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Responsible research and innovation and the challenges of co-creation

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Inclusion is one of the key principles of responsible research and innovation (RRI). However, the way it is formulated by policy documents and translated in the RRI literature leave room for various interpretations and diverse practices. Therefore, there is a need for the clarification of this term and the challenges it implies. Present paper attempted to elaborate on the issue of inclusion with regard to RRI alongside the following issues: (1) the opportunity for participating or not participating; (2) the roles and mandates of the participants and (3) power relations and coming back to reality from the safe space of participation. In line with the endeavour of the FoTRRIS project, the paper calls for 'co-created RRI' and analyses the challenges of such process through the case of Transition Wekerle Hungary.

1. Introduction

Responsible research and innovation (RRI) claims to be a new way for understanding and implementing research, so that the research and innovation (R&I) systems can provide better answers to social and environmental challenges. RRI is meant to provide guidance for researchers in order to integrate ethical reflection, deliberation and a focus on social impact into the research process. It is most commonly understood as 'taking care of the future through collective stewardship of science and innovation in the present' (Stilgoe et al. 2013, 1570). Taking the European contexts as a starting point, von Schomberg (2013, 63) argues that it is 'a transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view to the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products.'

The concept of RRI only emerged recently, but it became a discourse creating term almost immediately. The number of scientific publications that explicitly use this term is rapidly increasing. On the top of this, RRI has been taken up by the policy discourse as well. It became an element of the European Union's Seventh Framework Programme for Research and Innovation (FP7) and then the Horizon 2020 Strategy.

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This is probably due to the fact that it connects well to discourses both in the policy and the scientific fields, which date back long ago.

The *scientific discourse* that led to the emergence of RRI is very complex and has been going on for decades. It embraces fields such as the arguments of science and technology studies (STS) (e.g. Latour 1993; Callon et al. 2011), the post-normal understanding of science (e.g. Funtowitz & Ravetz 1993) and the extensive research done in the fields of risk and uncertainty, technology assessment and foresight. And there are also lots of concepts and fields that indirectly shaped the emergence of the RRI discourse, among others: the sustainability research and in particular the understanding of the link between technological change and sustainability (e.g. Beck 1992, Latour 2004); the literature on the ethics of technology; and the literature on practices and principles of social deliberation.

The emergence of the RRI concept in the *political arena* is well documented by the literature (e.g. Owen et al. 2012; Oudheusden 2014; de Saille 2015). Its direct precedent was the 'science in society' programme within the EU's FP7. Then in the form of 'science with and for society', RRI has become a cross-cutting issue in the EU's Horizon 2020 Framework Programme. However, talking about RRI in the policy field has not really changed the mainstream discourses. It is embedded into a broader discourse set by the Europe2020 strategy, which strives for 'growth and jobs', and which reflects the dominant approach towards innovation, i.e. 'to strengthen, enable, promote, increase and support' (EC 2010).

Therefore, the context in which RRI exists today is quite incoherent. On the one hand, its use as an umbrella term (Rip & Voss 2013; Li et al. 2015), and the ease with which it can be inserted into policy documents warn that 'RRI [may be] narrowly, and instrumentally, motivated to support the delivery of a pre-committed policy, with economic growth as its main priority' (Owen et al. 2012, 753); and 'should remind us of the risks of instrumentalising the phrase' (Stilgoe et al. 2013, 1577). On the other hand, talking about RRI, is clearly a claim to do research and innovation differently.

What is exactly meant by RRI and how it is (or how it should be) translated into practice is still a bone of contention. Its building blocks (e.g. anticipation, inclusion, reflexivity and responsiveness) leave room for various interpretations; they are put into practice in diverse ways. The normative foundations of RRI are not clear-cut either, which may open the way for practices that fit well into the present structures, but are advertised as RRI.

Therefore, there is a strong need for the clarification of this term and its components. *Present paper* focus on inclusion and deliberation, which are understood as key principles of RRI. They appear both in numerous scientific papers and policy documents (EC 2012; Owen et al. 2012; Stilgoe et al. 2013; Wickson & Carew 2014). The paper argues that the way inclusion is approached in the RRI discourse is rather controversial, and argues for understanding inclusion as co-creation.

