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and robust monitoring system for RRI**

WP5 research protocol and documentation Civil Societies at the Science-Society interface

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NARRATIVE: CIVIL SOCIETY ORGANISATIONS AT THE SCIENCE-SOCIETY INTERFACE

This case study seeks to elaborate on the concept of public engagement with research, specifically on the ways in which civil society organizations (CSOs) are (or are not) able to engage in the research and innovation system through SwafS and RRI related funding devices. This case seeks to provide a detailed examination, through qualitative research, on the experiences of representatives of CSOs in engaging with SwafS research funding devices.

1 PROJECT CONCEPT

1.1 Aims and background of the study

The European Commission's (EC) Horizon 2020 (H2020) framework programme includes several calls for the broader inclusion of diverse actors within the research and innovation system. Central within this is the call for including civil society organizations (CSOs) within the research and innovation system. The [Science with and for Society](#) (SwafS) funding calls, which contain the areas of Ethics, Science Education, Open Science (Open Access), the promotion of Gender Equality in Research and Innovation, and most central for this study, Public Engagement in Responsible Research and Innovation are focal in this effort. SwafS funding calls, and the language employed within them surrounding efforts for engaging civil society organizations in the research and innovation system will be explored in more detail below.

This project explores the experiences that CSOs have with these research funding calls seeking to interlink science and society more closely. Specifically, the study will critically investigate what kinds of impacts these new funding schemes are having on CSOs at the science-society interface by conducting semi-structured interviews with representatives from environmental CSOs in the Netherlands.

In the paragraphs below, first some theoretical work on citizen science and civil society involvement in science will be described, and next a description of how civil society / citizen involvement of science is described in the documentation of the European commission.

1.1.1 Civic involvement in the research and innovation system

This case study explores the ways in which civil society organizations (CSOs) can engage with the research and innovation system. The phrase 'civic involvement' is used in this case since the topic of interest lies not purely in what are explicitly referred to as 'citizen science' projects, but rather collaborations with CSOs (representing citizen concerns) and the research and innovation system. Persson and Edholm (2018) note that consultations with CSOs function to serve as a compensatory function for the democratic deficit that exists within EU institutions, highlighting their role of representing the needs and interests of citizens¹. The same democratic deficit has been perceived within the research and innovation system, which is particularly challenging to combat due to the role of formalized expertise and a concomitant high threshold of participation. Furthermore, the initial intentions behind the SwafS research program are to align the research and innovation system to societal needs and values, which requires civic society involvement in the process of research and innovation. Civil society organizations' inclusion in the scientific

¹ Persson, T. & Edholm, K. Assessing the Effects of European Union Funding of Civil Society Organizations: Money for Nothing?: Assessing the Effects of EU Funding. *JCMS J. Common Mark. Stud.* 56, 559–575 (2018).

process is being promoted. However, there are few attempts to understand the role of civil society organizations in research².

The input of civil society in the research process can result in the production of alternative forms of knowledge which would otherwise be unlikely to be developed. The contemporary constellation of funding organizations and universities is increasingly dependent on private funding sources, working towards technology transfer programs, and economic competitiveness, and consequently the knowledge produced within this system will suit the needs of these dependencies³. Frickel and colleagues (2010) describe that as a result of these influences on the research and innovation system, knowledge which serves the function of reducing inequalities, challenging economic and political elites, and that which would benefit thus far neglected populations and movements goes underfunded and under supported⁴. They continue in saying that it is precisely this ‘knowledge that could have helped a social movement or other civil society organization to mobilize the intellectual resources needed to confront an industrial / political elite’. The knowledge which is left unsupported as a consequence of the entanglement of political and industrial pressures is termed ‘undone science’.

In a series of case studies ranging from alternatives to chlorinated chemicals, and the pushback of environmental and public health NGOs in the United States, to civil society organizations challenging the requirements of restricting air pollution, Frickel and colleagues (2010) highlight the various roles that civil society organizations have changed regulatory standards, scientific practices, and the forms of knowledge which are developed within research, innovation, and regulatory systems. It is also for this reason that the current case study focuses on the small and medium sized CSO’s that emerged from social movements.

