



CHANGING THE RESEARCH AND INNOVATION SYSTEM THROUGH DEMOCRATIC EXPERIMENTATION

A guide to good practices for
Responsible Research and Innovation



ACKNOWLEDGEMENTS

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EXECUTIVE SUMMARY

In the past decades, a growing number of actors have started to recognize that the research and innovation (R&I) system can have a huge impact on our societies and the ecology. Policymakers are looking for R&I to reach the Sustainable Development Goals. Researchers are calling for an end to the “*publish-or-perish*” system and innovators are questioning the tenability of narratives that suggest limitless economic growth. Citizens are calling for a voice in the development of groundbreaking technology such as Artificial Intelligence. All these dynamics suggest that ‘business as usual’ in R&D and its funding is no longer an option. What is the alternative to the current R&I system and how can it be implemented?

In the last 10 years, policymakers and academics have been working on the narrative of Responsible Research and Innovation (RRI). In short, RRI aims to foster the design of inclusive and sustainable research and innovation, with an emphasis on co-creation and co-production with society. RRI thus seeks to align research and innovation with the values, needs and expectations of society. This feeds into the strong emphasis in R&I funding on addressing societal grand challenges, while simultaneously seeking to anticipate and assess broader implications of research and innovation in an ethical, inclusive and responsive way. RRI is, put differently, a narrative that promotes better relations between R&I and society. This narrative begs the question how to do just that: how to implement RRI?

This Guide seeks to contribute to the available material on RRI tools and implementation plans by providing insight in how groups of individuals, brought together from across the R&I system in a temporary participatory setting, may help kick-start RRI implementation. They may, we found, actually work towards instigating system change, even if the participatory setting is merely temporary, and thus ‘ad hoc’ and an ‘add-on’ to standing institutions. The lessons shared here draw on 4 years of experimentation with such settings, which in the NewHoRRizon project were dubbed social

labs. To make sense of these experiences, we take these collective efforts to be instances of democratic experimentation, a type of experimentation that is focused on co-creating actionable knowledge by acting upon and changing actual practices.

On the basis of an analysis of these experiences, we present here 4 clusters of lessons that may be of use in organizing a temporary participatory arrangement with the intention of improving relationships between R&I and society.

The first cluster concerns ways to analyze strategically and substantively what is relevant in your project’s context for stimulating change. Efforts at instigating change require insight in the institutional context in which a temporary arrangement is organized. The results of such an analytic effort to map contextualized institutional barriers to, and opportunities for, improving science-society relationships are critical for identifying the ‘right’ stakeholders to engage in your project, and for designing suitable interventions;

Secondly, we share lessons on how organizers can engage these identified stakeholders. The success or failure of inciting change crucially hinges on engaging participants who, like you, also feel the urge to change the existing situation. For organizers the challenge is, as said, to engage the ‘right’ stakeholders. They are the linking pin between a context and the temporary project, and it are their energy and visions that can catalyze change;

DIAGNOSING A PROJECT'S CONTEXT

ENGAGING THE 'RIGHT' PARTICIPANTS

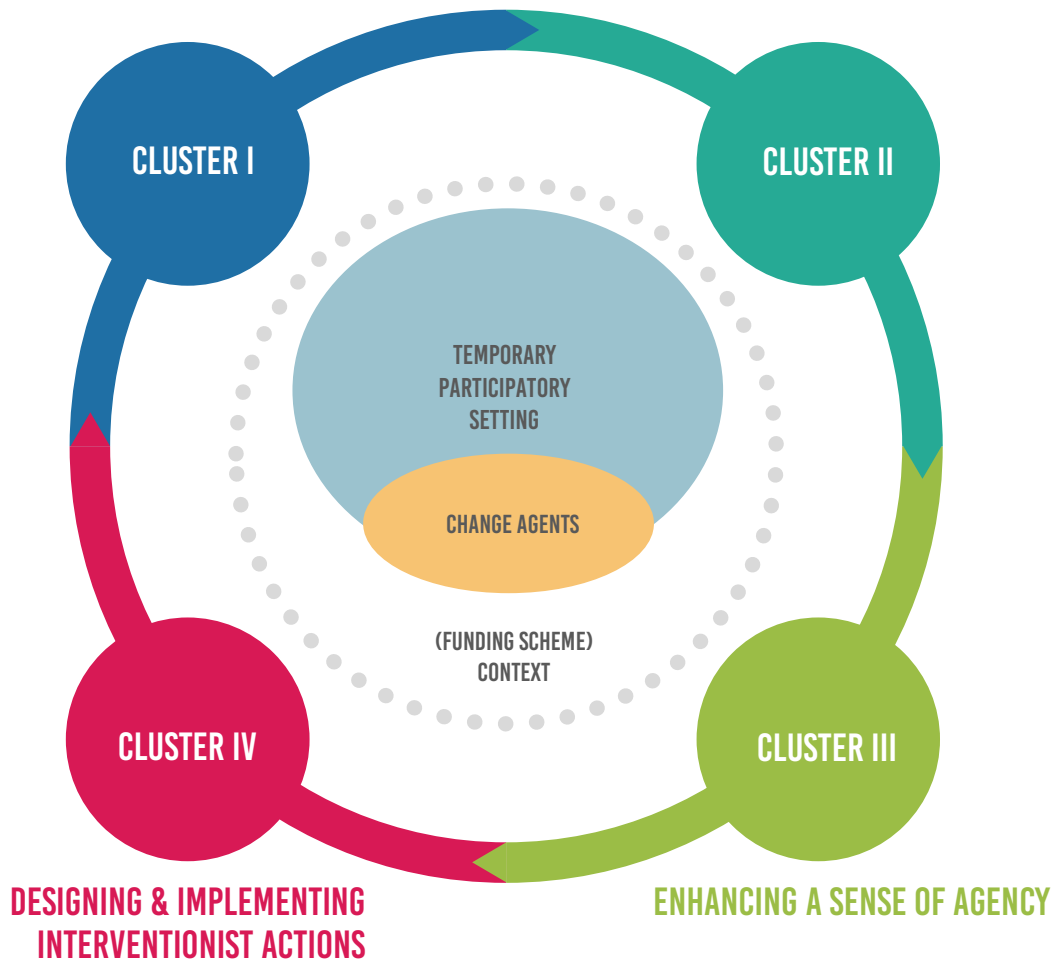


Figure 1 - Overview of Clustered Lessons

Thirdly, lessons are shared regarding effective methods and useful management choices that help enhance a sense of agency among participants. For projects that are intended to work towards instigating change, developing a sense of agency among its participants is imperative. After all, it is difficult to remain highly motivated in the face of an existing, seemingly immovable system. We found that change is possible, if only the process of developing and implementing interventionist actions is well-organized and properly supported. Among the support necessary are methods for creating visions, inciting reflection, as well as help with the anchoring of the actions and their results in standing organizations;

Fourthly, we list possible interventionist actions, grouped per the specific aim and function such an intervention may have. Change is not only about

creating new ideas but also about putting these into practice. We showcase how actions can have multiple, overlapping functions; designing for a clever mix of these may contribute to their impact in terms of challenging aspects of the extant institutional setting in various ways.

Finally, we relate the insights and lessons learned to recent debates about the relationship between R&I and society for which, we argue, the lessons in this Guide hold relevance. We hope to show that anyone who is motivated to experiment with forging better relationships between R&I and society can do so!

FOREWORD

"CAN ONLY ANSWER THE QUESTION WHAT AM I TO DO? IF I CAN ANSWER THE PRIOR QUESTION OF WHAT STORY OR STORIES DO I FIND MYSELF A PART?" - ALASDAIR MACINTYRE

Just for how long have you thought about changing the conditions under which you work as a professional in research or innovation? How often have you, as a researcher, an innovator, a policy maker, a co-worker in a science funding agency, a science advisor working in academia or in another position, thought about changing the research and innovation system? Do you see merit in challenging the incentives that dominate your professional world, incentives that make one think of 'impact' as a matter of scientific citations and patents only? What do ideas about public engagement and open science imply for your daily work? How could you, for instance, enable citizens from all walks of life, regardless of their training and background, to get involved with research and innovation?

Chances are you have been pondering these issues for a long time. At least, that is what the people shared on the basis of whose experiences this booklet was developed: many individuals located throughout the European research and innovation system are looking for ways to change how research or innovation is discussed, practiced, valued and governed.

These individual change agents met up in the context of the NewHoRRizon project, a project funded by the European Commission, that aimed to kick-start or canalize debates and actions to promote Responsible Research and Innovation (RRI) across the European Horizon 2020 funding program. What does 'responsibility' in the context of research and innovation mean? How can ideas about RRI be implemented in our daily activities? These were leading questions in the work we did over the past 4 years. We did not only discuss these issues, we – that is, over 270 people across Europe – also worked together in 19 temporary participatory settings ('social labs') to jointly develop practical tools, methods and activities for stimulating and implementing the kind of changes required for a *responsible* research and innovation practice.

This guide summarizes the narratives that were produced in the effort, and collects the lessons learned. The aim is to disclose the insights we gained to those who are interested in working towards new relationships between science and society. We hope that the lessons and stories collected from the NewHoRRizon experience will motivate you to develop your own stories and actions that help produce the changes that you hope to see occur in the research and innovation system.

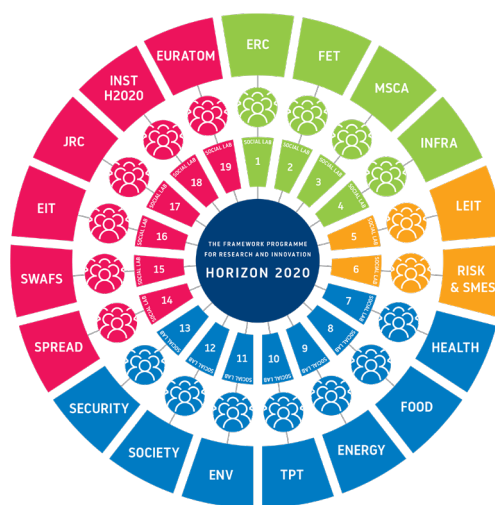


Figure 2 - Overview of the NewHoRRizon social labs

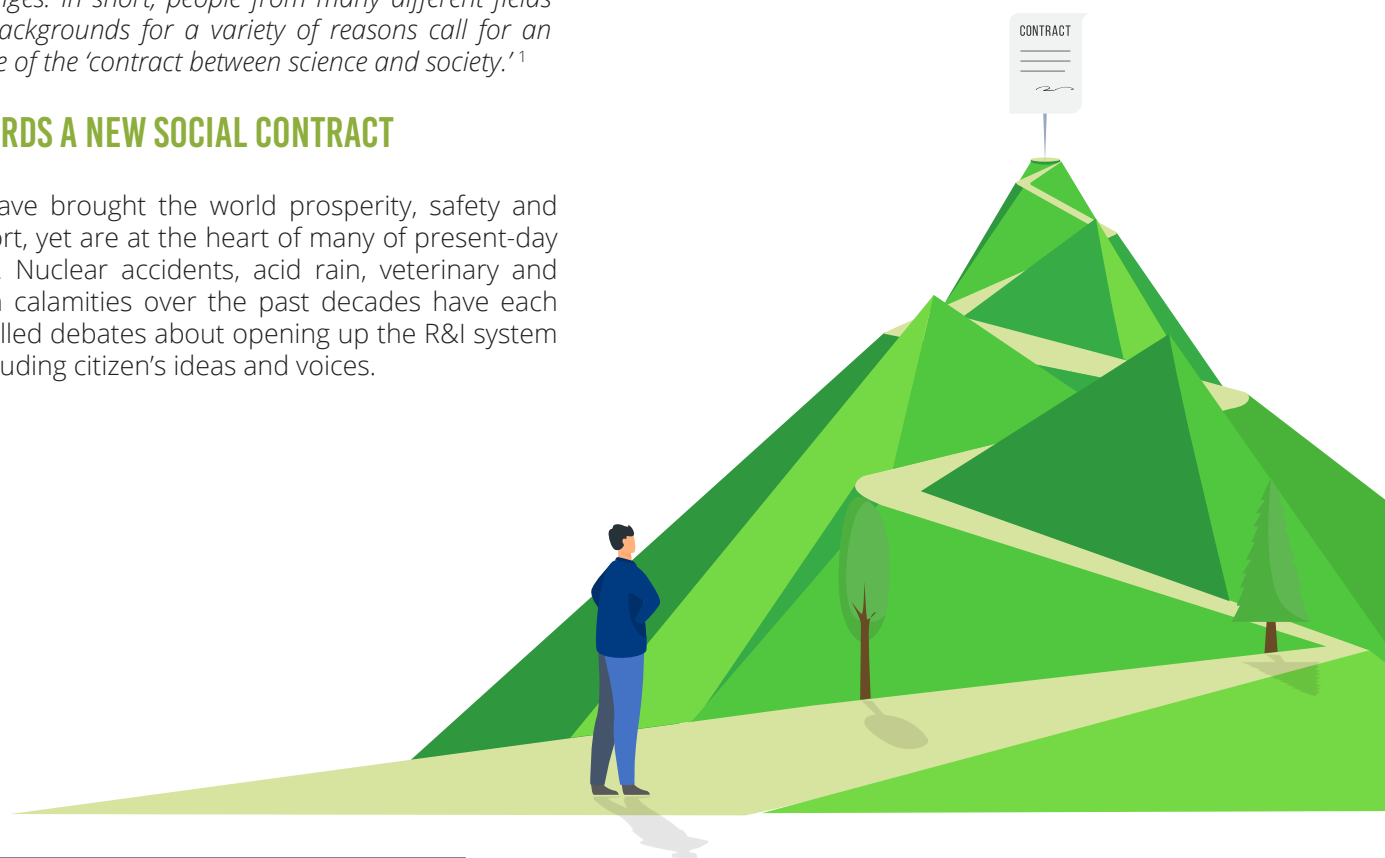
CHANGING SCIENCE-SOCIETY RELATIONSHIPS

Whether it is the rapid development and deployment of COVID-19 vaccines, new forms of energy production or the advent of Artificial Intelligence, time and again research and innovation (R&I) prove to fundamentally affect our societies and ecologies. Because resulting technologies profoundly impact our common future, calls to open up R&I agenda setting, research design and innovation processes are widespread. Not only civil society organizations and research funders like the European Commission actively stimulate such a development, also many researchers endorse the idea. They call for an end to the 'publish or perish'-culture that measures research impact only in terms of the number of publications, citations and patents that research yields. Simultaneously, innovators are starting to question narratives of 'limitless economic growth' while policymakers and citizens increasingly look at R&I to deliver solutions for grand societal and ecological challenges. In short, people from many different fields and backgrounds for a variety of reasons call for an update of the 'contract between science and society.'¹

TOWARDS A NEW SOCIAL CONTRACT

R&I have brought the world prosperity, safety and comfort, yet are at the heart of many of present-day crises. Nuclear accidents, acid rain, veterinary and health calamities over the past decades have each propelled debates about opening up the R&I system to including citizen's ideas and voices.

Likewise, in view of specific technological developments like genetic modification, and the rise of nanotechnology, researchers have called for self-imposed limits. Many of those working on new techno-scientific developments such as Artificial Intelligence, biometrics and new gene editing techniques have started to discuss the ethical implications and possible societal impacts of their work.



¹ The "social contract between science and society" is an arrangement that builds on "trust which sets out the expectations of the one held by the other, and which — in principle — includes appropriate sanctions if these expectations are not met" (Álvarez & Zamora-Bonilla, 2013; Gibbons, 1999, p. C81).

In parallel, policymakers have started to recognize the importance of leveraging R&I to reach the Sustainable Development Goals. There is a growing understanding that this requires the involvement of all stakeholders, including citizens. Just how, when and where, societal actors can engage in the deliberation and decision-making processes around R&I remains unclear.

It is clear that the heydays of the narrative that portrays science as an '*endless frontier*',² which merely needs public funding to benefit society, are over. But what is the alternative narrative?

This Guide seeks to contribute to the available material by providing insight in how groups of individuals, brought together from across the R&I system in a temporary participatory setting, may actually work towards instigating system change, even if that setting is merely temporary, and thus 'ad hoc' and an 'add-on' to standing institutions. For this we draw on lessons learned in 4 years of experimentation with such settings, which in the NewHoRRIzon project were dubbed social labs.⁴

RESPONSIBLE RESEARCH AND INNOVATION

Building on previous debates about how to rethink science-society relations, some 10 years ago, a European discourse on Responsible Research and Innovation (RRI) emerged. RRI "*aims to foster the design of inclusive and sustainable research and innovation, with an emphasis on co-creation and co-production with society ('science with and for society')*" (Owen & Pansera, 2019, p. 26). RRI attempts to "*align research and innovation to the values, needs and expectations of society (with a strong emphasis on 'societal grand challenges [while simultaneously seeking] to anticipate and assess broader implications of research and innovation in an ethical, inclusive and responsive way'*" (idem). RRI is, put differently, a narrative that promotes better relations between R&I and society. This narrative begs the question how to do so, that is, how to implement RRI? While RRI carries a promise to improve the relationship between R&I and society in a democratic manner, there is no singular, clear-cut manner in which people may put it to practice in a given institutional context.

Rather, there are numerous approaches, tools and techniques for implementing RRI, witness the plethora of RRI-oriented project results.³

2 Vannevar Bush in 1945 wrote, in reply to president Roosevelt's question whether science could play a role in producing peace, prosperity and health among the population, the report 'Science, the Endless Frontier'. The answer that the report formulated boils down, in the words of Daniel Sarewitz (Sarewitz, 2020) to the straightforward logic:

"[I]f you add more money, you'll get more science, and the world will get better."

3 For a practical overview, see the [RRI Tools catalogue](#).

4 In short, social labs are temporary spaces for participatory and experimental action research aimed at system change. For further background, please see (Hassan, 2014; Timmermans, Blok, Braun, Wesselink, & Nielsen, 2020).

READING GUIDE

The *Guide* is structured as follows. In the next chapter you will find an Overview of the logic that structures the Guide as well as a summary of all 28 lessons gathered here. These are grouped in four clusters, each discussing a particular aspect of experimenting with implementing RRI. Since this work involves reiteration and adaptation of ideas and actions in the light of emerging insights, each of these clusters of activities is likely to be relevant time and again throughout the duration of your project. Therefore, even though the lessons touch on subsequent aspects of organizing a participatory setting for deliberating and operationalizing RRI, they are not to be seen as 'steps' with a linear order.

The next four chapters each discuss a cluster of lessons about aspects of organizing a temporary participatory arrangement to improve relationships between R&I and society. The first chapter suggests ways to analyze strategically and substantively what is relevant in your project's context for stimulating change: *Diagnosing a project's context*. Secondly, we will share lessons on how to *Engage the 'Right' Stakeholders*. Thirdly, lessons are shared regarding effective methods and useful management choices that help *Enhance a sense of agency among participants*. The fourth chapter lists possible *Interventionist actions*, grouped per the specific aim and function such an intervention may have. The chapter showcases examples of what may follow from the participatory process and what one needs to take account of in order to create lasting impact. We illustrate the lessons per group with narratives developed by social lab managers and participants who described their experiences.