In section 2. the paper attempts to elaborate on the issue of inclusion and deliberation with regard to RRI alongside three aspects: (1) the opportunity for

participating or not participating; (2) the roles and mandates of the participants and (3) power relations and coming back to reality from the safe space of participation. In section 3. it analyses the challenges of co-created RRI through a Hungarian co-RRI experiment, which was implemented as part of the FoTRRIS (Fostering a Transition towards Responsible Research and Innovation Systems) Horizon 2020 project. Section 4. discusses the lessons learnt and links them back to the concept of RRI.

2. Inclusion and deliberation in RRI

There is an almost unanimous understanding in the literature that RRI is the collective effort of scientists and non-scientist stakeholders. The first line of arguments emphasises *collective responsibility* (Stilgoe et al. 2013; de Bakker et al. 2014; Owen 2014; Armstrong et al. 2012). They take Ulrich Beck's (2000) concept of 'organized irresponsibility' as a starting point. As Stilgoe et al. (2013, 1569): highlight:

> *'[…] scientists, research funders, innovators and others have a collective political responsibility or co-responsibility: [...] while actors may not individually be irresponsible people, it is the often complex and coupled systems of science and innovation that create what Ulrich Beck (2000) calls organised irresponsibility.'*

The second (related) line of arguments stress the *political content* of RRI. The rationale for inviting a wide range of stakeholders (including citizens) into the process is that 'governments cannot democratically control important scientific decisions and actions that directly bear on society, and the status of scientific knowledge is very much in question' (Oudheusden 2014). Owen argues that 'instead of what we do not want science and innovation to do', RRI should ask 'what we do want it to do'.

This is related to a third line of reasoning that takes the *post-normal* understanding of science and/or the arguments of science and technology studies (STS) as starting point (e.g. Funtowitz & Ravetz 1993; Latour 2004; Callon et al. 2011). The tackling of grand environmental and social challenges requires actions without complete scientific understanding (be it ultimately possible or not). In such situations knowledge creation is inherently political, the validity of knowledge can be assessed from several viewpoints (e.g. methodological, workability, credibility of knowledge creator and normative presumptions). Therefore, the participation of stakeholders and citizens is not just a mere political act. Their knowledge is also vital (e.g. Grunwald 2011; Oudheusden 2014; Deblonde 2015), the knowledge and resources necessary to tackle grand challenges are scattered among a large set of stakeholders (Block 2014). Hence, this is an argument for transdisciplinary thinking with regard to RRI.

On the basis of the above lines of reasoning, inclusion (and deliberation) become one of the key principles of RRI. There are clear arguments that the

participation of stakeholders and citizens is not a 'box-ticking' exercise (Owen 2014). Owen et al. (2012) and Stilgoe et al. (2013) argue that in case of inclusion there should be room to question not just certain policy issues but also the framing assumptions of the participation processes themselves; in other words, it is not just participation that is needed, but also reflections on the way participation occurs.

Still, the understanding of the inclusiveness principle and the practical implementations show huge differences. Practices range from case where RRI means inter-disciplinarity and remains fully the business of academic actors (e.g. Lukovics et al. 2017) to cases where inclusive deliberation is stressed (e.g. de Jong et al. 2016). However, they never reach an extent that is called for by participatory action research or community-based research.

In the following of present section, we attempt to elaborate on inclusion in RRI alongside three aspects: (1) the opportunity for participating or for not participating; (2) the roles and mandates of participants and (3) the power relations and coming back from the safe place of participation to reality.

2.1. The opportunity for participating or not participating

RRI invites stakeholders (and in rare cases citizens) to take part in a joint problem-solving exercise, in order to arrive to a shared understanding and a shared vison on possible future directions. Therefore, RRI is a consensus seeking process. Innes (2004), on the basis of the extensive empirical evidence of planning theory, argues that there are peculiar prerequisites of and *authentic dialogue* when the aim is to build consensus:

- None of the major stakeholders are in a position where they can arrive to a satisfactory solution without taking part in the process. In other words, participation has a real stake for all the influential actors; staying away is not a good option for them.
- The interest and values of stakeholders differ, which makes consensus seeking necessary.

However, these prerequisites may not hold true in many cases with regard to RRI. Influential actors benefiting from current structures and power relations (e.g. corporations, certain political actors, and many actors of the R&I community) may easily arrive to satisfactory solutions without taking part in RRI discussions.

In addition, researchers (or sometimes other actors) initiating RRI discussions may have special stakes. In many cases, the framing of the problem solving exercises derives from academic and policy actors, e.g. how to do nanotechnology, synthetic biology, geoengineering, molecular biology in a responsible way. This narrowing down of the discourse can easily make actors reluctant to participate. As Rip (2014) argues, there is an assumption that there will be civil society actors willing and able

to call scientists into account. But this may not be the case. Civil society actors may not be able, or not be willing, to spend the necessary time and effort.

