

# Chapter 10

## Engaging Stakeholders by Implementing RRI in the Social Lab Process – A Single Case Study



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### 10.1 Introduction

With new and emerging technologies, process of Research and Innovation (R & I) changed. Some point out an “increasingly growing complexity” (Gianni 2020: 14) that needs to be addressed. Other scholars note that “the pace of technological change has increased dramatically” (Gould 2012: 2) This complexity requires new modes of engaging stakeholders to the R & I process. As mentioned in Chap. 1 of this book, the concept of Responsible Research and Innovation (RRI) (von Schomberg 2013) was created as a way to better engage stakeholders and their needs.

Six years later, Timmermans et al. (2020: 2) claim that “RRI suffers from a lack of empirical evidence to support its claims”, which in the end might create a barrier to the acceptance of RRI by R & I practitioners. In parallel, EC funded projects such as Monitoring the Evolution and Benefits of Responsible Research and Innovation (MoRRI) develop indicators based on the six keys defined by the EC. Here, four categories of benefits regarding the application of RRI were defined, those include societal, democratic, economic as well as scientific benefits (Meijer and van de Klippe 2020). Especially the category of democratic benefits seems appropriate to address the question of stakeholder engagement, as it highlights the benefits of a “more democratic and inclusive way” of R & I (ibid.).

Based on these findings we are asking the question if the application of the Social Lab methodology, an action research approach (see Hassan 2014; Timmermans et al. 2020), proves to be an appropriate approach to solve the challenge of including a wide array of stakeholders and their needs in an increasingly complex R & I process. To answer the research question, this chapter gives first an outline what is recently discussed as Social Lab and describes the single case study as method,

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before the single case study of the EURATOM <sup>1</sup> research pillar in Horizon2020 is presented, in which relevant stakeholders in the field of nuclear energy and EURATOM were invited to participate in a series of three workshop with the aim of implementing RRI and fostering institutional change towards a more inclusive process of stakeholder engagement. Finally, this paper analyses and discusses the procedure, challenges and lessons learnt of this case study in the context of the four characteristics in responsible innovation according to Blok et al. (2015): (1) Transparency, (2) Interaction, (3) Responsiveness and (4) Co-responsibility.

## 10.2 From Theory to Practise: Challenges of Implementing RRI via Social Labs

The concept of Responsible Research and Innovation (RRI) as defined by von Schomberg (2013) stresses the importance to engage stakeholders and their needs in R & I processes. A Social Lab, as understood by Timmermans et al. (2020) provides the space for inclusion of a variety of stakeholders. Based on the method of Zaid Hassan (2014) the Horizon 2020 project NewHoRRIZon (under which umbrella the here discussed Social Lab in the research area of EURATOM was conducted) developed its very own scientific method of conducting Social Labs (Timmermans et al. 2020; Griessler et al. 2021). While Hassan defines Social Labs as an effective, flexible response to dynamic and complex societal challenges in which different stakeholders develop and test solutions in the real world (Hassan 2014), Social Labs within the NewHoRRIZon project followed the approach of Timmermans et al. (2020). This way of conducting a Social Lab includes six features: (1) “Social Labs offer a space for experimentation”, (2) “Social Labs are not closed off from the outside world”, (3) “[t]hey require active participation of a wide range of societal stakeholders that are of relevance [...]”, (4) “Social Labs are multi- and interdisciplinary involving a wide range of expertise and backgrounds”, (5) they “support solutions and prototypes on a systematic level” and finally (6) “Social labs have an iterative, agile approach” (Timmermans et al. 2020: 5f).

The Social Lab methodology used in the NewHoRRIZon project (see Timmermans et al. 2020) itself genuinely aims at bringing together stakeholders in order to tackle a mutually defined (societal) problem or challenge. It provides a secure environment, where mutual trust can be developed. In this approach experimental learning hence, developing, testing, evaluating and re-designing of interventions addressing a social challenge (Kolb 1984 in Timmermans et al. 2020; Griessler et al. 2021) can take place, but works only if all stakeholders of the “real world” relevant to that challenge are involved in the process. If we assume that Social Labs are a place of dialogue, that in turn is necessary to make “information sharing” as well as “two-way interaction” possible (Blok et al. 2015: 149), the selection process of