The Conclusions chapter relates the insights and lessons learned to recent debates about the relationship between R&I and society for which, we argue, the lessons in this Guide hold relevance. We hope to show that anyone who is motivated to experiment with forging better relationships between R&I and society can do so!

IMPROVING RELATIONSHIPS BETWEEN R&I AND SOCIETY IN A PARTICIPATORY SETTING

With its attention to the values, needs and expectations of society, RRI provides a particular, more democratic alternative to current relationships between science and society. But how can change agents give shape to RRI in practice in a participatory and experimental manner?

DEMOCRATIC EXPERIMENTATION TO INFORM STRUCTURAL CHANGE

In answer to this question, we draw on the experiences in the NewHoRRizon project's social labs, temporary participatory projects that aimed to promote RRI. With the support of social lab designs and teams, including facilitators, lab participants were provided the opportunity to reflect, envision and experiment with the implementation of different actions.

To make sense of these experiences, we understand their collective efforts to be instances of *democratic experimentation*. Originally elaborated by the Pragmatist John Dewey, this is a type of experimentation that is focused on building actionable knowledge by acting upon and changing the world. It aims to provide those who are involved in, or affected by an issue or problem in a certain context with the possibility to reflect on the problem and collectively imagine alternative solutions which

can then be tested and refined in practice.⁵ As such, temporary participatory and experimental settings can help people who are looking for change to actually implement changes that challenge existing institutions.

So, how does such a process of democratic experimentation work in practice? On the basis of a comparative narrative evaluation, we arrived at the following four clusters of lessons (Figure 1) that help change agents to democratically experiment with alternatives and changes that improve current R&I-society relations.⁶

⁵ These ideas were developed, amongst others, in his seminal work *The public and its problems* (Dewey, 1954) and later taken up and elaborated by others (Ansell, 2012; Cohen & Gianni, forthcoming).

⁶ For further reading on the framework for and assessment following from this evaluation, please see (Loeber & Cohen, 2018, 2021).

I. Diagnosing a project's context

Efforts at instigating change require insight in the institutional context in which a temporary arrangement is organized. The resulting insights in contextualized institutional barriers to, and opportunities for, improving science-society relationships are critical for identifying the 'right' stakeholders to involve in your project, and for designing suitable interventions;

II. Engaging the 'right' participants

The success or failure of inciting change crucially hinges on engaging participants who, like you, also possess the need to change the existing situation. For organizers the challenge is therefore to engage the right stakeholders. They are the linking pin between a context and the temporary project and it is their energy and visions which can catalyze change;

III. Enhancing a sense of agency

For people who are genuinely concerned about and/or motivated to work towards inciting change, developing a sense of agency with your participants is imperative. After all, it is difficult to remain highly motivated in the face of an existing, seemingly immovable system. We found that change is possible, if only well organized and properly supported. Among the support necessary are methods for creating visions, inciting reflection, and help with the anchoring of their actions in standing organizations;

IV. Designing and implementing interventionist actions

Change is not only about creating new ideas but also about putting these into practice in the form of interventionist actions. We found that actions can have multiple, overlapping functions, which contribute to challenging aspects of the extant institutional set-up in various ways.

DIAGNOSING A PROJECT'S CONTEXT

ENGAGING THE 'RIGHT' PARTICIPANTS

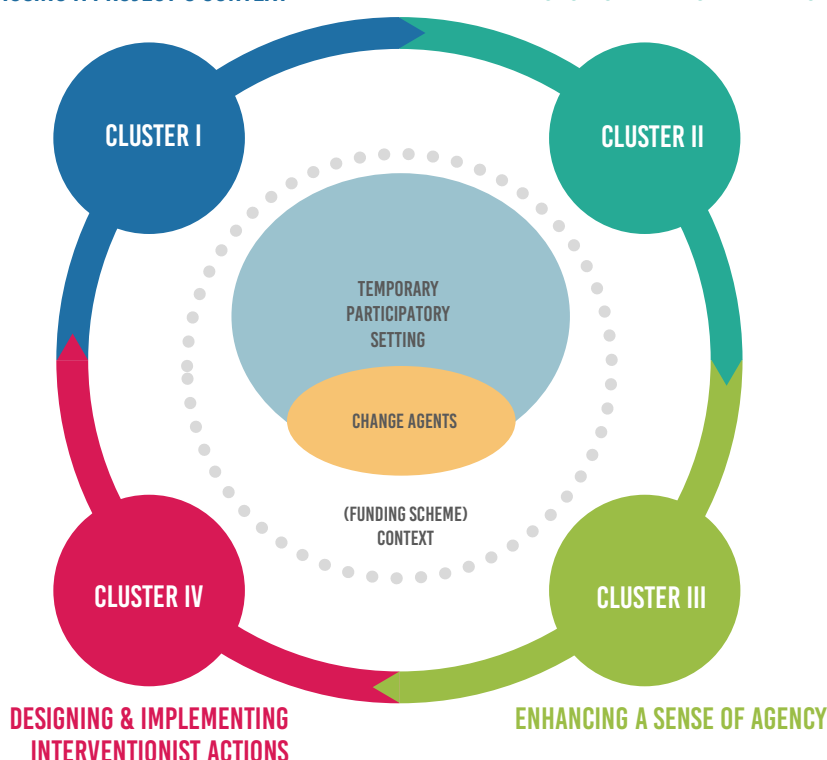


Figure 3 - The four clusters of activities involved in organizing a participatory project (social lab) to elaborate and experiment with improved relationships between R&I and society

OVERVIEW OF LESSONS PER CLUSTER

Here we provide an overview of the 28 lessons that organizers of temporary participatory and experimental projects can use to support change agents to implement changes that challenge existing institutions.

I.

Cluster I: Diagnosing a project's context

Lesson 1: Diagnose the institutional setting to identify possibilities for change. This setting is most likely the same context which affects your work on a daily basis.

Lesson 2: Be aware that institutions take many forms (rules and incentives, narratives and practices) and play out differently in different contexts.

Lesson 3: Identify barriers that hamper improving science-society relationships.

Lesson 4: Identify opportunities and enablers that may help incite change in the R&I system.

II.

Cluster II: Engaging the 'right' participants

Lesson 5: Map important stakeholders and potential change agents, and recruit them while interviewing and through snowballing.

Lesson 6: Reserve extra time and effort for the engagement of particular stakeholder groups.

Lesson 7: Try to achieve buy-in from policymakers or the management from the start.

Lesson 8: Try to engage with associations and link up with existing networks.

Lesson 9: Take into account that the process requires intrinsically motivated participants.

Lesson 10: Be prepared to let participants go and be open to new, even unexpected agents of change who can revive momentum.

Lesson 11: Adapt the value proposition of what you can offer to changing circumstances.

Lesson 12: Have participants involve other stakeholders relevant for anchoring their actions.

III.

Cluster III: Enhancing a sense of agency

- Lesson 13:** Clearly explain the background of your project, what space for experimentation participants have and what support they can expect throughout the process.
- Lesson 14:** Organize your participatory project responsively but reflexively.
- Lesson 15:** Create a structured visioning process to support participants in developing ideas for alternative futures.
- Lesson 16:** Support group formation around ideas and selection of protagonists through formal and informal moments.
- Lesson 17:** Support concrete planning for action through an ordered process but be ready to respond to participants' needs on the spot.
- Lesson 18:** Organize enough moments for participants to come together digitally or physically to reflect on progress and obstacles and ways ahead.
- Lesson 19:** Provide moments that allow participants to make a conscious choice to re-emphasize their commitment to implementing a particular idea.
- Lesson 20:** Identify missing knowledge and skills and support capacity building with participants for more inspired results and actions.
- Lesson 21:** Be prepared to step in or redistribute particular tasks when participants lack motivation or resources at a particular moment in time.
- Lesson 22:** Actively invite participants to reflect on how their actions relate to and can be anchored in their institutional contexts.

IV.

Cluster IV: Designing and implementing interventionist actions

- Lesson 23:** Build capacity with other change agents.
- Lesson 24:** Change practices to concretely show that things can be different.
- Lesson 25:** Promote new implementable designs.
- Lesson 26:** Construct counter-narratives that question the status quo.
- Lesson 27:** Produce communicable output for practitioners and decision-makers.
- Lesson 28:** Change rules and incentives that govern research and innovation behavior.

CLUSTER I: DIAGNOSING A PROJECT'S CONTEXT

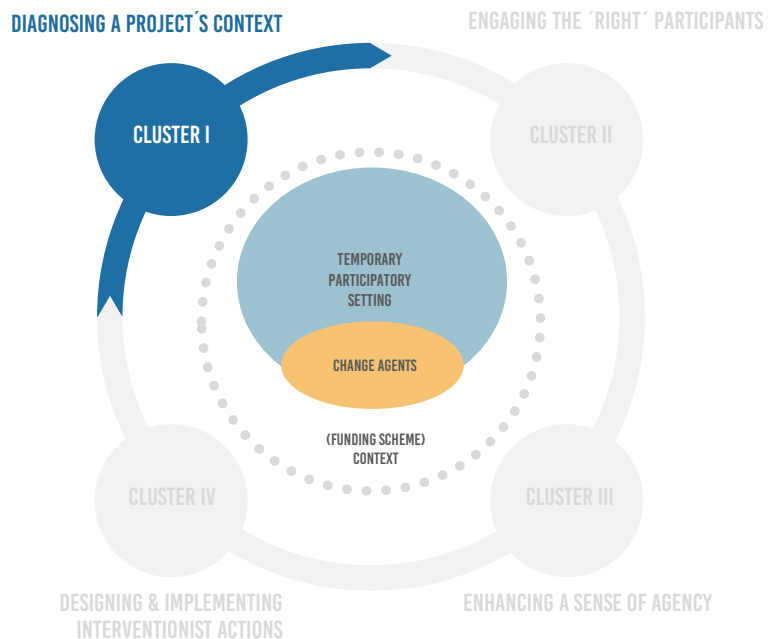
Anyone who has ever tried to achieve durable change has recognized that it takes quite some energy. Whether you are trying to change your own behavior, the way you think or the R&I system, it is never without effort. This is because changes never take place in a vacuum. Social change takes place in a social and cultural context. Such contexts are characterized by rules and conventions, norms and ideas, cast in narratives, and explicit and implicit standards for conduct. In short: institutions. Any effort that is aimed at changing relationships between R&I and society needs to recognize the importance of these institutions. But how can one go about analyzing these with an agenda for change in mind? What lessons can we take from research on institutions, and the experiences in the NewHoRRlzon project?

LESSON 1:

DIAGNOSE THE INSTITUTIONAL SETTING TO IDENTIFY POSSIBILITIES FOR CHANGE. THIS SETTING IS MOST LIKELY THE SAME CONTEXT WHICH AFFECTS YOUR WORK ON A DAILY BASIS.

For any attempt at change to succeed, it is imperative to fully grasp the institutional setting or context in which the envisioned change is projected to take place.

For example, in the *Spreading Excellence and Widening Participation* (WIDENING) social lab, university researchers from the University of Novi Sad in Serbia wanted to improve their university, and with that, relationships between science and society. This meant taking a look at the daily workings of the organization itself, as well as the broader institutional setting on the national level, and on the level of the European Widening funding program to which it was related, to find out why change was not happening until now. This involved an analytic exercise in which the institutional context was mapped.



Such a diagnostic exercise was done by all involved in NewHoRRlzon for all parts of the Horizon 2020 funding program. Each sub-section ("program line" in terms of the European Commission) was subject to a thorough scrutiny of the institutional environment, including the question how RRI was being implemented and viewed by relevant stakeholders.⁷ To that end, we analyzed all policy documents, funding program documents and related evaluation criteria. We scrutinized these for the uptake of RRI by looking at the provenance of 6 keys of RRI and 4 dimensions.⁸ In addition, we interviewed relevant stakeholders who dealt with these funding programs on a daily or repeating basis. Taken together, these activities helped us to get a sense of how well RRI was institutionalized in the particular context, and what was hampering a further, smooth implementation.⁹

⁷ An overview of the different program lines and related social labs you may find [here](#). You can click on the wheel to find out more about particular program lines and labs.

⁸ The European Commission operationalized RRI into 6 policy keys: gender equality, public engagement, open access, science education, ethics and governance (European Commission, 2012). Scholars operationalized RRI in different process dimensions: anticipation, inclusion, reflexivity and responsiveness (Stilgoe, Owen, & Macnaghten, 2013).

⁹ For an overview of the analysis see (Novitzky et al., 2020).

LESSON 2: BE AWARE THAT INSTITUTIONS TAKE MANY FORMS (RULES AND INCENTIVES, NARRATIVES AND PRACTICES) AND PLAY OUT DIFFERENTLY IN DIFFERENT CONTEXTS.

New insights from research on institutions shows that institutions become manifest in different ways.⁹ First, there are the *rules and incentives* which influence one's behavior: playing by the rules is rewarding as it will yield such rewards as praise, but also more prosaic benefits such as time, smooth communications and a smooth work flow. Secondly, institutions play out in shared *narratives*, that is, people in a similar setting often use similar ways of talking and reasoning about some issue. The narrative is the grammar that people hold in common in some setting, and by which they articulate their individual stories, particularly about what they consider right or wrong conduct in that setting. Thirdly, institutions become explicit in (and hence encompass) informal *practices*, that is, in the routine behavior and associated understanding of 'the way we do things around here.' In daily professional life, these three forms of institutional manifestations reinforce each other in a certain setting; not acting in accordance with those that are dominant comes with the risk of punishments, ridicule or personal costs.

As said, institutions play out differently in different contexts, as we can see if we compare the Research-oriented *Marie Skłodowska-Curie Actions* (MSCA) and the Innovation-oriented *Leadership in Enabling and Industrial Technologies* (LEIT) funding programs.

The Research-oriented MSCA program line focuses on providing early-career researchers with fellowships for transnational, intersectoral and interdisciplinary mobility and training for "Excellence". The latter is often understood solely in terms of the number of publications in high impact factor journals and academic produce. Various early-career researchers and a policymaker confided to us that many evaluators and university supervisors supported this narrative to the detriment of personal development of early-career researchers, denouncing topics like research integrity and societal engagement. Rules and incentives reflected this understanding of excellence as host universities where researchers with an MSCA grant work valued dissemination of knowledge in journal articles most notably, and did not reward efforts at dialogic communication.



In the Innovation-context of LEIT, rules and incentives predominantly focused on the development and marketisation of new technologies. LEIT's dominant narrative was that research and innovation is predominantly economy and technology driven. This was also reflected on the level of practices. Aside from user-testing and customer research, most companies were not engaging at all with the public. Due to a lack of expertise and unclear requirements and processes, participants in the LEIT social lab shared that felt it was difficult to do so.

The two examples show how rules and incentives, narratives and practices may stimulate some behavior more in a particular context, and disincentivize other conduct. In view of working towards RRI implementation, those institutions that hamper e.g. the promotion of societal engagement in R&I are of relevance to bring out in your analytic efforts. On the basis of such insights (like the 'bonus' on publishing papers in MSCA or developing new marketable technologies in LEIT), strategic plans for further action, including participant selection, can be drafted.

¹⁰ For further reading on this topic see (Lowndes & Roberts, 2013).

LESSON 3: IDENTIFY BARRIERS THAT HAMPER IMPROVING SCIENCE-SOCIETY RELATIONSHIPS.

Taken together, specific rules and incentives, narratives and practices of “good” R&I can form a barrier for better relationships between R&I and society. It is important to underline that this may not be the intention of particular actors, but the collective result of how these institutions interact in practice.

To illustrate, in the context of the “Excellence”-oriented *European Research Council* (ERC), the narrative of excellence mostly revolved around protecting basic or fundamental research from the interference of outsider stakeholders. Elements of RRI such as gender equality, public engagement and ethics were at times interpreted as conflicting with “excellence only” and the “autonomy of science” and therefore did not play a central role in the rules and incentives of the program. On the level of associated practices, engaging with issues of RRI was at times considered a burden for researchers, that would keep them from focusing on what excellent researchers are supposed to do such as publishing in high impact factor journals.

Another example is the research funding scheme for *Smart, Integrated and Green transport* (TRANSPORT). The main narrative in this context held that technology is expected to provide answers to the challenges societies are faced with nowadays. Overall, associated rules and incentives created a knowledge-hierarchy in which new technological solutions, such as around automated mobility, were developed by major actors from research and industry, while civil society and non-experts were reduced to the roles of “users”. In practice, this lack of societal participation led to solutions described as technological fixes that are linked more closely to economic than to societal needs.

A similar situation could be seen in the context of nuclear research (EURATOM) where interviewees were skeptical about involving the public in bidirectional communication about research. Although they were eager to communicate the benefits of nuclear research to the public, they also pointed out that public perceptions of nuclear research are not positive and therefore, public discussion would not be fruitful for them. Some participants used the label “guys from the woods” to denote their environmentally concerned societal sparring partners. The guy from the woods was considered to be uneducated and in need of seeing the bigger picture, which could only be provided by experts with special training. From this perspective, deeper involvement of lay people into research did not make sense.

Looking at these institutions, such as the different narratives on what involves ‘good’ R&I and its relations to society and the public helps to uncover barriers in thinking and practice against improved R&I-society relationships.

LESSON 4: IDENTIFY OPPORTUNITIES AND ENABLERS THAT MAY HELP INCITE CHANGE IN THE R&I SYSTEM.

Despite such barriers, institutions also possess the capacity for change, and may serve as springboard for broader changes in the R&I system. New narratives are shared and find their way into the minds (and hearts) of people. New practices are developed in response to problems experienced on a daily basis. Both can solidify in sets of rules and incentives in a particular context and thus affect behavior across specific corners of the R&I system.

RRI is itself an example of a new narrative that informed the development of new practices and partly solidified in the *Science with and for Society* funding program. Furthermore, as a cross-cutting issue in Horizon 2020 it partly trickled down in other program lines, providing an impetus for research and innovators interested in working on science-society issues on the level of practice.

See for example how it trickled down into the program “Research on climate action, environment, resource efficiency and raw materials” (ENV), a funding program focusing on environmental issues. The institutional analysis showed that there was some awareness of RRI and that this was also connected to narratives on the relevance of Sustainable Development Goals and “the systemic approach” which referred to the importance of social innovation, impact and participation beyond technical innovation. Indeed, the calls of the ENV program were answered by research communities aware of and experienced in participatory research, who were open and responsive to RRI.

Some institutional contexts were also opening up to ideas on inclusive R&I, even without explicit knowledge of RRI as such. This was the case with the *Joint Research Centre* (JRC), a science for policy organization that has provided scientific advice to EU policymakers for over 60 years. A number of initiatives and beginning practices at the JRC aligned well with the principles and keys of RRI. Particularly, the recent restructuring process undertaken by the JRC implied a more open, democratic approach to knowledge production and sharing, as well as sensitivity to gender aspects. Practically, the changes included efforts to create settings for inter- and transdisciplinary research as well as outreach beyond researchers and expert communities, and attention to artistic approaches for conveying research results. Despite a lack of awareness of the RRI concept as such, a growing interest in more extensive public engagement and an opening up of the JRC to outside stakeholders provided a fruitful background and stepping stone for introducing the RRI concept.

