRI EU Key	Phase of the project	Timeframe for imple-mentation	Skills and further requirements	Used in the SGD experiments	Name of the tool in the experiment	Target group in the SGD project:
(Reversed) Science Café	https://rri-tools.eu/en/-/the-big-picnic-science-cafe-toolkit; https://www.ecsite.eu/sites/default/files/sparks_toolkit.pdf, p. 5	Inclusion	Public engage-ment, Science education	Experiment imple-mentation		Skills: Facilitation skills; Event organ-isation skills			
Short description	**Science Café:** place for information and discussion for all who are interested in science and its broader implications for society; aim to encourage citizens to dialogue with scientist, by bringing science into the everyday life of citizens + democratising science by engageing citizens in the making and interpreting of science **Reversed Science Café:** Public Engagement tool - Answering Research questions: A science café usually has experts giving a talk and answering questions from the public. We reversed this format by having experts ask questions to the public to get inputs on issues relevant to their work. Experts and citizens work together in small groups to formulate solutions to the challenge of making research and innovation more diverse, inclusive and open.								
Participatory Sensing	http://engage2020.eu/media/D3-2-Public-Engage-ment-Methods-and-Tools-3.pdf	Inclusion, reflex-ivity	Public engagement	Experiment imple-mentation	depending on complexity of data collection activities	Skills: IT skills; Subject-matter expertise; Project management skills			
Short description	Participatory sensing projects involve volunteers in the gathering of data for research. This process is facilitated with ICT platforms which often include the use of hand-held devices such as smartphones.								
Enrich by co-design	http://engage2020.eu/media/D3-2-Public-Engage-ment-Methods-and-Tools-3.pdf	Inclusion	Public engagement	Experiment imple-mentation	time consuming preparation; workshop time: half a day	Precondition: participants are familiar with proto-typing; Skills: Sub-ject-matter expertise; Facili-tation skills; Event organisation skills; Project manage-ment skills	Circular Economy	Design Thinking approach	
Short description	Design thinking and doing approach based on co-design: Among more usual participatory processes, this (facilitated) method includes a phase of prototyping, where the participants will try to envision, represent and visually create solutions.								
Research Agenda Camp	http://actioncat-alogue.eu/meth-od/7445	Inclusion; Respo-siveness	Public Engage-ment	Project definition and development/ formulation of activities	2 days	SSubject-matter expertise; Facili-tation skills; Event organisation skills; Project manage-ment skills			
Short description	Aim of the method is to develop “research programme scenarios” i.e. suggestions for research programmes addressing the underlying societal needs, aspirations and commonalities developed in a previous phase; not a method on its own, it has to be integrated in a larger process (2-day co-creation workshop)								

Tool name	Sources	RRI dimension	RRI EU Key	Phase of the project	Timeframe for imple-mentation	Skills and further requirements	Used in the SGD experiments	Name of the tool in the experiment	Target group in the SGD project:
Group interview with a co-design session	http://engage2020.eu/media/D3-2-Public-Engage-ment-Methods-and-Tools-3.pdf	Reflexivity, Inclu-sion	Public engagement	Project definition and development/ formulation of ac-tivities; Experiment implementation	workshop time: one single event or several smaller successive events		Sustainable Food	Group interview	participants
Short description	The group interview with a co-design session will provide feedback about the research scenarios presented.								
Living Lab	http://territo-riaproject.eu/wp-content/uploads/2021/04/TeRRItoria_D3-3_Map_of_ap-proaches___poli-cies_and_tools_for_Territorial_RRI.pdf	Inclusion	Public engagement	Experiment imple-mentation		Subject-matter expertise; Facili-tation skills; Event organisation skills; Project manage-ment skills			
Short description	Main objective: create new products, services and appropriate infrastructure to the real needs of society. This concept is used to refer to co-creation experiences characterised by some basic features, including: the engagement of users; the involvement of a plurality of stakeholders; the adoption of a real-life setting; the adoption of an approach combining different methods; the focus on co-creation								
Technology Roadmap	http://fore-sight-platform.eu/community/forlearn/how-to-do-foresight/methods/roadm-ap/	Anticipation	Ethics	Project definition and development/ formulation of ac-tivities; Experiment implementation		Skills: Sub-ject-matter expertise			
Short description	Term refering to various kinds of Foresight studies (visions/ projections of future possible technological developmen etc.); function as forecasting methodology (graphical representation showing causal and temporal relations) + planning methodology								
Scenario Method/ Workshop	http://fore-sight-platform.eu/community/forlearn/how-to-do-foresight/methods/sce-nario/;	Anticipation	Public engagement	Experiment imple-mentation	time-consuming	broad base in stra-tegic intelligence; familarity with scenario techique; subject-matter ex-pertise, facilitation skills			
Short description	Analysis tool that helps describe a possible set of future conditions; purpose: help decision-makers acquire knowledge and understanding to anticipate the context; **How to:** there are different approaches to walk through the processes; possibility to combine it with a SWOT analysis (input) as well Roadmapping (testing consistence and plausibility)								