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<sup>1</sup> <https://ec.europa.eu/programmes/horizon2020/en/h2020-section/euratom>

stakeholders is crucial. As for stakeholder engagement, Blok et al. (2015) developed four characteristics in responsible innovation. These include (1) Transparency, (2) Interaction, (3) Responsiveness and (4) Co-responsibility. All of these tackle different aspects of stakeholder engagement in responsible innovation (SEIRI). Transparency affects the sharing of information among different stakeholders. As Blok et al. (2015: 151) points out that, “innovation is primarily seen as a source of competitive advantage, which is mainly based on information asymmetries”. This way, stakeholders who are transparent to each other may become vulnerable and risk to lose their (potential) competitive advantage that was existing because of information asymmetries. In order to tackle these disadvantages of knowledge sharing and transparency, Blok et al. (ibid.) name several options, ranging from intellectual property management, to confidentiality agreements, as well as pointing out first-mover advantages or building trust among the stakeholders itself.

The interaction between stakeholders poses different challenges. While Blok et al. (ibid.) refer to “diverging visions, goals, motives and values of multiple stakeholders”, Burchell and Cook (2006: 156) provide the example of the NGO community, where “the diversity and range of organisations covered by this term” can prove to be problematic when aiming for an effective sampling of this group. Another critical aspect of “interaction” in stakeholder engagement is power imbalances. Blok et al. (2015:152) refer to them as “an important reason for conflicts among stakeholders” as well as pointing out that “some actors are even unwilling to interact when they have the feeling that they have less or no power compared with other actors involved”. To solve this, Blok et al. (ibid.) suggest that “stakeholders could interact by engaging in stakeholder dialogue”. As similar approach was already suggested by Burchell and Cook (2006: 155), stating that “by engaging in dialogue, stakeholders learn from each other the different ways that a shared messy problem can be defined”.

The issue of responsiveness poses a similar challenge. Extending the imbalances in power among stakeholders to “vision-, goal-, sector- and motive differences”, Blok et al. (ibid.) argue that these might “result in ongoing debates and conflicts about the purpose of the innovation”, potentially “lead[ing] to the exclusion of radically different stakeholders (Blok et al. 2015: 152). To solve this, efforts should be taken to “align stakeholders’ expectations, experiences with stakeholders during previous collaborations, the identity of actors and the acceptance of conflict” (ibid.).

Although not present in the empirical findings of Blok et al. (2015), co-responsibility seems to be a relevant factor for the Social Lab methodology as stakeholders are not only asked to define a common societal challenge, but also to tackle it by creating and executing pilot actions resulting in institutional change by the uptake of RRI. Blok et al. define the problem here, that some stakeholders (like NGOs) will less likely take responsibility for innovations with uncertain outcomes, because for example, NGOs can be blamed for co-operating with “the enemy”, which “may result in a legitimacy loss” (ibid.). As Blok et al. (2015) note that no management practices are available in the literature, the practical solution to this challenge was searched for in the process of the Social Lab itself.

Based on the mentioned characteristics of responsible innovation, stakeholder engagement, and the methodology of Social Labs we defined our research question: *How can we engage stakeholders in the R & I process by implementing RRI within the framework of the Social Lab Methodology?*

### 10.3 Methodology

The case study approach is applied to explore how the Social Lab methodology can help to implement the concept of RRI in the EURATOM research area. As an approach it can answer “how” and “why” questions and has been a common research strategy in psychology, sociology, political science and other research fields (Baxter and Jack 2008). This approach is based on a constructivist paradigm which follows the idea that truth is relative and depends on one’s perspective. The case study is designed in close cooperation between the researcher and the participant, with participants being encouraged to share their stories. This allows the participants to describe their view of reality while the researcher gains a better understanding of the participant’s action (Crabtree and Miller 1999). At the end, a case study is a construction of realities (Searle et al. 1995). With the help of the case study approach to complex social phenomena, or social constructions and their processes of development, can be described and understood. The method, with the capability of supporting empirical generalization and a potential to generate knowledge which improves collective problem solving (Barzelay 1993), allows understanding real-life events such as the life cycle of the EURATOM Social Lab through its descriptive nature (Yin 2003; Baxter and Jack 2008).

For implementing a case study, many different sources of evidence and the convergence of all analysis are important and at the same time a major strength of case studies is that they allow the researcher to explore and understand social phenomena through different lenses (Baxter and Jack 2008). As there was no basis for comparison for this specific case, there are also no propositions (cf. Yin 2003) that could be used, but rather ‘issues’ are considered. Stake (1995: 17) defines issues as something that is “wired to political, social, historical, and especially personal contexts,” and stresses the importance of issues for case studies. Relevant issues for the EURATOM Social Lab case will be described in the following sections. Similarly, to the necessity of issues, the conceptual framework plays an important role in analysing a single-case study, as it serves as an anchor, while defining what will and what will not be included in the study. Furthermore, it allows for the description of possible relationships based on experience (Miles and Huberman 1994).