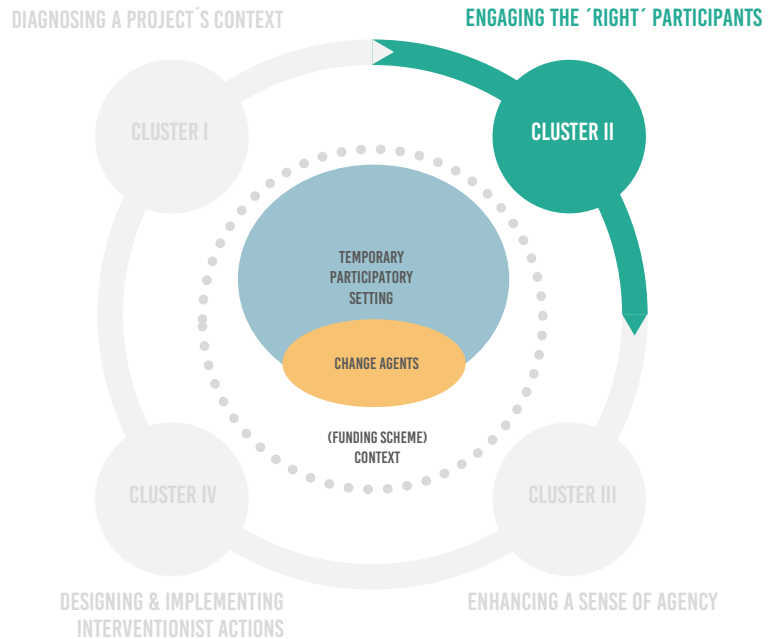


These examples show that institutions are not only barriers, but that they may also provide a venue for change. Studying them may provide insight into possible “pressure points” in the form of new narratives, practices or rules and incentives to which you can link up, to help speed up and re-direct on-going changes in the R&I system. Involving others in your efforts to that end will help you enrich ideas and perspectives on possible enablers and barriers in your context, and on ways to overcome these.

CLUSTER II:

ENGAGING THE 'RIGHT' PARTICIPANTS

As we saw in the previous chapter, any effort at change requires a certain amount of momentum to break existing inertia and alter institutions. Luckily, in any institutional context, there are always people who are interested in improving the status quo. People who are uncomfortable with current rules and incentives, who believe different narratives should be promoted and who have an interest in trying out new practices because they experience in their daily conduct that things are not in line with their norms. The involvement of such potential agents of change is crucial as they form the linking pin between an existing institutional context and a temporary participatory project. It is these people who you want to empower, build coalitions with and engage in your efforts. But how to find these 'ideal' participants? How do you make sure that you are not just working with the usual suspects?



LESSON 5:

MAP IMPORTANT STAKEHOLDERS AND POTENTIAL CHANGE AGENTS, AND RECRUIT THEM WHILE INTERVIEWING AND THROUGH SNOWBALLING.

Whenever you are surveying a certain institutional context, it is important to also pay attention to the diversity of stakeholders and possible change agents that populate this context.

For setting up our participatory projects, we all used desktop research and interviews to get a sense of who was important in the context of a particular program line. We tried our best to contact a diverse set of stakeholders including researchers, innovators, policymakers/administrators, Civil Society Organizations (CSOs)/publics and support personnel, representing different countries and genders and used the interviews to entice them to participate in our social lab workshops.



Whenever people were interested in participating but could not make the first workshop, we used the “snowballing” method, asking them to provide other contact details of people who could be interested. In the process, we were supported by colleagues working at *CWTS Leiden* who analyzed project descriptions for the prevalence of keywords related to elements of RRI. This helped us to get a sense of projects that would harbor possible agents of change.

LESSON 6:

RESERVE EXTRA TIME AND EFFORT FOR THE ENGAGEMENT OF PARTICULAR STAKEHOLDER GROUPS.

Some stakeholder groups may be harder to engage in RRI-related projects than others. Policymakers, CSOs, Non-Governmental Organizations (NGOs) and businesses we found are particularly difficult to involve in a participatory process, for a variety of reasons. Different interests, agendas and practices lead them to prioritize other activities over involvement in a participatory project. Because of this, organizers are advised to put extra efforts in recruiting these particular groups by first understanding the needs of envisaged participants from these groups, and then clarify their plans in relation to these, detailing these in a responsive manner.

Policymakers are likely to lack time and interest to participate in your participatory project. In our project many social lab teams wanted to recruit policymakers for their social labs. Some of the policymakers professed an interest in the outcomes of the project but were not too keen on joining the process itself. The ENV social lab manager noted that this appeared to be business as usual with the European Commission. The social lab manager working in the context of *Europe in a changing world – Inclusive, innovative and reflective societies* (SOCIETY) overcame the issue by involving another policymaker (an advisor to the Estonian prime minister).

Businesses may be hard to engage too, but for different reasons. The LEIT social lab team explained that this is because the objectives of a social lab are not always in line with the business objectives of companies. Some of the businesses they invited mentioned problems with Intellectual Property Rights in relation to the development of actions.

Others were not in favor of a bottom-up approach and wanted to see more clear structure and planning of the participatory project. In the case of the LEIT social lab, insights like these informed extra efforts at recruitment in which they translated the proposition of RRI and the lab to different stakeholder needs. In practice, this meant clearly explaining the background of the project and of what one can expect while re-emphasizing the possibilities for different types of stakeholders to leverage the RRI concept and social lab to their own advantage.

CSOs can also be hard to recruit and retain. The LEIT social lab found out that this has to do with the multiple reasons. CSOs and NGOs do not always speak the same language as academics and business partners, have a hard time in finding the right contacts for collaboration and may have different needs. They can be more interested in practical outcomes, often related to issues of social justice and social change.

Just as in the policy and business context, carefully gauging their needs and adapting the value proposition to them could provide a solution to the lack of participation of such stakeholder groups in future projects.

LESSON 7:

TRY TO ACHIEVE BUY-IN FROM POLICYMAKERS OR THE MANAGEMENT FROM THE START.

Any attempt at change is greatly helped with involvement and buy-in from the policymakers and/or organizational management from the start.

Take again the example of the JRC social lab. While initially the social lab team had a hard time to engage with the JRC management, after some initial to-and-fro communication the management replied that they were struggling with the topic of Connected and Automated Vehicles. As it could have a great impact on the mobility of the future, they were particularly interested in involving more citizen perspectives and transdisciplinary approaches in their research on it.

The social lab team offered to use the temporary RRI-oriented social lab to help them out with this challenge. It was mutually agreed that the lab could focus on a specific project on autonomous road transport from the JRC *Exploratory Research* program. Full cooperation was then given by the JRC management and with this approval they managed to involve a number of persons from JRC from various units and levels.

Such steps, like gauging what issues the management is currently struggling with, will provide you with the institutional back-up and resources to work on issues that are relevant to a certain context.

LESSON 8:

TRY TO ENGAGE WITH ASSOCIATIONS AND LINK UP WITH EXISTING NETWORKS.

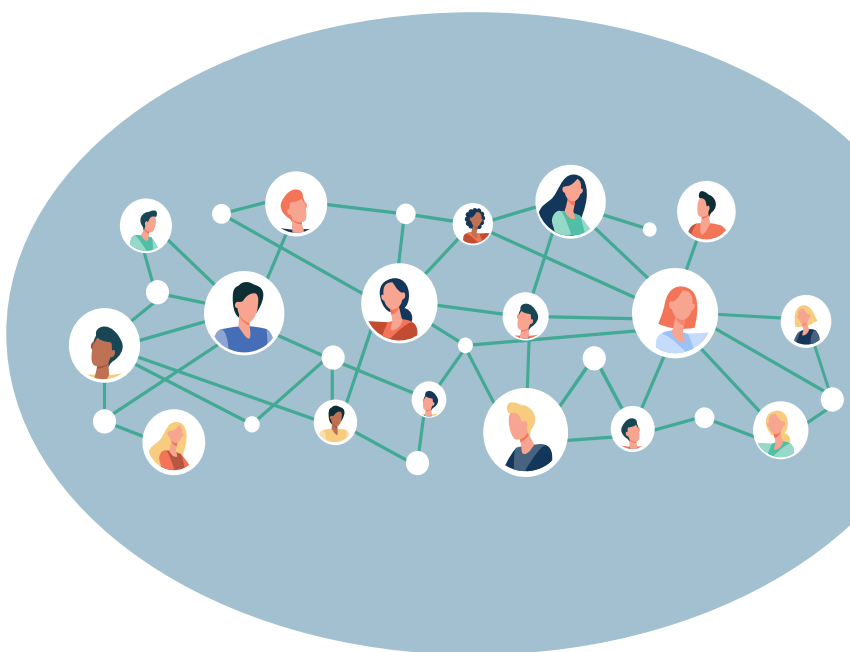
Not everyone is able to achieve buy-in with the management for participatory experiments in their own home organization. Luckily, there are more possibilities than working at the organizational level. Networks and associations of R&I practitioners are also an important part of the R&I system. They often function as the glue that keep all kinds of individual R&I practitioners together across geographical, disciplinary and organizational scales.

In our project many different social labs worked with international networks of National Contact Points (NCPs). NCPs are funding advisors who are tasked with building capacity with prospective R&I funding applicants in different sectors. Working with such networks provided a great opportunity to spread the word on improving R&I and society relationships way beyond individual actors or organizations.

For example, the MSCA social lab management team found out that there is an association, partly sponsored by the European Commission, that caters to the interests of all kinds of actors related to the MSCA program line. This *Marie Curie Alumni Association* (MCAA) had a membership of more than 14,000 people related to MSCA. The team felt that involving the MCAA would help to get a better idea of existing problems and that cooperation could help the project and its participants to make more waves in the context of the program line.

Often, such networks and associations provide capacity building for a wide range of people across Europe. The social lab manager focusing on *Future and Emerging Technologies* (FET) recognized this. To reach a good amount of "RRI-mileage-per-Euro" he made sure to involve projects connected to large networks through which we could distribute results or involve more parties in further activities. He decided to focus on large flagship consortia and the *European Association of Research Managers and Administrators* (EARMA). EARMA strives to undertake capacity building with research managers and administrators across Europe.

Creating actions with the cooperation of such networks and associations has the potential to contribute to capacity building across the European R&I system.



LESSON 9: TAKE INTO ACCOUNT THAT THE PROCESS REQUIRES INTRINSICALLY MOTIVATED PARTICIPANTS.

Being engaged in a temporary participatory project requires time and energy from both the team and participants themselves. It is good to recognize this when recruiting participants.

The social lab manager working on *Research Infrastructures* (INFRA) noticed this after the first workshop was organized. To her, it became clear that hosts and teams experience some pressure during the implementation phase. This has to do with the fact that work is voluntarily and participants already invest much of their time to attend the participatory workshops. It struck her that only hosts who can really implement the ideas in their daily work or are personally eager to pursue an intervention on a voluntary basis can dedicate a sufficient amount of time and energy.

This means that you need to recruit motivated people or be able to tap into their intrinsic motivation to improve their own contexts if you want to keep interventionist actions going.

LESSON 10: BE PREPARED TO LET PARTICIPANTS GO AND BE OPEN TO NEW, EVEN UNEXPECTED AGENTS OF CHANGE WHO CAN REVIVE MOMENTUM.

Because of the need for energy and intrinsic motivation, at one point in the process, it may become clear to some participants that they do not see an opportunity to continue their involvement. This is okay, but may require you to recruit new participants, who can even bring new energy into your efforts.

Many social labs, such as the ERC social lab, noted that at one point it became clear that participants would probably finish their involvement. The lab team thought this mainly had to do with a lack of funding and too heavy existing workloads on the part of participants. The team wanted to compensate for the natural loss of participants by recruiting new ones.

And so they did, which provided quite the impulse to the rest of the group. One of the new participants created a new interventionist action which was attractive to almost every participant. He had a strong intrinsic motivation to develop public engagement actions because of his interest in communicating with people outside research. His enthusiasm was infectious to the entire group and the workshop format provided space and time to develop the idea into a first prototype.

This example particularly shows the importance of remaining open to new participants and tapping into their energy and motivation to revive momentum with the rest of the group.



LESSON 11: ADAPT THE VALUE PROPOSITION OF WHAT YOU CAN OFFER TO CHANGING CIRCUMSTANCES.

Sometimes there is a risk of disengagement because of external developments beyond your direct control. This may require you to adapt the value proposition of your participatory project to the needs and interests of your participants.

In our project, we had to deal with the issue that RRI as a policy construct appeared to be phased out of the planning for the next European funding program. Many different social lab organizers had to deal with the uncertainty this brought to their own social labs which were premised on reflection and promotion of RRI.

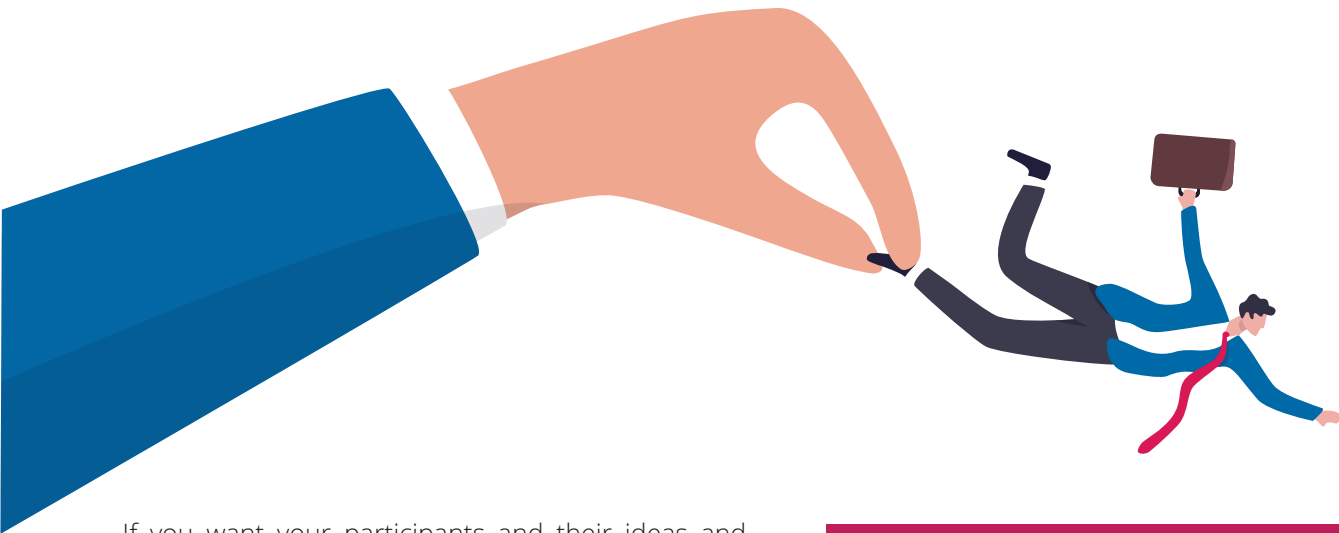
This came up as a topic in the social lab working on *Food Security, Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research and the Bioeconomy* (FOOD). The social lab manager stated that the “*mainstreaming*” of RRI made it important for the RRI community to go and seek out partnerships with researchers in other programs. It was brought up as a topic too in the MSCA social lab where participants seemed already quite invested in their interventionist actions and ideas, regardless of whether or not RRI as a policy label would stay. In response, the team there tried to emphasize that the social lab and its workshops were intended to actively enable the participants to think about transforming the level of existing practices and systems towards more responsibility.

Such discussions resulted in a more agentic atmosphere in which participants were constantly triggered to think of themselves as agents being able to positively tinker with the system.

Both examples show that changing circumstances beyond the control of your participatory project may form a risk for further engagement. At the same time, they underline that an adaptation of the value proposition in line with the new circumstances and needs of participants may help to keep them engaged during the process.



LESSON 12: HAVE PARTICIPANTS INVOLVE OTHER STAKEHOLDERS RELEVANT FOR ANCHORING THEIR ACTIONS.



If you want your participants and their ideas and actions to have durable impact beyond your temporary project, you need to make sure that the right stakeholders are involved who can make this possible. This may also mean that your participants try to involve stakeholders relevant for *anchoring* the actions beyond the project as soon as possible.¹⁰

Take for example one of the groups working in the WIDENING social lab. They were interested in implementing elements of RRI in two different departments of their own university. They actually decided to contact the vice-dean of their university and convinced him of the importance of implementing RRI for staying in tune with European developments in research funding. The vice-dean then made the decision to embed and sustain RRI and its activities by giving them the permission to set up an RRI-team. With his support they could work on encouraging academics to get out of the comfort zone and start embracing RRI through specific steps.

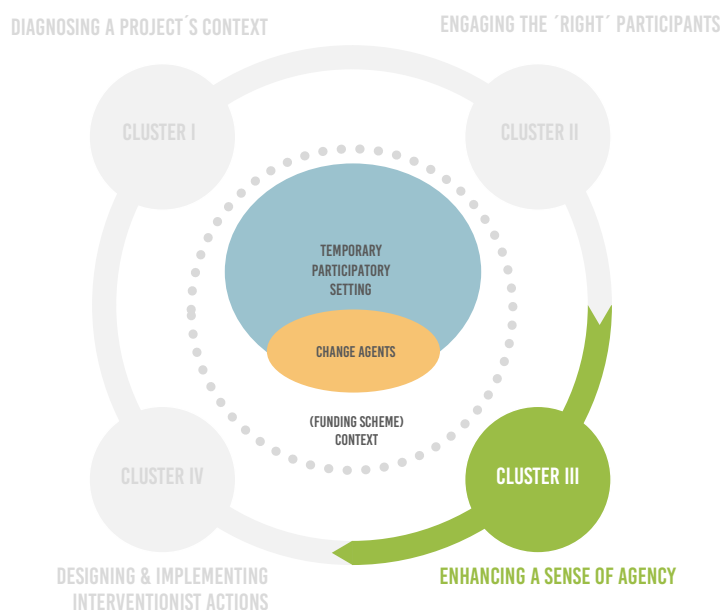
The latter example points to the importance of existing structures for changing a research organization and the R&I system at large. At the same time, it points to the fact that participants always possess a form of agency within their own context. With a little support you can help participants to develop their sense of agency further. The next chapter will try to show how.

¹¹ Anchoring refers to “the process in which a novelty becomes newly connected, connected in a new way, or connected more firmly to a niche or a regime. The further the process of anchoring progresses, meaning that more new connections supporting the novelty develop, the larger the chances are that anchoring will eventually develop into durable links” (Elzen, Van Mierlo, & Leeuwis, 2012, p. 3; Loeber, 2003).

CLUSTER III:

ENHANCING A SENSE OF AGENCY

A sense of agency revolves around whether or not someone feels they have the capacity to do things differently than usual. However, not all participants are always aware of their agency to influence their context. Some of them may feel powerless in changing “the system” that tells them how to behave and conduct themselves professionally. They may see themselves as mere cogs in a machine who possess little room to improve things. That is where a temporary participatory and experimental project, such as a social lab, can really help them to enhance a sense of agency. But how to do so concretely? Which methods and management choices may help to enhance a sense of agency with participants so that they start to see themselves as change agents or even institutional entrepreneurs¹¹ who work from within present institutions to achieve fundamental changes?¹²



LESSON 13:

CLEARLY EXPLAIN THE BACKGROUND OF YOUR PROJECT, WHAT SPACE FOR EXPERIMENTATION PARTICIPANTS HAVE AND WHAT SUPPORT THEY CAN EXPECT THROUGHOUT THE PROCESS.