Therefore, it still seems to be a question for RRI how to create spaces for authentic dialogues, and what are the limits of consensus seeking processes when tacking grand challenges. As Bolz (2017) argues, RRI characteristically addresses the early stages of the innovation process. In case RRI does not address the actual introduction of innovations (which is still dominated by market actors), and does not imply joint actions of stakeholders, opting out may be reasonable for numerous stakeholders.

2.2. The roles and mandates of participants

The RRI literature is rather general about the actors and their roles. It is widely argued that broad consultations, involving as many relevant stakeholders as possible in ways that enhance inclusiveness, transparency and deliberation, are needed. But this is rarely specified further. For example, Stahl (2013) states that 'research and innovation need to be beneficial to all stakeholders, who should thus be involved in all aspects of RRI.'

Certainly the principles of RRI (e.g. inclusion, mutually responsive, transparency) make it apparent that RRI calls for a real (not just make-believe) deliberative participation. Meyer (2015) argues that societal concerns and issues need to be addressed right from the start. Owen (2014) draws attention to the fact that a tick box approach would never work, however attractive and easy it may be for some" (Owen 2014). Deblonde (2015) argues that RRI should take the form of locally situated, transdisciplinary action research, which also implies that researchers are knowledge partners instead of knowledge teachers.

However, these ideas do not necessarily turn into practice, or the attempts to put them into practice may not succeed. For example, Mali et al. (2012) highlight that ethical advisory boards (EABs) in Europe still function mainly as expert bodies rather than as hybrid forums. Stahl et al. (2014) draw attention that the recognition of (social) problems is driven by scientists/experts, the solutions to these problems are mostly elaborated by scientist/experts and the forecasting of future consequences is also done by scientist/experts. However, in this last step non-experts are also involved. Wilsdon (2014) argued that decision making is still controlled by politicians.

Numerous RRI cases are reported when experts had the leading role (e.g. Hodges & Angelos 2014; Brian 2015). The main features of the processes, the rules and scope of participation and also the ethical basis were laid down by them. Stemerding (2015), in connection with synthetic biology, reported that the focus was on the 'right impacts'; synthetic biology was unquestionably there, the field of research and its underlying premises could not be questioned. Gaskell et al. (2013) concluded that those hesitating to participate in biobanks had lower trust in key actors and had greater concerns about data privacy and security. 'Such concerns will only be

allayed by building trust and transparency and by engaging the public as partners in the biobank project.' Again, the technology is beyond being questioned. The suggested solution very much reminds of the traditional educator-student relationship. Stilgoe et al. (2013) during the analysis of the SPICE project found that RRI elements were 'introduced after the project had been funded, with little scope for deliberation on the motivations for the research or whether the research should have been funded at all.'

Therefore, RRI seems to be a discourse of (a minority of) scientists and policy makers. That is not a discourse framed by other stakeholders or citizens. Stakeholders are invited to participate in a pre-defined space to articulate and deliberate values and to seek for a consensus, and not to actually make decisions. Their expected contribute with their knowledge and values, but certain assumptions (e.g. the relevance of a research field) are not to be questioned.

It still seems to be a question for RRI to what extent does it intend to actually distribute power. Is RRI convenient with symbolic participation, or can it move forward to processes where the underlying presumptions, the framing of the discourse and the decision making are also subject to deliberation? Are spaces created by scientists/experts and policy makers are the only legitimate spaces for negotiating RRI?

2.3. Power relations and coming back to reality

Following the above line of reasoning, the framing and the implementation of RRI processes inevitably imply decisions with ethical and political content. As Meyer (2015) also states 'concepts such as participation and responsible innovation are not politically and morally neutral.' On the other hand, Oudheusden (2014) points out that 'RRI proponents have little to nothing to say about the politics and power that play out in, and through, deliberative governance processes. How do actors co-create outcomes? How do they deliberate? On whose terms is participation (i.e. deliberation) established, and why? What, in fact, is "public" about the public interest, public expectations and whose definition of the public counts?'

Oudheusden (2014), when analysing the 'NanoSoc' project, asks where are the politics in RRI? He states that 'it was simply assumed in the project that the involvement of more actors and issues would lead to better policy and enhance scientific quality'. But this way RRI became vulnerable to strategic game playing and to various forms of non-communicative behaviour. 'As a consequence, participation […] undercut the deliberative process, which initiators sought to sustain.' This example shows very clearly why it is naïve and also dangerous to take concepts such as participation or deliberation as granted. This clearly puts some into more advantageous position to the expense of others; and may undercut the objectives.