In the context of the policy device of RRI, it has been noted that the inclusion of CSOs in projects has been more diverse and multifaceted than originally expected⁵. Ahrweiler and colleagues (2019) note that when CSOs have been able to engage within European RRI projects, these organizations often go beyond their expected roles, which are often defined as being the ‘moral voice’ of projects⁶. The study found, via a survey and qualitative interviews, that the CSOs were often seen as either more or equally influential in RRI projects as other partners. Additionally, roles that were mentioned for CSOs included agenda setting, project initiation, and contributing expert knowledge.

Unfortunately, the study described above had various theoretical and methodological limitations. Theoretical limitations included insufficient attention to potential factors that limited the participation of CSOs who might not have been able to participate in the projects investigated. A considerable methodological limitation is that the interviewees and survey respondents were, to a large extent, not representatives working at civil society organizations. This present case study seeks to at least partially remedy some of these limitations.

It cannot be assumed that funding calls which seek to include CSOs in the research and innovation system will have an inherently beneficial impact on those organizations; nor can it be assumed that these funding calls will have an inherently beneficial impact on the distribution of power and resources within civil society more broadly. It is likely the case that very large CSOs, with considerable resources at the outset are more able to apply for funding through these funding opportunities, as opposed to smaller, less resourced CSOs, resulting in the commission’s funding device potentially feeding into existing inequalities between organizations. In an

² Llorente, C., Revuelta, G., Carrió, M. Social participation in science: Perspectives of Spanish civil society organizations. *Public Understanding of Science*, DOI: 10.1177/0963662520960663 (2020).

³ Bickerstaff, K., Lorenzoni, I., Jones, M. & Pidgeon, N. Locating Scientific Citizenship: The Institutional Contexts and Cultures of Public Engagement. *Sci. Technol. Hum. Values* 35, 474–500 (2010).

⁴ Frickel, S. et al. Undone Science: Charting Social Movement and Civil Society Challenges to Research Agenda Setting. *Sci. Technol. Hum. Values* 35, 444–473 (2010).

⁵ Moore, K., Kleinman, D. L., Hess, D. & Frickel, S. Science and neoliberal globalization: a political sociological approach. *Theory Soc.* 40, 505–532 (2011).

⁶ Ahrweiler, P., Gilbert, N., Schrempf, B., Grimpe, B. & Jirotko, M. The role of civil society organisations in European responsible research and innovation. *J. Responsible Innov.* 6, 25–49 (2019).

investigation into the impacts of the funding of CSOs by the European Union by Persson and Edholm (2018) show that funding often results in *more support* for organizations that represent populations and causes that are already overrepresented. The same may be true of the forms of CSOs which are able to engage with the research and innovation system through SwafS calls. Calls for a more democratized science system fall flat if those organizations being supported already depart from an advantageous, well-resourced, privileged position.

1.1.2 Public engagement with science at the European Commission

Whilst the assumption of the RRI keys is that they lead to benefits, the reality is that the keys of public engagement and citizen science may lead to benefits, if we improve the pathways towards them, including addressing barriers. This case study has the intention of exploring the ways in which CSOs are able to engage with funding opportunities provided by the EC through the SwafS program. This document will not provide an extensive discussion and analysis of the documents provided by the EC describing the intentions and goals of this engagement, but it will be useful to explore the rhetoric of inclusion that is provided by the documents of the EC.

Central within the EC's plans for the broader public engagement of civil society in the research and innovation process is the policy device of Responsible research and innovation (RRI), which is described as the following 'Responsible Research and Innovation (RRI) implies that societal actors (researchers, citizens, policy makers, business, third sector organisations, etc.) work together during the whole research and innovation process in order to better align both the process and its outcomes with the values, needs and expectations of society'. In the successor programme, Horizon Europe, Open and Responsible R&I practices are central, including Open Science, Citizen Science, Science Education, Gender and Ethics. Especially citizen science and working with CSO's is expected to empower that the outcomes of R&I are understood, trusted and increasingly used, by educated informed scientists and citizens to the benefit of society⁷.

Evidently, the rhetoric describing the policy device explicitly calls for attending to the values of society to be incorporated into the research and innovation system in a more comprehensive and systematic way to be able to contribute to the green deal, digital transition and the welfare and wellbeing of European citizens.

1.2 Objective and method of the study

The objective of this study is to generate knowledge which would benefit research funding organizations in working to include CSOs more systematically within the research and innovation system.

Specifically, this study seeks to understand the impediments that prevent CSOs from participating in research calls funded by the European Commission, with a particular interest in calls contained within SwafS and other RRI related funding.

