

Validation Report

Deliverable D3.3

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<http://www.fotrris-h2020.eu>



This project has received funding from the *European Union's Horizon 2020* research and innovation programme under grant agreement No 665906

Document Information

Grant Agreement #: 665906

Project Title: Fostering a Transition towards Responsible Research and Innovation Systems

Project Acronym: FoTRRIS

Project Start Date: 01 October 2015

Related work package: WP 3: Test of the multi-actor experiment in the domain of resource scarcity

Related task(s): Task 3.3b: broadening the outreach of the co-RRI transition experiment

Lead Organisation: IFZ

Submission date: 30/11/2017

Dissemination Level: Public

History

Date	Submitted by	Reviewed by	Version (Notes)
Nov 24, 2017	IFZ		vs.1
Nov 27, 2017		ESSRG	
Nov 27, 2017		CESIE	
Nov 30, 2017	IFZ		
Nov 30, 2017		VITO	
Nov 30, 2017	VITO		FINAL

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About the FoTTRIS project

FoTTRIS develops and introduces new governance practices to foster Responsible Research and Innovation (RRI) policies and methods in Research and Innovation (R&I) systems.

FoTTRIS stresses that RRI is a collaborative activity from the very beginning. Therefore, FoTTRIS adds the prefix 'co' to the acronym RRI. Important present-day challenges are of a global nature but manifest themselves in ways that are influenced by local conditions. Thus, FoTTRIS focusses on glocal challenges, i.e. local or regional manifestations of global challenges, and on local opportunities for solving them.

FoTTRIS performs a transition experiment, i.e. an experiment to support the transformation of present-day research and innovation strategies into co-RRI-strategies. It designs, tests, and validates the organisation, operation, and funding of co-RRI competence cells. A competence cell is conceived as a small organisational unit, which functions as a local one-stop innovation platform that encourages various knowledge actors from science, policy, industry, and civil society to co-design, -perform, and -monitor co-RRI-projects that are attuned to local manifestations of global sustainability challenges.

Since research and innovation systems and practices in EU member states and within different research performing organisations vary, FoTTRIS experiments the implementation of new governance practices in five member states. These five experiments are evaluated as well as validated and constitute the basis for FoTTRIS policy recommendations towards EU and member states policy makers so as to enforce co-RRI into the national and EU R&I systems. Training is dispensed to various stakeholders, so as to form them to establish other co-RRI competence cells.

For more information see <http://www.fotrris-h2020.eu>



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Executive Summary

Five national workshops have been organised in Austria, Flanders, Hungary, Italy, and Spain in order to validate the national multi-actor experiments, the so-called 'Transition Experiments' (TEs), and to broaden the outreach of co-RRI by gathering external perspectives on The FoTRRIS experiences. Further aims were to create alliances and to gain support for co-RRI, and to discuss key learnings on (systemic) barriers, challenges, opportunities, and leverages in order to complement the FoTRRIS experiences with those of others.

All workshop participants have been introduced to the FoTRRIS project in general, the co-RRI experiments in particular and the role of the so-called Competence Cell (CC). It was of special interest to get to know the expertise and thoughts of the participants about the opportunities to integrate co-RRI into the current research and innovation (R&I) system.

Although the validated experiments refer to the initiation and planning phase of an RRI project, the project's general aim is to initiate a change at the meso level. But since this all starts with the important planning stage, it was vital to gather external validation for the FoTRRIS concept and experiments in order to assess if and how RRI could be implemented in different settings in the diverse European research and innovation landscape.

This report gives insights into the methodology behind these validation and outreach workshops, which followed a modular system, and the results from the national validation workshops. The final chapters are dedicated to conclusions on how to broaden the outreach of co-RRI and the up-scaling of RRI. In the validation of the co-RRI experiments in FoTRRIS, all partners and invited experts put much consideration into how RRI can be enhanced in the (local and national) R&I system. One aspect of this is the facilitation of competence centres, whose members can initiate and facilitate RRI processes. This has been tested within FoTRRIS – with the aforementioned Competence Cells (CCs) – and in the course of the validation workshops it has been discussed which competencies are needed in such CCs, which challenges occurred in the concrete TEs of FoTRRIS, and how the future of these CCs could look like. Based on the experiences of the six TEs, which were facilitated by five CCs, the experts in the validation and outreach workshops concluded that an up-scaling of RRI, or even a systemic change in research and innovation, needs a strategic approach, which should start with small experiments and a networking of experiences. The next step then could be an institutionalisation of RRI in research, higher education, and other organisations, thereby building skills systematically. Finally, at a science policy level, qualitative criteria for RRI would need to be defined and agreed upon in order for them to be included in existing academic performance indicators and R&I funding schemes.

1 Aims of the outreach and validation workshops

In the final phase of FoTRRIS, five national workshops were organised in Austria, Flanders, Hungary, Italy, and Spain in order to:

- validate the national multi-actor experiments (in project terms called ‘transition experiments’, for short TEs), and
- broaden the outreach of these very co-RRI experiments (TEs) by gathering external perspectives.

Further aims of these workshops in the respective countries comprised of creating alliances and gaining support for co-RRI, discussing key learnings on (systemic) barriers, challenges, opportunities and leverages (complementing our experiences), and gaining insights on how to enhance ‘the co-RRIness¹’ of the (local and national) R&I system.

For the workshops, different groups of people were invited, including members of the competence cell (the TE facilitators), selected participants from the TEs, other local or national key persons from public and private research performing organisations, research and innovation funding organisations, businesses, networks, transition initiatives, CSOs, and relevant societal actors. The invited participants varied in each country in order to match the specific aim of the respective workshop.

With these invited experts, it was discussed how to carry on with the idea of co-RRI based on the experiences made within the TEs, and against the background of the various experts’ knowledge of the local/national R&I landscape. The design of the TEs, the use of a web-based platform, and key learnings on challenges and opportunities were discussed. The focus on the specific discussion topics was chosen by the national teams. Topics were tailored to their TE experiences and evaluation results, and depending upon the expertise of the invited participants.

All workshop participants were introduced to the FoTRRIS project in general, to the TEs in particular, and to the role of the competence cell. It was of special interest to get to know the expertise and thoughts of the participants regarding the opportunities to integrate the co-RRI (planning-) processes into the (local/national) research and innovation system.

The singularity of the workshop has been defined in a sense that the TEs at their current stage could be seen as part of the initiation and planning phase of a process of systemic change, and that the experiences and evaluation results that could be gathered thus far, are linked to a ‘micro level’. Even still, the project’s general aim is to initiate a change at the meso level. Since such a change starts at the micro level, it was very important to gather external validation for the FoTRRIS concept and TEs in order to assess if and how it could be implemented – especially in different settings in the diverse European research and innovation landscape.

2 Concept of the outreach and validation workshops

IFZ and LGI provided the FoTRRIS consortium with a workshop concept as a proposal for the validation and outreach workshop, which were then adapted according to the respective needs of the local teams. To meet the specific needs of the national teams as well as the diversity of objectives and participants, the concept was comprised of different modules, and options within these modules, from which all workshop facilitators could choose. With this approach workshops could be customised, which was of special importance in FoTRRIS, as there were not only different countries, languages, and topics elaborated on in the TEs, but also very diverse TE participants and members of the national competence cells.

¹ The term ‘co-RRIness’ has been created following an expert interview (in WP1), where the interviewed scholar referred to the vision of a degree of ‘RRI-ness’ in contrast to a binary view of either doing RRI or not.

The individual workshop agendas are described in the following chapters, where all national teams reported about their workshop settings, results, and conclusions about regional insights into how co-RRR can be fostered in future.

2.1 Workshop concept modules

Module I: Introduction and presentation of the TEs

Introduction (30 minutes)

- Give a short introduction about yourself and some brief information about the background of the FoTRRIS project.
- Ask for consent in case you will take pictures of participants during the workshop.
- Make an introductory round for the participants to get known to each other (e.g. use a 3-minutes sand-timer to pass around and to give every person the possibility to introduce her/himself, or you let people think about ten words about themselves and present those to the audience;..., - you can also think about something else)

Materials: FoTRRIS dissemination material, if needed 3-minute timer (depending on the method you are using)

Presentation of Transition Experiment (30 minutes)

Present your example of the Transition Experiment answering the following questions:

- What were the aims of the TE? Why is co-RRR relevant?
- What were the co-RRR key elements the experiment was based on? (based on the results from the reflection workshop <= D3.2 part II)
- How did you implement the Transition Experiments? (based on descriptions provided for D3.1)
 - How did you make use of web-based platform within the implementation of the TE
- Lessons learnt (based on the outcomes of the reflection-WS <= D3.2 part II)
 - What were the actual and potential impacts of the TE?
 - Relative weight of (systemic) barriers, opportunities and leverages

Questions & comments (15 minutes)

Materials: ppt with pictures, outcomes and materials (e.g. posters) of the workshops

Module II: Impacts

Assessment of impacts (40 minutes)

Instructions:

- Let participants think for 5 minutes in groups of three to discuss the actual and expected impacts of the specific example of your Transition Experiment;
- Give the participants the opportunity to rate the actual and expected and unexpected impacts of the TE according to their relevance of contributing to a transition towards RRI.
- Use the Reflection Workshop provided template in order to visualize the estimate of the participants on the given examples for impacts, e.g.:
 - changes in the nature (multi-/trans-disciplinarity, social/technological innovativeness,...) of research projects,
 - diversity of stakeholders involved with the co-designing and their relative support for the various design phases
 - second-order learning of stakeholders participating in the co-design
 - resources needed and preparedness of the participating stakeholders to provide them
 - ...

Participants get coloured sticky dots to give their rating on the template. When all participants are done, ask participants for comments on the result.

Note the additional comments on a flipchart.

Material: Template with impacts in your language, flip chart, sticky dots

Module III: Transition Scenarios and Competence Cell

Presentation of transition scenarios including Competence Cell mandates and tasks for fostering co-RRI (50 min or 60 min)

Step 1 OPTIONAL: Method of scenario development (10 min)

- a) Explain how the scenarios were elaborated (based on LGI slides 4 to 17):
 - Emphasise that the WS participants will later be asked to contribute to a refinement on the scenarios.

Material: PPT 'T2.4 toolkit v.2_ for the outreach workshop' (remark: the presentation might need to be adapted for your WS setting!).

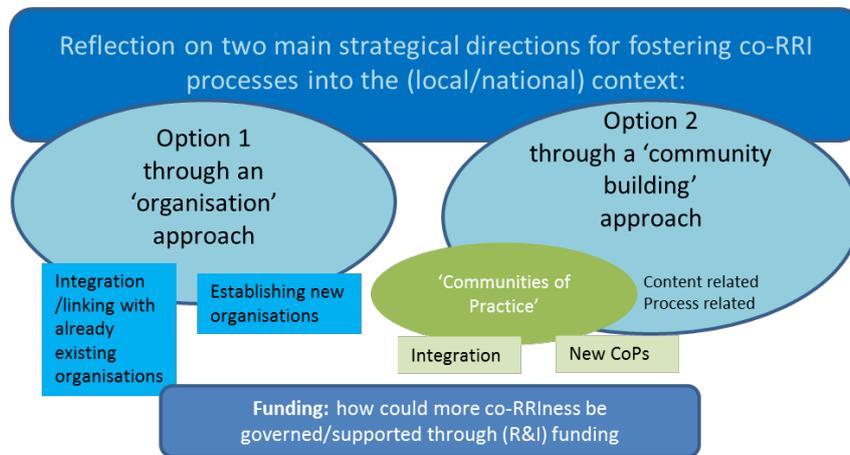
Step 2: Presentation of Scenarios (50 min in case of 3 scenarios)

- a) Explain the main strategic directions the scenarios are built upon (5 min)

As discussed in Madrid, we suggest considering two main strategic directions for fostering co-RRI: one building on an 'organisation' approach, the other focussing on a 'community building approach'

as depicted below. Explain how this 'strategic direction' is linked to the following elements of the strategy canvas:

- operational system (organisation vs. community)
- ontological nature (existing/new)



b) Present the FoTTRIS scenario as it was implemented in your Transition Experiment and summarise your evaluation of the TE by means of a SWOT (e.g. by depicting **S**trengths, **W**eaknesses, **O**pportunities and **T**hreats as suggested below) (15 min). You may use and adapt slides 19 to 23 and slide 25 to present the FoTTRIS scenario as it was implemented in your TE from the PPT 'T2.4 toolkit v.2_ for the outreach workshop'.



c) Present further scenarios (at least 3 scenario ideas; the scenarios need to be prepared in advance supported by the toolkit provided by LGI – some ideas of scenarios are presented in slides 27 to 40 and you can find some 'options for scenario building' in slides 52 to 61) (max. 10 min per scenario)

For the presentation of the scenarios the following aspects should be addressed:

- **Strategic direction:** operational system and ontological nature of the scenario
- **Contextualisation:** How this scenario could look according to your national and local context, which specific conditions and requirements are necessary and fruitful
- **Competence Cell:** How do you envision the structure (incl. actors), mandate, & tasks of the CC (“activity models” for competence cells)
 - For the elaboration on the mandate of the competence cell, please use the guidance document ‘outreach workshop – mandate of the competence cell’ compiled by VITO.
- **Compensation & rewarding strategy:** How could a compensation & rewarding strategy look like: what was your compensation and rewarding strategy for the Transition Experiments, how were Competence Cell members and TE participants rewarded, and which other options could you imagine (e.g. picking up strategies implemented in other TEs, e.g. ‘knowledge vouchers’, vouchers for local businesses, etc.)

Material: Prepared scenarios (we suggest to present at least 3: 2 with organisation approach, 1 with community building approach); PPT ‘T2.4 toolkit v.2_ for the outreach workshop’

Further elaboration on suggested strategies for fostering co-RRI (30 min or 45 min)

Arrange discussion tables – 1 for each scenario. Each table is hosted by a FoTRRIS team member.

For the further elaboration the guidance offers 2 options. Option 1 represents the ‘simple’ procedure, while option 2 gives guidance on how to further elaborate on the scenarios in line with the different canvases suggested in the LGI scenario building toolkit.

OPTION 1: World café for the refinement of the suggested scenarios (30 min)

Material:

In the first round of discussions participants are asked to contribute their specific knowledge to refine the scenarios by considering the local/regional R&I landscape. Participants are free to join the tables according to the scenarios in which they are most interested. For the refinement of the scenarios, some guiding questions might be useful. The questions you suggest to be discussed will depend on the degree of detail in which you present the elaborated scenarios. In any case it is important to discuss the mandate and tasks of the CC.

- Examples for general questions to be discussed against the background of the idea of the ‘organisation approach’ (2 options) could be:
 1. Integration in already existing organisations:
With which already existing structures/institutions/organisations could an integration/cooperation take place? How might this look? How could the Competence Cell be linked to these organisations?
 2. Establish new organisations:
What are the most important aspects to consider for the establishment of a new institution in order to ensure a good integration into the local/national R&I system?
- Examples for general questions from the perspective of the community building organisation approach, “Communities of practice” (CoP):

Should a CoP be content or process related or both? In which already existing communities could a co-RRR CoP be integrated? How could/should a newly set up co-RRR look like?

- Or you can ask for other, maybe better options than those you suggest:
What could be other options for fostering a transition towards more co-RRRness in the (local/national) R&I landscape?

Per table one table host (preferably a FoTRRIS team member) is needed to keep the focus to the questions and to make a short summary after each round and to report to the plenary in the next time slot. Participants should change the table after 15 minutes (not all people should change to the same table within the same group). Make 2 rounds so every participant has the chance to discuss on two different tables. People should change the table but are not forced to if they want to continue discussing the same topic.

Material: visual representation of the scenarios, big white papers (A1 or A0) to put on the discussion tables, pens, corkboards, flipchart

OPTION 2: Scenario building based on different canvases (45 min)

Ask 5 willing participants to be a team leader. Then give 5 minutes to these 5 team leaders to think about an idea of a scenario they would like to work on; however, in their scenario, there should be at least one organisation that will have for their activity the facilitation of co-RRR research project concepts like in the TE (that does not mean that this should be the sole activity of this organisation). During these 5 minutes provide the team leaders plus the other participants the guidelines for scenario building. After the 5 minutes, let the team leaders present briefly their idea to the other participants (one minute max per team leader). Then, each team leader goes to a table, and the other participants go to the table corresponding to the scenario on which they would like to work. A team shall be comprised of 2 to 4 people. Then, during the other 35min, each table fulfils the different canvases **as well as draws the visual representation of their scenario**.