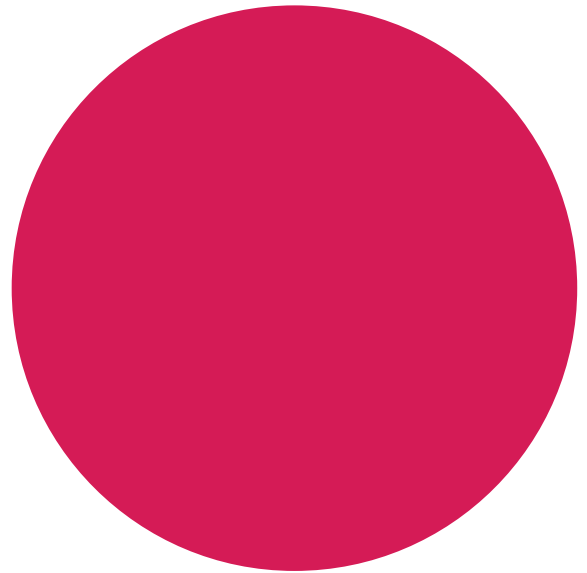
If you want to provide people a venue to develop their own ideas, you must clearly explain the background of your project (and when relevant how it has been funded) to establish common ground with diverse participants. It is equally important to provide participants with some insight into how much space they have to implement their own ideas and what they can expect in terms of resources and support by the organizing team.

The social lab manager working on the *Science with and for Society* (SWAFS) social lab had learned about this opportunity from other social lab teams. On their recommendation they used the introduction to the first workshop to emphasize that any ideas for interventions fit with what people can do with their resources. They also asked people to really choose what they would find particularly interesting to work on.



¹² For further reading on institutional entrepreneurship you can check out (Battilana, Leca, & Boxenbaum, 2009).

¹³ This guide provides an overview of lessons on how you can use a temporary participatory project such as a social lab to enhance a sense of agency with participants. If you are interested in learning more about the social lab method itself you are advised to take a look at the social lab [manual](#).



The social lab focusing on *Health, Demographic Change and Wellbeing* (HEALTH) made sure to emphasize that participants could make the project their own. They framed it as a forum that everyone involved could shape and gave examples of interventionist actions from other labs. For some participants this uncertainty was slightly uncomfortable, whereas others took it more in their stride. The manager mentioned that those who were happy to make things up along were perhaps more creative in coming up with interventionist ideas.

Both examples show the importance of emphasizing that the project is also what participants make of it while being clear about the resources and support that may be offered during the process.

LESSON 14: **ORGANIZE YOUR PARTICIPATORY PROJECT** **RESPONSIVELY BUT REFLEXIVELY.**

Organizing your project responsively means that you need to tap into the ideas and concerns that are currently in common use in a certain context. At the same time, you should also take care that you organize it reflexively, meaning that you pay constant attention to how you can enlarge the dominant way of thinking amongst your participants and their range for action.

Responsiveness to participants may be promoted by reflection exercises that build on participants' own ideas and frames of a topic. In our project, many different social labs integrated exercises such as a *World Café* and *Talking Stick* sessions in which they asked participants to discuss their own ideas of responsibility before even starting a discussion on RRI. In this way, they made sure to tap into existing ideas and issues that participants experienced in their daily practices. In the HEALTH social lab this helped to reassure participants that the discussion on responsibility in research and innovation was not about an abstract concept but taps into their very own priorities. The team collected post-its with participants' perceptions of responsibility and organized them on a wall together, taking time to understand commonalities and linkages. This worked extremely well.

Reflexivity may be enhanced by providing participants insight in their institutional context. In our project, all social lab teams presented the results of the institutional analysis to start a conversation about the current institutional context of participants and how it formed an enabler or barrier to improved R&I relationships to society.

Many social labs also tried to adapt to different concepts and languages that were already in vogue in a particular context. The FOOD social lab team noticed how *Multi-Actor Approaches* (MAA) were institutionalized in the FOOD program and how this had many similarities with RRI in its emphasis on stakeholder inclusion across the research cycle. The manager described how “hooking” participants in conversations around MAA was a more effective “way-in” to conversation than RRI. Referring to the idea of “*inclusive and RRI*”, as a practice of speaking the same language as their participants was a great asset to enhance conversations. At the same time, the manager made sure to use the opportunity to enlarge their thinking by also starting a conversation on RRI and other dimensions of responsibility.

Such attempts to enlarge their reflexive awareness about their institutional environment and dominant ways of thinking may then form input into a further process of visioning and planning.



LESSON 15: CREATE A STRUCTURED VISIONING PROCESS TO SUPPORT PARTICIPANTS IN DEVELOPING IDEAS FOR ALTERNATIVE FUTURES.

A shared future vision is a driving force for any subsequent efforts. Therefore, it is crucial that organizers invest enough time in a structured process that supports participants to develop collective visions for an alternative future.

Such visioning processes can take different forms. In the MSCA social lab the team organized a working dinner in which participants were invited to write on a post card how they perceived of their own professional practice “as if it were 2027” and “as if RRI was fully implemented”. Participants were very actively engaged in the exercise, and keen to reflect, discuss and write about their ideal future visions. The next morning, much to their noticeable surprise and enjoyment, participants, seated in a half circle, were invited to read out their inspiring visions to each other creating positive momentum for idea development.

In the social lab focusing on *Smart, Green and Integrated Transport* (TRANSPORT), participants were asked to envision mobility futures from the perspective of different stakeholder personas.

Members of different groups were assigned specific roles (like a female manager with two children or an elderly farmer living in a rural area), which had to be taken into consideration when developing the visions. This approach was perceived to be very interesting by the participants. In the afternoon, and building on these visions of the future, the participants were then asked to identify challenges that prevented them from reaching their visions.

Both examples showcase the importance of allowing participants to create visions for alternative futures. This momentum can then be built on in the subsequent development of concrete interventionist actions.

LESSON 16:

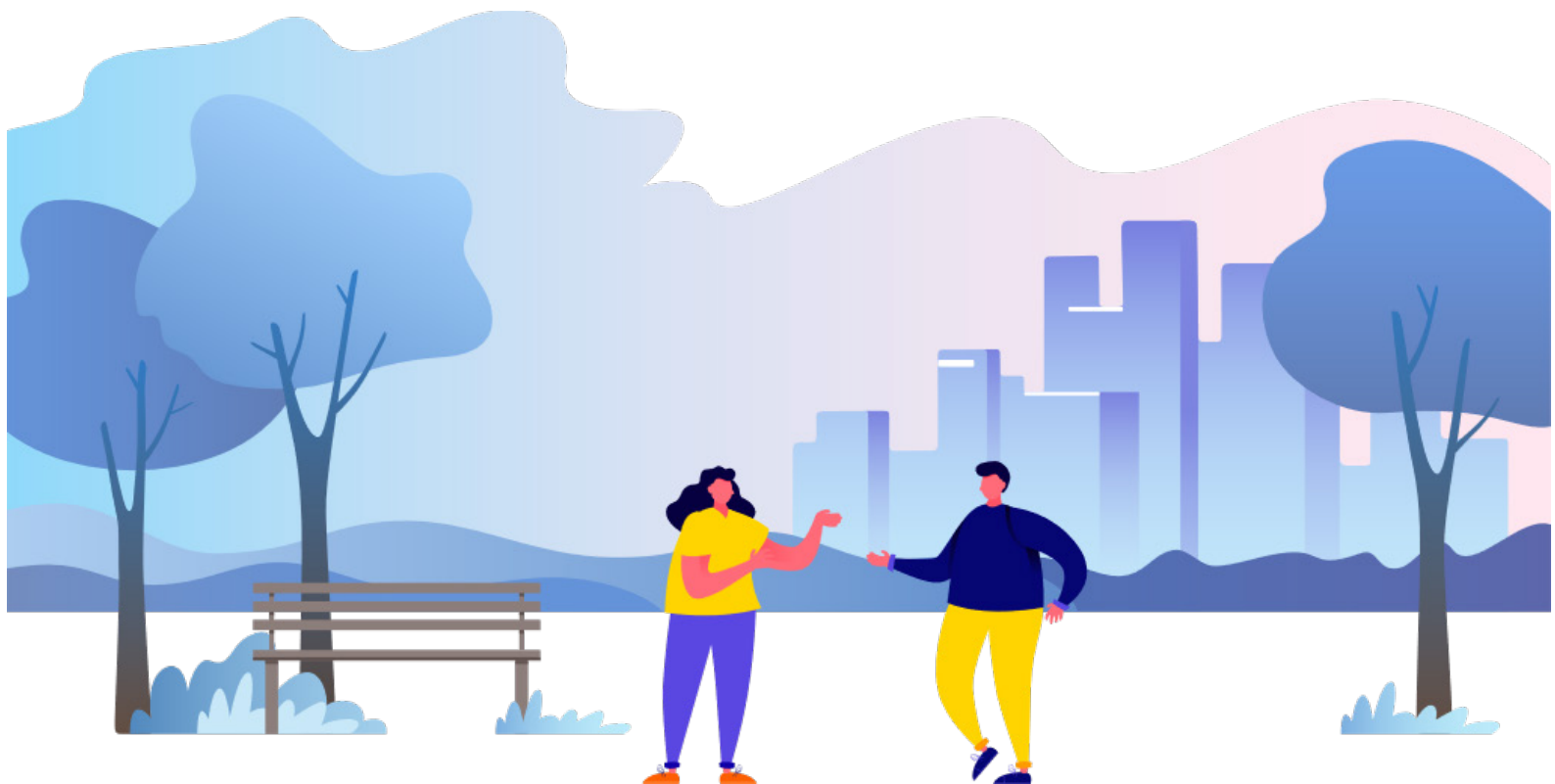
SUPPORT GROUP FORMATION AROUND IDEAS AND SELECTION OF PROTAGONISTS THROUGH FORMAL AND INFORMAL MOMENTS.

Ideas need participants who want to take up an action if you want to see the visions brought to life. It is therefore of importance that you take care to organize different moments in which participants can choose certain ideas over others and form groups around them. Such moments can be both informal teambuilding moments in a more relaxed setting followed up by more formal moments.

Moments of exchange and bonding can be supported by organizing a more informal *walkshop*¹³ in which participants are invited to walk together outside. The INFRA social lab workshop organized such a session in the beautiful gardens of Schönbrunn palace, Vienna. Walking in small groups, participants discussed ideal future visions of RRI integration in the field of research infrastructures. Based on selected future sentences participants came up with requirements on how to achieve these visions and how to address open issues in the following steps.

Formal sessions, including multicriteria voting may support the concrete selection of interventionist ideas that people would want to have implemented. In our project, many social lab teams specifically asked participants to use sticky dots to vote on which initial intervention action ideas would make the most difference in the funding program context, which would seem most relevant for their own organization and which they would like to see implemented themselves. Often, the latter informed selection of central intervention hosts or protagonists and supportive groups around them that would further work out an idea.

The combination of such formal and informal moments may help participants to form teams and take responsibility for a particular idea.



¹⁴ An exposition of the *walkshop* approach can be found here (Wickson, Strand, & Kjølberg, 2015).

LESSON 17:

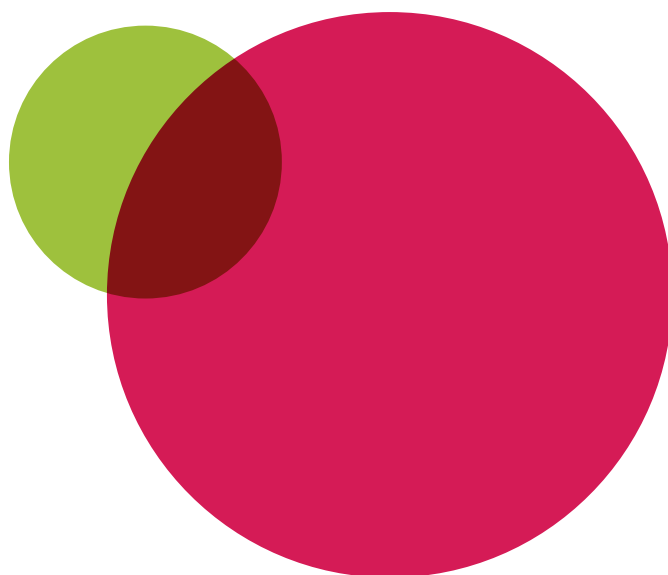
SUPPORT CONCRETE PLANNING FOR ACTION THROUGH AN ORDERED PROCESS BUT BE READY TO RESPOND TO PARTICIPANTS' NEEDS ON THE SPOT.

A vision may be nothing without taking the adequate time for concrete design of actionable plans. It is therefore advisable that organizers reserve enough time for the elaboration of visions into actionable plans. This requires an ordered process, with the caveat that you must be open to adapt the process in response to participants' particular needs at a time.

Such an ordered process may build on experiences with *backcasting*¹⁴ in which participants are invited to reason backwards from their future visions to concrete actions to be taken in the here and now to realize these visions. The MSCA social lab successfully conducted such a session with adaptations on the ground. They decided to tweak the original program in response to participants who mentioned that they had no influence on “*the system*” anyway. In response, they presented enablers that were discovered in the institutional analysis process and interactively involved present stakeholders to clarify their own roles and relationships in the program line context. This helped to get participants to get down from their normative viewpoints to the concrete reality of the MSCA funding context. On recommendation of participants, they also co-developed decision criteria for a successful intervention. This helped them to develop more concrete ideas.

The ENV social lab team noted the importance of emphasizing that actions should achieve some form of impact but be doable within the given time and resource dimension. They used an iterative process (group work and plenary feedback with several rounds) to progress from the visions to the actual ideas for intervention that had an elaborated impact logic.

Such processes may help participants to canalize their ideas into action plans that give them a head start to work on things once they return to their ordinary work and home organizations.



¹⁵ An explanation of the *backcasting* process may be accessed here (Quist & Vergragt, 2006).



LESSON 18:

ORGANIZE ENOUGH MOMENTS FOR PARTICIPANTS TO COME TOGETHER DIGITALLY OR PHYSICALLY TO REFLECT ON PROGRESS AND OBSTACLES AND WAYS AHEAD.

During the subsequent implementation phase, once participants have returned from the workshop and to their desks, you may notice that motivation can drop. Now is the time for you as organizer to step up and set-up calls or organize follow-up face-to-face meetings or workshops where you ask participants to reflect on progress, obstacles and ways ahead.

You may choose to set-up digital calls as soon as possible or organize the next workshop relatively soon after the first workshop. The HEALTH social lab team applied both approaches to encourage communication amongst participant groups and have dedicated time to work on the interventions. With group work and feedback rounds they motivated participants to develop concrete roadmaps to bring their ideas further.

The *Instruments of Horizon2020* (INSTH2020) social lab team tried to do the same. The manager remarked that the time between the first and second workshop had also helped participants to get more grip on the scope and purpose of their interventions.

However, the second workshop showed the crucial importance of bringing people together in the same room and allowing sufficient time for them to make critical decisions on design and coordinate future activities.

Such processes can especially be supported with more free and artistic interventions, to bring people out of their comfort zone and deeply reflect on their underlying ideas and motivations. For example, the EURATOM social lab experimented with an intervention called the *Intellectual Tramp*: a workshop participant who was given the freedom to challenge the dominant narrative in any way s/he feels and to offer alternative routes of inquiry and discussion whenever they felt like it. According to a social lab team member, it was inspired by the role of the jester in Shakespearean plays or the *yurodivy* (Fools for Christ) in Eastern Orthodox asceticism. Such characters often employ shocking and unconventional behavior to challenge accepted norms, deliver prophecies, or to mask piety. The role may also be seen as a connector, the one who makes links, uncovers associations, or breaks through the walls of specialisms by pointing out similarities of concern and familiarities of method.

A good combination of digital and physical moments that instill further reflection and planning may thus support participants in the further development and implementation of their interventions.

LESSON 19:

PROVIDE MOMENTS THAT ALLOW PARTICIPANTS TO MAKE A CONSCIOUS CHOICE TO RE-EMPHASIZE THEIR COMMITMENT TO IMPLEMENTING A PARTICULAR IDEA.

When organizing a follow-up workshop, it can also be opportune to allow participants a moment to re-emphasize their commitment to a particular action to make certain that they do care about its implementation and remain intrinsically motivated.

The social lab organized around the *European Institute of Innovation and Technology* (EIT) used a method with colored cards for this. Participants could use a green card if they wanted to continue working on their interventions, a yellow if they wanted to modify them, or a red if they wanted to leave the action altogether.

Such critical moments allow participants who do not care much about the intervention idea or lack motivation to implement it to opt out of the work and instead brainstorm new ideas, which they care more for.

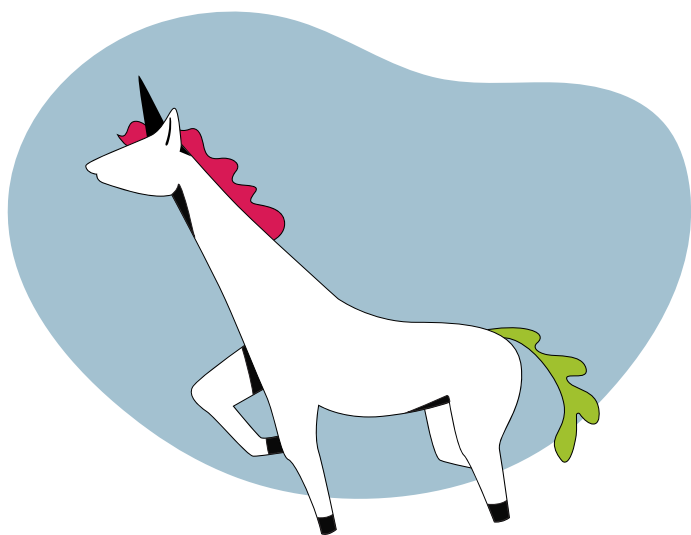
LESSON 20:

IDENTIFY MISSING KNOWLEDGE AND SKILLS AND SUPPORT CAPACITY BUILDING WITH PARTICIPANTS FOR MORE INSPIRED RESULTS AND ACTIONS.

Sometimes, participants may find out along the way that they do not possess the necessary knowledge to contribute to improving relationships between R&I and society. At this point it is helpful if you invite outside experts that can provide the right input and know-how to spur further experimentation and implementation.

In the WIDENING social lab this was the case too. During the process the social lab team found out that participants were eager to practice public engagement at home, but lacked a thorough understanding of good practice. Public engagement was like a unicorn to many: all of them had heard about it but no one had seen it. The team described how the presentation of an invited public engagement expert really led to a “wow effect” and a “demystification” of public engagement with participants. Meeting a public engagement practitioner who openly shared her knowledge of underlying ideas and tools really helped participants to implement such ideas in their own practices and organizations.

This particular critical moment also shows that the benefits of inviting an outside expert amount to more than just sharing knowledge. The “wow effect” also brings energy to participants to apply new learnt principles in their home organization and practices.