The primary definition of RRI that is adopted within this study is the form introduced by Stilgoe and colleagues (2013), which thinks of RRI more as a process to incorporate social values and participatory efforts into the research and innovation system⁸. While we incorporate this model conceptually, we also utilize the specific dimensions proposed by the European Commission's model which features the 'keys'. The principle RRI key that is addressed within the study is the RRI concept of Public Engagement with science. In the study, we take as an assumption that CSOs represent, to some extent, relevant 'publics' within science-society relationships². Consequently, since the case study examines the degree to which this institutionalized representation of certain

⁷ European Commission, Directorate-General for Research and Innovation, Haklay, M., Mutual learning exercise on citizen science initiatives : policy and practice. First topic report, Introduction and overview of citizen science, Publications Office of the European Union, 2022, <https://data.europa.eu/doi/10.2777/29886>

⁸ Stilgoe, J., Owen, R. & Macnaghten, P. Developing a framework for responsible innovation. Res.Policy 42, 1568–1580 (2013).

'publics' is able to participate in the process of research and innovation through SwafS and RRI related calls, Public Engagement with science becomes the most addressed dimension.

During the course of the SUPER MoRRI project, RRI was conceptually included in the Open and Responsible R&I practices that focus on open science and citizen science. This study includes the citizen science key as being part of and overlapping with aspects of Public Engagement and Open Science.

In citizen science, and likewise, in CSO's participating in research, in addition to the scientific goals there are multiple additional goals that come into play, and for each project there may be a multiplicity of expectations set. Such goals, from the perspective of scientists and funders may include raising public awareness to the scientific issue underlying the project, production of scientific knowledge and outputs, ensuring a sampling methodology, or facilitating the geographical and temporal coverage at scales that are impossible otherwise. Projects might be expected to be inclusive in terms of gender, ethnicity, educational attainment, and increase scientific literacy, while also finding ways to access people's resources (e.g., time) and create an enjoyable and engaging experience (EC, 2022).

Whilst these broad aims could have been expected, the reality of the interviews showed that the funding barrier for CSO's prevailed completely, as shown by the interviews.

The case study consisted of 10 semi-structured interviews. Most interviewees were representatives of CSOs (8 out of 10 interviewees) and in several cases these were the directors of the organizations of interest. Two of the interviewees came from research funding organizations; this was to provide an alternative perspective on the experience of CSO and research and innovation system interactions. Other than one organization which was located in Italy, all of the organizations were located in the Netherlands.

A main criteria for inclusion in the study was that organizations must, to some extent, either wish to engage with the research and innovation system in the future, or must have already engaged with the research system in the past. This criterion was used in order to ensure that SwafS calls would be relevant for the CSOs that we investigated.

To narrow the potential organizations that could have been selected for the case study, we decided to make a thematic limitation on the kinds of organizations that we would include in the project. Ultimately, it was decided to conduct interviews with organizations that worked on issues of *sustainability, climate change, and climate justice*. This topic was selected for its relevance for public interest, civil society, and the research environment alignment with other projects being conducted at the institute.

A final criterion was set regarding the forms of CSOs that were included regarding both their size and ideological foundation. We decided to conduct the study in the context of smaller to medium sized CSOs since a major component of the study is investigating how less-resourced CSOs can participate in the research funding calls that seek to engage actors from civil society in the research and innovation process.

Furthermore, in terms of ideological foundation, we decided to seek out organizations who self-identify as related closely to 'social-movements, which is a delineation made by Ottinger (2017) to describe the ideological foundations of citizen science projects. Ottinger makes a distinction within citizen science efforts between those that originate from social movements, which are closer to challenging forms of authority or incorporate forms of scientific authority in ways which serve an interest as defined by the social movement / citizen science effort. This is contrasted to 'scientific-authority-driven' citizen science, which is described as projects which originate with the research questions being driven by scientists and academic professionals, who subsequently enlist citizen's in some aspects of the project. We use the same conceptual distinction in selecting organizations within this project, however we adapt it to civil society organizations related to the research and innovation system rather than more narrowly on citizen science projects. The decision to focus on organizations with this foundation is to position the origin of the projects of interest as being more closely in line with the needs articulated by some form of society (in this case, represented by CSOs), rather than those being articulated by

more incumbent forms of authority such as within the research and innovation system. Additionally, we chose this inclusion criteria to explore those organizations which may be relatively less-resourced when compared to those originating from the position of science-authority driven organizations.