Inform your participants:

- that the blocks that are darker grey are optional
- that they have been provided with 'options' that they can use for elaborating their own scenario
- that they can get inspired by the, at least, 3 scenarios that were presented
- that they can have up to 3 different types of organisations in their scenario, so up to 3 different activity models
- that they have to fill in the canvases by putting post-its on the different blocks (not writing directly on the canvases, in case they want to change what they wrote initially)
- they should start by reading the guidelines and the options for some of the activity model blocks
- that they should first reflect on what they want to develop, then fill-in the brief description of the scenario, then work on the activity model(s) canvas(es) and then finish to fill in the high-level description canvas and the strategy canvas

During the workshop time, FoTRRIS team members should go around tables to help them with their scenario building.

Material: PPT 'T2.4 toolkit for the outreach workshop'; prints of the blank canvases in A3 (5*(1 high-level description canvas, 1 strategy canvas, 3 activity model canvases)), prints of the guidelines (4 slides*number of participants); 5 A3 sheets for the visual representation of the scenario; prints of the 'options for some of the activity model blocks' (7 slides*5); pens; big post-it

World café for the assessment of the different scenarios (SWOT) (60 min)

The hosts of the scenario tables give a brief overview on how the refined scenarios look like (max 5 minutes per scenario) - all participants gather around the table to see the refined scenarios; for option 2: to see the different canvases presented. Then WS participants discuss in 4 rounds (each 10 min) the strengths, weaknesses, opportunities, and threats of the different scenarios:

- 1st and 2nd round (participants change tables so that each person has the opportunity to discuss 2 different scenarios): What are the strengths and what are the weaknesses of the scenario?
- 3rd and 4th round (again, participants change tables so that each person has the opportunity to discuss 2 different scenarios): What are the anticipated opportunities and threats of the scenario?

During the discussions, the SWOT tables are filled with content.

Material: SWOT template for each discussion table

Module IV: Bringing results together – final discussion

Plenary Discussion and reporting back (60 minutes)

Table hosts of the world café summarise the discussions and reports on the SWOT results for each scenario.

Then get back to the main questions in a plenary discussion:

- How could a transition towards more co-RRIness in the (local/national) R&I landscape be realised? Within your area of work, how can you imagine this (competence cell & hub + any other mandate for the competence cell) to be realised?
Who would be the most important actors to engage?
- How could the transition be facilitated? Which mechanisms need to be tackled in order to bring a change in the current system?
How could more co-RRIness as displayed in the scenarios be governed/supported, e.g. through (R&I) funding?

Note the most important points on a flipchart.

Material: flipchart

Closing and information about the next steps (15 minutes)

Inform WS participants about how the workshop results will be further processed, and tell about the next steps in the project.

3 Documentation – the national validation reports

The results from the five workshops in Austria, Belgium, Hungary, Italy and Spain have been documented with national validation reports according to one coherent structure, as these teams chose similar modules in their workshops with the aim to validate the TEs and broaden the outreach based on the specific TE experiences. The structure comprised the following chapters and gave guidance for filling out the report in order to enable certain comparability:

1. Introduction

Please describe briefly how the workshop was implemented (add agenda and list of participants in the Annex) and describe the expertise or field of activity of the invited participants.

2. General feedback on FoTTRIS Transition Experiment(s)

Documentation of your presentations by including e.g. ppt slides in the Annex.

Report on the questions and comments on your presentation of the TE(s) with a particular focus on participants' views on (systemic) barriers, opportunities, and leverages. Did they make similar experiences or were your experiences unique?

3. Assessment of impacts

How did participants rate the relevance of actual, expected, and unexpected impacts in regard to their relevance of contributing to a transition towards RRI?

Summarise the discussion.

4. Conclusions

Summarise the final discussion by concluding on the following guiding questions, like:

- How could a transition towards more co-RRIness in the (local/national) R&I landscape be realised?
- In specific R&I contexts (according to participants' fields of activity)
- Who would be the most important actors to engage?
- How could the transition be facilitated?
- Which are the most important mechanisms to be tackled in order to bring a change in the current system?
- How could more co-RRIness, as displayed in the most favoured scenarios, be governed/supported, e.g. through (R&I) funding?

5. Annex

Workshop agenda

List of participants (confidential²)

² The participants' lists with full names, addresses, and institutional information are not added in this publicly available report.

4 Austrian validation report by Sandra Karner, Anita Thaler & Magdalena Wicher (IFZ)

4.1 Introduction

The Austrian validation workshop took place on 12th of July 2017 at the premises of IFZ in Graz. The invitation had been sent to various experts from academia, research organisations, policy and funding organisations, and in the end seven were able to attend (the date was during the Austrian summer holidays, as well as for universities and for schools). From IFZ the FoTRRIS Competence Cell (three researchers with additional skills in adult education, moderation, etc.) were responsible for the conceptualisation and moderation of the workshop. One administrative colleague was additionally supporting the team in organising the event and taking notes.

Three participants stem from research organisations, three from universities, and one from a funding organisation. Two of the experts are members of the RRI-tools-project consortium, two have explicit gender expertise, and one is an ethics expert. All participants had been invited because of their expertise in transdisciplinary research and RRI. As it turned out, most of the experts saw themselves as rather theoretically competent, they were all interested in gaining more experiences in actually implementing RRI, and therefore they were very interested in the FoTRRIS project.

The validation workshop had to be timed for arrivals and departures outside Graz (Vienna etc.), thus the agenda was set for the time frame between 11:15 and 18:00. Excluding breaks for lunch etc., the actual time for the workshop was about 5 hours.

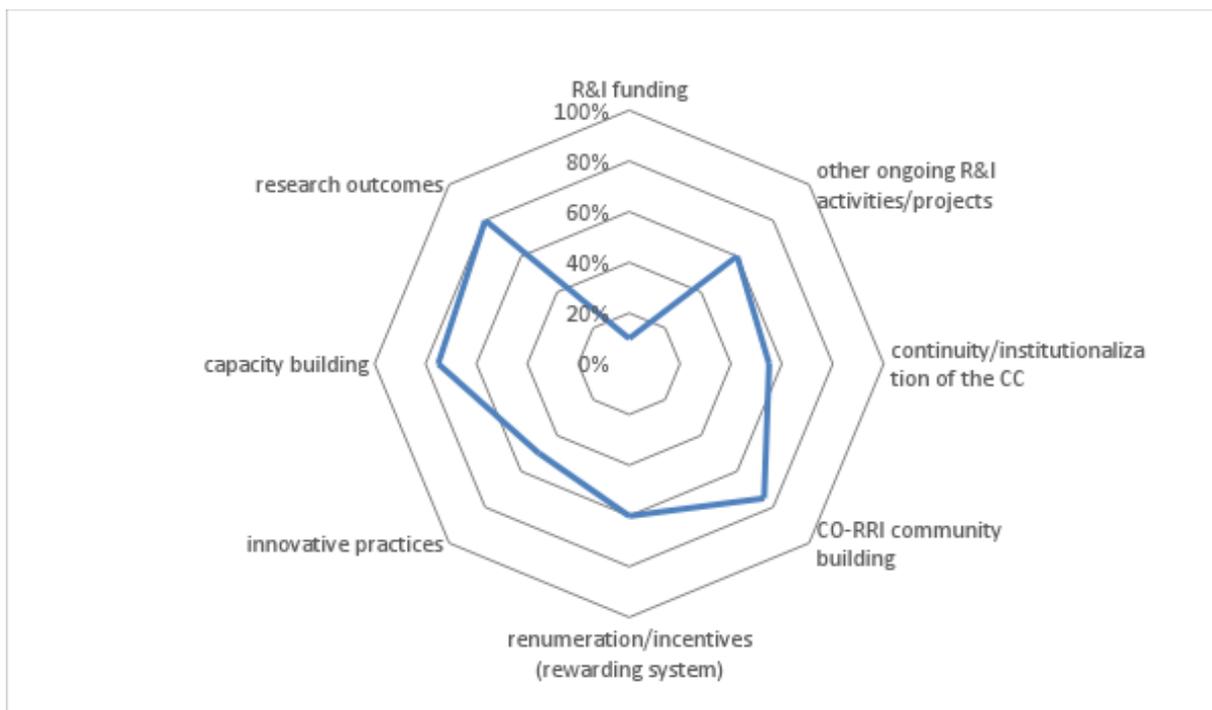
After some time for the introduction of the participants and the agenda, one Competence Cell (CC) member of IFZ presented the FoTRRIS project in general and the Austrian case study in particular:

1. On February 15, 2017 the first of a series of workshops took place at IFZ, where committed stakeholders from policy, farms, research, and the alternative food scene worked together to create a more sustainable and socially just food system in the area of Graz. All three CC members from IFZ organised and moderated this workshop, which broached the issues of the current system (One TE participant presented a study “Graz feeds itself”) and by which measures and ideas the food system in Graz could be optimised. This stage in the process can be characterised as *system mapping* (the IFZ team used an adapted version of the FoTRRIS MISC), where problems have been analysed, root causes identified, lock-ins and leverages discussed. Finally, the first ideas of how the current system can be transformed were mapped according to their feasibility.
2. In the second workshop, local farmers, entrepreneurs, policy experts, and actors from the alternative food scene again met on March 16th and worked together with the IFZ team on a *vision for 2022* towards a more sustainable food system in the Graz area. While the first workshop broached the issues of measures by which the food system in Graz could be optimised and their differing levels of feasibility, the participants in this second workshop decided then upon the four most important topics (for the group and their own interests), which have been discussed further with more stakeholders/experts since April.
3. The third workshop took place on April 7th, where the existing group of local farmers, entrepreneurs, research and policy experts, and actors from the alternative food scene met additionally with stakeholders, whom they decided would bring in new valuable experience and expertise, to work in more detail on *innovative solutions for transforming the system*, meaning for a more sustainable food system in the Graz area.
4. On June 7th the IFZ organised an additional – fourth – workshop to garner feedback from the FoTRRIS project and develop scenarios for future cooperation of the group. As it turned out, because the participants stayed more or less the same over the series of workshops, a Community of Practice (CoP) with these local farmers, entrepreneurs, research and policy experts, and alternative food activists had been established. The participants of this CoP were meeting regularly as a group, but also bilaterally, and continued communicating via e-mail, and phone. One idea of going on with the CoP was to use a web platform (in the

framework of FoTRRIS) and aim for research funding, to put some of the concrete ideas into *RRI project concepts* or respectively into practice. As it turned out researchers, practitioners and policy-makers had different perceptions of time frames and outcomes. While researchers might perceive a project concept, which can be used to submit a proposal for research funding and then lead to a research project in 6 to 12 months later as a successful outcome, practitioners and policy makers want more hands-on results, and faster. Therefore, a lot of smaller initiatives and activities were started parallel to the workshop series, which might not transform the system on their own, but help to motivate the CoP staying focused while other activities – like research projects – can be prepared.

In the next part of the workshop, the impacts of RRI measures in general and the impacts of the Austrian TE were discussed. Therefore, the spider diagram for the Austrian case - which resulted from the reflection workshop implemented within the team of the CC - was introduced to the participants. Then, participants were encouraged to discuss the following questions in three small groups:

- Which kind of impact is of special relevance when having the intention to change the R&I system in the direction towards RRI?
- Which additional impact category would you consider as relevant? On which kind of impact could a similar project be measured? Are important impact categories missing? If yes, please add them.
- How could the impacts be raised?



Graph: Impact diagram for the Austrian case from the reflection of the CC

Finally, the IFZ team discussed – based on the presented scenario – with the invited experts in a world café setting, how a transformation towards more ‘co-RRI-ness’ in Austrian R&I landscape might look:

One CC member hosted a table focusing on ‘Communities of Practice’, and the discussed points comprised:

CoPs need a common understanding of RRI and a common goal.

- They are multi-actors-groups (NGOs, enterprises, RRI-experts, interested persons, etc.), which should comprise the expertise needed for an RRI-approach and also include already existing groups/boards on these very issues (for instance in Austria the ethics commission;

for gender competencies: the FemTech database: <http://www.femtech.at/en/femtechs-database-female-experts>). Also funding for R & I should ask for these pillars, such as gender expertise, to be mandatory.

- Quote from the discussion: “Research which excludes certain groups is not excellent, but arrogant.”
- Networking-activities are important, especially to discuss conceptual issues (like the RRI platform in Austria offers: <https://www.rri-plattform.at>), but they need finances.
- Links to international initiatives and context are important, like RRI-Tools project and hubs, since there exists a common understanding of RRI.
- RRI-expertise also includes translation competencies and generally process competencies (plus knowledge on the respective topic is always needed). Research funding organisations should positively value RRI expertise.

At the second table the issue of ‘Institutionalisation of RRI’ led to the following discussion results:

- One possibility of institutionalizing RRI is the recognition/integration of RRI in the current academic system.
 - In academia this means there would need to be a system to include RRI meaningfully in the performance indicator system (knowledge databases, evaluation, etc.) and reward universities for their successful RRI activities, particularly in the negotiation processes with the science ministry (in Austria, universities get their basic funding from the science ministry based on several indicators, RRI is not included there yet); this means performance indicators which can be seen very critically from an RRI standpoint would have to be developed to fit the RRI context. One big problem is that university employees could see RRI as another administrative task they have to do in an already administrative-heavy university regime.
 - RRI would have to be included in research and teaching activities in universities and universities of applied sciences. Cooperation with students could help RRI to get a broader basis, but there is also a danger of outsourcing RRI to students or that students – who are dependent from their professors at universities – are exploited.
 - RRI could be included as a topic for a professorship, like innovation research or science, technology and society studies – this could promote the institutionalisation quickly (also via teaching curricula etc.), but there is the danger that it would reduce RRI to a theoretical concept and exclude the implementation parts.
 - RRI-offices in universities could offer support (like already existing gender equality offices or research support offices in Austrian universities) with consulting but also acting in projects. With this approach, RRI would add ‘responsibility’ to the ‘third mission’ of universities.
 - RRI must be included in criteria for research funding (this leads back to definition of RRI and conceptual discussions).
- A second option would be the integration of RRI into already existing R & I institutions, the best possibility being to so-called transfer centres (like ‘F&E Haus’ in Graz). And it should be learned from good examples, also from abroad (ORBIT, CUREC, etc.) – not always in terms of RRI, but how institutionalisation can be fostered, funding received, etc.
- Another possibility would be establishing competence centres, like with knowledge labs (“Wissenschaftsladen”, etc.).
 - They could be organised like companies (then they have to earn profits) or associations (then they could rely on public / research funding / sponsoring).
 - Alternative financing strategies like crowd funding, crowd financing, etc. have very distinct prerequisites and consequences, which have to be proven in detail.
 - Despite the organisational type, there is a need for a business plan – arguments for RRI are needed (why should anybody invest? What is the concrete offer of the organisation?).

- Competence centres could earn money with RRI certificates (either for persons or processes). The problem hereby is that again indicators would be needed, the very indicators RRI is generally very critically of (because it favours open processes, inclusiveness etc.).
- Regardless of how RRI would be institutionalised, the participants in RRI processes always need to be remunerated. Non-financial remuneration ideas like promotion (being named or with a photo in the local newspaper, etc.), meeting a prominent person, etc. could be the right incentive for single persons, but it is not a valid strategy for many. A voucher system has to be very smartly organised (should reinforce the RRI goals and fit the research topic, like sustainability, social justice, gender equality, ethics, regionality etc.) and be broad enough to really bring value to the participants (people should have the option to buy local products for their daily needs). As the establishment of such a voucher system would need time and resources, money has been seen as the best rewarding strategy, because it is freely available and can be used for one's own needs.

4.2 General feedback on FoTRRIS Transition Experiment(s)

Participants stated that reflexivity, which is the centre of the impact, is almost always invisible. At the same time, all gained knowledge from that reflexivity is important. But these reflexivity processes are not valued enough, and thus not funded by research funding, so there are not enough resources available for these processes.