Analysing single case studies can be done using different strategies. The strategy described in this chapter has followed the rules of compiling chronological events (three workshops) as a special form of time-series analysis as described by Yin (2003). As labelled by Yin (ibid.), “some events must always occur before other events, but the reserve sequence should be impossible”. Furthermore, these events have been followed by other events. Yin (ibid: 126) also points out that, “some

events can only follow other events after a pre-specified interval of time”, while, “certain time periods in a case study may be marked by classes of events that differ substantially from those of other time periods”.

Dissecting aspects of a historical episode aims at developing a historical explanation that is generalizable – if possible, to other events. Of interest is *whether* and *how* a variable mattered to the outcome, rather than *how much* it mattered. This needs the awareness that cases can be interpreted and understood in different ways (George and Bennett 2005).

Findings of the single case study can impact theory development and theory testing (Bannett and Elman 2006). The analysis of the EURATOM Social Lab case aims at reflecting how the Social Lab approach can be used as an appropriate way to integrate RRI in the EURATOM research field and by doing so, ensure that relevant stakeholders are included to the R & I process (Bennett and Elman 2006).

### **EURATOM Social Lab Process**

The Social Lab process started with a diagnosis phase in which the Social Lab team did make themselves familiar with the research field, especially from the RRI perspective: the EURATOM working programmes from 2014 to 2020 were analysed and assessed towards existing traces of RRI.

The findings of the diagnosis were discussed in the first workshop. Participants present were rather unfamiliar with the concept of RRI. Here, it was not only a challenge for the social scientists to explain the concept of RRI, but also to translate it into a language that is easily accessible to natural scientists (who are mainly working on the nuclear energy research field) so that they could get an idea of what it means for their work. It was therefore necessary to critically question to what extent the language of the social science researcher who went through the documents and who conducted the interviewees was compatible with the language of the experts from the EURATOM area, and if it is possible to create a mutual deeper understanding in regards to RRI.

This was deepened by interviews with identified stakeholders, which also marked the start of the recruitment for the first Social Lab workshop. The design of this workshop was informed by the findings of the RRI diagnosis. Based on this findings, three Social Lab workshops were implemented – in between enough time for caring out and evaluating the pilot actions developed in the workshops. All together the EURATOM Social Lab lasted 23 months, starting in January 2018 and ending in November 2019.

The EURATOM Social Lab team consisted, similar as described by Timmermans et al. (2020: 9) of the Social Lab managers and the Social Lab facilitator. Content-wise, the process was managed by the Social Lab managers, and facilitated by the Social Lab facilitator. The task of the two Social Lab managers was to recruit the stakeholders, to organise the workshops and to support the stakeholders through the process of creating and further developing their tailor-made Pilot actions. The Social Lab facilitator moderated the three workshops, guided the participants in a definition process of the societal challenge relevant to the EURATOM field and fuel the process of creating and reflecting on the Pilot actions. This way, the Social Lab team

tried to create an environment where by “involving social actors and addressing social challenges by doing social innovation” the social dimension of R & I was included (Timmermans et al. 2020: 5). Accordingly, the Social Lab team came up with three objectives: (a) the design and implementation of social experiments (Pilot actions) to overcome the defined barriers of the societal challenge and to implement RRI into the involved institutions in order to create institutional change with the help of the Social Lab participants as “change agent”; (b) the reflection on the outcomes of the experiments during and after the three sequential participatory workshops; (c) the resulting summary of lessons learned for further steps aimed at embedding RRI into R & I policies and funding programs.