Whilst reducing barriers for small CSO's to participate in R&I projects is one side of the narrative, the other side is how researchers themselves see the contribution of citizens, and the benefits this may have. This includes the role of funders. Therefore, in this case study, some of the results of the SUPER MoRRI researcher survey [\[hyperlink\]](#) are presented, to further identify patterns of citizen science and public engagement. The data were selected from the Dutch respondents and compared to the results of the rest of Europe because the interviewed CSO's were all Dutch.

2 RESULTS

The results of the interviews paint a complicated and tense relationship between the selected CSOs and the research and innovation system. There were a wide range of expressed experiences by CSOs, with some interviewees expressing acknowledgement and support of funding calls seeking to support CSOs in the research system, others expressed considerable dismay at the composition and functioning of these calls, whereas others were completely unaware of the presence of these calls in the first place.

This narrative will continue with discussing the results in different sections, highlighting key observations and themes that came to the fore throughout the interviews.

2.1.1 Absence of knowledge needs at CSOs

The notion that there is a distance between the kind of knowledge needed at CSOs and that which is produced by the research and innovation system is often mentioned as a justification to keep the two domains separate, with the claim often made that CSOs are unable to express realistic research projects that would benefit them and that the research and innovation system could provide.

This was frequently dispelled throughout the interviews as CSO representatives were frequently able to express different research topics that would be of benefit for their organizations.

For example, interviewees were able to provide an abundance of research topics that would benefit their work, such as research on the impact of advertising on perpetuating the need on non-renewable energy sources, as well as the impact that this advertising has on consumer behaviour with regard to making more sustainable lifestyle choices. An additional research question which was presented as benefitting the CSOs was an exploration into the quantity of funds being invested by pension funds within Europe on fossil fuel related industries. Furthermore, multiple CSOs expressed a desire for research onto the potential impacts that their work was having on the discourse surrounding environmental debates. Social movement studies and other social sciences are likely well-equipped to provide CSO representative with research on this topic, which would bolster the legitimacy of these organizations and their efforts.

Another example of research that was mentioned pertained to the kinds of ecological impacts that the Delta works (a major land and water management infrastructure project in the Netherlands to prevent flooding) might have on the local ecosystem. The director of one major Dutch environmental CSO expressed that this is a study object which would benefit researchers, CSOs, local communities, and the environment, as this is a context in which each different group has considerable stakes, and the opportunity for intellectual as well as material innovation is high.

Evidently, when queried on the forms of knowledge that CSOs could benefit from having from the research and innovation system, CSOs are able to articulate concrete and realistic research

questions which could generate useful collaborative opportunities for these organizations. While there is likely still considerable distance between CSOs and the R and I system, the distance is not a result of a lack of thematic overlap. Rather, as many CSO representatives expressed, the distance exists because of institutional barriers between the ways in which the two different groups work (described in more detail below).

It is important to recognize the limitations that CSOs face in terms of resource constraints and expertise. It should also be acknowledged that a potential benefit of reducing barriers of participation for CSOs within research and innovation work is that research could provide knowledge and expertise that would benefit CSOs without them having to expend resources which would otherwise be taken from their core missions as CSOs. This is similarly beneficial for the research and innovation system in that there is an impetus and desire for researchers to conduct research which is more readily usable for the rest of society, and by having projects articulated and originating from CSOs, research projects could have more direct beneficiaries and users. Furthermore, increasing the active dialogue (along with a corresponding increase in resources for participants) between CSOs and the research and innovation system, from the very outset of creating new research projects, could provide a creative stimulus for the creation of research which is societally relevant, while simultaneously bolstering the work and functions of CSOs. Naturally, these efforts are costly in terms of resources and time, and these efforts must be readily supported materially for CSOs, rather than presumed to be feasible within current resource constraints.

2.1.2 Resource constraints as a barrier of participation

Several interviewees expressed resource constraints as a considerable barrier for their participation in the research and innovation system and articulated this barrier specifically in the context of seeking out funding from grants. This was expressed even (and especially) through grants that were intended to serve as bridges between the two communities, such as SwafS and other RRI calls.