A good and thorough documentation could foster reflexivity.

First of all, academic research (conducted at universities) has to be distinguished from industrial research and innovation at companies. Universities have existing structures, where RRI could be integrated (research offices etc.).

RRI-events and further education should be offered to employees.

RRI must become a cross-sectional topic, and needs community networking activities beyond organisational borders.

As long as CoPs are discussing ideas and concepts the different interests and competencies are valuable for diverse discussions, but when RRI comes a step closer to actual implementation, the subliminal conflicts of interests become more and more explicit. Thus the thematic openness and diversity of participants is very helpful for a creative idea finding phase, but can be hindering later.

Another challenge is to inspire the participants to think outside the box and not always within the existing system limits, so that the whole economy and political system can be challenged.

To sum up, one of the most important feedbacks from the experts was that part of the CC's critical reflection of the impact of the Austrian experiment could be revised.

First, because researchers might tend to focus on the criteria where the impact was not that high (influencing the Austrian R&I system generally; receiving further funding for the co-RRI experiment; etc.), while the positive impact (creating several project ideas, one or two actually ready to be implemented; establishing a community of practice; stimulating the researchers' practice outside the experiment; co-producing knowledge with diverse actors; etc.), is always underrated. Or as one expert stated: "This sounds rather like a success story to me!"

Second, the expectations might have to be adapted, a point stated by the experts during the world café discussion about how to integrate co-RRI sustainably into the Austrian R&I system. The key message was: "You have to think smaller! Your RRI-experiment has the size of a flea in comparison to the Austrian or European R&I system." The experts agreed on the importance of this transition experiment as most of the RRI research so far is rather theoretical and lacks the empirical data to actually assess its possibilities. With this transition experiment an important first

step has been taken, and this should be valued. This single co-RRI transition experiment cannot be expected to change the whole R & I system at once.

4.3 Assessment of impacts

Within the three groups, the output of the discussion was as following:

1. Which kind of impact is of special relevance when having the intention to change the R&I system in the direction towards RRI?
 - Integration of representatives of the R&I system: directly or on a process level. The FoTRRIS project is too small and too short to have strong impacts on the R&I system: the claim for changing the R&I system is too ambitious, thus, “mini-steps”, which are certainly there, get lost. The TE can be seen as a feasibility study, upon which one can build on, but not more than this.
 - Both, bottom-up and top-down is necessary ⑦ bottom-up needs to become top-down: important decision makers to be involved
 - Creating awareness that there exist alternatives to the status quo.
 - Project-upscale necessary, e.g. citizens conference
 - The project could be boosted by involving more people.

2. Which additional impact category would you consider as relevant? On which kind of impact could a similar project be measured? Are important impact categories missing? If yes, please add them.
 - Awareness raising for RRI

3. How could the impacts be raised?
 - A greater number of participants from very different disciplines would lead to a greater impact: the question is, how to motivate/integrate more people into these processes.
 - To answer the question about (additional) impact categories, one needs to define what “in the direction towards RRI” means. The definition of RRI needs to be fixed in order to generate additional questions and to define objectives and goals.
 - The (pre)definition of RRI is too broad, it seemed impossible for the participants to answer the question (“monster question”).

 - Reflexivity (reflection phases) is very important, there is still the need to question the normative approach of RRI.
 - The claim to change the RRI system through a small project is huge. Some participants stated that maybe also (personal) expectations about what can be reached by RRI are too big.
 - Questions should be answered: What stage are we at with the concept or RRI? What do we mean by innovation? Where does innovation take place?
 - RRI should be seen as a continuum and in relation to its context (‘Kontext-Relationalität’)
 - RRI indicators vs. RRI as a process
 - There exist different R&I systems, not only one system
 - RRI should be seen as a different type of doing research (excellence-paradigm), some elements are always left aside
 - R-R-I should be split into R-R (responsible research) and R-I (responsible innovation), this would lead to a much more differentiated discussion and implementation

 - Capacity building: strategies for involvement of additional people → inter- and transdisciplinary
 - Public engagement
 - Sufficient time and resources

- Dissemination of results: also towards political decision makers
- Who is positioning innovative practices?
- need for exchange of experiences
- Reflexivity as additional impact factor is missing; reflexivity is sometimes invisible (implicit and subjective) → does documentation/transparency lead toward a destruction of reflexivity?
- Not to exploit everything

Comments to the graph about the impacts (from group 2):

- Do incentives/remuneration lead to independent cooperation/action in the sense of RRI?
- co-RRI community building (is in line with capacity building):
 - Is this sustainable?
 - Differentiation of diverse stakeholders → Could change be achieved? Have communities been reached? (see question 1: need of involvement of people from the top-down level)
 - Provision of real-world-structures: e.g. associations, consulting, etc.
 - Other R&I activities/projects: Which topic? Which size? Which number?
 - Spill-over to other areas! E.g. 2011 there were 3.384 research performing organizations and 61.171 fulltime equivalents in research and development in Austria
 - Innovative practices need a wide spread
 - Capacity building: Whom? What? For which purpose?

4.4 Regional insights how to foster co-RRI

“You have to think smaller”: it is considered to be very unlikely that the whole R&I system could be changed at once, thus it is important to take small steps by practically implementing RRI in small activities, such as in the FoTRRIS transition experiments. Even if such activities are only micro events within the whole R&I system, they are important to raise awareness, to build capacity, to show how the implementation of RRI can work, and which benefits (and challenges) may go along with more RRIness.

Capacity building could not only take place in learning by doing, but it also would be important to offer trainings and to include RRI in teaching courses at Universities (and other higher education institutions). In order to guarantee continuity, trainings and support for RRI activities should be institutionalised. This could be realised by integrating RRI units in already existing organisations (e.g. universities) or by setting up new institutions, which would then offer their services to the whole RRI community, thus including non-formal knowledge actors. Finally, networking and a forum for the exchange of experiences and good practices may contribute to capacity building and also foster spill-over to other R&I areas.

Taking a genuine bottom up approach, by including societal actors already in conceptualising R&I activities and the step-by-step process accompanied by facilitated reflection, has been considered as particularly relevant for RRI, if it calls for co-creation. A structured process, which includes reflection as a fixed component, provides resources and room for it, and thereby it grants a higher value to reflection (which is usually neglected).

Even if bottom-up activities are considered to be important in the context of RRI, top-down governance might also be necessary to transform the R&I system. Support from the top (e.g. policy makers, high level management persons in R&I institutions) helps to create favourable framework conditions for RRI (e.g. funding, evaluation, formal acknowledgement) and thereby facilitates the up-scaling (and even mainstreaming) of RRI. This fact should be considered for involvement plans as well as for strategic communication and tailored dissemination activities.

Even if it is appreciated that the concept of RRI needs to be flexible to be adapted for the different R&I contexts, and to be discussed by actors engaged, there is also a need to (pre)define to a certain degree what RRI means. This is relevant for ensuring a certain quality of RRI activities, as

well as to guarantee a standard in regard to RRI expertise of actors implementing or facilitating RRI processes. Otherwise RRI could be mainstreamed or even instrumentalised without featuring a real difference to common practices: everything might be easily called “RRI” or anybody might become an “RRI expert”. Finally a clear definition may make the concept more tangible for “newcomers”, and it also helps to better target the purpose of capacity building.

A similar ambiguity lies in the normative connotation of RRI: on the one hand it clearly implies considerations about values and norms, on the other hand it adheres to potential conflicts, which makes the process challenging or even possibly unresolvable.

Another issue to be considered refers to an existing variety of R&I systems, and the arenas for R&I: While within mainstream R&I relevant expertise and the process ownership is clearly ascribed to formal R&I institutions, such as Universities, RRI may also mean extending the places of action to more informal knowledge actors and related institutions. This is of more relevance for innovation than for research. Consequently it would make sense to differentiate between discussions around the concept and implementation of RRI between responsible research and responsible Innovation.

Finally, RRI also needs adequate acknowledgement and remuneration or non-R&I community actors, which might be monetary or non-monetary. While non-monetary remuneration needs to be chosen very smartly and could be used to contribute to RRI goals (e.g. vouchers from social and sustainable enterprises), it was concluded that money fits all, thus it is the most tangible incentive. However concerns were also raised by asking if incentives and remunerations might eventually contradict independency and cooperation in the sense of RRI.

To summarise, the up-scaling of RRI may happen by means of various strategies to be tactically combined: awareness raising, capacity building, the involvement of additional participants from various relevant societal groups, the replication of micro-experiments, and strategic alliances with decision makers open for the idea of RRI.

4.5 Workshop Agenda

Wednesday, July 12th 2017, 10:30 – 18:00, IFZ, Schlögelgasse 2, 8010 Graz

11.15-11.45	Welcome; presentation of participants and agenda
11.45-12.15	Presentation of the project FoTERRIS and implementation of transition arenas, the Austrian example
12.15-13.15	Discussion of the relevance of the FoTERRIS transition experiment. Discussion towards more co-RRI-ness in the local/national R& I landscape
13.15-14.45	Lunch in the restaurant “Gaumenkino”, Gartengasse 28, 8010 Graz
14.45–15.15	Presentation of the framework concept for co-RRI and presentation of the scenario resulting in the FoTERRIS transition experiment
15.15-17.45	<p>How might a transition towards more co-RRI-ness in the Austrian R& I landscape look? Discussion of the question based on different presented scenarios</p> <ul style="list-style-type: none"> ● World café ● Sharing of results <p>(incl. coffee break)</p>
17.45-18.00	Closing remarks and outlook

5 Belgian validation report by Anne Snick (VITO)

5.1 Introduction

This report is based on both the Outreach workshop itself and on various contacts the team had with actors in the Flemish R&I field before and (mainly) after the Outreach workshop.

The Flemish Outreach workshop was co-organised by the Royal Flemish Academy of Arts and Sciences of Belgium (KVAB) and the H2020 project FoTTRIS ('Fostering a Transition towards Responsible R&I Systems'). Previously, on September 6th 2016, the KVAB had hosted a 'Focus on RRI,' organised together with the Flemish department of Economics, Science & Innovation (EWI) and the King Baudouin Foundation. At that occasion FoTTRIS' conceptual framework – its specific approach of 'responsibility' in R&I – was presented and the application of its methodological framework³ was demonstrated. This event has established a basis for further cooperation for the uptake of RRI in Flanders, and since the FoTTRIS project defines RRI basically as co-RRI, the coproduction of the outreach workshop with the KVAB was not only in line with our vision, but also strategically important.

In the workflow of the FoTTRIS project, the Outreach workshop was preceded by a Transition Experiment (TE) run in the city of Antwerp, which addressed the threat of materials scarcity. This TE was run by (a prototype of) a co-RRI Competence Cell, which facilitated the co-creation of research project concepts by the 'quadruple helix' of stakeholders. These projects were aiming at two specific goals, viz.:

- How to guarantee quality housing for all, given the scarcity of building materials?
- How to guarantee domestic comfort for all, given material scarcity in the field of small household electrics and electronics?"

A series of three transdisciplinary workshops resulted in project concepts, even though the time available for the whole trajectory was limited. The 'competence cell' has thus proven to be a valid mechanism for facilitating co-RRI, albeit of course only one of many possible mechanisms. The TE offered a proof of concept and demonstrated that co-creative processes indeed produce a valid R&I project (concept).

The Outreach workshop itself was approached as a co-creative process with a broad focus on the problem of 'transitioning towards an RRI-system,' exploring lock-ins and potential leverages for RRI. Although this focus was broader than just 'validating' the competence cell concept as a leverage for co-RRI, the outcomes offer a lot of insights into the need or support for this kind of structure, its possible mandate and sources of financing.

The initial goal of the Outreach workshop was to explore what kind of support there is for (a competence cell supporting) RRI in Flanders. However, given the strong response to our invitation, we recasted this to 'exploring how to *strengthen* the existing support for co-RRI in Flanders'. The possible scenario of 'establishing a competence cell' was validated in an open way; if a competence cell was not seen as the most important leverage towards co-RRI uptake, the workshop was designed in such a way that other scenarios (deemed more powerful) would be revealed.

As the meetings and discussions in the lead-up to the outreach workshop revealed, in spite of the broad willingness in many R&I institutions to 'join the SDG partnership', the task of adapting the

³ MISC - Mapping Innovations on the Sustainability Curve is a framework for co-creative, transdisciplinary (inclusive) processes with participants representing stakeholders from the quadruple helix (business, CSO's, public services / politics and academia); it allows to explore leverages for obtaining a better balance between resilience and efficiency with a view to various systemic goals.

R&I system accordingly is overwhelming. The reason is the strong institutionalisation of a specific paradigm, research infrastructure, policy support, etc. These factors together function as a complex system. To change the system's behaviour towards more 'responsibility', therefore requires a systemic change.

The Outreach workshop brought together participants (54% men and 46% women) from various backgrounds⁴:

1. Policy: Flemish administration of Science & Innovation (EWI) and the administration of Environment, Nature & Energy and Spatial Planning (Omgeving), and one of its entities, the Flemish Public Waste Agency (OVAM)
2. Fund for Scientific Research (FWO)
3. Universities (all 5 Flemish universities were invited; 4 were present); including staff from central services (vice-rector or administrative) and researchers active in the fields of RRI, sustainability or transdisciplinary research. (Two of the researchers had also participated in the FoTRRIS TE.)
4. Strategic Research Centres (SOCs); 2 of the 4 Flemish SOC's were present.
5. University Colleges ('Hogeschool'), including staff from central academic services as well as (teaching and research) staff on sustainability, new economics or action research.
6. Civil Society Organisations (CSO's) active in co-creating knowledge, commons based initiatives and innovation for sustainability.
7. Economic sector: some University Colleges offering economic degrees (for a new economy).
8. Young Academy – the researchers and academic leaders of tomorrow.

During the breakout sessions groups were mixed (as much as possible) in terms of profile. Moreover, people coming from the same institution were spread over various groups. For the second session the groups were re-mixed, so as to allow participants to hear a variety of voices as wide as possible.

5.2 General feedback on FoTRRIS Transition Experiment(s)

Since the workshop was 'reaching out' to other participants than those of the TE, two measures were taken to allow them to validate the co-RRI approach. On the one hand, the results of the TE were communicated – some of the participants of the TE also participated in the outreach workshop. On the other hand, the co-RRI process was reiterated for tackling the complex problem of changing the R&I system (addressing not just the challenge of materials scarcity, but all current systemic problems). By tackling the challenge of 'R&I systems change towards sustainability and responsibility' the participants acquired an 'experiential' understanding of the process that the TE (and co-RRI in general) encompassed.

The TE and the validation not only refer to the co-RRI competence cell (or 'transition arena'), but also to the potential of its integration in R&I systems and, as a consequence, its transformation. In other words, the final 'mechanism' for fostering the uptake of co-RRI may be the competence cell as it was prototyped during the TE, or it may be a 'transformed' version of it that could have more potential to integrate in the existing R&I system. This is indeed what we found in the Flemish validation process. In summary, the FoTRRIS concept and methodological framework were validated as very relevant and innovative, while the concept of a 'competence cell' should be seen as a platform strengthening the self-adaptive capacity of the R&I system.

⁴ The team of facilitators had backgrounds in sustainability research, design, facilitation, economics and systems thinking.

In terms of the concept and methodological framework FoTTRIS proposes (and which is facilitated by a ‘competence cell’), the participants mainly judged it to be relevant to the big challenges. They also agreed that the FoTTRIS approach is quite unique, as it does not treat RRI as an add-on to traditional ‘silo-research’, but stresses the systemic complexity of the R&I process and the sustainability goal of RRI. They also agreed that the TE’s methodological approach helped them to map (systemic) barriers, opportunities, and leverages for a transition of the R&I system.

As an example, the Fund for Scientific Research (FWO) gave us the following feedback.

“Participation in the workshops of FoTTRIS was a very interesting exercise, from which we learned a lot. (...) [c]oncerning Responsible Research and Innovation, FWO is very attentive when it comes to issues like research ethics and research integrity. Policies and procedures are put in place and we do follow-up on the evolutions nationally and internationally. We do see, however, that RRI involves new challenges and questions we should respond to. Therefore, FWO will seize the make-up of its new strategy and policy plan in the course of 2018 as an opportunity to consider these new issues and to include them, wherever possible, in that exercise. It might be useful to continue our discussions in that context. We look forward to that occasion.”