LESSON 21:

BE PREPARED TO STEP IN OR REDISTRIBUTE PARTICULAR TASKS WHEN PARTICIPANTS LACK MOTIVATION OR RESOURCES AT A PARTICULAR MOMENT IN TIME.

Sometimes participants can be overwhelmed by other work tasks, meaning that they are not able to devote the necessary time or energy to an action. That is when organizers may step in to temporarily take care of some tasks or redistribute ownership and tasks.

Organizers may step in by temporarily taking over some organizational tasks. In the INFRA social lab there was a group working on an intervention which only needed a few steps for finalization. However, the group leader did not possess any more time or resources to see the intervention and its implementation through. The social lab team decided to look for a new host and recruited new group members to solve the issue and the intervention was finalized.

In the social lab focusing on *Secure, Clean and Efficient Energy* (ENERGY) a similar thing happened with all interventions getting stalled after the first workshop. The organizing team got in touch with the different hosts and organized group and bilateral calls with the different hosts to discuss the issue. In one group this even resulted in a shift of roles. The actions by the organizers helped to refocus the interventions and groups got working again on their interventions.

The examples show us that organizers should always be attentive to the risk of overload with particular participants. Stepping up and reshuffling tasks and responsibilities may help to overcome the risk that the rest of the group cannot exercise their agency and interventions die an unnecessary early death.

LESSON 22:

ACTIVELY INVITE PARTICIPANTS TO REFLECT ON HOW THEIR ACTIONS RELATE TO AND CAN BE ANCHORED IN THEIR INSTITUTIONAL CONTEXTS.

If the goal is indeed to achieve durable changes, it is of the utmost importance that participants are invited to reflect on how their ideas and actions can be anchored in their institutional context beyond the temporary project. Since this process may take some time, organizers are advised to start thinking about these things rather soon.

That these issues are important to participants was illustrated in the context of a social lab working on *Secure Societies* (SECURITY). There, different participants shared their concerns about the afterlife of their interventions and how they would be sustained beyond the project lifetime.

As a possible example of good practice, the MSCA social lab team tried to deal with this issue early on by emphasizing the bigger picture and inviting participants to think of the future impact of their activities. They presented an overview of activity in the entire NewHoRRizon project to energize participants to think of the broader context of their efforts. Subsequently, they also prepared specific questions on the underlying strategies of interventions, and how they would link up to important stakeholders, networks and discussions at the European level.

With such explicit attention to the impact and integration of interventions beyond the temporary project, organizers can build on the present know-how and connections of participants to increase post-project impacts.

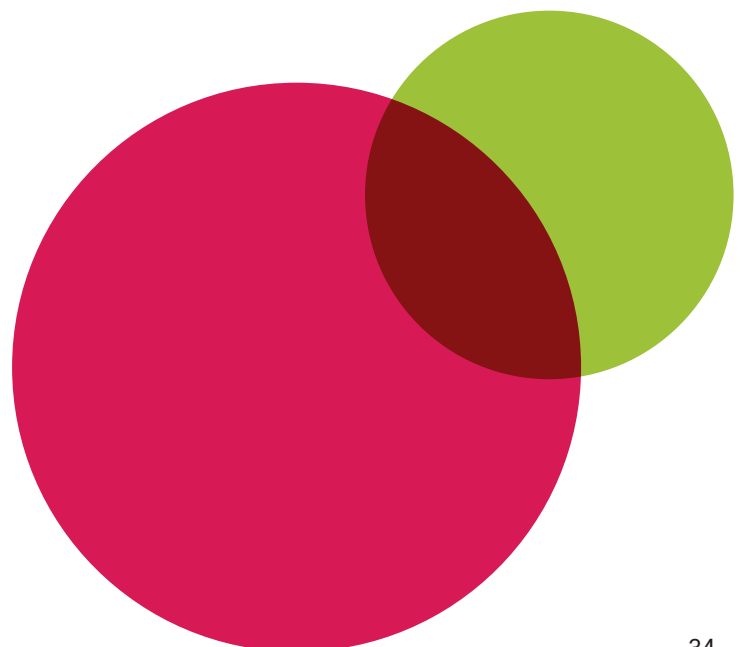
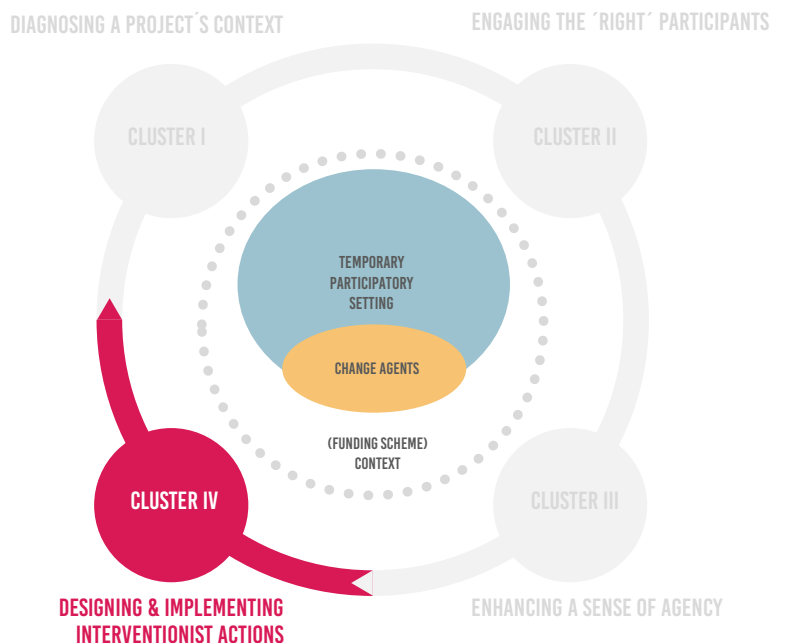
Taken together, these lessons can help you to organize a temporary participatory project in such a way that you enhance the sense of agency with participants. Operating under conditions of limited time and resources may mean that you need to make some choices on where you focus your energy when. With the right attention to the needs and context of your participatory project this may support your participants to develop concrete interventions in the R&I system and its institutions. What concrete interventions may look like, and how anchoring works in practice, will be the topic of our next chapter.



CLUSTER IV: DESIGNING AND IMPLEMENTING INTERVENTIONIST ACTIONS

Until now we have discussed the importance of diagnosing your institutional context, involving the right participants in your change efforts and using particular experimental methods and management choices to enhance their sense of agency. All this can finally lead to real interventions in the R&I system and its institutions. How can change agents undertake concrete interventionist actions to improve relationships between R&I and society? What forms and functions can such actions take and how may interventions create lasting impact and be anchored beyond the duration of a temporary participatory project?

To make your efforts concrete, there are different functions that you may think of. First, change agents may provide capacity building with other change agents in their context, in the form of exchanges or a training. Second and third, they can choose to develop new practices or promote new designs that improve the relationships between R&I and society. Fourth and fifth, they can create counter-narratives that question the status quo and share them with decision-makers by producing communicable output. Finally, they may attempt to change the rules and incentives in a given context to allow more room for interaction between R&I and society (Figure 4).



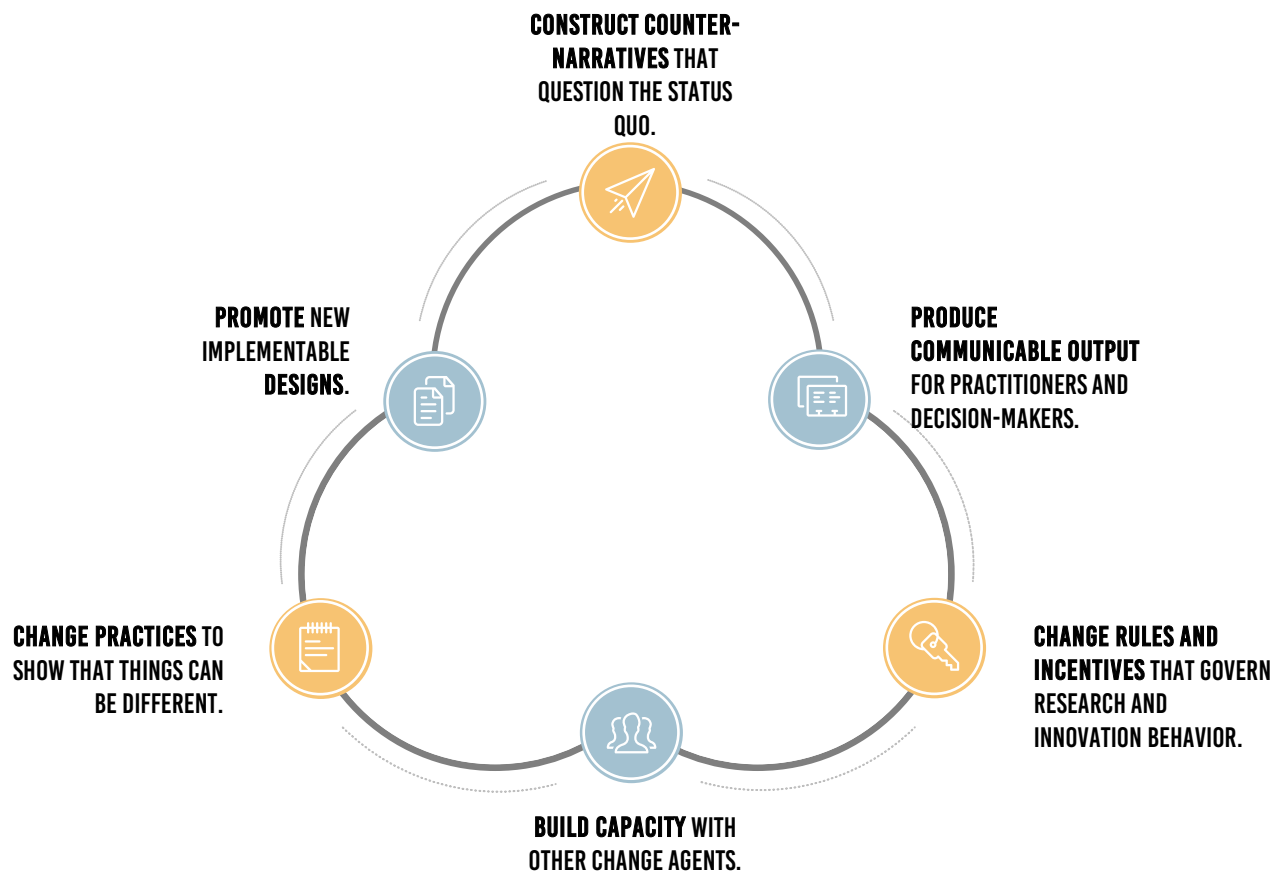
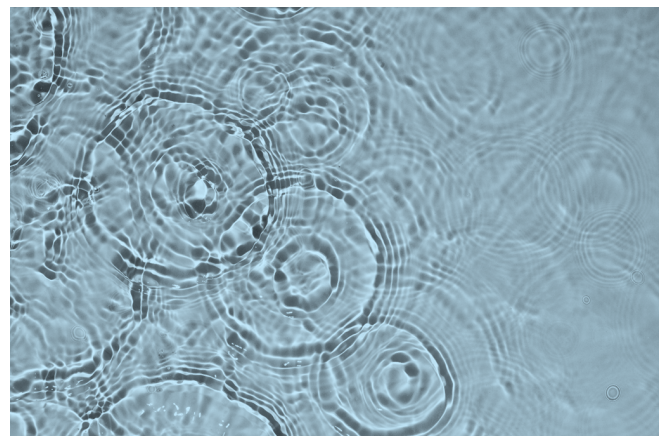


Figure 4 - An overview of interventionist actions and the functions that they can serve

As we mentioned before, achieving durable change through your interventions requires *anchoring* them in a context which extends beyond the temporary intervention. This means that participatory organizers and change agents ought to pay attention to how interventions are linked to the institutional context, networks and organizations. At the same time, it is good to be conscious of the fact that results can evolve beyond what you explicitly intended. Sometimes, working together in a participatory project or on particular interventions delivers *ripple effects*.¹⁴ These may come in the form of new forms of cooperation, publications and many other unexpected forms.



In the following sections we will illustrate the different functions that interventions can fulfill by sharing narratives from the NewHoRRizon pilot actions. The narratives we use for these purposes include a reference to the location that they took place, the problem they intended to address, lessons learned, background story, impact and implementation tips. You may use them to get inspired to implement your own interventions in your own context.

¹⁶ Further reading on the topic of *ripple effects* can be found here (Trickett & Beehler, 2017).

LESSON 23: BUILD CAPACITY WITH OTHER CHANGE AGENTS.

The first function that interventionist actions may fulfil is that of capacity building amongst other potential change agents. The facilitation of exchanges of knowledge and/or skills and development of context specific trainings can contribute to capacity building for improved relationships between R&I institutions and society. See for example how that was done in an **RRI Training** (ENERGY) and an exchange of knowledge about **Patient Involvement in Clinical Service Design** (HEALTH).

RRI Training

Where did it take place?

"The RRI Training intervention was organized at Centre for Social Innovation (ZSI) in Vienna."

Which problem did we want to tackle?

"When applying for research funding, funders require applicants to reflect on elements of RRI in their applications. National Contact Points (NCPs) are funding advisors whose job it is to provide applicants with the right information to improve their prospects in getting funding. Secure, Clean and Efficient Energy (ENERGY) NCPs discovered that they had a lack of knowledge on advising on RRI aspects which harmed implementation."

What did we learn?

"The goal of this intervention was to share and transmit the RRI concepts and their importance to the National Contact Points (NCPs) of the ENERGY program line. NCPs are hugely important disseminators and norm-setters and thereby impact researchers, businesses and other stakeholders involved in European ENERGY projects. The focus of the training was hence put on the dissemination of RRI and the manifold possibilities of how to integrate RRI into energy projects and proposals to improve their quality as well as their competitiveness. The powerful interactive training presented a holistic definition of RRI addressing all keys and dimensions. All participants learned about the concept as well as available tools and resources on RRI and felt substantially empowered to advise on RRI in their work as NCPs."

How did we learn it?

"The host organization APRE, was a coordinator of the network for all ENERGY NCPs. This established connection was used to win participants for the training of one and a half day. The training itself was organized in Vienna by the ZSI social lab management team. The training did not only present RRI as a theoretical tool but further included practical experiences of the Smarter Together project from Vienna."

What were the outcomes and expected impact of our intervention?

"By developing the RRI training (a moderation sheet and the slides can be shared) this intervention has built RRI advice capacities for the ENERGY NCPs. Moreover, by providing them with a reprint of an RRI booklet and the guidance (to applicants) it has contributed to creating communicable output on RRI. The combination of these two outcomes provides an interesting first step in building RRI capacities amongst research applicants in the ENERGY field. The results of the intervention have been anchored beyond the duration of the project because the main insights and outputs have been fed back to the broader NCP network (to other NCPs who had not been able to participate in the NCP training in Vienna). Furthermore, NCPs dispose of a big network to different stakeholder groups, from policy makers to industry as well as applicants seeking for advice. Given the will of the participating NCPs to learn more about RRI and spread the word in their networks, we expect ripple effects through their networks on the long term."

What implementation tips can we share?

- "1. Train the trainer: funding advisors are very important actors in dissemination and training them on RRI will greatly multiply its dissemination."*
- "2. Work with existing networks: the ENERGY NCPs were organized in an existing NCP network that could be leveraged to provide the RRI training to a diverse group of NCPs."*
- "3. Include existing dissemination material: this allows NCPs to easily share the word with others."*



Patient involvement in clinical services design

Where did it take place?

"The Patient Involvement in Clinical Services Design intervention was organized as an exchange between the Karolinska University Hospital in Stockholm, Sweden and the Agia Sophia Children's Hospital in Greece."

Which problem did we want to tackle?

"Clinical services in hospitals have traditionally been designed with too little focus on the needs of patients and their relatives. This intervention aimed to spread knowledge about an initiative that tried to change that by increasing patient engagement in the Karolinska University Hospital in Stockholm. The group was interested in introducing the model in one department in a different hospital: the Agia Sophia Children's Hospital in Athens."

What did we learn?

"Involving patient representatives in service design has the potential to make health services much more patient centered and, ultimately, more effective. A positive change in this regard was made by Karolinska University Hospital in Stockholm, where patients and relatives are now involved at all stages of service design. As a result of exchanges during dedicated workshops between the Swedish and Greek hospital, we identified champions of patient involvement in Athens. We also found out that organizational and cultural barriers may inhibit real patient engagement. Although there is some degree of resistance, there are a significant number of people in key positions who are in support of more patient involvement in clinical decision-making and who are willing to bring it forward. These people should be mobilized to implement initiatives. Introducing such changes in healthcare organizations does take time and effort and is part of a step-by-step process."

How did we learn it?

"The Karolinska case inspired the group to work towards introducing diverse decision-making bodies within the Athens Children's Hospital. Participants from Athens were interested in bringing the model into their own hospital practices. To make this happen, we organized two workshops in which representatives from Athens visited the hospital in Stockholm to learn about their experiences, and a representative from Stockholm also visited Athens to exchange tips and knowledge with a wider group of people including clinicians, patient groups and EC representatives. Through a questionnaire we also learned that the envisioned institutional change was hard to achieve during the social lab as particular different organizational and cultural barriers were identified."



What were the outcomes and expected impact of our intervention?

"We could say that this intervention was a first small step towards making patient engagement part of a hospital by building RRI capacities. The workshops and exchanges were a first step in a long process towards formalization that may, in the future, lead to more patient engagement in clinical service design, and thus more effective hospital services that answer to the needs of different patients."

The results of this intervention have to some extent been anchored beyond the duration of the project by the participants because they will continue working towards inclusion of patients in clinical decision-making. There are likely to be ripple effects because workshop participants took the knowledge gained with them into their organizations and may now be more open or more determined to implement such an approach."

What implementation tips can we share?

- "1. Learn from existing practice: this intervention shows that many interesting things are happening in other organizations from which your organization can learn a lot."*
- "2. Exchange internationally: the Stockholm case provides an interesting and different perspective on involving patients from which people in Athens could learn valuable lessons."*
- "3. Primarily focus on stakeholders who are willing to bring about change but also work on convincing others who are more skeptical: they can become very powerful supporters."*
- "4. Take account of local, cultural and organizational challenges: what works in one context may not work the same in another."*
- "5. See change as a gradual process: the intervention shows that institutional change is a matter of long and hard work."*
- "6. Create and sustain a network: this is an easy way to support internal processes of change and keep processes of mutual learning going beyond a project."*

LESSON 24:

CHANGE PRACTICES TO CONCRETELY SHOW THAT THINGS CAN BE DIFFERENT.

Another option is to change practices. At its core this is about doing things differently and challenging how we usually “do things around here”. New practices can provide a first step towards new narratives, rules and incentives because they show what is possible. Take the example of the **Green Village** (INFRA), **Genvoice** (TRANSPORT) and **RRI and “changes to the nature of work”** (SOCIETY).

The Green Village

Where did it take place?

“This intervention was organized at the Green Village, Delft, The Netherlands and at GESIS, Cologne, Germany.”

Which problem did we want to tackle?