These resource constraints manifest themselves as a lack of financial resources, insufficient employees, excessively demanding existing workloads, knowledge pertaining to the ways in which one should write proposals for a higher likelihood of success within these funding opportunities, among others.

Many CSOs expressed dismay at the conclusion that in order to receive funding from these calls, it appeared that the challenge lay not in producing the best proposal, but rather in being able to align the language and format of calls with the (often opaque) expectations within funding organizations. One interviewee noted:

“the rules of the game are very subtle, it’s difficult to know what exactly is expected in these calls... It’s not transparent how to successfully write a call that will get funded, since the decision is often ultimately made by inaccessible third parties who only give advice and feedback once the proposal has been submitted”.

Evidently, while rules for proposals may be transparent, this interviewee feels that there appear to be unspoken rules and expectations that exist within the funding procedure. While those within the research and innovation system may have considerable resources to apply for funding opportunities frequently, interviewees often expressed that this process could result in considerable challenges to the continuation of their organizations:

“Unlike universities, who have many individuals working on project design, in small organizations like ours the same person has to take care of state of the art reviews, preparing the scientific argument...”

This interviewee went on to note that expanding this quantity of resources for funding calls that ultimately have a very slim likelihood of success take up considerable resources that jeopardize the working capacity of the organization.

Indeed, several CSOs noted that it's often the directors of the CSOs who ultimately have to do the majority of the work involved in writing proposals for calls, and that this is often done on non-working hours, resulting in a higher likelihood of work related stress and burnout. One interviewee compared temporary funding for their organization to a drug addiction, noting:

“Our organization is addicted to these funding cycles. It's like with the end of each funding cycle, we have to get another hit, and without it we're just not going to survive. We're having a very active discussion at the organization to cut our funding and the size of our organization by two-thirds, because we can't keep running after funding calls like this.”

The same interviewee went on to explain that at times, more than half of the organization's FTEs were working either on new funding calls or writing accountability reports for funders, resulting in the actual work related to the mission statement of the organization as taking up less than half of their working hours.

This is the picture painted of smaller CSOs of the kinds of barriers expressed within seeking funding for research and innovation system related grants. However, interviewees mentioned that these constraints are not identical for larger organizations. They noted that much bigger and well-resourced CSOs have considerable internal infrastructures with dedicated staff working on funding calls and seeking out new sources of funding at all times. What results is the perpetuation of distance between bigger and smaller CSOs; larger CSOs, who already have considerable resources, further benefit by being able to win the majority of funding opportunities, further shrinking the quantity available for smaller organizations. The current system of funding appears, then, to be increasing the inequality between these forms of organizations, rather than serving to remedy it. Persson and Edholm (2018) have made similar observations of European Commission funding for NGOs serving to reify, rather than diminish, inequalities between organizations through their funding mechanisms.

This likely has consequences on the kinds of projects undertaken (and the subsequent knowledge produced), as the kind of work conducted by smaller and larger CSOs likely differ considerably. Were funding calls to be created more in line with the capacities of small and medium sized CSOs (by communicating with CSOs how to better align their funding proposal systems according to the means present at smaller CSOs, or learning from funding proposal systems present at other foundations more amenable to the needs of CSOs), the creation of a more diverse landscape of voices and views could be established within the relationships between CSOs and the research and innovation system. This requires acknowledging the reality of resource inequality between large and small CSOs and making the explicit decision to incorporate and support countervailing views within collaborations between the civil society and the research and innovation system. A more diverse and equitable system of collaboration between CSOs and the research and innovation system requires consideration of, and active intervention within, the current state of resource inequality between different organizations, and especially in supporting small under-resourced organizations that represent views which may challenge incumbent structures of power. In short, the potential benefits of Public Engagement and citizen science to take on more diverse topics depend on reducing barriers for small CSO's to participate in R&I. By doing so, engaging with small and medium sized CSO's help to make sure that scientific agendas are well aligned with grand societal challenges and thus it enhances societal trust in science and could help funding bodies to make a better investment into research development and open innovation.

2.1.3 The accountability burden and its constraints on mission related activities

Accompanying successfully obtained grants from research and innovation funding bodies are a swathe of accountability measures, as well as demands for a set of extensive deliverables, to track the development of funded projects. Many of these accountability measures are composed in ways which align with the working habits of academic workers; however, these do not necessarily extend well to the context of CSOs.