Meyer (2015) demonstrated a very interesting case about the 'Forum of Synthetic Biology'. According to the organizers, it was a 'space of open and pluralistic

debate' in order to favour an 'enlightened and constructive discussion'. But a group critical towards techno-science and industry interrupted the 'peaceful debate'. To block the debate, they used various methods: they showed posters (e.g. 'Participating is accepting'), revealed a banner ('No to synthetic life'), repeated slogans (e.g. 'false debate, we do not participate'), made noise, read a declaration, distributed pamphlets and told people to go home. This extremely interesting case draws attention to the fact that RRI is not equipped to deal with issues, such as the emergence of claimed spaces for participation; not accepting the space and rules of participation offered by researchers and policy makers; or not intending to arrive to consensus.

Proponents of RRI must face that there are conflicting values and interest, potentially valuable minority opinions, power biases and differences in skills for participation. Simply taking participation and consensus seeking as granted may easily contribute to the reinforcement of existing power relations, the sustaining of the status-quo and thus decreasing the transformative potential of RRI activities.

Furthermore, RRI processes construct an artificial space for discussions, which may significantly defer from the everyday reality of invited actors. The further the process moves towards practical outcomes and actions, the more we can expect that the power relations of the outside worlds start to come into play and the willingness to build consensus decreases. This seems to be a major challenge for RRI if it intends to address not just the early stages of the innovation process.

3. The Transition Wekerle case

Within the frame of the FoTRRIS H2020 project, we carried out a 'co-created RRI experiment'. It was linked to the issue of urban sustainability transition, carried out in the so called Wekerle estate (Wekerletelep), part of the 19th district of Budapest. The Wekerle estate was built in the early 20th century by the state. It is the only Hungarian example of the garden city movement initiated by Ebenezer Howard in the late 19th century. Its population is 10.5 thousand who live in more than 5 thousand houses or apartments.

The district is designed to foster community life, and to provide green, village-like environment. More than 50 thousand trees were planted during the construction of the district, out of which more than 16 thousand are fruit trees. Wekerle has a long tradition of active civic engagement; the Transition Wekerle movement is part of the international Transition Town movement, which furthers transition of communities and cities towards sustainability.

There are civil society organizations and movements in Wekerle that have a tradition to co-operate with universities and researchers in science shop or service learning-like activities. These co-operations served as a precedent for present transition experiment.

Figure 1. Aerial view of Wekerle estate, Budapest

Photo by Civertan Graphic Design legifoto.com

The process was organized around the issue of local economic development. As one of the local key civil actors phrased it: 'Local people have a lot of knowledge, expertise and they are really willing. They have already come up with lots of initiatives, but the economic aspect of the sustainability transition is still very much lacking.' This was the main motivation to pick economic development as the key issue of the co-operation.

The process was carried out between January and June 2017. During this time three workshops were organized at the Wekerle Cultural Centre (with the focus on systems mapping, visioning and planning for future steps respectively). Altogether 58 people participated the three workshops (22 all the three, 17 two, and 19 only one of the workshops). We also organized an outreach workshop to communicate our experience to further actors of the R&I system and to gain feedbacks. In addition, several in-between events took place: empty spaces tour (to map the potentially utilizable premises), a drink and draw event (to draw the mental map of Wekerle), and seminars on social business, community organization and community finance.

During this six month, cooperation and communication among researchers, further invited 'experts' (basically non-academics with special knowledge and experience on the relevant issues we called them 'competence cell') and the local

actors were continuous (and likely to continue in the future). The main forum for communication was social media.

Co-creation and co-production were key elements of the process. The ambition was to actually distribute power and control over the process; to challenge existing hierarchies and to create a space for different knowledge forms to be combined. During this endeavour, we built on the former experience of the researchers, the members of the competence cell and many of the local citizens in terms of collaborative (research) methods. We attempted to put inclusion and reflexivity into the core of the process. The process owners were well aware of the many possible shortcomings of public participation and the threat that it may be used in a way that sustains existing hierarchies and hegemonies. So we tried to experiment our possibilities to overcome these difficulties and learn from that.

Documentations of the workshops and in-between events, evaluation questionnaires, individual interviews with participants and feedbacks from the participants of the outreach workshop serve as a basis for reporting on the case.