### **The Three Social Lab Workshops**

The three Social Lab workshops were attended by an average of seven people, the first one took place on 18–19 May 2018 in Brussels. Participants included various stakeholders from research, universities, European Commission and an NGO representative. The Social Lab team provided a short introduction on the Social Lab process itself, the NewHoRRizon project and the concept of RRI. As RRI was assessed to be a rather unfamiliar concept within EURATOM in the diagnosis, the Social Lab team put emphasis to translate RRI into the language of natural scientists doing research in the nuclear energy sector in order to make participants imagine what RRI could mean for their daily work. The Social Lab team defined the aims of the first workshop as threefold: (1) to make participants reflect on their notion of responsibility in research, (2) to define one common societal challenge of EURATOM and (3) to reflect on possible ways to overcome this challenge. By using visioning methods, participants were encouraged to think outside of their normal research box. Participants were further asked to define barriers to tackling the societal challenge which they defined as increasing awareness of the society regarding the evolution of energy. Here, RRI was used as a tool through which stakeholders learned the deeper sense of RRI by answering questions posed about the single keys in connection to the societal challenge. By these means, ideas evolved and Pilot actions were developed managing obstacles and barriers for implementing RRI in EURATOM. Discussions on the implementation plan for these Pilot actions during the first event made obvious, that implementing RRI in the EURATOM research field seems to require either extra resources, as RRI is not foreseen in usual EURATOM (business) practices, or a high intrinsic motivation of people who believe in the added value of RRI for research and innovation.

The following workshop took place in Vienna on 29–30 January 2019. Here, special efforts were made to replace the NGO drop out which took place after the first event, but unfortunately it was not possible to recruit a new representative. Much of the second workshop was dedicated to working on the Pilot actions. The question of resources for implementing the Pilot actions was again raised and the question on how to tackle the shortage of resources to achieve institutional change intensely debated. In the participants understanding, limited resources reflect the potential size and impact of a pilot action. Consequently, the Pilot actions were adopted accordingly. Similar to the question of limited resources, the role of the

participants as change agents was discussed. The participants voiced their concerns that their power of influence within their organization was too little to change traditional intellectual approaches, which in turn would need to disrupt existing practices. To tackle this, the Social Lab team actively encouraged the participants to take on this role by emphasising that it would need people in different organisations who canvass the concept of RRI and the positive consequences of its practical application to achieve this goal. This action showed some effect in lowering the critical attitude towards the participants agency for the moment. As a result of this discussion, participants suggested that one way to ensure a broader implementation of RRI in EURATOM was to design H2020 project calls for EURATOM with the scope of implementing RRI. Proceeding this way seemed feasible to participants in order to make an RRI related change, because sufficient financial support would be available.

In the third Social Lab workshop, which took place in Warsaw between 19th and 20th November 2019, altogether six people participated. While five already attended previous Social Lab workshops, one new person took part. In general, this event aimed for in depth reflection on all the Pilot actions that were implemented in the course of the Social Lab with regards to a long-term implementation of RRI. In order to draft first policy recommendations, participants were invited to recap the societal challenge defined in the beginning of the Social Lab process, as well as the barriers and obstacles to tackling it. Out of this, and based on the lessons learnt in the EURATOM Social Lab workshops, two policy recommendations were developed by the participants for the nuclear energy research field. First, transdisciplinary projects, experimental labs and schools were referred to as not only a way to make Nuclear Sciences more tangible, but also provide active learning environments. Second, regarding gender issues, participants stated that the number of women in the nuclear research field must be increased and a gender-neutral language in natural science needs to be developed and generally used. This would attract more female talent to the Nuclear Sciences, according to the participant's vision.

### **Pilot Actions**

As a way to implement RRI while engaging stakeholders as change agents, a total of three Pilot actions was completed in the whole Social Lab process. In the following they will be described in further detail to provide an impression of their scale and impact in terms of institutional change potential.

The Pilot action "Teach the Teacher" was created during workshop 1 and focused on enhancing the teaching of physics in secondary schools and universities by including the RRI keys of Science education and research ethics. Additionally, from a mid-term perspective, public awareness of the defined societal challenges should be integrated into the curriculum of teaching physics. This pilot was focusing on Poland for the proof of concept, still it was designed in a way that it can be taken up in any other country. In order to further implement the pilot, the idea was to create a 'student call' before it would be brought up to the EURATOM committees and lobbies, and the national representatives should be approached about including this into future EURATOM calls. The practical phase of the pilot started on January 10th

and 11th 2019 by having a joint workshop together with high school teachers from all around Poland and introduce them to cutting edge technology used in Nuclear Research (such as the “CosmicWatch”). While doing the pilot hosts put emphasis on Science Education and Research Ethics by integrating these keys to the programme of the workshop and connecting it with the new teaching techniques presented.

“Nuclear Dating” aimed at bringing PhD students from nuclear sciences together with social scientists in a speed dating format. The pilot aimed to create a transdisciplinary environment for participants to foster mutual exchange on their research interests. The first event, which took place on 19th and 20th September 2019 in Brussels, in total, eight early career researchers from the field of Nuclear and Social Sciences joined a workshop. After an initial round presenting their research, participants were asked to participate in speed dating in order to try and elaborate on the possibility of a joint research project. While the presentation should provide all participants an overview on the expertise present, the speed dating format was used to overcome a step the silo thinking. In the one and a half day of the event, the participants were given input on the concept of RRI and how to practically apply it. As the participants’ feedback was positive, the pilot sponsors concluded to hold the Nuclear Dating event on an annual basis.