“The Green Village community is a highly innovative research community at the University of Delft in the Netherlands. We, at the Faculty of Technology Policy and Management (Values, Technology and Innovations) of TU Delft, wanted to assist in supporting to increase in the awareness of RRI principles in this community by experimenting with the RRI concept in the development, testing and demonstration of innovation in three concrete projects.”

What did we learn?

“We organized workshops to introduce RRI as an integrated and holistic package that may help evaluate and support concrete projects. All three projects finally included most of the RRI principles to improve their procedures and their business strategies: one project in its entire business model, one project in the civil society approach and one mainly in their safety (ethical) approach. We also learned that the stable support of convinced and dedicated individuals, such as the support of a former university director or motivated project members, is crucial for successful RRI integration. Long-term support requires institutionalization, for example through quality standards for RRI.”

How did we learn it?

“We conducted a total of two workshops on exploring, analyzing and implementing the holistic RRI framework in The Green Village on the campus of Delft University. It's kind of an experimental zone on an island that explores everything from green energy to building construction through different projects. The first workshop introduced RRI principles to the Green Village and elaborated project specific RRI approaches in three selected projects: a project that aims at developing a battery that works on water basis, a project in which rainwater is collected and processed for drinking and a project on automated driving. In the six months between the first and the second workshop these projects were asked to implement RRI. They then were asked to present their progress in the second workshop to an audience composed by experts on open science, gender and diversity, sustainability management and RRI in general.”

What were the outcomes and expected impact of our intervention?

“The Green Village intervention provided a showcase on how accessibility of research and innovations can also be increased on the project level. It created awareness on RRI in the Green Village research community through workshops and reflection sessions and building capacities for RRI on the project level to change practices. All three would work further on integrating the RRI principles in the next stages of their innovative development. Furthermore, we have identified ripple effects as the three cases are being put in the spotlight in many presentations in the national and international science and innovation communities.”

What implementation tips can we share?

"1. Prepare your arguments and make it work for participants: people need to see the added value of RRI so that it does not just feel like an extra task.

2. Work with specific projects: by embedding RRI principles in concrete contexts, you can show the added value to participants and showcase it to other interested people at your institutions.

3. Involve motivated change agents and people with institutional clout like a (former) university director: these people and their motivation are necessary if you want to attract other interested people.

4. Sustainable implementation needs institutional commitment, support and financial assistance: make sure that you have the right people for that involved and committed as from the beginning."

GenVoice

Where did it take place?

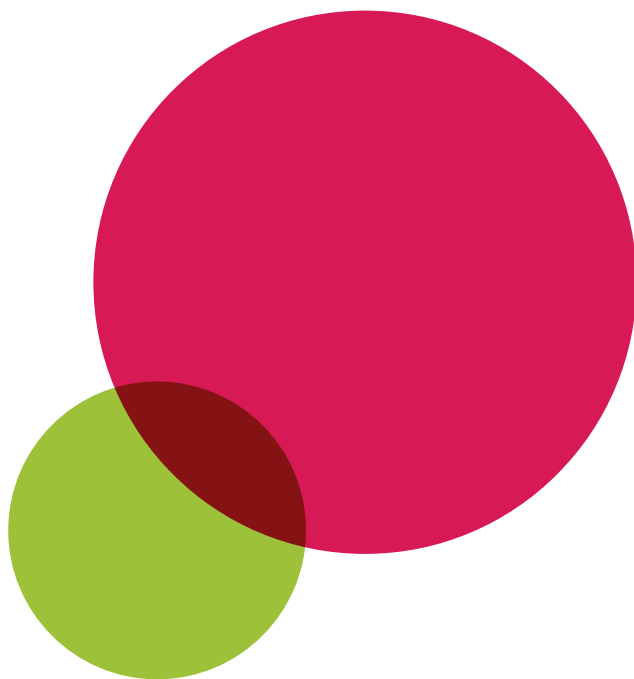
"The GenVoice intervention was organized at the café of the Nová synagóga in Žilina, Slovakia, a well-known cultural center hosting art exhibitions and local community activities."

Which problem did we want to tackle?

"Much research focuses on current issues, such as transportation and mobility, and how they are perceived by researchers and adult citizens. The problem is that this leaves many voices unheard, especially those of children whose future will be significantly affected by R&I choices of today. We thought it was important to think of ways to involve them in the conversation."

What did we learn?

"We organized an experimental workshop with young adults and students to gather their input and visions for transportation in the city of Žilina. This fun format can be taken up by others to broaden the dialogue in research and innovation on contemporary developments. The event provided the young participants with a dynamic and empowering opportunity to provide their input and gave them a glimpse into topics of scientific discourse. The researchers gained insights into the challenges, perceptions, and interests of an often times neglected and paternalized stakeholder group. Policymakers were familiarized with the importance of citizen engagement as the imaginative potential of the children and young adults provided valuable input for "out of the box" approaches."



How did we learn it?

"In two different rounds, young adults (morning session: school class of 16-17 year old participants; afternoon: students 20-25 years old) participated in the GenVoice experimental workshop. The event followed a three-step process: first, the participants debated about their personal experiences with transport in the area in Žilina (Slovakia), talked about their expectations for this workshop and described the travel experiences they make in their everyday lives. Second, the participants created visions of a desirable future and an idealistic present mobility system. Third, solutions were created on how to make these visions become reality. Two external consultants with experience with engaging with young people and organizing workshops were tasked to carry through the workshop activities in the local language with the support of the researchers. The outputs of the workshop were concrete suggestions to better the transport system within the city of Žilina."

What were the outcomes and expected impact of our intervention?

"This intervention is an example of doing public engagement on the level of practice by involving young people in discussions on the future of transportation and mobility in their own city. Thus, it provides a practical example of how the normally unheard voices of young citizens can be taken along in transportation R&I. The intervention did at least make an impact on the school class participating and the teacher, who all enjoyed the creative nature of the setup. The teacher and school class actually imagined more events like this as part of the curriculum. Additionally, the intervention led to a better understanding on the part of researchers of the relevance of including young voices in future research projects including a follow-up funding proposal."

What implementation tips can we share?

- "1. Go where the people are: local schools provide a perfect spot to involve younger voices. In this case hosting the event in a neutral but well-known cultural space helped to attract participants and to give a sense of the event being 'special'.*
- 2. Pay attention to gender balance: focus on getting people that are normally underrepresented in discussions, such as young women.*
- 3. Involve a neutral organizer or facilitator: this person or representative can take better care of the organization of the process as such.*
- 4. Reversing steps 1 and 2 in the ordinary backcasting process was useful to help participants 'break the ice' by discussing first their own frustrations and experiences in the current mobility context of Žilina as young people.*
- 5. Getting city planners to participate and witness a full day is difficult in any city, even with much prior advice. Steps on how to effectively communicate the workshop results to both planners and participants need thorough thinking and planning."*

RRI and "changes to the nature of work"

Where did it take place?

"The RRI and "Changes to the nature of work" intervention was organized at the Brightland Smart Services Campus in Heerlen, The Netherlands."

Which problem did we want to tackle?

"Changes to the nature of work due to automation and data-driven technologies are a high policy priority for policymakers across Europe. While new technologies powered by Artificial Intelligence (AI) can create new jobs, many roles and tasks will also be transformed by the introduction of automation processes. Such shifts in work may require combinations of social and reflective skills that are currently in short supply."

What did we learn?

"During a workshop in the Dutch region of Limburg, Darian Meacham invited local experts, policymakers and end-users to learn from each other about the local challenges and ethical downsides related to the digitalization and automation of work. The workshop showed the importance of societal involvement and the potential of RRI to bring together diverse people to reflect on possible solutions in a concrete, local context. For instance, the workshop was the starting point of collaborations on the ethical regulation of AI between the local Dutch Police and researchers from the BISS institute in Heerlen. It showed that RRI can be considered as an attitude that may help to solve specific small-scale problems by understanding local needs and co-designing and experimenting with solutions in local communities."



How did we learn it?

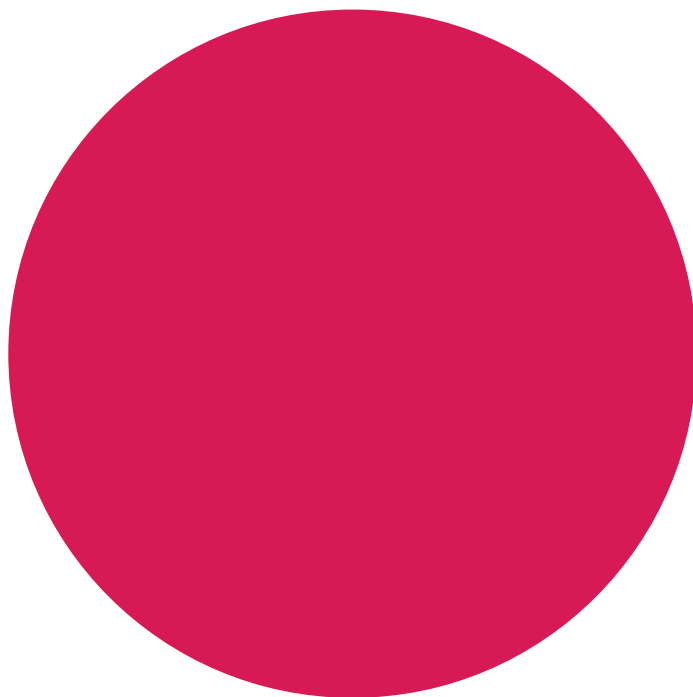
"The intervention was informed by the understanding that issues around automation cannot be addressed only through an academic debate but require a broader societal discussion. The intervention was a fruitful occasion to learn about the different possibilities, but also challenges, that the digitalization of work entails in Limburg. Limburg is a province in the south of the Netherlands which is undergoing a deep economic and social restructuring due to a change in the production system. Whereas its economy used to be organized around mining it is now becoming a hot spot for digital training and work. Accordingly, local institutions have been investing resources in order to incentivize a more digitally-focused regional identity and jobs relying on or implemented through digital tools. The possibility to bring together different actors (e.g., Limburg Province, TNO and a Police Innovation Lab) appeared as a fertile occasion to discuss the ethical and societal implications of this move and start new collaborations. The workshop proved to be beneficial to help policymakers in understanding the main issues around digitalization and automation of work, and support the design of policies to reduce its potential ethical downsides. Researchers had the chance to understand the ethical challenges potentially embedded in an apparently pure technical process. By sharing ideas and tools related to ethics-by-design, responsible innovation, and responsible AI we could help local stakeholders to address some of the above challenges."

What were the outcomes and expected impact of our intervention?

"The intervention is a very good example of how RRI can help to raise awareness with local policymakers about the democratic, social and economic challenges around automation and digitalization and how this affects the nature of work. Furthermore, the workshop has led to further practical cooperation on the ethical regulations of AI between the local Dutch Police and researchers from the BISS institute in Heerlen which can be seen as a first step in doing RRI."

What implementation tips can we share?

- "1. Work with local stakeholders: grand challenges around automation require the involvement of many different stakeholders who can communicate local needs.*
- 2. Share your knowledge and tools: there are many interesting academic concepts and tools that may greatly support locals in dealing with challenges of digital transformation.*
- 3. Make it concrete: try to focus on specific issues related to the local context and history."*



LESSON 25: PROMOTE NEW IMPLEMENTABLE DESIGNS.

Another way to showcase the feasibility of improved relationships between R&I and society is through the creation and/or promotion of new designs. These could be new designs for interactive formats as shown in the examples **Quadralogue** (ERC), **Knowledge Kiosk** (MSCA) or could entail involving society during the design of your product as in the **Bintelligent case** (INSTH2020).

Quadralogue

Where did it take place?

"The Quadralogue was organized at Ben Gurion University, Israel."

Which problem did we want to tackle?

"Talking about social and ethical issues in research and engaging with the public can feel like an extra burden to some. We thought it was important to develop a fun and engaging format which brings together these individuals who are not typically incentivized to discuss the social and ethical impact and bigger picture of science and research. This could create a pathway towards understanding different perspectives on research and thereby increase its relevance and positive impacts."

What did we learn?

"To tackle the barriers between people we came up with the idea of a 'Quadralogue', a fun, low- threshold 45-minutes dialogue format where four people - a researcher, a lay person, a student, a representative of research administration/funding organization - can discuss 'over a cup of coffee' the bigger picture of research. It can be organized almost everywhere against minimum financial and organizational costs to discuss social and ethical questions around research and unlock the creative potential of different individuals. It flips upside down the idea that taking societal and ethical issues into consideration is a burden; in contrast, in a Quadralogue they serve as a point of departure for an exploration of possibilities. Institutional support is nonetheless crucial for prolonged maintenance."

How did we learn it?

"Since colleagues often reported about difficulties in communicating about their research with non-academics, we had decided to develop a dialogue platform in the form of a game. By providing a unique 'gamified' environment to foster such dialogues, the Quadralogue brings together people who do not typically have a chance to share their expertise, concerns, experiences, and assumptions on research in their normal day to day routine."

In 2019, we ran a prototype of the game on the Ben Gurion University campus and it worked! Participants felt completely at ease to discuss aspects of their research that they normally did not touch upon and we shared our ideas in a university podcast. The result was surprising: more and more groups of researchers got engaged in the game, considering it a fresh way to communicate. When the president of the University backed up the use of the game, it became a monthly event. We found that the game-like platform was surprisingly effective in creating a setting for low-threshold interaction on complex issues and was able to lure even the more 'serious' individuals into communicating about the social and ethical aspects of their research in a low-key, playful manner."



What were the outcomes and expected impact of our intervention?

"As a novel way of doing public engagement it showed how RRI may be implemented on the level of concrete practices, and thus contribute to scientific excellence. It showcases how public engagement can lead to new research questions, insights and interaction between researchers and affected publics. Finally, exercises like the Quadralogue can increase the general interaction between members of a research institute and therefore their sense of community."

The Quadralogue has become a tool for new projects. The intervention host has been appointed vice dean for teaching matters, and new projects are summoned to a zoom meeting where the Quadralogue is used. In our project plans, people are required to put down Quadralogue-based candidates for discussion. In another instance, a leadership program has taken the concept and is running it with young entrepreneurs to fine-tune their community-oriented projects. There, instead of students, they invite youngsters, and instead of administration, they invite municipality figures. Lastly, campus radio is still posting a weekly podcast where researchers 'play' the game in the opening minutes, then they go on with discussions."

What implementation tips can we share?

"1. While we found that some groups of researchers seemingly naturally gravitated towards participating, we found that other groups are harder to involve in the Quadralogue game.

2. The process of experimentation, in the form of testing and adapting, is important to the success of the implementing the Quadralogue. This means allowing it to organically unfold and allow people's personal 'flavor' of participation into the game.

3. To make it work, it is essential that you find an enthusiastic and intrinsically motivated organizer who will 'carry the torch' for the idea and practically organize the sessions.

4. Institutional support, in the form of explicit endorsement by e.g. the president of a university is advisable; try to target higher institutional levels too while you are working on the practical organization of a Quadralogue."

Knowledge Kiosk

Where did it take place?

"The Knowledge Kiosk intervention was tested by the Centre for Genomic Regulation and ELISAVA School of Design and Engineering in Barcelona, Spain and at CIUHCT-FCUL, Lisbon in Portugal."

Which problem did we want to tackle?

"Public dialogue is an important scientific responsibility. Among others, it can empower citizens with information needed to make informed decisions, encourage the public to value and be more interested in issues around knowledge production and eventually increase citizens' support for public funding of research. However, it is hard to find examples of dialogue tools in which citizens play an active role. Also, many researchers would like to contribute to public engagement, but they do not know how to bring it to practice. We, that is Jonas Krebs, Cristina Luís, Blanca Guasch, Anna Olsson, Rui Guimaraes and Alessia Dino, wanted to change this by developing the idea of the Knowledge Kiosk."

What did we learn?

"The Knowledge Kiosk attempts to foster this two-way engagement between science and society in real life through a series of co-creation workshops. The Kiosk is a fun and engaging activity in which citizens and scientists already engage in dialogue during the design of a long-term engagement format. It uses Design Thinking methodology and therefore involves the energy and capacity of local citizens and scientists in shaping localized prototypes for public engagement. The methodology can be applied in different cities by researchers, innovators and CSOs across Europe. This does need long-term organizational and institutional support for example through funding and by integrating it into reward structures."

How did we learn it?

"Through a survey we asked citizens in four different countries about their preferences. The results showed that many preferred face-to-face engagements over bigger online engagement. Inspired by this, and wanting to do things differently than usual, we worked from the premise that the 'Kiosk' communication tool itself had to be subject to a two-way communication already during the design phase of the communication tool. With help from Blanca's Design Thinking experience, we came up with the idea of three workshops. The first workshop round (in May and July 2019) exclusively targeted citizens, who developed first ideas on how an interaction of citizens and scientists on a regular basis could look like. To the second round of workshops (in November 2019), we exclusively invited scientists from all disciplines to choose ideas and develop them further. Finally, in a third round (in January 2020) the two groups met to finalize a prototype for Barcelona and Lisbon that ideally can be implemented on the longer-term. The workshop brought everyone out of their comfort zone but by building on people's own ideas and thinking with our hands we finally triggered a lot of enthusiasm and positive emotions. Participants loved the format, and the outcome they created together. Design thinking was crucial in all of this."



What were the outcomes and expected impact of our intervention?

"This intervention is an example of doing RRI and creating implementable designs for RRI, with a specific focus on public engagement. It shows how public engagement can be something more than just the dissemination of information by involving citizens and their needs and ideas already during the design of the interaction format itself. Next to that, the methodology can be used and replicated in different places to design interaction formats which are adapted to local needs and contexts."

During the last workshop the social lab team invited a colleague to help the group reflect on ways in which the Kiosk could be anchored in routine practices and institutions. Currently, as a first step, we are attempting to anchor the results of this intervention beyond the duration of the project in multiple ways: writing a journal article, writing a contribution to the newsletter of the MCAA and getting in touch with the MCAA and the EC directorate responsible for MSCA to spread experiences. Furthermore, two of the protagonists have applied for funding from the Barcelona city council to develop the idea further and focus on bridging secondary school students with scientists."

What implementation tips can we share?

- "1. Engage from the start: by building on citizens and their ideas during the design of public engagement formats we made sure that the resulting prototypes really served their needs.*
- 2. Think with your hands: design thinking requires participants to develop and shape prototypes which helps to solve issues in the most concrete manner.*
- 3. Make sure people have the stomach (filled): we built our workshops around a free brunch which helped to motivate many people to participate.*
- 4. Produce a manual: on the basis of our experiences, we have now produced a manual that many other people can use to implement the methodology in their own context.*
- 5. Play with the name of the event when inviting participants: "Creative brunch" instead of the "Knowledge Kiosk co-creation workshop", might help winning further participants."*

BINTELLIGENT

Where did it take place?

"The BINTELLIGENT intervention was developed and designed at Danish Technical University (DTU) in Lyngby, Denmark. The intervention took place the Department of Environmental Engineering and at Roskilde Festival."

Which problem did we want to tackle?

"Daily, we produce tons of waste that causes loss of resources and pollution. The ultimate goal of a waste sorting system is to make sure we all sort our waste correctly, so we can obtain cleaner residual materials that can be recycled and substitute new raw materials. We found it important to co-create a waste sorting system with citizens and students that obtain cleaner materials to re-integrate in the resource loop."