Other participants, especially from University Colleges, confirm the relevance of the FoTTRIS approach, and – shortly after the Outreach workshop – have expressed their interest in applying it in workshops with their students, teachers, and central administration. This shows that participants consider the presented concepts/processes useful and applicable for their/other contexts.

5.3 Assessment of impacts

The participants all agreed that the transition towards RRI is absolutely necessary. They mentioned the lack of courage among most actors (political, academic) to face the urgency of the transition, and explored what leverages can have a positive impact. They expected the biggest impact from a shift in mindset. “Education is the silver bullet” as one of the participants worded it. As long as researchers stick to the prevailing view on R&I as a means for growing competitiveness and financial gains, co-RRI will not become mainstream. Therefore education and changing the goal of R&I are the main leverages.

This assessment was not only stated verbally during the outreach workshop. In the weeks that followed on this workshop, one University College in Ghent stated that they had decided to make RRI (R&I aiming at sustainable development goals) the central theme of their research agenda. They asked the FoTTRIS team to set up an inspiration session for students, teachers, and administrative staff. Other University colleges also expressed their interest in changing the goal of their research agenda, and asked the FoTTRIS team to facilitate workshops with their staff.

Yet, many participants also expressed the need for a ‘platform’ that stimulates researchers to leave the trodden path and to engage in complex, transdisciplinary research. The role of this platform is not so much to offer a ‘one stop shop’ service to researchers desirous to engage in RRI, but rather to be a forum that can reinforce the ‘capacity for self-organisation’ of the R&I system.

5.4 Regional insights on how to foster co-RRI...

How could a transition towards more co-RRI-ness in the (local/national) R&I landscape be realised? In Flanders apparently the most impact can be expected from joining R&I institutions in a platform that stimulates them to evolve towards RRI. This is deemed more effective than providing RRI as a (‘one stop shop’) service offered by an independent competence cell. Most of the participants have expressed their interest in ‘next steps’. Therefore the follow-up of the outreach

workshop in Flanders mainly consists of exploring what kind of institutional framework can be found for facilitating this process of ‘self-adaptation’ and ‘collective learning’ of the R&I system. This combines two strategies. On the one hand, forces are joined with existing initiatives, e.g. an earlier government initiative on ‘sustainable higher education.’ In addition to this, we stimulate various actor to learn from each other. Examples are university colleges that shift their research agenda towards sustainability (even if they may not call this RRI, it requires the same leverages), and that share ideas and initiatives. A co-RRI workshop in the HoGent (university college) will be attended by two administrators of Artevelde Hogeschool (another university college).

On the other hand, these bottom-up initiatives can be strengthened by support from centralised institutions. The Fund for Scientific Research (FWO) has already formally expressed its intention to “seize the make-up of its new strategy and policy plan in the course of 2018 as an opportunity to consider these new issues and to include them, wherever possible, in that exercise”.

The Flemish Administration of Economics, Science and Innovation have expressed their willingness to explore what role they can play in further supporting these evolutions in the R&I system. The Flemish Interuniversity Council is also looking into this. Both colleges that are adapting their research agenda (with the help of FoTRRIS) are ‘showcased’ by the Flemish administration (department of Environment) as good examples. This same administration is taking steps to engage other actors (among others via a ‘summit on sustainable higher education’ in Brussels on 17-19 October 2018). A FoTRRIS team member has been invited to join this endeavour as an expert, because the FoTRRIS approach and methodological framework are recognised as very adequate for the enormous challenges our societies face.

... in specific R&I contexts (according to participants’ fields of activity).

- It is clear that university colleges that are already organised around thematic lines (uniting various disciplines) and experienced in action research, are the most resilient in terms of adapting their research agenda.
- For universities it appears that the ranking system may create a ‘prisoners dilemma’. No university or research unit will take the ‘risk’ of committing itself to RRI (which is not yet the decisive parameter for university rankings or research evaluation), so they will ‘wait for the others’ to take the first step.
- For the Strategic Research Centres it is harder to change because they have a strong focus on technological innovation, with less systemic questioning of the environmental (mining and entropy) and social (making scarce, non-renewable materials unavailable for future generations) impacts. Also their business model is based to a larger extent on economic valorisation of new technologies (e.g. through IP) than is the case with universities or colleges.
- CSO’s are mainly frustrated with the slow pace of the R&I system to change itself, or its unwillingness to change. They ask to support actors outside of academia that increase the pressure to bring about a transition. As these actors (outside of formal knowledge institutions) could be seen as frontrunners in a transition of the R&I system, there is no need for them to ‘adapt’ or ‘evolve’. But what is needed, indeed, is that formal institutions (at political and academic level) recognise their expertise and support it.
- Economic actors (e.g. in the Circular economy) on the one hand understand the need to stop extracting resources and dumping wastes at a faster rate than ecosystems can regenerate and absorb, and they mostly also understand the concept of ‘resource justice’, but they are mainly locked in by the ‘belief’ (assumption, mindset) that economics must necessarily be growth oriented and (therefore) extractive. For them the FoTRRIS emphasis on regrowth and on the emergence of non-extractive (or even generative) economic models is very novel. Their learnings and innovative practices are situated mostly at that level. The FoTRRIS model of

valorisation in Flanders (with knowledge vouchers) is a strong example of generative economics, but is still a 'work in progress'.

... addressing the most important actors who should be engaged.

Given this diversity, it is crucial for the FoTRRIS team to engage with various actors in different ways.

- With the Flemish administration (EWI), the Flemish Interuniversity College (VLIR) and the Fund for Scientific Research (FWO), FoTRRIS will explore how they can stimulate and reward research units and universities to adopt co-RRI.
- We participate as experts in initiatives on sustainable higher education by other Flemish administrations and facilitate workshops with university colleges.
- We engage in a long-term dialogue with a representative of the Strategic Research Centres, knowing that this process will take much more time. The main goal is to make them aware of the sustainability (and responsibility) issues related to high-tech innovations, and to facilitate as much as possible their capacity to evolve, e.g. by introducing them to international experts or initiatives.
- We also talk with experts in the circular economy, which gets a large amount of support from both national and regional governments, to stimulate them to include generative economics and regrowth in their initiatives.

... addressing the most important mechanisms that should be tackled in order to bring a change in the current system

- To facilitate the transition, the continuity of this mutual learning process and dialogue among all actors involved in R&I is important. There is a risk that every institution proceeds with an 'internal' reflection on what they can do to engage in co-RRI, and comes to the conclusion that they are powerless. A system-wide approach, with actors from various corners of the system inspiring each other, is what is needed for the system to evolve. Therefore, in the follow-up of the outreach workshop the FoTRRIS team is exploring with various actors what institutional framework could be established (after the FoTRRIS project no longer offers this frame). If the role of the 'competence cell' is to foster the uptake of co-RRI, then this new institutional framework (or platform) could well be the validated and 'adapted' form of the competence cell.
- Other important mechanisms are:
 - education, shaping the mindset, values, ethics and paradigm of (future) researchers.
 - goal of the R&I system; the fact that various Flemish actors (i.e. university colleges and FWO) start integrating sustainability in their research agenda and policy may trigger a domino effect with other actors.
 - the capacity for self-adaptation: a transition cannot be imposed upon a system, but should reflect the capacity of the R&I system to adapt itself to the current context of planetary needs and SDGs.
 - other leverages (finances, rewards, metrics...) can support this and bring additional feedback loops.

- Also funding is an important leverage, but the risk is that it leads to a superficial interpretation of RRI ‘to get access to the money’. Therefore, funding is not sufficient in and of itself, but should be supported by other (more ‘powerful’) leverages; cf. above.

5.5 Workshop Agenda

FoTTRIS – Outreach Workshop Brussels 07/09/2017

13:00	Registration and welcome drink (Marble Room)
13:30	Welcome – Explanation of FoTTRIS (Stevin room)
13:45	Introduction: What is co-RRI? Why today? Insights from the Transition Experiment – How to create even more support for co-RRI in Flanders?
14:15	1st Break-out session Mapping obstacles for co-RRI today (four tables with mixed groups of participants in small rooms)
14:45	Reporting on the main lock-ins (Marble Room)
15:00	Coffee Break (Marble Room)
15:30	2nd Break-out session Mapping of possible leverages for next steps towards co-RRI – validation of a competence cell (tested via the TE) as a potential leverage (four tables with re-mixed groups of participants in small rooms)
16:00	Reporting on possible scenario’s, leverages & policy preconditions – conclusions on desirability, task and feasibility of a competence cell (Speakers’ Corner – Marble Room)
16:20	Evaluation and concluding discussion (Marble Room)
17:00	Network drink (Marble Room)
18:00	End

6 Hungarian validation report by György Pataki and Zoltán Bajmócy (ESSRG)

6.1 Introduction

The Hungarian Transition Experiment (TE) case is about community-based local economic development (LED). ESSRG researchers worked together with local community members of Wekerle (a garden city neighbourhood located in Kispest, Budapest) with the support of the competence cell in order to discuss and co-design a LED plan for Wekerle. Wekerle belongs to the global Transition Town Movement and they have been initiating many grassroots activities targeting sustainability transformation.

Participants of this workshop included invited experts (new to the FoTRRIS process), local community members, competence cell members, and the organisers (ESSRG researchers). 12 experts were able to accept the invitation and be present at the workshop. Half of them are researchers who practise participatory research. Four of them are transition practitioners working with communities on sustainability transformation. Two experts represent government agencies: an expert of planning and an expert of innovation policy. Invited experts were suggested and selected by members of the competence cell and ESSRG researchers.

Local community members received an open invitation much like previous workshops. Finally, 15 members of the local community, including local government officials, local media, civil society organisation representatives, local entrepreneurs, and citizens, attended the event.

Out of the 9 competence cell members, 7 were present. 6 researchers of ESSRG provided facilitation, note-taking, and other tasks of hosting the workshop. One of the film-makers was also present in order to assist the discussion on the film premier of the “Wekerle Local Economic Development” FoTRRIS process.

Altogether 41 participants attended the fourth workshop of the FoTRRIS process in Hungary. The workshop venue was the same as for all previous workshops, that is, the Wekerle Library and Cultural House where community events usually take place in Wekerle.

Competence cell members and ESSRG researchers developed together the agenda for the workshop. The main aim was to provide space for reflection upon the FoTRRIS process from five particular dimensions, which were transparency, inclusion, power to influence, adaptability (flexibility), and knowledge combination. After the introductory part, the first major part of the workshop was devoted to group work. Participants were grouped in homogeneous groups of three: a group of invited experts, local community members, and competence cell members. Then, they discussed all five dimensions and formulated the main lessons, best practices known, and opportunities to be tapped regarding each dimension.

During the second main part of the workshop, 3 tables of a world café discussion were organised, arranging participants in heterogenous groups. The 3 topics were the following: new roles required by co-RRI processes, compensation mechanisms for participants of co-RRI processes, and feasible co-RRI models in the Hungarian context.

6.2 General feedback on FoTRRIS Transition Experiment(s)

Transparency

Invited experts shared their suggestions that in order for a participatory process to be transparent it is necessary to have milestones with reflection upon where the process is, what were the achievements, and what is coming next. Results therefore become clear to all participants and are possible to monitor.

Competence cell members evaluated the process as methodologically clear and transparent. What was less transparent was exactly what invited experts raised as significant, that is, the substantive achievements of the FoTRRIS process. It was not clear what would be the end of the process and what were the expected outputs/outcomes. The overall FoTRRIS project aims were not of primary importance to the local actors. Their main motivation was to bring about beneficial changes in their

particular local context (i.e. a feasible LED). This ambiguity also influenced the role of experts as they felt real uncertainty regarding what was expected from them as experts. In a sense, competence cell members perceived themselves as “outsiders” of the process and they had not become “insiders”.

Invited experts also suggested that communication should be carefully designed to be compatible with target groups. The facebook group established for the FoTRRIS process as a communication tool to the target group of local community members was judged to be a compatible (i.e. good) choice. Relatedly, an open process was preferred where potential participants might enjoy the possibility to join at any stage and any time.

Local community members claimed that such a transparent process automatically selects those local participants who have public commitments and, in contrast, disfavours those ones who do not want to make their interests public. There was a shared view that local business people were relatively absent due to this transparency issue since they typically do not want to make their stakes and interests public and open to discussion.

Inclusion

In each homogeneous group, discussion touched upon the issue of whom should be involved. It is not at all obvious that every kind of stakeholder should always be invited. Some may not want to participate even if invited. In the case of a local economic development (LED) project, various issues of inclusion should be deliberated, including: who are the members of the local economic community? Do they really want to be included under the same “umbrella” of LED? Can one really expect that all types of social groups will be involved/engaged?

Invited experts emphasised that many answers to these questions depend upon the characteristics of the community in question and the stage of the process. However, the starting point of all co-RRI processes should be the formulation of local needs, wants, and expectations. A community survey, executed by researchers together with local community members, may serve this purpose well. Frequent events organised by the community can be used as occasions for reaching out to more local actors. The FoTRRIS process at Wekerle was judged to be particularly successful regarding the involvement of local media – they followed and broadcasted each workshop.

Invited experts also highlighted the importance to reach out to vulnerable and “hidden” social groups since they are typically missing in participatory processes, except if special efforts are done, such as targeted tools employed to engage them on their terms. However, it must be noted that the local context is special in this respect. Local actors were sensitive to many aspects of marginalization. Many times, these considerations emerged during the discussion and participants considered them to be important (e.g. increase social justice towards low-income people, people with different abilities and special needs, or children). Nevertheless, these groups were not directly represented during the workshops. In addition, there were certain voices that seemed to be totally missing (e.g. the consideration of those people who had moved recently to Wekerle and do not actively take part in community events).

Adaptability (flexibility)

This dimension means that the process is flexible enough to accommodate emerging needs, wants, and changing expectations as the process unfolds. An important lesson is that, at the beginning of the process, expectations should be clarified as much as possible and provide room for reflection whether they are still the same or changing during the process. There was a general view that the FoTRRIS process was too flexible, that is, in some sense, lost its frame, partly due to the narrow timeframe compared to the broad topic chosen. In-between workshop events were judged to be successful due to accommodating new topics from emerging interests and needs for learning by local actors. These events were inspired by collective learning during the FoTRRIS process, and this type of flexibility or adaptability is considered as a positive feature of a co-RRI process. Relatedly, this is a clear sign that researchers’ interests were not dominating local community members’ interests. It is again a feature mirroring an important trait of co-RRI.

Invited experts emphasised that there should be a delicate balance between the aim of the process and emerging needs/wants during the process. Here, a point of reflection can be provided if achievements are celebrated as milestones during the process and next steps discussed together in the light of the aims as initially formulated.

Power to influence

It seems to be a broad agreement that the power to influence the process was balanced between experts and local community members. However, researchers of ESSRG had a special knowledge about FoTRRIS as an EU project, the understanding of which was lacking both to competence cell members and local community members. It is a lesson that discussing the larger frame (the EU project) and the implications of this frame (e.g. deliverables, timeframe) may be better done prior to the actual co-RRI process.

Competence cell members perceived the lack of their knowledge of local conditions and previous/ongoing local initiatives as a constraint to their effective contribution. It seems that more support should be given to experts to find their specific role and space for effective expert contribution.

Invited experts suggested that process facilitators have a special role to design situations and processes deliberately in a way that clearly contributes to balancing the power each actor group has to influence the situation. .

It also became clear that actors can hardly be characterized by their sector in the quadruple helix. This is not only due to the fact that many belong to more than one segment. It also occurred that actors took part in diverse and mixed relations and roles. There were actors who, as key actors locally in sustainability transition actions, had clear expectations towards the process and therefore had high stakes. In addition, there were other actors whose attitude and motivation to participate was driven by curiosity, and so their stakes were relatively low (especially, compared to the former group). In other words, the usability of the possible outcomes and success of fulfilling participants' expectations were not equally important to all the actors.