Some participants came up with the idea of actively tackling the shortage of resources discussed in the second workshop by joining a proposal for a H2020 EURATOM call, in which RRI should be implemented. The project proposal was submitted to the European Commission by September 25th, 2019. It also included the concepts of the ‘Teach the teacher’ and ‘Nuclear Dating’ pilots and aimed to generate more interest amongst potential students in the field of nuclear energy by including RRI aspects – in particular the keys of Public Engagement and Science Education. At the end, the proposal included the importance of RRI in the education of young researchers, pointing out that “stakeholder involvement and Science Education are essential cornerstones”, and “using RRI and its emphasis on gender equality is an appropriate way to ensure that more female professionals will enter the field of nuclear”, as well as “guiding young researchers towards Open Access and applying Research Ethics will be beneficial” (H2020 proposal Nr. 945154). The interdisciplinary consortium consists of 23 partner organisations, of which three were already represented in the EURATOM Social Lab workshops. In February 2020, although the proposal exceeded the threshold, the EC decided to not fund the project.

## **10.4 Analysis and Reflection of EURATOM Social Lab Process**

Following the first description of the Use Case of the EURATOM Social Lab, this chapter provides a deeper analysis and reflection of it based on the theoretical framework provided by Blok et al. (2015), reflects on the methodology itself and compares the experience of the EURATOM Social Lab to the findings of

Timmermans et al. (2020). Taking this into account, we elaborate on the question if the Social Lab is a suitable approach to implement RRI by engaging stakeholder in a research field like EURATOM. Therefore, a summarized analysis of the process alongside the categories of transparency, interaction, responsiveness, co-responsibility defined by Blok et al. (2015). The analysis and reflection on the EURATOM Social Lab of the NewHoRRizon project allowed for the summary of the following results:

### **Transparency**

The matter of transparency is the starting point of our analysis. In terms of stakeholder engagement, it is defined as “concern[ing] the opening up of the innovation process by sharing knowledge and information among multiple stakeholders” (Blok et al. 2015: 151). In the here presented Social Lab, stakeholders were generally open towards each other in the sense of sharing insights and ideas. This openness increased over the course of the three Social Lab workshops, as the stakeholders present became more homogenous. It is likely that this atmosphere has been created by the fact that participants of the Social Lab workshop came from a similar background and/or partly knew each other from previous encounters.

Two other factors might have also promoted this atmosphere of mutual trust which according to Timmermans et al. (2020) is crucial for the process. The withdrawal of the NGO representative after the first event and the fact that no industry partner has been present in the Social Lab has likely promoted the process of transparency and trust building among participants because no opposing voices regarding the promotion of Nuclear research interrupted fluent discussions. At the same time hardly, any counterarguments were reflected upon. This composition of participants stays in contrast to a feature of a Social Lab understood by Timmerman et al. (2020: 6) who says a Social Lab is “multi- and interdisciplinary involving a wide range of expertise and backgrounds” including the civic society. Being transparent is much easier if all persons involved in a discussion have a similar opinion.

Although for the Pilot action “EURATOM proposal” the scope of stakeholders became wider than in the Social Lab itself with 23 organisations involved, including industry partners, no confidential knowledge was shared which might “lead to a loss of competitive advantage” (Blok et al. 2015: 151), but the focus was to work on new and innovative teaching methods.

### **Interaction**

The aspect of interaction is defined as “[the] dialogue among multiple stakeholders about the purposes of innovation processes [...] that can be stimulated by transparency among stakeholders” (Blok et al. 2015: 151). As this transparency was given amongst the participants (despite the mentioned limitations), we can relate the experiences from the case study to another aspect of Blok et al. definition, “as [the] interaction with multiple stakeholders enable[ed] actors to develop such a shared objective and purpose of innovation processes” (Blok et al. 2015: 149). In the EURATOM Social Lab, achieving consensus among stakeholders in defining a societal challenge was not an easy process in the first workshop due to the participant composition and different perspectives. At the end participants agreed to the

challenge of “increasing awareness of the society regarding the evolution of energy”, which was also the basis for the Pilot actions aiming to overcome this challenge. As the objective was rather broadly defined, participants had to some extent different perceptions of the challenge which became more apparent over time. Retrospectively, it would have been beneficial to dedicate more time in each workshop to this topic in order to have the objective more present in the minds of the participants throughout the Social Lab process. This would have promoted what Timmermans et al. call the “iterative, agile approach” and “closely inspecting the process” (ibid.: 6). In hindsight, a possible effect of paying not enough attention to the ongoing discussion on the societal challenge could be the rather short-term goals as well as the low scale of the pilot activities, which did not necessarily aim at overcoming the societal challenge, but rather at applying one or more RRI keys somehow connected with the challenge.