Interviewees highlighted that they felt as though having to report so frequently, and in the form of long formed texts, detracted away from the kinds of work that the CSOs intend to complete. Hence, it was not only the **quantity** of accountability measures imposed upon organizations that served as a challenge, but also the **quality and form** of the accountability measures themselves. Interviewees expressed that it was not their missions to produce a steady output of articles, deliverables, or other forms of written documentation of their efforts, and that having to complete these tasks often drained their already scarce resources.

As mentioned above, interviewees expressed that the funding acquisition process can at times take up more than half of the FTEs available at organizations, and this in addition with the accountability procedures they are requested to supply, and can ultimately result in significantly less resources being expended on their actual practical and 'on the ground' work which they hoped to complete.

In contrast, CSOs gave the example of accountability measures which were requested by private foundations, which were often the main source of funding for these organizations. Interviewees noted the greater degree of trust, flexibility, and accommodation of working rhythms of private foundations with their work. Many of the accountability procedures from private foundations consisted of several meetings per year to discuss the status, progress, and existing challenges within CSOs in accomplishing their stated goals and objectives throughout the progress. CSO representatives mentioned that these meetings were often organized to coincide with existing internal evaluations that the CSOs already conducted, resulting in no additional resources being spent on accountability checks than what would have been conducted anyways. CSO representatives expressed that the accountability forms within private foundations felt as though they were exercises for funders and funded organizations to learn from one another, rather than hold the organizations to account for their activities.

Interviewees highlighted the greater feeling of trust and collaboration which took place in these discussions with private foundations and felt that this lacked with the ways in which research and innovation funding organizations undertook their accountability work. Furthermore, they felt that the private foundations served more as a resource to **help them attain their common objectives**, rather than serve as an opportunity for funders to exert their will and extract certain goals from the funded organizations.

This highlights that the ways in which research and innovation funding organizations have failed to curate their project designs, and especially the accountability designs, to the needs and modes of work contained within small and medium sized CSOs. It should not be expected that CSOs share the same objectives and intended outputs with the research system, nor can it be expected that this is the best mode of output for the funded projects. The greater flexibility and trust contained within private foundations provide an infrastructure within which more impact can be attained by CSOs; in contrast, the lengthy and extensive forms of accountability imposed by research and innovation funding organizations likely distract and reduce resources for these kinds of impacts, hindering rather than helping to produce relevant knowledge.

By opening the process of knowledge creation beyond the limiting borders of academia and research institutions, citizen science and CSO's enable the inclusion of local expertise and lay knowledge in the scientific process. It enriches the research findings. This was confirmed by the results from the researcher survey.

Were more ambitious, flexible, and trusting accountability regimes to be implemented within these funding calls, potentially greater transformative change could occur with collaborations between civil society organizations and the research and innovation system. This could take

place by taking into account existing accountability methods that already exist within CSOs to reduce the additional burden of accountability measures of research and innovation funding organizations. Furthermore, accountability discussions between funders and the funded should be reorganized and reconceptualized as opportunities to assist CSOs and for mutual learning. Central within this conceptual shift is to emphasize trust and a willingness to listen and learn from small and medium sized CSOs.

2.1.4 Closed networks and mission movement

Interviewees expressed a lack of knowledge about the kinds of funding opportunities that exist to bridge the world of CSOs and the research and innovation system, with multiple interviewees expressing that they had never been aware of SwafS calls. This was particularly the case in the smallest CSOs that were interviewed, highlighting that there existed a lack of efforts from the research and innovation system to reach out to CSOs and seek novel relationships and collaborations.

The majority of interviewees expressed never having heard of the terminology of responsible research and innovation (RRI), and upon hearing its articulation throughout the interviews, remarked on its necessity. This was even prominent among organizations that had made explicit intentions to engage with the research system through collaborative projects with local universities. This highlights the need for funding organizations to form new ways of engaging with and communicating with civil society, rather than presuming that CSOs will find their ways to funding devices if they are made available to them.

It was remarked by representatives from larger CSOs that were interviewed that their more typical way of engaging with these research calls was to activate the same network of institutions and actors whenever seeking out funding. This was to reduce the resource costs of applying for funding, and to make the process as swift as possible. This stands in direct opposition of the stated goals of these funding devices to actively create novel opportunities for collaborations between institutions and organizations that were distant and not involved within the research and innovation system. Furthermore, this results in more hegemonic projects being produced, which do not seek for more innovative projects which challenge existing practices, as the same actors tend to be able to locate and apply for funds more successfully. The end-product is a system which is more narrow, singular, and exclusive than conceptualized in the rhetorical background of these funding calls.