What did we learn?

"We wanted to contribute to the transition to a circular economy by designing and testing an innovative waste bin with the input from citizens. BINTELLIGENT is equipped with sensors that analyze our waste and tell us the reduced CO2 emissions and energy generated from waste -sorting. It encourages the user to sort their waste to ultimately increase both the quantity and quality of recyclable materials. We tested our design at the Roskilde festival and used it specifically to engage with guests in discussions about waste management and gauge their views on the workings and the usefulness of the bin. Moreover, throughout the process we involved students to teach them about ways in which they could use their technical skills to tackle environmental and societal challenges. Thus, by means of public engagement and science education, the intervention helped raising awareness about waste management and sustainability and to work towards a better future."

How did we learn it?

"We, that is Vincent Malakwe, Konstyantyn Pivenko, Cecilie Gudsøe, Rune Reedtz, Kilian Speiser, Hatam Aboud and Anna Hollænder, a university teacher together with students, collaborated closely on this activity. During the first social lab workshop, the idea was suggested to develop an innovative waste bin equipped with sensors to tell us how well we sort our waste. After a first test in the DTU kitchen, we tested the bin at the Roskilde festival which in 2017 generated more than 20 tons of waste of which only 18 % was sorted and recycled. Every year, the festival is taking up the challenge of responsible innovation by bringing in projects aiming to contribute to social challenges. In 2019 BINTELLIGENT was one of almost 15 projects at the Festival's Food Court. During the festival, Vincent, Cecilie, and the other students went around to talk to guests about their project and to get people to try it out."



Vincent tells us that all the guests liked the idea! By testing the waste bin at a festival and going around seeking to get the guests to participate, the process of the project directly engaged with the public. None of the guests saw the waste bins as controlling or behavioral regulation in a negative way."

What were the outcomes and expected impact of our intervention?

"The intervention provides an example of doing RRI and showcasing the feasibility of RRI by creating an implementable design of an intelligent waste bin with the help of input from citizens. The bin is designed, with its interactive format, to create awareness of RRI-aspects, namely sustainability. Moreover, the intervention can be seen as a form of capacity building since it helps students to develop their capacity to engage with members of the public in the design of a new technology. After the successful intervention at DTU environment and Roskilde, we presented BINTELLIGENT at "Folkemødet", a highly visited democracy festival in Bornholm, and to high school visiting DTU Environment. BINTELLIGENT will also soon be used in primary schools to introduce pupils to environmental problem and programming using open sources tools. Cecelia wrote her bachelor on BINTELLIGENT. She carried out a life cycle assessment to assess the environmental impact of the bin. Similarly, further projects are expected inspired by BINTELLIGENT at DTU Environment."

What implementation tips can we share?

- "1. Develop a plan with clear goals and responsibilities: by focusing on the development of a specific bin we used our capacities to tackle a part of the challenge of sustainability.
2. Include multiple stakeholders: by testing the bin first at DTU and later by involving festivalgoers we managed to create a better product.
3. Balance energy and accept limitations: perhaps we did not solve the environmental issue as such, but we made a concrete step towards a solution through RRI.
4. Institutionalize it in the curriculum: this gave motivated students the possibility to work on research and develop their public engagement and design capacities."

LESSON 26: CONSTRUCT COUNTER-NARRATIVES THAT QUESTION THE STATUS QUO.

Many institutional changes start with the development and promotion of new (counter)narratives that question the status quo. Such narratives can raise awareness that things may be different and energize others to start acting differently.

In our project we had for example the development of an intervention that promoted awareness on the need for public engagement in tackling the sustainability crisis (**Public engagement from "nice to have" to "NEED to have"** (ENV)) and the development of new narratives for the relationship between science and society (**The future of science? society** (SWAFS)).

Public engagement: from "nice to have" to "NEED to have"

Where did it take place?

"The Public engagement from "nice to have" to "NEED to have" intervention was organized online with the cooperation of individual researchers from the Danish Board of Technology Foundation, the Federation of German Scientists and Prospek."

Which problem did we want to tackle?

"There are growing signs of a "sustainability backlash" among some parts of the public that do not feel heard in debates around societal transformations towards a healthier and cleaner planet. Despite increasing worries about this, public engagement is often still not integrated in call requirements for environmental research and innovation. We wanted to change that."

What did we learn?

"To develop the argument, we wrote a piece of text that defines the rationale for public engagement in environmental related research topics in the upcoming framework program. We noted that public engagement is crucial for environmental research and innovation,

both for channeling public entrepreneurship and for mitigating a sustainability backlash. The transition to a cleaner and healthier planet is a systemic change that affects all levels of society. If citizens and stakeholders are not part of developing the social and technological innovations and solutions it will become more difficult to bridge the gap between those wishing to move faster and those thinking they are already being pushed too far. Also, as challenges become more urgent, experts and scientists may gravitate towards imposing more radical solutions and seeing public engagement as an unnecessary hindrance to rapid transition, thus increasing the risk of stimulating public resistance to the sustainability agenda. It is therefore of utmost importance that public engagement is seen as a prerequisite for sustainable development and consequently integrated into environmental research calls."

What were the outcomes and expected impact of our intervention?

"This intervention is a good example of creating awareness on public engagement and sharing arguments to integrate public engagement in the funding standards for the ENV program line. The text was shared with Commission officials to discuss how the text parts could be introduced into Horizon Europe. As the communication to the EU was rather one-sided, it is difficult to identify a concrete result or effect. However, the arguments sent to the EU inspired exchange and discussion with other stakeholders leading to the idea of producing a leaflet as a communicable output."



How did we learn it?

"In order to gather experiences with implementing public engagement and arguments for doing so, the group created and conducted a survey among social lab participants (business, research, civil society, public officials) and their networks. The provided arguments and experiences were presented and discussed at the second social lab workshop and ultimately integrated in a short piece of text. After writing the text the group researched the Commission and identified those responsible for ENV calls in the Directorate General for Research and Innovation, as well as how to address them precisely. They sent the text by email, but unfortunately did not receive feedback. The social lab manager later had the chance to discuss the intervention on a European Commission stakeholder workshop with a relevant Commission representative and he was interested in the text parts and would take it to his colleagues."

What implementation tips can we share?

"1. Use a survey: with the right preparation this helps you to build an argument on the basis of a wide sample of expert opinions.
2. Shorter is better: investing time in making the arguments crisp and easy to understand improves possible policy impact.
3. Ask for advice on target groups: work your networks to see who needs to hear your message.
4. Rework it into something sharable: what started out as an e-mail should finally be reworked into a leaflet that could be shared with many more interested stakeholders."

The future of science? society

Where did it take place?

"The future of science? society intervention organized a scenario workshop at the Fraunhofer Institute for Systems and Innovation Research ISI in Karlsruhe, Germany on 27/28 November 2019. It also engaged in the making of a Declaration and contributed to its presentation at the Pathways Conference in June 2019 in Brussels."

Which problem did we want to tackle?

"As beneficiaries of the current Science with and for Society (SwafS) program we knew that there would be no continuation in the next framework program Horizon Europe. With the program and RRI concept disappearing without a clear follow-up, this meant that the vision of a European research landscape that is societally engaged was at risk."

What did we learn?

"We felt that this did not at all have to be a bad development. Rather, we saw it as an opportunity to become active and use our imagination. We wanted to bring together committed stakeholders to pursue lobby activities for a new and advanced SwafS-like program, such as through a petition, and simultaneously develop scenarios of multiple, probable futures in 2038 - futures that might bring technological advancement and social innovations, but also political ideologies that threaten the advancement of RRI and societal engagement. Seeing that our efforts for the petition were visible and that "our voice was heard", we mobilized participants in the public consultation and were motivated to welcome interested stakeholders to join us in making an impact on a future R&I system that does care about the relationship between itself and society."

How did we learn it?

"We conducted three joint activities, first by providing text for the so-called Pathways declaration, which called for more attention to RRI in the upcoming European framework program and by establishing links to further SwafS projects as signatories for the declaration. Secondly, we engaged with others in the NewHoRRIzon project to mobilize SwafS stakeholders to take part in the public consultation process on Horizon Europe."

Regardless of their personal level of involvement and knowledge of the Pathways declaration, participants collectively emphasized the significance of keeping a version of SwafS and RRI in the framework program and were in favor of a more pronounced 'marketing' and communication of this achievement to give it deserved recognition. Thirdly, we organized a scenario workshop to feed the debates and influence the discourse around RRI. With the combination of these three activities, we attempted to address all stakeholder groups and institutions that deal with RRI in their work."

"With the joint public actions and scenario work, we also aimed to get out of the 'RRI Bubble' and start communicating to those who are skeptical about the added value of societally engaged research practices. This might require leaving the sphere of dogmatism and conceptual academic debates about the core meaning of RRI, embracing different storylines and approaches, and building bridges."

What were the outcomes and expected impact of our intervention?

"This intervention is a perfect example for creating communicable output in the form of a declaration and text parts for the consultation of the new framework program which were shared with policymakers by stakeholders interested in science and society relationships. What is more, through our scenario work we actually intend to raise awareness on RRI and science-and-society relationships. Through those means, we attempted to impact the policy debates on the future of the European research and innovation system and safeguard the role of society in the upcoming framework program. We are currently reworking the scenarios into a brochure and a website with supporting material, to share it with multiple stakeholders. Furthermore, as a ripple effect we have applied for the latest SwafS call, which unfortunately did not result in a grant. We are currently exploring other funding opportunities and we are about to publish an article in the Journal of Responsible Innovation."

What implementation tips can we share?

- "1. Share your arguments: together with other projects we developed a petition to express our grievances and arguments as to why a version of SwafS/RRI should be kept in the coming framework program."*
- "2. Build coalitions outside of the RRI community: we enlisted different stakeholders from inside and outside the RRI community to provide input in the public consultation."*
- "3. Practice what you preach: sometimes it's not so much about conceptual developments as it is about bringing general societally engaged research and innovation into practice."*
- "4. Use your imagination: with a group of different stakeholders we produced multiple scenarios for the future R&I system."*

LESSON 27:

PRODUCE COMMUNICABLE OUTPUT FOR PRACTITIONERS AND DECISION-MAKERS.

New narratives about desirable relations between R&I and society are often spread through communicable outputs targeted to the right people. A communicable output as such, in the form of a policy brief or a brochure, may help policymakers and other change agents to reconsider their impacts. Check out the examples of the **RRI Career Assessment Matrix** (MSCA), **Value Added Transfer** (ENV) and **RRI Show** (EIT) to see what that may look like.

RRI Career Assessment Matrix

Where did it take place?

"The RRI Career Assessment Matrix intervention was organized with help of the Marie Curie Alumni Association (MCAA) in Vienna, Austria, Brussels, Belgium and Amsterdam, The Netherlands."

Which problem did we want to tackle?

"Growing evidence suggests that the evaluation of researchers' careers on the basis of narrow definitions of excellence has negative effects on diversity in academia, both in the development of its labor force and its approaches to addressing societal challenges. We, that is Fernanda Bajanca, Mattias Björnmalm, Mimi Lam, Peter Novitzky and Karen Stroobants wanted to explore directions for change in the current evaluation frameworks and practices that overemphasize publications in assessing the quality of research."

What did we learn?

"On the basis of input from MSCA stakeholders during different workshops and online discussions we produced a policy brief, 'Towards Responsible Research Career Assessment'.¹⁵ The brief contains five recommendations including a call to MSCA policymakers to broaden current excellence evaluation criteria of MSCA calls in dialogue with all relevant stakeholders. This means that funding institutions and research performing organizations need to rethink and adapt institutional assessment and reward structures from a responsibility perspective, to include elements like responsible research, teaching and community service as an equally legitimate and rewarding cause for a researcher. Improving the evaluation system in a concerted effort with research institutes and other funders will help fully realize a European Research Area that is open to all talents and knowledge practices. This diversity is essential to sustain academic careers, to strengthen the relevance and impact of science for society, and to enhance the resilience of our society and environment."

How did we learn it?

"To change the current evaluation criteria such as undue focus on the impact factor and narrow definitions of excellence we wanted to analyze if the Open Science-Career Assessment Matrix could and should be adapted to involve more elements of RRI. To bring the debate on this further, we organized a plenary session on RRI in career assessment at the Marie Curie Alumni Association Annual Conference in Vienna in February 2019. There, six speakers among them the social lab manager, discussed the issue that currently little reward and recognition is given to those researchers who take up activities within the RRI themes. For a crowd of over 120 participants, they reflected on how existing RRI implementation projects are tackling the narrow definitions of success, and what type of researcher career evaluation formats institutions are encouraged to develop in order to reach true responsible research and innovation. Afterwards, one of our members, Mimi, organized a participatory workshop to solicit the input of participants to co-produce research quality criteria that could be eventually implemented within the MSCA framework."

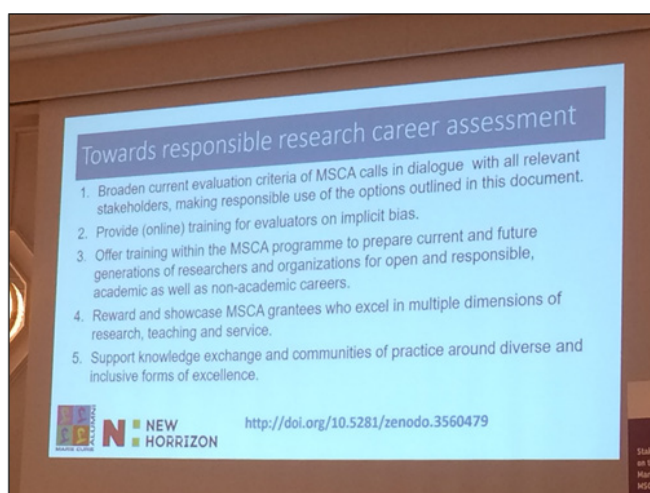
Discussions continued in a second social lab workshop and online meetings. There were different perceptions on what amounts to proper career assessment. Some participants were more in favor of narrative evaluation, whereas others were more in favor of developing indicators and some were in favor of a combination."

Following these workshops, one of the MCAA Policy Working Group members noted that the upcoming MSCA Stakeholders' Conference in December 2019, Brussels would be a great opportunity to provide input into the planning for the next European framework program for research & innovation, Horizon Europe. In response, with support from the social lab team and other members of the MCAA, the group managed to produce a policy brief. The brief contained five recommendations including a call to MSCA policymakers to broaden current evaluation criteria of MSCA calls in dialogue with all relevant stakeholders, to enlarge and modernize the notion of excellence and to reward applicants and organizations that engage in open and responsible research. The brief included references to current developments and examples in both indicator development as well as narrative evaluation. The recommendations were presented at the conference by the Chair of the MCAA, Matthew DiFranco and discussed by several MCAA delegates at the different workshops."

¹⁷ You can find the policy brief [here](#).

What were the outcomes and expected impact of our intervention?

"By creating communicable output in the form of a policy brief we directly tried to contribute to policy discussions on the set-up of the MSCA funding program and its subsequent formalization in the form of particular funding criteria. Our call to change criteria of excellence to include more attention to responsibility and openness thus provides an example of how current rules and standards for excellence can be adapted to include more attention to RRI. The policy brief has been presented to MSCA policymakers during a stakeholders' conference and was referenced in the report of this conference. In addition, the report has been shared by the protagonists online and at multiple conferences on research career assessment. Finally, one of the writers has involved RRI in a successful application for a grant thus contributing to the integration of RRI in her own research practice."



What implementation tips can we share?

- "1. Work responsively by taking a researcher's problems and needs as a point of departure: many young scholars feel that current narratives of excellence and assessment practices do not allow them to conduct responsible research.*
- 2. Bundle your efforts to be more effective: by working with representatives from the MCAA network, who have worked long and hard to build a policy presence with EC policymakers, we could reach synergies in the development of the brief.*
- 3. Develop a short and convincing brief: we made sure to produce a brief that provided MSCA policymakers with the right arguments and resources."*

Value Added Transfer

Where did it take place?

"The Value Added Transfer intervention was organized online with the cooperation and contributions from individual researchers representing the Institute for Social-Ecological Research (ISOE), Germany, the University of Natural Resources and Life Sciences (BOKU), Austria, the Wuppertal Institute for Climate, Environment and Energy, Germany, and the Institute for Advanced Sustainability Studies (IASS), Germany."

Which problem did we want to tackle?

"The problem that the intervention group wanted to solve is that often the arguments brought up by supporters of RRI are addressing those people that are already convinced. These arguments do not reach the concerns of those following other objectives such as the focus on creating jobs and growth. In other words, there is a need to provide arguments for RRI and benefits of applying it that targets policymakers in a language that they understand."

What did we learn?

"We wanted to showcase to policymakers that RRI has clear advantages as far as the Commission's objectives of jobs and growth are concerned. Therefore, we designed a brochure called 'Responsible Research and Innovation for Jobs and Growth' in which we argued that RRI can contribute to jobs and growth by promoting more real-world labs, ownership among stakeholders, citizen science and involvement of local investors.¹⁶ With this brochure we provided decision-makers with good practice examples, facts and figures to show that participative and transdisciplinary research can actually help in the creation of jobs and growth. By speaking their language, we hope to have showed that being responsible does not exclude the creation of jobs and growth."

How did we learn it?

"We were rather familiar with participatory approaches and the concept of RRI. We were intrigued by the question how to reach the unconvinced and those unfamiliar with the benefits of relevant stakeholder participation in R&I. Therefore, we actively decided that it was necessary to think outside the box to reach beyond the RRI community and thus link participation to the concept normally thought to be diametrically opposed to RRI, the logic of 'creating Jobs & Growth'."

¹⁶ You can find the brochure [here](#).



The brochure was produced by the group following a clear outline, it was edited in a participatory manner, taking in advice and corrections from within and beyond the group. We decided to create a concise, short and simple message on creating impact through participation. That 'Participation facilitates a better understanding of societal challenges, gives access to data and information gathered on location, and promotes mutual learning with the assimilation of different perspectives, the use of adapted technology and better implementation of innovative options.' With this we wanted to reach the respective community, to give a clear guideline and give practice examples and arguments to visualize how RRI works to produce a noticeable impact.

The product addresses decision-makers and was distributed at meetings and sent to European Commission-officials and will be sent to the European Parliament. The brochure was very favorably received within the RRI community and with its professional layout many RRI advocates were open to hand it on to reach a wider community.

What were the outcomes and expected impact of our intervention?

"This Value Added Transfer is an example of creating awareness on RRI by telling the story of how RRI and participation can actually contribute to jobs and growth. This novel story which is shared with policymakers through communicable output in the form of a brochure shows how responsibility, participation of citizens and economic growth can actually go hand in hand. Thus, it may help them to consider giving more attention to aspects of RRI and participation in the development of R&I funding programs. In terms of anchoring, the brochure has been shared with European policymakers and will be shared with parliamentarians."

What implementation tips can we share?

- "1. Involve expertise from different angles: people knowledgeable on citizen science, RRI, participatory research and NCPs contributed to the brochure
2. Provide a clear and concise policy message: policymakers don't have a lot of time so it's best to make the message succinct and provide practical examples of the benefits.
3. Speak their language: jobs and growth are important elements for European policymakers and showing how RRI links to this provides a way into the conversation."