Another observed aspect connected to the interaction among the participants was the power imbalance within the group of participants. It emerged for example in workshop one, manifesting in the drop-out of the NGO representative who felt little power to achieve institutional change in the setting of the Social Lab, when being surrounded with nine other participants opposing her actions. Apparently, this person did not feel to have any power to exert influence, which according to Timmermans et al. (2020: 7) is necessary for initiating a systemic change to which all participants agree. While there was a variety of stakeholders present in the first workshop, this variety decreased in workshop 2 and 3. The drop-out of the NGO representative in the aftermath of workshop 1 could not be compensated, as potential other NGO representatives who were contacted to replace the drop-out were reluctant to join the Social Lab, stressing similar motives as the NGO participant stated for resignation. But power imbalance was not only present in terms of representing stakeholders and their (apparent) magnitude of influence in the field of nuclear energy, but also in terms of gender: comparing the talking time of women and men in the three Social Lab workshops it is evident that men took more space for themselves compared to participating women, also because less women than men were participating. This might mirror to some extent the general male overrepresentation in the field of EURATOM which makes it difficult for female researcher to gain attention as gender in this research area itself was analysed in the diagnoses as absent or existed only to a little extent (Rogg Korsvik and Rustad 2018).

### **Responsiveness**

For Blok et al. “[s]takeholder engagement does not end with sharing information and interaction, but should result in action and behaviour, i.e. an institutionalized responsiveness of the company toward society concerning the direction and trajectory of the innovation process”. Within the EURATOM Social Lab the first step towards responsiveness was the guided planning and implementation of in total three Pilot actions. In the beginning all participants were involved in the development of these activities, but when it came to the question of responsibility including provision of resources, only single institutions took over the tasks between the workshops. These Social Lab participants probably saw the biggest chance for a

first step toward an institutional change with the help of the Pilot actions. Although, two out of three Pilot actions will be again implemented in the future (Teach the Teacher and Nuclear Dating participants did not see themselves as potential change agents because they described their impact and influence in their organisation as tiny). The Social Lab team encouraged attendees to reflect on how to achieve impact, even with limited resources. This discussion on potential for change emerged several times in the Social Lab process and, therefore, was given particular attention even beyond the lifetime of the Social Lab. Pilot actions can be one step forward toward institutional change, but they might not be enough, often it needs more effort from single persons (change agents) in further consequence to “accelerate and/or improve the social innovation-processes that are already taking place” (Timmermans et al. 2020:8) during and beyond the social experiment (Pilot action). Although the pilot activities were reflected before and after their implementation, it is questionable if the EURATOM Social Lab team explained the pilot owner well enough how the learning circle as described by Kolb and Kolb (2009; Timmermans et al. 2020), namely learning from the experiences made and developing new actions from what they learned, would work, because further developments based on the experiences made were not transparent at least during the Social Lab lifetime they were not noticeable. Also, insufficient continuous support by the Social Lab team as well as time might have played an important role for not achieving this aim. Instead, the pilot actions were all once implemented but not moved further.

In contrast, when it comes to the responsiveness towards the public the nuclear world also needs to learn how to listen to the public’s need and offer more possibilities of engagement. Still, the fear of being misunderstood was pointed out as a crucial point, as participants worried about a negative image of nuclear energy in media. Therefore, actions were rather directed towards improving the public perception and image of Nuclear Science by using public engagement.

### **Co-responsibility**

As experienced in the EURATOM Social Lab, the assumption of responsibility for a pilot action by a sponsor is crucial for its success. Some kind of frustration emerged when it came to distributing responsibilities. The challenge was, as already mentioned, to identify several sponsors who would commit to introducing and testing a pilot action and activity within their organisation, but the selection of these pilot action responsible persons proved to be difficult. Participants argued that this would mean extra, probably unpaid, work in addition to their daily business. As Blok et al. (2015) states, stakeholders, “in their mutual responsiveness to each other”, become” co-responsible for this innovation trajectory” (ibid: 151). In the EURATOM Social Lab willingness for co-responsibility seemed to depend on resources and potential (long term) outcome for the participants. For the proposal pilot it can be assumed that the long-term benefits here seemed to be greater, and accordingly the willingness to invest time and resources was therefore larger. If the project would have been successfully implemented (unfortunately its funding was rejected), there would have also been the chance of RRI reaching even more institutions over a longer period.