Hence, some of the prerequisites of an authentic dialogue were not fully satisfied: (1) there were actors for whom staying away was a good option, due to not having stakes or due to their ability to further their own ends without this collaboration (e.g. enterprises); and (2) there were actors for whom participation seemingly did not occur as an actual opportunity (e.g. certain marginalized groups). Thus, the process was very biased towards middle-class, highly educated people with a positive attitude towards sustainability.

During the process actors participated more as citizens than as representatives of different organizations (while these two are not fully separable). In a citizen role, people are more likely to be multi-rational: focusing not only on self-interest but also on the common good. This opened up opportunities for discussions (e.g. the vice mayor did not have to stick to the official standpoint of the city), but it also caused a bias towards consensus-seeking or simply abandoning potentially conflicting issues. Maintaining good relations with other community members may have been more important than communicating, or debating, someone's alternative ideas or values.

This created a friendly and cooperative atmosphere which, at the same time, could hide certain internal power relations. Those with less stake could have easily joined the consensus which would then reflect the opinion of the local key actors. The less popular opinions could have been easily marginalized, too (e.g. those criticizing the middle class "lens" of citizens, or pointing to the responsibilities of the well-organized local community towards those newly moved in).

The orientation towards consensus instead of drawing attention to conflicting points was also an implication of the project's point of departure (i.e. MISC approach). This could be easily maintained while talking about abstract future possibilities. However, when discussions moved closer to actors' everyday reality and short-term interventions, conflicts and hindrances started to dominate discussions. The everyday reality of actors is not about "regime" and "niche" actors (terms of MISC approach) working hand-in-hand for joint future goals. Most of the participants did not find this assumption of the process design convincing.

Combining expert and local knowledge

This topic raised a lot of questions. The local community members group wondered whether local knowledge should be treated and valorised as a type of expert knowledge, blurring the boundaries between experts and non-experts. There might be types of expert knowledge that are absent in a specific local community, and so a process like the FoTTRIS one may focus upon bringing those in while at the same time, building upon the existing ones.

The language used particularly at the first workshop, following the terms of the MISC approach, was judged to be too scientific, abstract, and even counterproductive to free, enabling, and inclusive discussions to diverse actors.

While local actors considered themselves as knowledgeable, still many of them seemed to be puzzled when researchers and the competence cell members largely refused to play a conventional role scientists expected to play and stated that most of the knowledge needed is possessed by community members. There were high expectations towards researchers and competence cell members to provide expertise in the conventional sense (e.g. writing reports, providing clear solutions, etc.).

Competence cell members perceived that they were constrained regarding the power to influence the process due to their missing awareness and knowledge about local conditions and relevant initiatives or achievements by the local community. It seems that it cannot be expected that experts by themselves (within a relatively short timeframe) will find their own roles and spaces for effective contribution to a co-RRI process – they might need more guidance (as well as more time) than ESSRG researchers have expected and assumed.

6.3 Assessment of impacts

Though at the fourth workshop there was no specific time devoted to discussing the actual, expected or unexpected impacts of the FoTTRIS co-RRI process in a structured way, during the deliberation some issues related to actual impacts were raised.

One of the most tangible outputs of the FoTTRIS process was that local community members have become motivated and enthusiastic about social entrepreneurship and developed four social business proposals to an open application of one of the commercial banks. The FoTTRIS competence cell involved two experts of social business who were clearly instrumental to these outputs through sharing their knowledge and providing information on opportunities to develop ideas further in a structured application process. Even though only one of the four proposals was successful at that specific application, another one has been implemented and started its operation. There is a good chance (via ongoing organising) that the other two will receive further impetus and advice by relevant experts in the near future. The seed knowledge and motivation for initiating social business, as well as connection to relevant experts, has been planted and developed in the fabric of the local community by the FoTTRIS process. Regarding impacts, it should be noted that indirect impacts, such as being connected and motivated to be entrepreneurial with a social/community mission, might later become as important as more direct ones (actually established social business) by one or two actors.

Another important achievement of the FoTTRIS process was that a more diverse group of local actors gathered together during the workshops compared to previous participatory events (organised in a grassroots fashion by local community members). It should be noted that the Wekerle local community has a strong civic and participatory culture and frequently practises participatory planning. However, they perceive that it is usually the same committed group of citizens, who are exercising their democratic rights via planning and doing bottom-up initiatives. The local government and its offices and public organisations rarely take part, and this was also the case for local businessmen and -women. The FoTTRIS process has been able to engage local government representatives to a larger extent than previously, and this achievement has resulted in strengthening personal relations and networks between local officials and local community members. The impacts of this social capital building will be seen in the future. In addition, some of

the local entrepreneurs participated in the whole process – the positive impacts of this involvement are again expected to be experienced later.

It is also important what lessons the FoTTRIS process has brought to researchers. Clearly, better understanding of how to put co-RRI in practice in the Hungarian context has been gained. It is evident how much language used in a process like this one is important for being inclusive and meaningful to diverse participants. The research group of ESSRG perceives that a significant impact has been made to clarify the identity of the research group vis-à-vis the concept of RRI or co-RRI. Further motivation and higher level of awareness have been gained regarding how to conduct research and how to speak about research.

6.4 Regional insights how to foster co-RRI

- How to adapt to new roles a co-RRI process may require from diverse participants?

Roles should be clarified (what are they?) and made transparent from the very start of a co-RRI process. However, they are not to be fixed. Opportunities should be provided to change them, experiment with diverse constellations of roles, as well as deconstruct and reconstruct them as seems necessary in order to go beyond conventional roles and the constellation of roles.

There is a heightened awareness that we are all experts. Expertise is not restricted to professionals of any kind but should be conferred to local actors, too. Expertise is widespread and diverse in nature – this fact should be highlighted and emphasised throughout a co-RRI process.

Simplicity is valued, specifically in the light of translation concerns between different knowledge systems. Co-RRI processes may constitute a co-creation of language for all to understand.

Researchers face the challenge to reflect upon the identity of being a researcher in a co-creation process together with diverse actors (incl. not professional researchers). Being a researcher is reformulated in a co-RRI process and most probably shared by more diverse actors beyond researchers as conventionally understood. Personal stakes enter into the picture (identity reformulation) and the conventional boundaries between researchers and other actors are frequently blurred to a large extent. They all teach each other as well as learn from one another. Research in a conventional sense ceases to be pursued and changes into a co-learning process. A co-RRI process thus requires multiple spaces and tools for self-reflection and identity negotiation.

Conflicts and disagreements are not to be hidden but to be turned into possibility to construct new roles, identities, and learn from each other. Skills for listening to the other, being patient, and being open to disagreements are highly valued and must be entertained in a co-RRI process.

- How compensation of taking part in a co-RRI process should be designed?

Compensation will be heterogenous and diverse according to the diversity of motivation of participants. Potential compensation may include the following:

- ✓ Social network extended and strengthened (incl. gaining new information, knowledge and skills)
- ✓ Trust between diverse actors (re-)built
- ✓ Joy of being together and co-creating something of a collective value (incl. intellectual joy)
- ✓ Achieving collectively valued results, generating tangible achievements, being proud of achievements
- ✓ Attachment to the community, community relations strengthened
- ✓ Voucher to be spent in valued local goods and services (local market exchanges strengthened)

- How could a transition towards more co-RRI-ness in the (local/national) R&I landscape be realised?

- ✓ Debating what we really need: a model vs a skeleton (framework)? A model might be understood as too universal, standardised, upscaled, etc. – it relates more to a higher level of decision making than the local one. A skeleton (framework) needs substance to be put on, that is, adaptation to the characteristics of a local context. It will keep diversity, in contrast to a universal, standardised, and upscaled model. A receipt might be needed for a useful skeleton (framework) but each co-RRI process will be substantively different according to diverse local contexts.
- ✓ The skeleton is basically a receipt, a fundamental guideline. One does not have to follow each detail of a receipt, there is room for change, creativity, and deviation as needed. First, one may well need a mapping (kind of a market research) of the local context to outline a baseline to start from reflectively. Then, one brings in the local “ingredients” and “tastes” in order to remain relevant to local actors. There will be adaptation, not adoption.
- ✓ In addition, a receipt of how to avoid pitfalls, based on learning from previous failures, might be also valued if compiled, shared, and disseminated.
- ✓ More co-RRIness will be institutionalised if researchers and experts enact a process together with other actors (primarily local communities) in which all of them become “insiders”. Experts and researchers “become native” in a real sense. This is especially important if local actors are expected to become researchers in a sense. They share an identity of change-makers committed to the broader community good (the commons).
- ✓ Building a joint knowledge base and creating a language shared seems to be a significant initial step in a co-RRI process to become effective and meaningful in later stages. Knowledge transfer does also require a mutual understanding and a language shared by all participants.
- ✓ A co-RRI process is expected to bring betterment with regard to our identities both as being local and being expert/researcher.

6.5 Workshop Agenda

14th June 2017, 18:00-21:00, Wekerle Library and Cultural House, Budapest

I. Introduction (5 min)

1. Arrival, registration
2. Welcome and short introduction (5 min):
 - a. Why are we here? (purpose of meeting)
 - b. What will we do here? (outline of workshop)

II. The FoTRRIS co-RRI experiment (introduction and reflection) – 80 min

1. FoTRRIS Wekerle film premier + discussion (25 min)
2. What has been achieved so far: major directions of the co-RRI project concept on Wekerle local economic development (5 min)
3. Reflection on the FoTRRIS process (20 min)
 - a. **Wekerle local community** group:
 - i. *What do you think about the transparency of the FoTRRIS process?*
 - ii. *What do you think about the inclusion of local community?*
 - iii. *What do you think about the power to influence the process?*
 - iv. *What do you think about the adaptiveness of the process to emerging needs and challenges?*
 - v. *What do you think about combining local and expert knowledge in the process?*
 - b. **Competence cell** group, same questions to be addressed

c. **Invited experts** group, same questions to be addressed

4. Plenary reflection (30 min)
Reporting back by groups + Q&A

BREAK (10 min)

III. HOW TO TRANSFORM THE R&D&I SYSTEM TOWARDS co-RRI? – 60 MIN

1. World café of three tables: 3x10 min
 - a. *Adapting to new roles: How to enact co-creation? What sort of barriers and leverages exist in the Hungarian context to/for co-RRI actors?*
 - b. *What kind of compensation seems necessary for co-RRI actors? What kind of solutions for compensation and motivation are available and operative?*
 - c. *How to do co-RRI? How can we move from co-RRI projects to co-RRI institutional structures? What kind of operational model for co-RRI can work in the Hungarian context?*
2. Reporting back by hosts of each table (30 min)
3. What next? (ideas shared on post-it)

7 Italian validation report by Jelena Mazaj, Roberta Lo Bianco, Vito La Fata (CESIE)

7.1 Introduction

On the 8th of September 2017 the Italian (Sicilian) Outreach Workshop was organised, with the duration of it being 6 hours (including lunch time). It was moderated by Transition Experiment's (TE) facilitator Mr. Fabio Montagnino with a support of the Competence Cell members.

The overall aim of the workshop was to disseminate information of the co-RRI TE in Italy (Sicily) and to receive external feedback of the process, results, and impact. Additionally, this workshop helped to create a local network of actors of the Quadruple Helix model for the innovation's creation based on sharing of knowledge and transfer of know-how.

The strategic aim of the workshop was to create alliances and gain support for co-RRI discussing potential role and development of it on a local (national) level.

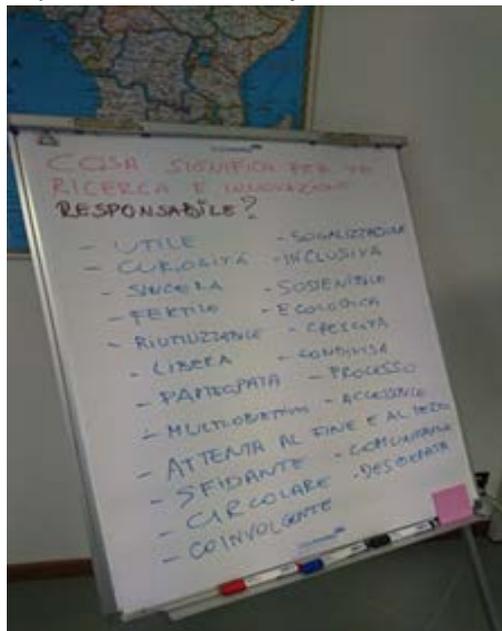
Participants of the OW were selected from the contacts databases, following the specific criteria suggested by the IFZ: the external group of stakeholders (representatives of Higher Education and Research organisations, process experts, local authorities, citizens), TE members, and from the pull of the experts (who were interviewed for the WP1). More than 35 potential participants were invited and in total 27 participants (see Table 1) from all stakeholders' groups took part in this local event. Below are presented short descriptions of some stakeholders involved:

- One of the leading local HE & Research organisation – Università degli Studi di Palermo; CNR ISSIA: consiglio nazionale delle ricerche.
- Representatives from local community and local enterprises related to the topic of the experiment, such as CLAC (an organization that helps the local community on building resilience through new form of projects, productions, cultural events and service promotion); NEXT (a group that works on "new energies" in the local community and helps enterprises, organizations or the community itself to begin processes and strategies of transition towards renewable energies); PUSH (a design lab where ideas are "pushed" in order to be speed up development and organised to grow faster and gain more success promoting new form of social innovation); Knowledge and Innovation SRLs (school of sociology and interdisciplinary research based in Rome); others..
- Policy organisations: SO.SVI.MA (a local development agency that promotes R&I, sustainable development activities and actions in the Madonie region), Comitato valutazione poli innovazione regione piemonte.
- Business organisations: 3 periodico, Esay integrazione di sistemi and others, like OpenDataSicily (a civic initiative that aims to raise awareness and spread the culture of openness and open practices on the territory and provides a field for public discussion)
- citizens.

The Agenda of the Outreach Workshop was designed following the guidelines introduced by the concept note for the OW developed in the frames of the FoTRRIS by the Lead partner of the task – IFZ. However, due to analysis of proposed draft and the time required for the each proposed line (evaluated by working group), the agenda was adapted to the local OW. The result-focused agenda (see Annex of this chapter) was full of different activities, which were facilitated using interactive methods for work in a group and support of positive working environment based on creative and critical thinking techniques.

The meeting started with the presentation of participants and their personal understanding of the "Responsibility" in the frames of the R&I process. Such a "sandwich" technique helped to develop a creative approach for the following debates about FoTRRIS project and co-RRI; local TE and its

impact on the territory; to brainstorm about strengths, weaknesses, opportunities, and threats of the local case. The concept of the competence cell was introduced, presenting a Sicilian model and a vision of its functionality in the future was drafted. After the lunch all participants were asked to present their vision on strategic and operative canvas for the CC. Insights of how to promote co-RRI on local/national level were discussed.



Additionally: (1) other TEs (from Austria, Flanders, Hungary, Spain) were presented to the participants briefly, aiming to show how the co-RRI can be approached/used differently in other spheres of research and in the frames of the other social/cultural/economic/etc. factors; and (2) The FoTRRIS collaborative platform was introduced to support possible p2p actions in a future.

TABLE 1. Overview of Workshop Participants

Gender	NGO	Business/ Industry	University/ Research	Policy	CSO	Others	Total (%)
Female	2	1	2		2		7 (25.93%)
Male	1	4	6	4	3	2	19 (74.07%)
Total	3 (11.11%)	5 (18.52%)	8 (29.63%)	4 (14.81%)	5 (18.52%)	2 (7.41%)	27 (100%)

* Competence Cell members: 2, facilitator – 1 are included in the final number of participants.

7.2 General feedback on FoTRRIS Transition Experiment

To start the workshop activities, Ms. Jelena Mazaj (CESIE) in cooperation with Mr. Fabio Montagnino (Facilitator) presented the funding programme, vision of the sustainable and inclusive Europe, the FoTRRIS project, co-RRI and all the previous work done which included the three workshops as the transition experiment conducted in the Madonie region, as well as the created project concept for the Madonie Living Lab (MLL). Additional information about the Madonie Living Lab and special feedback of the TE, the previous situation and the current one, regarding the effects of the project in the transition arena and the RRI approach was presented by Mr. Alessandro Ficile (SOSVIMA). Afterwards, brief feedback was given by the participants. It was a positive feedback focusing especially on the fact that all the activities done in the transition arena were very participative and inclusive towards the community, the stakeholders, and overall to the local society. However, it was only the start of the feedback process. Participants were involved in a brainstorming and critical thinking exercise to conduct a SWOT analysis of the experiment. As such, they were asked to analyse strength, weaknesses, opportunities, and threats with a special focus on the systemic barriers (leverages)/opportunities that occur in changing processes towards RRI in the specific transition experiment.