3.1. The opportunity for participating or for not participating

The workshops and the in-between events were open and advertised through social media and conventional local media, as well as through personal networks. This was occasionally supplemented by invitations to increase diversity: to ensure that actors from all segments of the quadruple-helix will be present, and to ensure gender-balance. The venue (Wekerle Cultural Centre) and the dates (Saturdays) attempted to benefit citizen engagement. The calls for the events were co-created with key local actors.

A lot of participants emphasized that we managed to bring together local actors who had never co-operated or collaborated formerly (or may even had conflicts). While we tried to leave the process open and let new actors to join any time, the actual opportunity to participate still remained to a certain extent biased. While all the four segments of the quadruple-helix were present to an extent, it was obvious that conventional enterprises (entrepreneurs) were seriously under-represented. Many of the participating business-sector actors were actually social entrepreneurs.

It also became clear that actors can hardly be characterized by their sector in the quadruple helix. It is not only due to the fact that many belong to more than one segment. It occurred that – as Avelino & Wittmayer (2016) very well describes – actors take part in diverse and mixed relations. There were actors, who as key actors locally in sustainability transition actions, had clear expectations towards the process and therefore had high stakes. And there were also other actors whose attitude was rather just curiosity, their stakes were low. In other words, the usability of the possible outcome, and succeeding in fulfilling participants' expectations were not equally important for all the actors.

We also reflected on the process from the aspect of the marginalized. Voices that are usually unheard were sometimes missing in this case as well. In many of the cases these considerations emerged during the discussion and participants considered them to be important (e.g. increase social justice towards low income people, the people with different abilities and special needs, or the children). Nevertheless, these groups were not directly represented. In addition, there were certain voices that seemed to be totally missing (e.g. the consideration of those people who moved recently to Wekerle and does not actively take part in the community events).

So some of the prerequisites of an authentic dialogue – as listed by Innes (2004) were not fully satisfied: (1) there were actors for whom staying away was a good option, due to not having stakes or due to their ability to further their ends without this collaboration (e.g. enterprises). (2) And there were actors for whom participation seemingly did not occur as an actual opportunity (e.g. certain marginalized groups). So the process was much biased towards, middle class, highly educated people with a positive attitude towards sustainability. This means that we were able to open-up the process only to a certain extent, in spite of the fact that we transferred several elements of process ownership to the local community (as shown in the next section).

3.2. The roles and mandates of participants

The framework, which derived from the FoTRRIS project proposal, left large room for adapting the process to the local circumstances. Still, it contained certain elements and provided certain objectives and indicators the researchers had to stick to.

The actual research question (local economic development) and the schedules of the workshops were co-created by the researchers, certain key local actors and the competence cell. The process aimed for joint knowledge production, where the researchers were mainly facilitators. The channels and modes of communication as well as the venue and the date were proposed by active local citizens. They also had the opportunity to list the necessary expertise to be brought into the process, and ask for in-between events they considered to be useful. The researchers and the competence cell members tried to use their own expertise and their networks to fulfil these requirements.

One of the main challenges was to reconcile the (loose) framework provided by the project with the (often very clear) expectations of the locals. The overall project aim was not of primary importance for the local actors. While on the one hand, the project opened-up the opportunity for the collaboration; on the other hand, it immediately created certain structures and hierarchies that were not necessarily adequate for the local participants (e.g. reporting deadlines, to keep the experiments conducted in different countries comparable, the need to produce publishable output, the need for outreach).

The other main challenge we identified was to decide jointly, while also trying to structure the process to an extent it becomes comprehendible for participants. As it

occurred, for many of the participant (especially for those not experienced in collaborative practices) the process was very abstract and un-structured. This may have even led to their drop-out.

The third challenge we identified was adapting to the new roles required by co-creation, and the transgression of traditional hierarchies. Most of the local actors were happy to work together with 'experts' and trained researchers from outside their community. They also considered themselves as knowledgeable with several kinds of expertise. Still many of them seemed to be puzzled when researchers and the competence cell members largely refused to play a traditional role, and stated that most of the knowledge needed is possessed by the community members. There were high expectations towards researchers and competence cell members to provide expertise in the traditional sense.

3.3. Power relations and coming back to reality

Participants came from different sectors of the quadruple-helix. However, during the process, they rather participated as citizens and not as representatives of different organizations (while these two are not fully separable). In a citizen role people are more likely to be multi-rational: focusing not only on self-interest but also on common good (Stern 1997).