Taking over co-responsibility regarding Pilot actions might also be connected with organisational areas of interests: the less the pilot contributes to them, the lower the motivation can be assumed for taking over (co-)responsibility. As the EURATOM Pilot actions addressed more specific needs of single organisations, the benefit for other institution was rather low. Also, the location (country), where the Pilot action was implemented might have an impact on the willingness for co-responsibility.

In the end, the “capital (of participants) in order to change social systems” (Timmermans et al. 2020: 7) has an influence on how deep engagement and co-responsibility takes place. For the EURATOM Social Lab it is therefore questionable, if the involved stakeholders had an agency for changes in their organisations.

The issue of financial resources was also addressed by contacted NGO stakeholders in recruitment attempts prior to workshop 2 and 3. In addition to that, the perspective of being put together with mostly pro-nuclear actors in the Social Lab workshop might have deterred some from participating.

For all four aspects, transparency, interaction, responsiveness and co-responsibility, not only the composition of participants has an impact, but also the total duration of the Social Lab, including the time between the workshops. As this in between time involves the danger that participants lose momentum, the EURATOM Social Lab team scheduled frequently meetings for the participants. Still, not working intensively together can have an effect on the cooperation.

## 10.5 Conclusion and Outlook

After presenting the case study the research question needs to be answered two-folded. First, the Social Lab methodology has proven to be valuable in getting different stakeholders together to co-create solutions for their defined societal challenges in EURATOM. Nevertheless, it remains uncertain whether the Social Lab approach is sufficient for the gradual and long-term integration of RRI into a specific research area. Besides the personal motivation and interest of the Social Lab participants, their role in their organisation is crucial not only when it comes to testing Pilot actions, but especially for the long-term institutional change connected to RRI (becoming a “RRI change agent”). Furthermore, the organisational structure – such as hierarchical compositions – as well as the mission statement can have an influence how easy or difficult it is to implement RRI.

The creation of tailor-made Pilot actions led to implementation of RRI in parts of EURATOM while engaging a variety of stakeholders. Nevertheless, the case study also showed some limitations and challenges to the concept. The fact that transparency in the sense of Blok et al. (2015) was only given once the composition of the Social Lab got more homogenous after workshop 1. Here a wider range of stakeholders, also willing to interact with each other, would have been beneficial to trigger change to the R & I in EURATOM. As the dynamic and “success” of a Social Lab highly depend on its participants, more time and effort would have been

necessary for the recruiting process, which turned out to be more difficult than expected in the EURATOM case.

In addition, the question of resources was a hinderance to the scale of the pilot actions in the EURATOM Social Lab. In the specific context of EURATOM, were RRI was widely unknown (one out of ten participants in workshop 1), dedicating work to it was commonly perceived as an additional effort requiring resources to be achieved, rather than a necessity to trigger change.

The engagement of a wide range of stakeholders as outlined by Blok et al. (2015) proved to be challenging in the case of EURATOM. This aspect, as well as the power balance between the participants, which is connected to what Blok et al. (2015) call the factor of interaction, must be sufficiently being acknowledged and integrated into the setup of the Social Lab, something that the EURATOM Social Lab was only partly successful in. In particular it was hard to recruit participants from NGOs or civil society. Here the barrier for participation seems to be lower for those who are holding a permanent position (such as Professors or Civil Servants) than for those working in fields where (financial) resources are scarce.

Another conclusion based on the experiments of the EURATOM Social Lab is the importance of well explaining the general sense of the Pilot actions and their necessary learning loops in order to achieve behaviour changes. This means to make clear, that such an activity should not only be well prepared but also well reflected during and after implementation and then further developed.

Although there is research needed with regard to long-term effects of the EURATOM Social Lab and implemented Pilot actions, we assume that the Social Lab approach can help to integrate RRI in a specific research field, the way how the Pilot actions are implemented and the added value of RRI is experienced, depends on the mentioned influencing factors. Concluding, the case study of EURATOM shows the potential of applying the Social Lab methodology to (a) engage different stakeholders and (b) foster the implementation of RRI despite the limitations previously outlined. Scholars aiming to use action research to initiate institutional change are strongly encouraged to use the method according to Timmermans et al. (2020). When doing so, emphasis to the limitations and challenges mentioned must be given and well thought of in advance to ensure the application of the Social Lab methodology will provide the results desired.