Divided into three groups the participants discussed these points based on the information gathered during the previous presentations and their personal experiences. Afterward, one member for each group presented their inputs to all the other workshop's participants explaining

results of each working group. (Comment: even if the participants in groups had different profiles and experiences, all groups presented similar information, supporting it by different examples.)

The main **strengths**, identified by the OW participants, are the unequivocal qualitative and quantitative results obtained in the Transition Arena. The FoTTRIS project helped to rethink and rebuild community involvement strategies and involve local citizens into the co-creation process, contributing by their specific knowledge. Due to previous and new policy, and with the help of the FoTTRIS project that contributed to the co- development of the MLL project concept, now in the region 50% of the consumed energy comes from renewable sources and MLL is expected to increase this percentage in a future.

The connection, network, and synergic cooperation that the community managed to create, previously and recently thanks to the living lab, is crucial and definitively a huge strength of the transition experiment. Also helpful was the precedent condition of the territory, a land rich of natural resources and well-studied in the past, which led the community to have a decent knowledge of the environment that surrounds them.

Then, **weaknesses and threats** for the future development of RRI practices related to this experiment were taken into consideration. In the report they are presented together since, for almost the entirety of the participants, most of the weaknesses present a threat for the future. Two groups of three stated that one of the major barriers is local bureaucracy since it may slow down the processes of the transition experiments in a systematic way. This is crucial because time is fundamental for the RRI experiments and can be an important obstacle for success. To produce continuous results, it is important to have a strategy for territory development with clear goals, timeline, KPIs and monitoring instruments. For example, to prevent one-way mobility of citizens (for example, young people leave the territory due to different obstacles and do not reflect on the return possibilities because of the lack of opportunities created on local level), results should be monitored well and visible to the community constantly, supporting a wish to stay and to continue working in the area. Related to the effect on the population of the area, it was also stated that language for communication, promotion, and information about the project and the experiment (initiative in a future) are absolutely important. But these can be changed based on the context where the experiment will be implemented. Since needs, understandings, and perceptions are changing from area to area it is very hard to create a standard approach for RRI experiments. Thus, this requires an additional preparatory effort for the researchers or enactors of the action. (Comment: This is an important statement, about which co-RRI promoters should reflect firstly.) From one side the project aims to solve global problems at the local level with all the differences that any territory may present, but from another perspective this means that special resources need to be deployed in order to adapt the approach every time. For example: in the Madonie area, an obstacle due to the territory itself, was the large presence of natural reserves that limited the action and possibilities.

Each group identified different **opportunities** for the future development of the transition experiment conducted in the Madonie, but all of them agreed that it is crucial to involve the local and regional administration to enhance the social and economic aspect of the experiment, and also to extend the participation -- thus increasing the scale of the promotion and information actions to a broader number (generations) of citizens. Currently, one of the opportunities that can be pushed forward in the Madonie, in this regard, is the creation of incentives and financial help for the local manufacturers who use local resources produced in the territory. Although this kind of solution can be applied only by the local administration, it can allow a better development of the supply chain in the transition arena in order to promote a virtuous path. Expanding the FoTTRIS experience, can influence other sectors and not just the energy one. It is crucial to enhance the scale of the RRI experiments and act in the territory like an active governance, capable to manage and promote local development, and at the same time to include all the stakeholders and citizens in the TE. Different participants expressed their view of the "leading" entity that would answer to these needs,

and, according to them, the Competence cell could be such body. Another group saw the future of the RRI transition experiment as an opportunity to build a local society better equipped to the challenges and better prepared in comparison to the others, that would make the arena more resilient and responsive. All these elements combined can create a territory which is more attractive for locals. These initiatives can create job opportunities, repopulate the area that did not offer much for the young people previously, and, additionally, well directed and managed, it could also valorise the important local cultural heritage toward promoting tourism.

7.3 Assessment of impact

The Participants of the Outreach Workshop also discussed the impact created by the TA and TE on local community and region. According to them, these are the key aspects:

- The FoTRRIS concept helped to map and reflect on structural characteristics of the local system (economic, political, social, cultural), which means that new transdisciplinary capacities (human skills / competencies) will stay in community and will be transferred to other activities.
- The TE fostered development of the local governance. As a result, the roots of micro dynamics of the democracy can be visibly made better-- target groups and their needs can be identified more significantly.
- Moreover, the TE helped to support an ownership feeling in community through active involvement of key actors and feeding the creation of a vision of participative citizenship. An outcome is a recognition of citizens' knowledge and their contribution - alternative ways of policy making in regions.
- R&I, politicians, business and other actors feel and indicate that the MLL is a tool to be more sensitive to the territory and promote its growth in the region.
- Appearance of an intermediate body / facilitator for co-RRI practices and coordination of such activities has a strong impact on local development, as R&I transdisciplinarity is something that is still missed in local areas.
- Definitely, such an experiment has showed that the region has full potential to support and promote several priorities of the ERAR in Italy (creation of more effective national research systems; understand sectors where a Gender equality gap exists and foster gender mainstreaming in research; fill scientific knowledge by circulation and transfer of citizens' knowledge).

7.4 Regional insight for how to foster co-RRI

The transition towards more co-RRI-ness in the (local/national) R&I landscape and in the specific R&I contexts can be realised based on several aspects:

- an education of the R&I community for how to cooperate with stakeholders and how to motivate them to present knowledge & expertise, to contribute to the R&I processes.
- a development of reward, valorisation, and motivation strategies for involvement of local stakeholders into co-RRI processes.
- a promotion campaign to non R&I actors about the benefits of such cooperation.
- by support of local authorities of such collaborative practises, official valorisation of them using different social / economic / political instruments, and promotion of co-RRI initiatives on the policy making landscape.

As such, the most important actors to be engaged in these actions should be represented by a tandem of local and national authorities, which can evaluate the real value of such cooperation based on produced results and value creation indicators, after all to support it by developed policies. R&I organisations should provide their feedback on national R&I priorities, budget proposed and monitoring results (mentioned before), in cooperation with other stakeholders. Examples of main actors: regional authorities, as Sicily Region, CRN, representatives of the CSOs,

business (which can be quite difficult to involve due to economic/political factors). We have to recognise that co-RRI can create a very potential future for all groups of stakeholder, however it is very difficult to avoid financial and political mechanisms which dictate the biggest part of the future directions and actions. This is why these mechanisms are the first key to tackle on the way to a more sustainable region and EU. CSOs and local communities can play an important role in this change. However, they should have an adequate voice compared to all other actors on local and national levels, and definitely, Policy – R&I – CSO together can facilitate such change. For example, possible ways to promote co-RRI would be adding these criteria into R&I evaluation processes and support of the creation of the CC, which can implement functions such as: education of overall community about co-RRI, facilitation of the co-RRI processes, funding schemes, creation of network with stakeholders. It is true, that nowadays there are different examples of similar actions. However, the core point should be about merging the know-how from such experiences and develop local knowledge centres for co-RRI.

7.5 Workshop Agenda

September 8th 2017, 10:00 – 17:30 h, Viale delle Scienze, edificio 16, Palermo

10:00	Registration of Participants
10.30-11.00	Opening of the workshop and presentation of participants
11.00-11.15	Presentation of the Project and co-RRI framework
11.15-12:00	Results of the territorial experimentation in Madonie: local challenges and vision for the change
12.00-13.00	Work in groups: SWOT analysis of the Madonie case
13.00–13:15	Competence Cell and co-creation online
13:15 – 13:30	Introduction of work in groups regarding the creation of scenarios for the co-RRI Competence Cell (organisational and strategic models)
13.30-14.30	Lunch break
14.30 -15.15	World Cafè: creation of scenarios for the competence cell – strategy canvas
15.15-15.45	Presentation of works – created canvases
15.45 – 16.30	World Cafè: creation of scenarios for the competence cell - activity model canvases
16.45 -17.00	Presentation of works – created canvases
17.00 – 17.15	Finalisation of the workshop and presentation of the future FoTRRIS activities

8 Spanish validation report by Susana Bautista, Tamara Bueno, Rubén Fuentes, Noelia García, Liisa Hanninen, and Juan Pavón (UCM)

8.1 Introduction

The Spanish Outreach was celebrated on the 19th of June 2017 at the Faculty of Communication Sciences. It was designed as a whole day activity, from 10 to 17:00, including an hour lunch break. The organizing team (the Competence Cell (CC) from UCM) followed the guidelines recommended for the workshop and the session was structured in four blocks of activity. The first block included introduction of the content and working methods for the workshop as well as presentation of the Transition Experiment results; the second, assessment of impacts; the third, presentation of transition scenarios including CC mandates and further elaboration of suggested strategies for fostering co-RRI, including SWOT analyses. The fourth and last part of the workshop was dedicated to bringing results together (reporting back) and a final discussion. Also, following steps were suggested.

In the introductory part, after the tour de table of participants, the CC took a leading role and introduced the contents using Power Point presentations and visioning of the short videos of the transition experiment workshops. The coffee break served as an icebreaker before “putting the teams to work” to be active and do hands-on exercises. The quadruple-helix work teams were carefully designed to be representative of the different stakeholders. During the second and third part, participatory tools and techniques were used (“stand up and go”, creative couples, funnel of ideas) to foster the creativity and innovation within the teams. Team leaders reflected the groups’ ideas on the impacts and scenarios, with activity models, drawing, writing, and adding post-its to the canvases that were provided for the exercise.

The participants totalled 17 persons. Excluding the CC members, who were all from the university, they represented different fields of expertise, including civil society members, particularly from NGOs (AFADIS, Autismo España, Vida Independiente), and citizens that could be potential “project beneficiaries”, such as disabled women. Also, experts and students from research institutes (such as CSIC, ICEI) and universities (UNIR, UCM) participated and, finally, a video artist and film producer joined the workshop. The only type of stakeholder that was not represented was that of policy maker, as local administration did not show readiness to participate.

The workshop helped us to gather external perspectives on what has been done during the transition experiments and transfer some of the working ideas to activity models. Learnings were discussed and some of the results (of transition WS) questioned, leverages found and barriers detected. Coming up with the scenarios was very challenging, but alliances for future co-creating projects were created, and most importantly, options for embracing co-RRI were seen as feasible and the core ideas of FoTRRIS found important support.

8.2 General feedback on FoTRRIS Transition Experiment(s)

Common SWOT Analysis

Strengths: Internal factors of the project that give it an advantage over others.

- Fosters cooperation.
- A unit to manage projects.
- Interdisciplinary network.
- FoTRRIs Competence Cell and its participation in other European projects.
- Bigger social impact of projects.

- Hardworking, participative, and involved group.
- Possibility of considering subjects that are ignored by society.
- International research.
- Optimization of research resources.
- Fostering social inclusion.
- Connection among researchers.
- RRI methodology and framework.

Opportunities: Factors of the environment external to the project that give it an advantage over others.

- Revising H2020 and proposing for FP9.
- Emergence of new models and opportunities.
- Civic participation.
- Prominence of the diverse social agents that are involved in research projects.

Weaknesses: Internal factors of the project that place the project at a disadvantage relative to others.

- Lack of funding.
- Lack of a solid structure for action.
- Organizing and supporting change.
- An imbalanced representation of the different stakeholders.
- A new methodology, collaborative work, and design.
- Lack of real interest and compromise by policy makers.

Threats: Factors of the environment external to the project that could cause trouble for the project.

- The lack of equality in regard to gender discrimination is still a challenge. Not considering the gender perspective.
- Perpetuation of discrimination.
- Unifying projects to apply for funding.
- Active society in the project proposal.

8.3 Assessment of impacts

Refugees case study

Actual impacts:

- There is a representation of stakeholders from different parts of society, but the business world has only participated in two workshops. A multiplier effect has been generated for each stakeholder. Everything that has been seen in the workshops and in the planning of projects has had that effect because it has moved to other areas and has been disseminated.
- We have succeeded in building a project concept in which we have created a multidisciplinary work network, and we meet regularly using online communication. For the moment, this goal of complete transdisciplinary has not been achieved, but we are moving towards a truly transdisciplinary concept.
- In addition, we have managed to create themes with a real impact: like research projects and actions at University where refugees are actively involved.
- The computer tool, the participatory platform, has been used and integrated and disseminated. This has been useful to support the preparation and organization of the

workshops, as well as for recording and structuring the ideas that have appeared during these.

- It is difficult to have policy makers who understand the importance of their role, and who have a real interest in these societal issues.
- A network of contacts has been generated.
- Multiculturalism has been achieved in spite of the limitations we had. We have worked with stakeholders from eleven different countries.

Expected impacts:

- With regard to desirable impacts, we find that resilience must be greatly enhanced. We have created a series of scenarios in both projects, but they are scenarios. We have not worked enough in the capacity to adapt to the change that the concept of resilience requires. We understand resilience in terms of the ability of the actors, communities and nations to absorb and recover from shocks, whilst positively adapting and transforming their structures.
- We have planned to integrate art in the future as a universal experience and consider the actual participation of refugees in the artistic project: art as a loudspeaker for refugees, empowering refugees through artistic expression. We are planning to work on these actions with students and on research projects.
- In terms of applications, information, communication, and dissemination, we think that a more universal language is needed on the subject of refugees. We mean more accessible and simplified language.
- One of the most desirable impacts is that society may perceive that refugees offer an opportunity and an enrichment of current societies.
- We need to build more social awareness.
- Make political influence or lobbying to reduce bureaucracy.
- Non-creation of ghettos.
- Empowerment of refugees
- It would have been desirable to include journalists reporting on refugees.
- Work on dissemination to put pressure on companies and policy makers at the state, regional, or local level.
- Create networks to help refugee groups to enter the labour market.
- Carry out a public awareness campaign by changing the narrative and giving value to this group, putting the focus of attention on them: the refugees as protagonists.
- To train researchers in gender and RRI, everyone should know this philosophy and continue working in that direction.
- Put this group and migration as a development engine.

Women and disability case study

Actual impacts:

- Dissemination at both the academic and media levels.
- It has been very important to see the diversity of people and opinions, because this helped us to improve our understanding of what are the relevant issues and the related concepts.
- A consensus has been reached on the provisions and measures that can serve as a starting point.
- Creation of an interdisciplinary team that greatly enriches the work team because it has professionals from different fields.
- Generation of networks among the different areas. We have also been able to find resources that we might not know about for understanding those other areas that are different from ours.
- In terms of sustainability and resilience, we find that it is important to empower the key players in both areas of the project.

- We emphasize the high participation of different stakeholders, because the inclusion of the groups has been essential for the sustainability of the project.
- A focus on skills rather than disabilities is used, or at least attempted.

Expected impacts:

- It could continue to disseminate and promote the modification of communication patterns, good practices in terms of "functional diversity", and similar concepts of inclusion.
- There is a need for a greater knowledge at the health level of rare diseases and at the social level of functional diversity in general.
- In sustainability, we must fight for the union of associations and groups of disability, whose synergy would be profitable to all of them and society in general.
- Greater visibility is needed on the street.
- Work to implement the International Convention and, within this framework, be able to specify and improve the regulations.
- Encourage inclusive education, for example, by using schools to develop empathic attitudes, meditation, breathing, real inclusion, respect, tolerance, etc.
- We find that it is pending to give a social connotation to the concept of sustainability. Sustainability in terms of durability over time.
- A very important challenge is to include the gender perspective in the project in a transversal way. Often the team that is working does not know what it is to integrate the gender perspective. This is not for lack of interest, but because of a lack of tools or more knowledge is needed.

8.4 Regional insights for how to foster co-RRI

The outreach workshop provided some insights, on how a transition towards more co-RRI-ness in the local and national R&I landscape could be realised. Concretely, two key aspects have been addressed: actors and funding. They have been analysed for the two transition experiments (Women with disability, and Refugees), at local and national levels.