This opened up opportunities for discussions (e.g. the vice mayor did not have to stick to the official standpoint of the city), but it also caused a bias towards consensus-seeking or simply abandoning potentially conflicting issues. Maintaining good relations with other community members may have been more important than communicating someone's alternative ideas or values.

This created a friendly and co-operating atmosphere, which, on the other hand, could hide certain internal power relations. Those with less stake could have easily joined the consensus, which this way could more reflect the opinion of the local key actors. The less popular opinions could have been easily marginalized too (e.g. those criticizing the middle class "lens" of citizens, or pointing to the responsibilities of the well-organized local community towards those newly moved in). This atmosphere also created certain norms that were quite hostile towards politicians. The process could also better fit those more experienced in talking publicly and taking part in such exercises (as widely cited by the literature of participation, (e.g. Chambers 2003, Crocker 2007, Carpini et al. 2004; Besson & Martí 2006).

The orientation towards consensus instead of drawing attention to conflicting point was also something that derived from the project's point of departure. This could be easily maintained while talking about abstract future possibilities. However, when discussions moved closer to actors' everyday reality and short term interventions, conflicts and hindrances started to dominate discussions. The everyday reality of actors is not about regime and niche actors working hand-in-hand for joint future

goals. Most of the participant did not find this assumption of the process design convincing.

4. Discussion and conclusions

The demonstrated co-RRI experiment provided several valuable lessons with regard to inclusion in RRI. The first lesson was that a facilitated, consensus-oriented process, which puts a relatively abstract topic (economic development in connection with sustainability transition) in its focus, is able to bring together actors into a meaningful discussion. Almost all the actors appreciated the opportunity to engage in a process with researchers, experts from outside the community and with community members they had not cooperated formerly, or with whom they had conflicts.

The second lesson was, that within this space of participation inclusion may take several (valid) forms. Process owners (alone or together with key local actors) inevitably make decisions that are likely to lead to different processes (e.g. give way to conflicts or stress consensus; how much time to allocate for certain steps; how to handle the right of dissent; how to handle unheard voices or marginalized aspects; how to negotiate researchers and local people's objectives; to what extent are frameworks provided by the project negotiable).

The third lesson, in close connection to this is that project initiated co-operations are both opportunities and hindrances. Distributing power over the process will very likely result in changes regarding the aims, the process design, the time frame, the indicators of success, etc. This is something very difficult to reconcile with existing funding schemes. It is also clear that a project-based cooperation may create a ground for further collaboration, but after the short period of initial enthusiasm, it is not easy to create fair opportunities for that. Probably the largest challenge is to come up with a model/design where all the collaborators have equal opportunity to contribute in the form of actions they actually wish to do and are acknowledged for (e.g. if researchers or policy makers get acknowledged for engaging in RRI, but citizens not, than the opportunities will not be equal; or if researchers keep nagging citizens to contribute to reports, to come to outreach events and engage in the next RRI project, than cooperation will be unsustainable).

The fourth lesson is that all the participating actors were required to adapt to this new role. For example, researchers need to understand the long-term consequences of their intervention (they may introduce new dynamics into the working of the community, but without bearing the consequences); the local community must learn about the constraints and pressures researchers face, etc. This requires mutual learning and trust building, which takes time. On the one hand, short-term project-based co-operations have less potential to succeed in terms of inclusion. On the other hand, trust building is more likely when researchers are really engaged and enthusiastic about the research topics put forth by the local community. In other

words, researchers are not expected to be enthusiastic about RRI, but the substantial issues addressed by a given RRI process.

The lessons have implications for the concept of RRI as well. The discourse around RRI, which is primarily initiated by a minority within the research community and policy making, creates a framework that has a clear effect on inclusion. On the one hand, the tackling of grand challenges necessitates trans-disciplinary knowledge creation and decision making with ethical and political implications. These call for the equal partnership of diverse stakeholders (including citizens) and reflection to existing structures and power relations (co-created RRI).

On the other hand, during the implementation of RRI the prerequisites of an authentic dialogue, the actual roles and mandates of stakeholders, and the ability to reconcile the safe space of participation with real-life power relations may be narrowed down by the current framework conditions of RRI (who initiates, how it is funded, what is the time frame and success criteria of activities, etc.).

Therefore, inclusion should not be taken as granted. Implementing co-RRI inevitably implies numerous choices. While different solutions may be valid, actors (and in particular process owners) should be aware that different choices lead to different processes and thus different outcomes.

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