## References

- Barzelay, M. 1993. The Single Case Study as Intellectually Ambitious Inquiry. *Journal of Public Administration Research and Theory* 3 (3): 305–318.
- Baxter, P., and S. Jack. 2008. Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers. *The Qualitative Report* 13 (4): 544–559.
- Bennett, A., and C. Elman. 2006. Complex Causal Relations and Case Study Methods: The Example of Path Dependence. *Political Analysis* 14 (3): 250–267. <https://doi.org/10.1093/pan/mpj020>.

- Blok, V., L. Hoffmans, and E.F.M. Wubben. 2015. Stakeholder Engagement for Responsible Innovation in the Private Sector: Critical Issues and Management Practices. *Journal on Chain and Network Science* 15 (2): 147–164. <https://doi.org/10.3920/JCNS2015.x003>.
- Burchell, J., and J. Cook. 2006. It's Good to Talk? Examining Attitudes Towards Corporate Social Responsibility Dialogue and Engagement Processes. *Business Ethics: A European Review* 15 (2): 154–170.
- Crabtree, B., and W. Miller. 1999. *Doing Qualitative Research*. 2nd ed. Thousand Oaks: Sage.
- George, A.L., and A. Bennett. 2005. *Case Studies and Theory Development in the Social Science*. Cambridge: Belfer Centre for Science and International Affairs/John F. Kennedy School of Government/Harvard University.
- Gianni, R. 2020. Scientific and Democratic Relevance of RRI Dimensions and Relations. In *Assessment of Responsible Innovation: Methods and Practices*, ed. E. Yaghmaei and I.V.D. Poel, 1st ed. Routledge. <https://doi.org/10.4324/9780429298998>.
- Gould, R.W. 2012. Open Innovation and Stakeholder Engagement. *Journal of Technology Management & Innovation* 7 (3).
- Griessler, E., H. Hönigmayr, R. Braun, and E. Frankus. 2021. *D7.3 NewHoRRizon Social Lab Manual -Final Version*. <https://doi.org/10.13140/RG.2.2.30146.25285>.
- Hassan, Z. 2014. *The Social Labs Revolution: A New Approach to Solving Our Most Complex Challenges. A New Approach to Solving our Most Complex Challenges*. San Francisco: Berrett-Koehler.
- Kolb, A.Y., and D.A. Kolb. 2009. Experiential Learning Theory: A Dynamic, Holistic Approach to Management Learning, Education and Development. In *The Sage Handbook JOURNAL OF RESPONSIBLE INNOVATION 15 of Management Learning, Education and Development*, ed. S.J. Armstrong and C.V. Fukami.
- Meijer, I., and W. van de Klippe. 2020. Monitoring Responsible Research and Innovation in the European Research Area. In *Assessment of Responsible Innovation: Methods and Practices*, ed. E. Yaghmaei and I.V.D. Poel, 1st ed. Routledge. <https://doi.org/10.4324/9780429298998>.
- Miles, M.B., and A.M. Huberman. 1994. *Qualitative Data Analysis: An Expanded Source Book*. 2nd ed. Thousand Oaks, CA: Sage.
- Rogg Korsvik, T., and L.M. Rustad. 2018. *What is the Gender Dimension in Research? Cases Studies in Inter-Disciplinary Research*. Kilden.
- Searle, J.R., S. Willis, and M. Slusser. 1995. *The Construction of Social Reality*. Free Press.
- Stake, R.E. 1995. *The Art of Case Study Research*. Thousand Oaks, CA: Sage.
- Timmermans, J., V. Blok, R. Braun, R. Wesselink, and R.Ø. Nielsen. 2020. Social Labs as an Inclusive Methodology to Implement and Study Social Change: The Case of Responsible Research and Innovation. *Journal of Responsible Innovation*: 1–17. <https://doi.org/10.1080/23299460.2020.1787751>.
- Von Schomberg, Rene. 2013. A Vision of Responsible Innovation. In *Responsible Innovation*, ed. R. Owen, M. Heintz, and J. Bessant.
- Yin, R.K. 2003. *Case Study Research. Design and Methods*, Applied Social Research Methods Series Volume 5. 3rd ed. London: Sage.

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