- In specific R&I contexts (according to participants' fields of activity)
 - At the local level, we will focus on incubators for collaborative and associative work.
 - At the national level, on some organizations (or associations of organizations) that are already working on some aspects of economy with a social focus and that can help us in the lobbying tasks.
 - In terms of applying co-RRI to the thematic areas we dealt with in our transition experiments, on one hand the refugee crisis, we expect that the NGOs that participated in our RRI workshops are interested in collaborating and contributing to creating new proposals and on the other, carrying out activities using co-RRI ideas. The same applies to actions related with the issue of disabled women (the other aspect we dealt with in our transition experiments and workshops), civil society organizations will contribute to more co-RRI.
- Who would be the most important actors to be engaged?
 - At the local level, we have several examples of incubators that are already established and very integrated with other social actors of their cities. For instance, MediaLab Prado in Madrid. These actors can boost activities at the local level.
 - At the national level, some of these associations are the ONCE (National Organization of Blind people in Spain), which is also part through its Ilunion firm of the Iberoamerican Network of Inclusive Enterprises. Also, agencies like UNHCR are interested in learning more about RRI, as well as smaller civil society organizations such as ACCEM, Rescate, etc.

- How could the transition be facilitated?

Incubators are able to promote the adoption of co-RRI in their activities, as they are already very close in some of its principles to it. Their activities are usually organized through almost flat hierarchies, they involve multiple projects in the same spaces with very different natures, they are highly aware of the social impact of their activities, they perform some activities related with technical and science issues, but mostly from the point of view of discussion and dissemination.

Organizations related with social work already share with co-RRI the concern of the impact of their activities on society, and the need to involve in their processes actors with very different features. With NGOs and civil society organizations, co-RRI ideas can be used as a basis for new shared project proposals and also, to be included in future workshops and conferences organized by these entities.

- Which are the most important mechanisms needed to be tackled in order to bring a change in the current system?

There is a lack of three elements: intuitive success stories on the actual application of co-RRI; guidelines that can be applied with different levels of expertise in co-RRI; experts able to set up co-RRI in organizations. In this context, the organization of courses with a practical focus would help address these issues.

- How could more co-RRI-ness as displayed in the most favoured scenarios be governed/supported, e.g. through (R&I) funding?

There is a need to change the evaluation criteria of projects (e.g. firms, research, or public) to consider co-RRI, and set up a review process for them at the level of the funding organisms. The structure of the funding organisms is already suitable for this, as long as it works across the new lines with suitable experts.

8.5 Workshop Agenda

19th June 2017, 10:00-16:30h; Faculty of Communication Science, Complutense University of Madrid, Sala de profesores, Facultad de Ciencias de la Información

PART 1: INTRODUCTION AND PRESENTATION OF THE TEs

Start: 10:00h-End: 11:00h

- Welcome & Introduction
 - Project info and participants get to know each other
- Presentation of Transition Experiments (TE)
 - Experiences of implementing the TE
- Questions & Comments

11:00-11:30h Coffee Break

PART 2: IMPACTS

Start: 11:30h- End: 12:00h

- Assessment of impacts

PART 3: TRANSITION SCENARIOS AND COMPETENCE CELL

Start: 12:00h- End: 14:00h

- Presentation of transition scenarios including Competence Cell mandates and tasks for fostering co-RRI
- Further elaboration on suggested strategies for fostering co-RRI
- Assessment of the different scenarios (SWOT)

14:00-15:30h Networking Lunch

PART IV: BRINGING RESULTS TOGETHER – FINAL DISCUSSION

Start: 15:30h- End: 16:30h

- Plenary Discussion and reporting back
- Closing and information about the next steps

9 How to broaden the outreach of the co-RRI experiments by Anne Snick (VITO)

This section builds on the results from the Belgian Outreach Workshop, which explicitly focused on discussing how the outreach of the co-RRI experiments could be broadened.

During breakout sessions, keywords that showed both the ‘ballast’ (blockages) and the ‘thrust’ (leverages) for the uptake of co-RRI that were brought up by participants were noted on large posters and then formulated as full (more nuanced) statements. Then statements on similar themes from different groups were grouped, ordered, and synthesised.

For ordering the statements, the leverage points for system change described by systems thinker Donella Meadows⁵ as an organising principle were taken as reference. Since the aim of FoTRRIS is to contribute to a change of the R&I system, Meadows insights are relevant. She describes twelve leverage points, ordered in terms of how powerful they are for changing a system⁶. Leverages are interconnected, so most statements could be classified in more than one way. The synthesis here is offered as a basis for iterative debate. After a citation explaining each leverage, we summed up the statements that referred to it. The order in which they are presented here, reflects the order of importance Meadows ascribes to them, but of course this is open to further research and critique.

9.1 Mindset, paradigm, values

‘The shared idea in the minds of society, the great big unstated assumptions, constitute society’s paradigm, or deepest set of beliefs about how the world works. These beliefs are unstated because it is unnecessary to state them – everyone already knows them.’ (Meadows o.c. 162-3)

9.1.1 Barriers for co-RRI in the current system

A huge blockage for responsible research (and for the SDGs) is that not enough people have the courage to say that our socioeconomic system has to change and inevitably will change. People behave as ‘multiduals,’ schizophrenic in what they value: short-term self-interest (within the current system) usually prevails over long-term common interests (requiring a system change). This also explains the democratic trap: voting behaviour is determined by short term thinking, leading to short-term politics. When approached as individuals, people act conservative and self-oriented; therefore it is important to find a ‘co-’ that unites them.

In order to change this mindset, it is not enough to point out problems (of which everyone is aware by now anyway) or to take away institutional obstacles. We need to unite people in their enthusiasm and their motivation for a new view. Many researchers currently lack the motivation to tackle the complex problems. Just removing obstacles will not change that.

Research is based upon assumptions, such as the one that the free market brings wellbeing for all. The academic curriculum leaves too little room for a basic training (or education) in ethics and philosophy. These are only treated at the start of the curriculum as ‘a course among others’ and not as fundamental issues, hence students often lack the necessary skills to frame these assumptions within a broader (historical) context. The curriculum also pays too little attention to systems thinking and the value of this way of thinking to fully understand the SDGs. At many research institutes, neither researchers nor students are able to analyse problems systemically. A ‘monodisciplinary’ paradigm – thinking in boxes or silos – in research and education is a huge barrier for RRI. Technology is often perceived as the single best approach to complex problems, leading to partial quick fixes and obstructing more systemic and preventive solutions. Research budgets are allocated to very narrow themes, such as graphene or smart cities, as a result of

⁵ Meadows, Donella (2008). *Thinking in systems. A primer*. White River Junction, VT: Chelsea Green.

⁶ Meadows adds the caveat that this list is work in progress, and further research may reveal new leverages or change the order of importance.

which technologists are not aware in many cases of the relevance of social innovation for the problems they address.

The curriculum is not research-driven. Master students are rarely asked to develop their own approach for tackling a complex problem. In most cases the approach is already predefined, and students are not triggered to question this. In practice-oriented modules (such as internships, laboratory work, master thesis, etc.), there is a tendency to let students mainly 'execute' predefined research tasks.

9.1.2 *Leverages: a change in mindset and paradigm can be achieved, if..*

Facts and values have to be much more connected. This means researchers should not only adhere to the right mind-set and values, but should also apply them in their research activities. It also means that the facts surrounding the SDGs should be translated into human values that orient our behaviour.

All students and PhD students of all faculties should develop competencies for sustainability (e.g. systems thinking, human-centred design, futures thinking...). A course on SDGs should be a basic requirement for all students in all universities, university colleges and secondary schools. Courses on co-RRI should be mandatory in doctoral schools. Courses in ethics should not only be scheduled in the first year but have to remain a central theme throughout the curriculum. Also courses in sustainability training, systems thinking and transdisciplinary research methodology should be integrated throughout all faculties.

Researchers must learn to 'speak the language of the other' (other disciplines, other actors). University education and doctoral schools are to be made interdisciplinary, extending the currently available possibilities to combine major and minor courses much further and more systematically.

Courses and curricula should be made more systemic and embrace transdisciplinary knowledge, i.e. input from non-specialist knowledge actors and innovators. The historic consciousness of the evolution of scientific fields should be strengthened; students and researchers should learn to look back in order to look forward (e.g. study earlier paradigm shifts, the impact of human systems on planetary ecosystems and social inequality etc.). All curricula should include a general set of courses that allow students to 'look across walls' between sciences.

9.2 **Research goal and agenda setting**

'If the goal [of a system] is to bring more and more of the world under the control of one particular (...) planning system, then everything (stocks and flows, feedback loops, even self-organising behaviour, will be twisted to conform to that goal.' (Ib. 161)

9.2.1 *Barriers for co-RRI in the current system*

Science has become a 'production machine', aiming at quick profits. The fact that R&I always aims at excellence rather than impact, is a barrier for addressing big challenges. Politics are not making the necessary choices, and do not give enough guidance.

The way SDGs are interpreted and addressed in the research world is not always coherent or desirable. SDGs are very abstract and can be intimidating. It is better to first delineate a system on which you will do research, and to then analyse how your specific research topic connects to that. Currently we don't know how broad should that system should be, and how we can ensure that the way it is 'narrowed down' to specific topics can (iteratively) be questioned or re-evaluated.

9.2.2 *Leverages: a change in the goals of R&I can be achieved if..*

Government should have the courage to be more in the lead in determining the direction of R&I. Politics should translate our country's commitment to the SDGs into a clear vision on how we want society to evolve, clarify what science and innovation are expected to contribute to this, and then provide all (not only financial) means needed to get there.

A broader variety of stakeholders is to be involved in setting the research agenda. This should not only be controlled by the R&I community itself. In the same vein, in developing university curricula the aim of serving the common good (SDGs) is to be more decisive than the personal research agenda of individual professors.

Research aiming at SDGs requires less focus on short-term goals and more room for free research with uncertain outcomes. This can lead to 'instructive' experiments allowing us to move in the direction of the SDGs. The EC groups research questions in terms of the global agenda; every proposal has to explain how it will contribute (systemically) to solutions. This mechanism should also be used for funding at the national level.

Currently, some possibilities for action research (or practice oriented research for social innovation) are available. However, in the context of RRI, clarifying the goal of those projects is of crucial importance. If the (underlying) goal is to make technical processes more circular so as to continue extracting financial value from it only benefitting private parties (rather than contributing to the common well-being), this type of research will not contribute to the SDGs or to a truly sustainable economy.

9.3 Self-organisation – the power to evolve or change system structure

The most stunning thing living systems and some social systems can do is to change themselves utterly by creating whole new structures and behaviours. In biological systems that power is called evolution. (...) In system lingo it's called self-organisation.' (Ib. 159)

9.3.1 Barriers for co-RRI in the current system

A diverse and flexible combination of knowledge for dealing with complex problems is not (yet) emerging. There is too little debate about the R&I system. The research world lacks a base for leaving the beaten path. Researchers work in boxes, and the systemic or ethical basis for questioning this in the light of complex problems is missing.

Societal actors are often not seen as knowledgeable actors able to co-design research concerning a certain problem, so research does not rid itself of its narrow focus. There is no realm for preventive research tackling the root causes of complex problems; and because such a realm does not exist, little financial funds are being allocated to this kind of research. There is no pooling of knowledge among universities and university colleges. The formerly existing platforms ('Steunpunten') for pooling knowledge on specific themes have withered.

Multidisciplinary research requires time and patience. Researchers are confronted with a lack of time and an overburdened workload, so there is no space left for learning from other disciplines or knowledge actors.

There is a need for spaces to 'learn' about co-RRI. Some examples of questions that require reflection are:

- For which problems is co-RRI a better solution and for which ones is a classical approach appropriate?
- Who are relevant stakeholders for co-RRI on a given theme? How to identify them, how to motivate them? Many stakeholders do not consider themselves (any longer) as 'relevant knowledge actors'.
- Is it sufficient to work with frontrunners in a project setting if you really want to change something? Or should it also involve actors who are privileged by the current system and are likely to resist change?
- It is crucial to involve the problem owners in the process ('whose problem is it really?'), yet it is impossible to (physically) involve future generations in research.

- co-RRI does not just mean putting all relevant stakeholders around a table, but also requires (the development of) an adequate methodology; how to evolve towards an appropriate methodology?
- There is a lot of discussion about the 'real' democratic nature of co-creative processes, and about how much power all stakeholders really have for weighing on decisions; how to insure the inclusion of all?
- For complex problems it is unclear what the relevant time frame is. Can quick wins be reconciled with complex long-term goals?
-

9.3.2 *Leverages: self-organisation towards RRI can be strengthened if..*

Today, students are putting pressure on professors to make the curriculum more sustainability oriented. Tools should therefore be introduced to help university teachers to include sustainability in student assignments. In the evaluation of curricula by students 'sustainability' should be included as one of the parameters.

'Projectification' of RRI and the fragmentation of research into small boxes is to be avoided. Therefore it is crucial to continue building on earlier research, as this will allow researchers to increasingly understand complexity better. Insights from such fundamental co-RRI-driven research should serve as inspiration for applied research, both in Strategic Research Centres (SOCs) and in companies.

Spaces should be created to experiment and leave the beaten track of established processes. One should communicate via demonstration projects, so reluctant researchers can see that RRI works in a different way.

The conditions for financing research should become more flexible so as to make space for a change of course and for the introduction of additional indicators. We need to reflect on indicators for societal impact, clarify what criteria will be used and in what time frame. Research is to be evaluated by interdisciplinary teams.

Stimulate the development of diverse networks; researchers should be aware that other disciplines work on the same themes. Strengthen the reflex to learn together through interdisciplinary research. Create multidisciplinary institutions bridging various faculties at university level. These institutions should work with an 'envelope financing.'⁷ They should have external advisory boards and external evaluators, as well as a team of process facilitators to stimulate co-RRI.

9.4 ***Rules, incentives, punishments, constraints***

'Suppose tenure were awarded to professors according to their ability to solve real world problems, rather than to publish academic papers. Suppose a class got graded as a group, instead of as individuals. As we try to imagine restructure rules and what our behaviour would be under them, we come to understand the power of rules. (...) Power over rules is real power. (Ib. 158)

9.4.1 *Barriers for co-RRI in the current system*

Incentives for cooperation or for working on sustainability are lacking.

The rules applied to the development of curricula are not appropriate for introducing co-RRI. Furthermore, the decision making procedures on the contents of curricula does not allow for timely changes in university education.

In the evaluation of research projects, excellence is prevailing over impact. Key Performance Indicators are too much geared towards output; the valorisation of publications is given too much weight. Use of patents as an output indicator leads to privatisation of knowledge rather than to

⁷ A Belgian financial mechanism whereby an institution receives a fixed budget which it can use autonomously.

cooperation for SDGs. Criteria for the evaluation of researchers' careers keep them from engaging in co-RRI.

The current criteria for the allocation of finances give researchers the wrong signal. R&I financing is based on frameworks and indicators that are too narrow and that do not allow for iterative research. As long as preparatory trajectories of research are not financed, it is very hard to mainstream co-RRI. Developing project proposals in a transdisciplinary and co-creative way requires time and money. This should not remain an overhead cost for research institutions as it makes them raise their tariff for the execution phase.

9.4.2 Leverages: rules, incentives and constraints can strengthen co-RRI if..

RRI for sustainable goals should no longer depend only on the motivation of individual researchers, but is to be included in Key Performance Indicators as well as in contractual agreements of Strategic Research Centres (SOCs). The EC uses certain criteria that researchers have to apply to demonstrate the societal sustainability of their projects; these criteria should also be integrated in master theses and in doctoral schools.

In evaluating, valorising, and financing research (e.g. visitation commissions), the SDGs should be one of the framework which are applied. The internal evaluation of research in universities should use a maximum of 50% scientometric parameters, and take societal impact much more into account. The Global Reporting Initiative should be made mandatory for all relevant players. The six keys of the RRI-concept⁸ meant to address big challenges must be applied in a more coherent and stringent way, and never separately or in fragmentary ways. The nomination commission evaluating researchers' careers should be more diversified.

Financing models should allow researchers to test new ideas on a small scale, without commitment to large-scale implementation (leaving room for experimenting and learning from failures as well as from successes). There should be incentives that facilitate experimenting (without obligation to use the classical output indicators) by working in new and interdisciplinary research partnerships. Researchers should not be obliged to predefine everything, but should be allowed to respond to factors emerging during their project.