Tool name	Sources	RRI dimension	RRI EU Key	Phase of the project	Timeframe for imple-mentation	Skills and further requirements	Used in the SGD experiments	Name of the tool in the experiment	Target group in the SGD project:
System Analysis	https://edepot.wur.nl/149471	Inclusion, Reflexion		Project definition and development/ formulation of activities Experiment imple-mentation Monitoring & eval-uation	collective analysis: 1/2 day	Facilitation skills (for larger groups of 10-15 people)			
Short description	Aim: providing insights into actors and facotrs working against the transformation; only worthwhile if participants want to contribute to the transition to a more sustainable system; It is based on discussions/ interviews with project participants or a collective workshop with the project team. **How to:** preparation of the matrix (characteristics of the system like knowledge infrastructure x organisations perpetuate sytems barriers), inventory of system barrieres and opportunities (possi-ble start of the workshop, can also carried out alone via desk research), analysis, reflection								
Audiovisual learning history	https://edepot.wur.nl/149473	Reflexion; Respon-siveness		Monitoring & Eval-uation; Dissemi-nation		skills as filming and editing	clean Energy	Dissemination of research findings/ actions	research team; subcontractors; participants
Short description	Aim: creating an accessible and attractive product using an audiovisual approach. **How to:** Expression of narratives not included in conceptual and management texts (challenges, choices, learned lessons) to let the participants (in the project/ in other comparable projects) learn from own experiences.								
Dynamic learning agenda	https://edepot.wur.nl/149472	Reflexion		Project definition and development/ formulation of activities Experiment imple-mentation Monitoring & eval-uation	over the whole project time				
Short description	Aim: helping sytem innovation projects link long-term aims to concrete perspectives for actions by formulating, recording and keeping tracks of arising challenges; **How to:** creation of a "learning agenda" i.e. document containing challenges summarised in learning questions that is modified over the course of the project; used as aid during project meeting.								
Learning mirror	https://www.wur.nl/nl/show/Reflexive-Monitor-ing-in-Action-2.htm	Reflexion		Experiment imple-mentation	meetings during the project imple-mentation phase	facilitation skills			
Short description	Aim: The tool gives participants visual feedback during meetings supporting them to concert ideas and long-term goals into innovateive collaborative actions and making action-oriented meeting more reflective/ reflection-focused ones more action-oriented. **How to:** part 1: visually documentation of contribution and blind spots (structured notes in three categorien of content, actions and relations), little preparation required. part 2: inquiry framework relating proposed action to the changing context, only carried out if participants think it is essential (need for legitimacy for the monitor to operate effectively).								

Tool name	Sources	RRI dimension	RRI EU Key	Phase of the project	Timeframe for imple-mentation	Skills and further requirements	Used in the SGD experiments	Name of the tool in the experiment	Target group in the SGD project:
Timeline and eye-opener workshop	https://edepot.wur.nl/149474	Reflexion, Respon-siveness		Experiment implementation; Dissemination	eye-opener work-shop: >3 h in small groups				
Short description	Aim: interactive transfer of learning experiences to "outsiders"; timeline method as format to exprecess challenges, successes and learning experiences; eye-opener workshop as additional for-mat to turn outsiders into project insiders (detailed narration of experiences and results, reflection on the events from different participants perspectives).								
Social network/ platform for exchange	example: Patient Innovation Plat-form	Inclusion; Respon-siveness	Public Engage-ment; Open access; Science education; Gender; Ethics	Political empow-erment; Research activity		IT skills; project management			
Short description	Aim: sharing solutions and ideas and doing networking. This is useful when participants can not physically get together. A specific plateform is one who is engaging citizens. e.g. Platform for citizen science/ people powered science: https://www.zooniverse.org/projects;								
Self-reflection tools/ questionaries on RRI (collection of sources to introduce RRI in your project)	different sources	Reflexion; Inclusion	Public Engage-ment;Open access; Science education; Gender; Ethics	Project definition; Monitoring & Eval-uation		subject-matter expertise/ insights in required docu-ments			
Short description	The aim of all these questionnaire are for institutions/ researchers to survey and assess the their research process and output with regard to the implementation of RRI and/or individual aspects. Examples: •GRACE reflection tool for RRI initiatives: http://grace-rri.eu/reflection-tool-2/ •NewHoRRIzon/ Societal Readiness Thinking Tool: https://thinkingtool.eu/) •COMPASS self-check: https://innovation-compass.eu/training/3144-2/ •RRI Navigator: https://responsibility-navigator.eu/ •ORION Open Science Checklist: https://www.orion-openscience.eu/index.php/publications/training-materials/201811/open-science-researcher-checklist •EDGE tool (self-assessment questionnaire for universities, aims to trigger discussion and reflection regarding public engagement at the institutional, department, or faculty level: https://www.publicengagement.ac.uk/support-engagement/strategy-and-planning/edge-tool/interactive-edge								

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