RRI Show

Where did it take place?

"The RRI Show intervention was organized in collaboration between stakeholders from EIT Food, EIT RawMaterials, and Climate KIC."

Which problem did we want to tackle?

"The European Institute of Innovation and Technology (EIT) is an EU funding body established in 2008 to increase the innovation capacity in Europe. EIT connects companies, universities, and research centers in Knowledge and Innovations Communities (KICs). KICs aim to develop new products and services, establish start-up companies, and train future entrepreneurs through a variety of educational programs. Each KIC is designed to address a specific societal challenge but in the eyes of the social lab participants, recently, other considerations, such as securing financial sustainability of the operations, has gained greater priority shifting focus from the original goal. In response to this, participants aimed to collect RRI stories – or case examples – to demonstrate the feasibility and the benefit of RRI in the KICs and elevate RRI on the research agenda in EIT."

What did we learn?


"We wanted to raise RRI on the research agenda by collecting eight short and accessible RRI stories. Specifically, we set out to collect examples of projects across EIT Food, Climate KIC, and EIT RawMaterials that have successfully addressed or somehow included one or more aspects of RRI. Our stories demonstrate that RRI is not only possible but indeed beneficial within the set-up of the KICs for example by presenting the added value of public engagement when developing new products or services.¹⁷ During this process, we learned that searching for RRI examples within one's own work and reflecting on your practices and figuring out what RRI looks like in your particular field offers a great learning experience about RRI. Likewise, an analysis of existing work might help identify gaps: aspects of RRI that are underdeveloped in projects, which would benefit from a greater focus in the future. Communicating these stories to people at the EIT headquarters may also provide a first step towards more attention to RRI in EIT, trickling down to KICs and projects."



How did we learn it?

"We had developed two ideas at the first social lab workshop that were focused on first investigating and showcasing the possibilities of RRI across KICs and later finding ways to include RRI-related criteria in the evaluation of project proposals. Unfortunately, we left the first workshop without clarity on how we could implement the idea. While the facilitation was good for generating ideas, it did not leave much time for planning. We lost momentum and disengaged for a while. At the second workshop, in order to re-start the work and with an eye on the time and resources available, we decided to collectively work on the "RRI Show" and to collect RRI stories, which, just like the existing EIT success stories, could be showcased on the website of the institute. The social lab management team set up online meetings and developed a two-pager on RRI including a template with questions to reflect on and find RRI examples from our own work, which was shared with a selection of participants prior to the workshop. During the second workshop, we discussed these and made a more specific plan, dividing responsibilities and tasks."

¹⁹ Please find the collection of success stories [here](#).



We still had a bit of a hard time sticking to the plan, though, once everyone returned to their home organization and their busy work schedules. To spur the further development of the stories we met in June 2019 in Aarhus to work on them together.


Finally, we managed to gather a total of eight different interesting stories on diverse topics of RRI. In the words of one of our group members, they were emblematic for what the EIT is supposed to do: tackling societal challenges. During the third workshop we then discussed plans for publication."

What were the outcomes and expected impact of our intervention?

"This intervention is an example of raising awareness and creating communicable output on RRI in the context of EIT. By gathering examples of projects that address one or more RRI keys, such as the "Briefcase project", which teaches pupils about minerals and mining and their ethical considerations and the "Consumer Engagement Labs" where consumers are co-creating new food products with companies, we have demonstrated that that RRI is possible in EIT. By including links to further information and resources and presenting a contact person for each story, we seek to build RRI capacities by enabling new projects, which are inspired by the stories to take up the RRI challenge themselves."

What implementation tips can we share?

*"1. Show how RRI can help tackle concrete societal challenges: through real-life examples you can show the benefits to those who might be interested in RRI and get people on board the agenda.
2. Focus on external communication through social media: this helps to enlarge the group working on RRI through the networks of those involved.
3. Go to the top management of your organization to get them involved and support the project: this makes it easier for you to allocate time to work on RRI.
4. Meet up: Coming up with new ideas for RRI initiatives and planning their implementation is easier in a face-to-face setting with plenty of time for discussion and for making decisions."*



LESSON 28:

CHANGE RULES AND INCENTIVES THAT GOVERN RESEARCH AND INNOVATION BEHAVIOR.

Lasting change often occurs as the result changing rules and incentives. The institutions that structure our daily practices have a grand effect on how we operate on the level of organizations.

In our project, we experimented with the design and implementation of new rules and incentives on many different levels. Here we showcase two examples. The first is about adapting funding calls for Artificial Intelligence on the regional level (**Responsible AI Framework** (SECURITY)) whereas the second example is about the change of pan-European research infrastructure guidelines (**Magna Charta** (INFRA)).

Responsible AI Framework

Where did it take place?

"The Responsible AI Framework and evaluation criteria for research proposals intervention was organized at the Council of Tampere Region in Finland."

Which problem did we want to tackle?

"In recent times, R&I actions related to AI have become increasingly popular, gathering substantial amounts of funding. However, there is simultaneously an increasing need to create ethical standards and criteria for AI related R&I funding to scrutinize the safety, transparency and trustworthiness of the funded actions and their possible impacts on society. It's still hard to find good examples of such standards and criteria in practice."

What did we learn?

"The Responsible AI Framework and evaluation criteria address the aforementioned challenges by integrating attention to ethical, social and environmental aspects of AI in a R&I call in the Tampere region of Finland. In that way, it creates incentives for the ethical and responsible development of AI. A lesson learned from this intervention is that RRI related funding criteria can make an impact in the uptake of RRI into R&I projects and actions. The example of this intervention should be followed by others because it facilitates the uptake of RRI into the policy arena, to different funding organizations and to R&D activities focused on AI. Furthermore, in terms of resources, it is also relatively light process to implement. Evidence of the merits of the intervention lies in the fact that its application in other institutions is currently under discussion."

How did we learn it?

"The need for the intervention came from the Council of Tampere Region who wanted to include more considerations of responsibility in their project proposal evaluation process. In response, we produced a responsibility framework and evaluation criteria for the Council of Tampere Region's European Regional Development Fund call for Responsible Artificial Intelligence project proposals. The framework was developed and implemented in close co-operation between social lab managers and the Council of Tampere Region' civil servants and accepted by the politicians."

It encompassed different phases: firstly, a draft was developed and feedback was gathered. Then, in a second phase, we developed a framework for a new call. The intervention developed a set of questions related to responsibility aspects of project proposals. The applicants were challenged to think about the wider ethical, environmental and social aspects and effects of their project proposals related to AI and subsequently evaluated on these grounds."

The intervention was the first of its kind in Finland, maybe even in Europe. With support from civil servants and politicians, the intervention helped to transfer RRI approaches to the institution and its funding criteria. The approach is trusted to bring societally more effective project proposals and finally more effective society-oriented project results to the region."

What were the outcomes and expected impact of our intervention?

"This intervention is a good example of contributing to the formalization of RRI by creating new evaluation criteria for a regional call on Responsible AI. It shows how, with the right institutional back-up and clear communication, you can integrate RRI in the evaluation process of an R&I call. Although the impact was on the level of regions, it provides a perfect case of how RRI criteria may be integrated in research funding and evaluation processes. The results of this action have been anchored in the Council of Tampere Responsible AI call."

Furthermore, in terms of ripple effects, we have shared our experiences of ethical assessment in this context with other R&I initiatives and are currently having discussions internally and with other institutions on how to maintain and take up the criteria in funding and evaluation practices (i.e. phase of analyzing and further development of experience)."

What implementation tips can we share?

"1. Answer to the needs of locals: the Tampere region was interested in taking into account ethical aspects and this intervention provided them with the expertise to develop a good solution.

2. Learn from feedback: by creating an iterative process of drafting, feedback and finalizing we made the criteria as workable as possible.

3. Take along the civil servants and politicians: only with their support could we get an accord on the criteria and subsequent mainstreaming in the region."

Magna Charta

Where did it take place?

"The Magna Charta activity was conducted by the majority of the INFRA lab group (participants across Europe), mainly led by and Anna Roig and Jiří Kolman."

Which problem did we want to tackle?

"We noticed that not all Research Infrastructures (RIs) have a defined access policy. There is fragmentation and diversification of access policies, a lack of common understanding on concepts, and a lack of transparency which means that not all citizens can access infrastructures to do their own research. The main aim of this intervention activity was to integrate RRI in the European Charta for Access to Research Infrastructures, since RRI principles were not sufficiently represented in the Charta to that moment. This is important because the Charta has a guiding function for research infrastructures across Europe."

What did we learn?

"As the European Charta has a guiding function for RIs the team decided to revise the document and integrate RRI principles. This Charter "sets out non-regulatory principles and guidelines to be used as a reference when defining Access policies for RIs and related services" and should although not binding be considered by research infrastructure providers. Any mentioning and consideration of RRI principles will help to spread the word on RRI and sustain the important discursive shift towards responsible research and innovation.

The revised Open Access Charta may help RI providers, research organizations and policymakers to include and reflect more on RRI aspects in the development and maintenance of important research infrastructures. More open research infrastructures may increase the participation of innovators, CSOs and citizens in research and innovation processes and their access to results. It also contributes to a co-creation process and better (e.g. faster, more effective) technology transfer. It helps also to promote public awareness which is important for long-term public and funding support of the research infrastructures."

How did we learn it?

"During the first social lab workshop we - lab participants who are responsible for various types of RIs - came up with the idea to revise the Open Access Charta according to RRI principles. As the Charta was designed as a "living document" from its very first draft, it lent itself towards revision and update. Therefore, a small lab team of 5 people worked together, the host of the intervention coming from a funding agency. We analyzed the existing Charta and revised it applying an internal iterative approach. Afterwards we developed reports and presentations on the results.

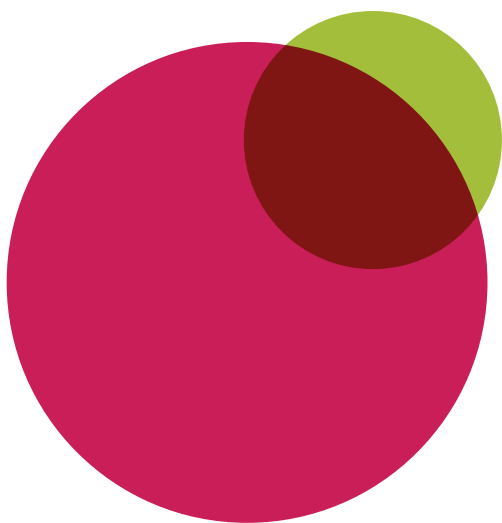
To provide momentum and visibility to the revision, we organized a networking event on the topic as a satellite event to the Research and Innovation days in September 2019 in Brussels. We had speakers such as the chair of ESFRI, the head of Research and Industrial Infrastructures at the European Commission's Directorate General for Research and Innovation and one of our members from Barcelona. The invited participants were mainly RI stakeholders (e.g. RI managers, RI users and researchers, RI funders and policy makers).

As the following actors have been involved in the drafting of the Charta, they are the main percipients (European Commission, ESFRI delegations, e-IRG delegations, EARTO (European Association of Research and Technology organizations), LERU (League of European Research Universities), CESAER (Conference of European Schools for Advanced Engineering Education and Research), EUA (European University Association), NordForsk (Nordic Research cooperation), Science Europe. Furthermore, research infrastructure providers and potential users might strongly benefit from a reworked Charta which embraces the open access approach. The document will be accessible also to a wider international context (such as OECD-GSF and GSO)."



What were the outcomes and expected impact of our intervention?

"This type of change starts with changes in governance, and in organizational policy. Knowledge of the Magna Charta and awareness of the power of RRI could foster such necessary change. We believe that the Magna Charta intervention provides a concrete alternative to existing Open Access standards that better considers elements of RRI. It thus creates communicable output on RRI and hopefully contributes to the formalization of RRI on the level of RI policy and implementation. It is our hope that more research organizations and research infrastructure providers take up the new RRI-proof guidelines and use the results to create more open and accessible research infrastructures that provide access to more stakeholders. The new document has been presented to the Commission and ESFRI with the hope that they will take it up and spread it further."



What implementation tips can we share?

- "1. The Open Access Charta provides guidelines for all types of research infrastructures: everyone is advised to take its recommendations and use them to improve own research infrastructures.*
- 2. Whenever you want to change the system: try to think of guiding documents like the Charta: this is an easy way in which you can raise awareness on RRI with many different actors.*
- 3. Try to think of the information needs of an actor like the European Commission: they were very happy with the fact that we came up with new insights to add to the existing Charta.*
- 4. Organize a workshop with the most important stakeholders to increase visibility of the action with policy stakeholders.*
- 5. From time to time challenge the current state from the RRI perspective.*
- 6. Do not hesitate to include other RRI aspects that were not considered as the main one (e.g. green management, age, legal transparency)."*

The above narratives provide but a selection of inspiring interventions that could be undertaken to promote better relationships between R&I and society. If you are hungry for more best practices, you are heartily invited to delve into some of the 59 pilots that were developed in the NewHoRRizon project by reading a Pilot Action Booklet and accessing the RRI Experience online environment.¹⁸ Experiences from the project show that you can also consider to promote and build other specific tools¹⁹, networks of funders²⁰ and ambassadors²¹ to promote your interventions across contexts. We hope that these narratives and initiatives help you to develop your own stories and interventions.

²⁰ If you are interested to explore further pilot action material, you can take a look at the [Pilot Action Booklet](#) and the [RRI Exhibition](#) which showcases different materials from all 59 pilot actions.

²¹ See for example the [Societal Readiness Thinking Tool](#): an easy-to-use instrument to check how you may use RRI to improve your proposal writing and research.

²² The NewHoRRizon project organized a [network of funders](#) to exchange RRI best practices.

²³ We set-up a network of RRI ambassadors including a [LinkedIn group](#) so that they could stay in touch.

CHANGING THE RESEARCH AND INNOVATION SYSTEM THROUGH DEMOCRATIC EXPERIMENTATION

The hope to improve the relationships between R&I and society goes back a long way. In the past 40 years, many academic and policy narratives were cast to improve the bond between those who do research or innovate, and those who are affected by resulting findings or innovations. Recognition of the responsibility of researchers and innovators for the results of their work has led to the recent emphasis on RRI.

The RRI narrative has been promoted over the past 10 years by both academics and policy actors, notably by the European Commission. Views differ as to what the concept implies, and how it can be brought into practice. In this guide we discussed how relationships between R&I and society can be improved through the use of temporary participatory venues in which concrete interventionist actions are designed and implemented. For that, we have built on the experiences of over 4 years of experimentation in the NewHoRRIzon project and its social labs. Seeing these experiences through a Pragmatist and new institutionalist lens, we conclude that democratic experimentation can help to improve R&I-society relationships if attention is paid to four interrelated elements:

Firstly, it is imperative to recognize that change never takes place in a vacuum. Therefore, attention to the institutional context is crucial. Such a context is structured by rules and incentives, as well as dominant narratives and practices. Recognizing how they play out in various contexts, such as in an *"excellent"* science context or a business innovation context, is of prime importance to discern which barriers hinder, and which enablers can promote improved relationships between R&I and society.

Secondly, any effort at change, whether organized through a social lab or another temporary participatory arrangement, should pay attention to engaging the 'right' stakeholders.

'Right' here means those actors who can help to identify and understand which institutional barriers there are, based on hands-on professional experience, as well as those who can help remove or overcome these barriers, because of their institutional position or network. It pays to map a wide range of potential change agents, and to reserve extra time and effort for the recruitment of notably policymakers, CSOs and business representatives, involving higher level management and engaging powerful networks and associations to build momentum. Initially, creative work should be done with intrinsically motivated participants, yet the project should remain open to including other participants later on, who can help implement what has been planned or designed, or help remove barriers for such implementation. The eventual level of impact highly depends on the extent one manages to eventually *"anchor"*²² results within standing organizations, networks and associations in a way that these commit themselves to carrying the torch once the project has come to an end.

Thirdly, stakeholders engaged in a temporary participatory arrangement may not see themselves as potential agents of change straight away. Helping them to develop a sense of (collective) agency therefore is crucial. Organizers of temporary participatory arrangements are advised to do so by clearly communicating the background of the project and room for experimentation and support that participants can expect.

²⁴ See these publications for further inspiration (Elzen, Van Mierlo, & Leeuwis, 2012; Loeber, 2003).

They should organize their efforts responsively as well as reflexively, that is, by helping participants to tap into their own needs but also enlarging their scope for thought and action. Usage of a structured visioning process, supporting group dynamics by including informal moments for exchange,²³ and motivating participants to concretely translate ideas into action plans will help them develop as change agents. During the implementation phase, organizers should set up moments for reflection and for re-emphasizing commitment, as well as work on capacity building. When necessary, they should be prepared to adapt or revise plans, and/or redistribute tasks. As said, in order to work towards impact beyond the duration of the temporary arrangement, organizers should spur participants to anchor the project's results at an early stage of the project.

Fourthly, our research showed that change can be spurred through interventionist actions with multiple, sometimes overlapping functions. It may be spurred by capacity building in the form of training and knowledge exchanges, by changing existing practices of R&I and creating novel, implementable designs which can be easily taken up and implemented in different contexts (please note: a great asset for anchoring). It may be organized by the production and promotion of counter-narratives and communicable output in the form of policy briefs and brochures which attract attention of decision-makers. All such efforts may provide decision-makers the inspiration to change the rules and incentives in the European R&I system that affect so much of what researchers and innovators do on a daily basis.

While the lessons shared here were gathered in a range of social labs experimenting with RRI, the diversity of these labs and their contexts give us reason to assume that they can be applied equally by researchers and innovators working in living labs and other temporary participatory projects that aim to address societal and ecological challenges.²⁴ Projects and communities working under the banner of Open Science, Citizen Science, Co-design and Co-creation, Mission-oriented Innovation, Transformative Innovation Policy and Responsible Research Assessment may benefit from taking the above four dimensions into account in their experiments to improve the R&I system and its relationship to society.²⁵

Policymakers may in particular take inspiration from the examples to consider changes in the rules and incentives system governing research and innovation dynamics. For whatever narratives and practices may come along in the future, their impact critically hinges on a change in the rules and incentives system, to structurally improve relationships between R&I and society.

²⁵ For further inspiration you can refer to this publication (Forester, 1999).

²⁶ Next to living labs (Følstad, 2008) one can think of all kinds of other real world labs (Schäpke, Bergmann, Stelzer, & Lang, 2018).

²⁷ For further reading on these topics, please refer to these publications (Armeni et al., 2021; Curry et al., 2020; Mazzucato, 2018; Robinson, Simone, & Mazzonetto, 2020; Schot & Steinmueller, 2018; Smallman, 2019).

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MORE INFORMATION & MATERIALS RELATED TO THE NEWHORIZON PROJECT

For more information on the pilot actions conducted by the NewHoRRizon project partners, we encourage you to explore the [Pilot Action Booklet](#) and the [RRI Exhibition](#), which contains a variety of materials from all 59 pilot actions.

To explore how you can use RRI to improve your proposal writing and research, you might be interested in trying the [Societal Readiness Thinking Tool](#).

Join the RRI Ambassadors network on [LinkedIn](#) and connect with people from the NewHoRRizon project and beyond.

NEW HORIZON



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