The internal financing mechanisms of universities (in Flanders called BOF and IOF) as well as the evaluation criteria for project proposals should provide a bonus for mission-oriented research. The BOF-decree should be transformed so as to reorient financial streams (e.g. along the lines of the Dutch covenant with KPI's). In the current mindset extractive money is deemed inevitable, therefore creating alternative currencies, such as the knowledge vouchers, for the exchange of knowledge and for the valorisation of the input of non-academic knowledge actors is not (yet) seen as a strong enough leverage.

9.5 Information flows – the structure of access to information

'Missing information flows is one of the most common causes of system malfunction. (...) It's important that the missing feedback be restored to the right place in compelling form. (...) There is a systematic tendency on the part of humans to avoid accountability for their own decisions.' (Ib. 157)

9.5.1 Barriers for co-RRI in the current system

Every research institution is working in one way or another on SDGs, but there is not enough transparency on how their research activities define RRI and what is required for them to contribute to the SDGs.

Concepts such as 'citizen' and (involving) 'everyone' in the context of co-creative processes are complex and vague, and this implies a risk. It is important to be transparent about who is involved, who is not, and why.

⁸ These keys 'supporting' RRI are: ethics, citizen engagement, gender, education, governance and open access.

The networks of professional knowledge actors are not diverse enough. Therefore they are unaware of other knowledge actors in the quadruple helix that are working on the same themes as they do.

The fact that research is evaluated through peer review only makes it impossible to have permanent feedback and transparency on the societal relevance and impact of R&I.

9.5.2 *Leverages: information flows can strengthen co-RRI if...*

It is important to communicate more widely on the importance and urgency of co-RRI, e.g. at the level of academic research councils. Few specialists and economists are aware of the serious threats of current planetary overshoot for human survival. Learning from the use of layman's reports will stimulate a reflection on the SDGs. This will improve the societal impact of RRI.

The choices that are made in research trajectories are based on a certain value frame. This frame should be clarified explicitly. Researchers and governments should also be more transparent about the real arguments, data, and information upon which their decisions are based. Science communication should not only take place at the end of a project, to disseminate the results, but should be required throughout the research process, so all parties stay informed. This is not something a researcher can do alone, but it has to happen throughout the network of stakeholders. It is important for people to understand more consciously what is at stake. Moreover, the media (e.g. televised documentaries) should look critically at research in the light of the current threats and the SDGs.

9.6 **Reinforcing or correcting feedback loops**

'A balancing feedback loop is self-correcting; a reinforcing feedback loop is self-reinforcing. (...) A system with an unchecked reinforcing loop ultimately will destroy itself. (...) There are many reinforcing feedback loops in society that reward the winners of a competition with the resources to win even bigger next time – the "success to the successful" trap. (Ib. 155-6)

9.6.1 *Barriers for co-RRI in the current system*

Research on SDGs requires us to leave the trodden paths and experiment. However, this decreases the certainty of reaching the expected results. The desire for certainty reduces the space for experimentation. Financing is made dependent on output. There is much competition for [extractive, scarce] money and this keeps the system from changing. It encourages researchers to stay within the safe zone of their familiar approaches in order to safeguard their finances. This makes the R&I system paradoxically less innovative. It also hinders the pursuit of process innovation within scientific practice itself. R&I is organised in a one-dimensional way, and this is locked-in by legislation, financing, mind sets, and social acceptability.

Quick wins can be seen as one of the ways to motivate people to cross the threshold towards co-RRI and to involve various stakeholders in research processes. This may however also be a trap, because quick wins may prevent researchers from addressing the root causes of problems. The high pressure for output (quick wins) reinforces the tendency to do mono-disciplinary research. Decisions are taken within a narrow context, without the holistic understanding of the problem required for co-RRI.

Within the prevailing paradigm there is a tendency to perceive co-RRI as 'working with diverse stakeholders in settings that are not (enough) formalised.' This then is seen as a risk for obtaining the expected results rather than as an enrichment that allows for a large variety of (maybe unforeseen) results and outcomes.

9.6.2 Leverages: balancing feedback loops can strengthen co-RRI if..

For the government to become more 'directive' in terms of R&I policy, it needs strong individuals and experts with the necessary knowledge to make fundamental choices. Such experts should be encouraged to work for public services or the government by offering them attractive conditions (not only financially). Governments should take measures to minimize the power of lobbyists.

Demonstration projects (resulting in quick wins) can convince funding agencies, governments and researchers that co-RRI may lead to beneficial results for society. It is important to take small steps to experiment and increase the support for co-RRI. Small experiments with various partners should be allowed to scale up, so they can learn from each other and can strengthen a new vision on research. Avoid big steps but allow new ideas to be tested and improved rapidly [using short feedback loops], so they can be embraced and acquire social acceptability.

9.7 Delays

'A system just can't respond to short-term changes when it has long-term delays. That's why a massive central planning system [in a non-linear world] (...) necessarily functions poorly. (...) Overlong delays in a system with a threshold, a danger point, a range past which irreversible damage can occur, cause overshoot and collapse.' (Ib. 151-2)

9.7.1 Barriers for co-RRI in the current system

Many thresholds for our socio-economic system (in case of a 'business as usual' scenario) are situated around 2030.⁹ This gives us about twelve years to change course, yet there are important delays that obstruct this.

Mindsets (of researchers as well as citizens) are slow to change, which is why politics cannot change quickly either. For politics it is hard to find a balance between what is socially acceptable, and what is politically desirable or necessary. The current system does not give the R&I community the necessary time to develop a common vision. Moreover, the mindset of bureaucrats is slowing change down. Their focus is on 'managing' or on incremental improvement of the current system, which blocks a transition towards a new system.

Actors from CSO's and government services that have co-creation for sustainability or for a (non-extractive) circular economy as their main objective are greatly worried by the slowness of academic knowledge actors and R&I politics. Academic actors doing research on themes related to sustainability and to more sustainable economic models are concerned about the resistance against exploring new valid alternative models for a sustainably organized society, causing a lock-in into an extractive (yet so-called circular) economy.

The financing of R&I currently works with mega-budgets. This transforms research programs into tankers that lack manoeuvrability. The economy is a fluid system that is more agile than science; economic actors develop innovative solutions or business models to pursue their own goals in a rapidly changing context. If science is unable to keep up with these innovative societal dynamics, it loses its capacity to address big challenges.

9.7.2 Leverages: long term delays blocking co-RRI can be avoided, if..

In order to change mind-sets and foster co-RRI, education is the 'silver bullet'. To reduce delays that come with changing the curricula, innovative educational formats are to be used (peer learning, MOOCs, webinars, summer and winter courses...).

⁹ In the 'standard run' scenario, the peak of economically viable extraction of most natural resources will be reached (Sverdrup, H. & Ragnarsdottir, K.V. (2014). Natural resources in a planetary perspective. *Geochemical perspectives* 3, n°2), the threshold of 1,5C° global warming will be reached; consequences of ongoing species extinction and ocean acidification are unknown. The target date for the SDGs is also 2030.

Changing the established R&I practice will take (too much) time and may lead to resistance, especially by research institutions with a high position in the incumbent rankings. Therefore, PhD students and young researchers should be given the space to (learn to) do transdisciplinary work and contribute to the SDGs, developing new skills and competences to tackle the challenges of tomorrow. This has to be stimulated and facilitated with all available means, not only financially but also in terms of person-power and with supportive regulations. By 2030 (i.e. twelve years from now) three generations of PhD-students should be educated in the new system so as to be equipped to design and run the R&I system the future generations will need.

Stimulating the mobility between researchers, society, and companies to collaborate on RRI-projects is a faster way to make the transition towards co-RRI. Since established R&I institutions are not really designed for doing co-RRI, a way to let the R&I system evolve more rapidly is to create more spaces such as:

- the Urban Academy (UGent) which connects universities with citizens and cities to collaborate on sustainability related themes via a shared learning process;
- the Social Innovation Factory¹⁰

¹⁰ Sociale Innovatiefabriek (SIF) helps citizens or organisations with a ‘good idea for society’ to turn this into a viable project by learning from each other. The EU-project ‘RRI Tools,’ which listed good practices for RRI, showcased SIF as the Belgian example (indicating that RRI is indeed emerging more rapidly outside established research institutions).

10 Conclusions on the facilitation and up-scaling of RRI

In the validation of the co-RRI experiments in FoTRRIS, all partners and invited experts put much consideration into how RRI can be fostered in future. This is a summary of the ideas, shared in the different validation workshops.

10.1 Competence Cells as facilitators of RRI

The six validated Transition Experiments (TEs) in Austria, Belgium, Hungary, Italy, and Spain were each run by a prototype of a so-called 'Competence Cell' (CC) which facilitated the co-creation of research project concepts by a diverse group ('quadruple helix') of stakeholders and citizens.

The CCs have been set up differently in all countries (see more about that in D3.1), and in this report the CCs have been validated in the course of the validation of the TEs by external experts in the five validation and outreach workshops. The results are – like the CCs and TEs itself – diverse, and can be followed in greater detail in the respective national reports in the previous chapters.

However, some general conclusions can be drawn, like that the CC as a main concept has proven to be a valid mechanism for facilitating the practical implementation of RRI, but we assume this as only one of possibly various other mechanisms.

10.1.1 The competences of Competence Cells

CC members need to hold certain RRI-expertise, which includes translation and process competencies. A very important role of the CC is to take care of the continuity of the mutual learning process and to facilitate a dialogue among all actors involved in the RRI activity. CC members should be capable to manage and promote the topic at hand (therefore, knowledge on the respective topic is always needed), and at the same time they should have process related skills to conceptualise and guide the engagement of researchers, innovators and other stakeholders as well as citizens in the RRI activity. Core tasks of the CCs are to create space for constructive interaction and especially take care of key elements of RRI processes, like transparency, inclusion, power to influence, adaptability (flexibility), and knowledge exchange and integration. Validation workshop participants suggested that CC members should have a special role in designing the activities in a way that contributes to balancing the power to influence the process by each actor group. This can create a friendly and cooperative atmosphere, which, however, should not cover up existing power relations, but tackle them. In line with this, less popular opinions should not be marginalized, but made visible and discussed.

Finally, CC members should also be able to monitor and evaluate the process as methodologically clear and transparent as possible.

10.1.2 The challenges of Competence Cells

CC members are part of a process and a group doing RRI on a specific topic, which should be dealt with in a transparent way and on eye-level. But, as the CC is facilitating the process, it also holds the power (and methodological skills) to steer it. In the concrete example of FoTRRIS, the researchers of the consortium, who have been members of the five CCs, had a special knowledge about FoTRRIS as an EC funded research project, and this very understanding was not similarly available to the other stakeholders involved in the TEs. For the future, the participants of the validation workshops recommended to discuss such issues in order to create more transparency about the context and framework, and the implications of this frame (e.g. deliverables, timeframes), prior to the actual RRI process.

The language used is another crucial factor. Particularly at the first workshop in the FoTRRIS TEs (following the terms of the MISC approach, see report D3.1), language was judged by the validation experts as too scientific, abstract, and even counterproductive to enable discussions at eye-level among diverse actors. Thus, proper 'translation' is needed in a co-RRI process, as well

as in terms of technical language, but also in regard to knowledge exchange practices and work cultures.

For some stakeholders, like practitioners and local actors, it can be new and at some point even irritating when researchers in their roles as CC members refuse to convey their usual role of being 'the experts' and state that most of the knowledge needed is possessed by the other stakeholders of the process. On the other hand, it may be also confusing for participating researchers, if their positions are questioned by 'lay experts'. The high expectations towards researchers and CC members to provide expertise in the conventional sense, likewise a clarification of roles within the process in general, is an issue to be dealt with very carefully when implementing an RRI activity.

10.1.3 The future of Competence Cells

One possibility of institutionalizing RRI is to institutionalize CCs, by integrating them in the current academic or R&I system (for instance as transfer or competence centres, like knowledge labs, science shops) or they could be organised like companies (to earn profits) or associations (based on public / research funding / sponsoring). Besides models for organisational modes of institutionalisation, an activity plan needs to be elaborated for the CCs. Scenarios and the validation of these scenarios are further explained and described in the report D2.4.

CCs could also support capacity building for RRI in terms of training and provide RRI certificates (either for persons or processes). However, the problem with certificates is that clear indicators would be needed which define what RRI processes and RRI expertise exactly characterises. This is – according to the experts from the validation workshop in Austria – difficult, because it partly contradicts the claim that RRI should be an open process and the result of a consolidated negotiation between those involved.

10.2 The up-scaling of RRI

10.2.1 On a micro-level: small experiments, exchange of experiences and networking

Most of the validation workshops' participants considered it to be very unlikely that the whole R&I system could be changed at once, thus it is important to take small steps by practically implementing RRI in small activities, such as in the FoTRRIS transition experiments. Such activities are important to raise awareness, to build capacity, to show how the implementation of RRI can work, and which benefits (and challenges) may go along with more 'RRIness'. Such RRI experiments represent 'niches' for trying out diverse settings, assorted constellations of stakeholders, and varying roles in order to go beyond conventional R&I roles and broaden the scope for expertise. Expertise is widespread and diverse in nature, and this should be emphasised throughout an RRI process. For instance, CSOs and local communities must have an adequate voice in the process. And finally a strategy of how to properly reward, valorise, and motivate the involved actors must be developed. One way to valorise the engagement in RRI can be by evaluating the 'societal value' of RRI cooperation based on produced results, developed policies, and value creation indicators which go beyond the usual evaluation criteria.

To overcome the shortcoming that only single organisations engage in co-RRI, and thereby RRI activities remaining a marginalised practice, a networking approach, like in the example of the Austrian RRI platform, would advance the up-scaling of RRI. In such a network partners can exchange experiences, inspire, support, and encourage each other, which is crucial for the system to evolve. This could be done by creating a shared knowledge pool, by implementing joint events, by sharing resources, but also by joining forces for strategic lobbying work.

10.2.2 On a meso-level: institutionalising RRI in research and higher education organisations, and building skills systematically

Capacity building could not only take place in learning by doing, but it would also be important to offer trainings and to include RRI in teaching courses at universities (and other higher education

institutions), in order to shape the mind-set, values, ethics, and paradigm of (future) researchers and stakeholders. A crucial part of skills needed for RRI are social skills, like (really) listening to the other, being patient, and an openness to disagreements.

To guarantee continuity, trainings and support for RRI activities should be institutionalised. This could be realised by integrating RRI units in already existing organisations (e.g. universities) or by setting up new institutions (for instance local knowledge centres for co-RRI), which then would offer their services to the whole RRI community, which also includes non-formal knowledge actors. However, already existing initiatives must be valued, the know-how from previous experiences harvested and made available for others, who would like to build on learnings.

Additionally, these bottom-up initiatives can be strengthened by support from the top (e.g. policy makers, high-level management persons in R&I institutions). This approach helps to create favourable framework conditions for RRI (e.g. funding, evaluation, formal acknowledgement) and thereby facilitates the up-scaling (and even mainstreaming) of RRI.

10.2.3 On a macro-level: defining quality criteria for RRI and include them in existing academic performance indicators and R&I funding schemes

Even if it is appreciated that the concept of RRI needs to be flexible to be adapted for the different R&I contexts, and to be discussed by actors engaged, there is also a need on the science policy level to (pre)define to a certain degree what RRI means. This is relevant for ensuring a certain quality of RRI activities, as well as to guarantee a standard in regard to RRI expertise of actors implementing or facilitating RRI processes. However, a very strict RRI model might become too standardized, but with a certain framework or criteria framework (which needs substance to be put on it), RRI could more easily be put into local contexts and allow for a greater diversity.

Universities can only take the 'risk' of committing themselves to RRI if this approach is valued by the evaluation system. Thus, system-immanent influence factors like finances, rewards, and metrics must accompany and support RRI activities. The bottom line of the validation of FoTRRIS transition experiments is that RRI criteria must be integrated in R&I evaluation and funding systems. In practice, evaluation criteria of R&I projects must consider RRI, and the review process for project proposals at the level of the funding organisations must be changed accordingly.