Furthermore, many interviewees expressed that the ways in which funding devices were designed resulted in these organizations having to shift their modes and topics of work away from their initial missions – a phenomenon that was termed as ‘mission movement’ by CSOs. This manifested itself both in the ways that CSOs worked (less ‘on the ground’ and more bureaucratized and written output / deliverable focused), as well as the content of the projects that these organizations designed. Furthermore, the stated functions of CSOs within the projects were often narrowly defined by the ways in which the projects were designed, and many CSOs felt as though their inclusion was rather more a tokenistic exercise than a legitimate extension of equitable participation of civil society.

Indeed, this is likely to some extent intentional, as funding devices are methods to steer the products of research and innovation. However, with the stated goals of RRI being to recreate the research and innovation system into one which is more just, more equitable, more participatory, and more in tune with the values of society, the direction of change should be reversed. Indeed, the aim and benefit of RRI could be to support civil society in changing the content and form of the research and innovation system, at least to an extent. Research and innovation funders should provide more opportunities (and coinciding resources) to facilitate the creation of new networks with CSOs rather than operating under the assumption that CSOs will be able to locate these funds through their own efforts. Furthermore, there should be more direct resources given to organizations in the stage of consortium building to facilitate the position of thus-far excluded CSOs who wish to participate in these projects.

If this were to be taken up by research funders, the benefits of civil society to participate in R&I could support novel opportunities, in topic and in participants, leading to innovative projects with an legitimate and equitable participation of society.

2.1.5 Researcher survey findings on citizen science.

Cooperation of academic researchers with citizens, consumers, patients, and other non-academic actors is still limited, it ranges from around 20% to even less of the research where such collaboration is taking place regularly. Collaboration with other actors of the quadruple helix, such as policy or companies, is a bit higher, around 25%. It also means that in 80-90% of the research hardly any such collaboration is actually taking place.

One of the explanations that such collaboration with non-academic actors is not taking place, may be the uncertainty as regards the requirements of funders for such collaboration or funding opportunities, If you look at the motivations of researchers for engaging with non-academic actors (all of them), there is a tendency of 40% of the respondents to rather agree that it is a requirement of the research funders, and even may provide further opportunities to attract further research funding, against around 30% that disagrees. You could say that researchers understand that such collaborative practices are supported by funders but the actual level to which is unclear.

Motivations to engage with non-academic actors are rather positive: Around 80% of the researchers do think that that they should engage more, if they want to maximize the impact of their research. And more than half actually agree that benefits could be positive for them, although a substantial part (35%) doesn't see how.

In terms of other benefits, a good one third of the researchers already has observed recognition of citizens knowledge in research and an increase in citizens competencies. Another one third, hasn't observed that, but would expect it to arise. This indicates that there is a positive attitude towards these benefits in around 70% of the cases. There is not a specifically Dutch attitude in these topics, as the percentages of the Dutch respondents compared to those of the rest of Europe are roughly similar. It was important to check this as the case study was executed in the Netherlands.

2.1.6 Recommendations articulated by interviewees

Interviewees were able to express various recommendations for how to ensure a more legitimate and productive inclusion of civil society within the research and innovation system. These were as follows:

- Greater clarity on how funders expect NGOs to be able to participate in calls to facilitate the entrance of a more diverse set of CSOs to participate within the research and innovation system.
- Funders must make intentional efforts to reach out to small and medium sized CSOs to expand the network of organizations that participate in their funded projects.
- CSOs should participate in the creation of calls to better tune them to the needs and capabilities within CSOs to reduce the burden of project seeking activities undertaken by CSOs; this will facilitate the entrance of less resourced and smaller CSOs in participating in research and innovation projects.
- More flexibility, more trust, fewer accountability checks, and a curated approach to accountability for the practices of CSOs; this will allow for accountability procedures to be more in tune with the goals of mutual learning and support to facilitate the effective completion of projects according to both parties rather than serving as a regime of punishment and control.
- Ambition in stepping out of the prototypical model of project-based funding with deliverable based production methods; the short-term project funding cycles limit the

kinds of projects that organizations are able to accomplish, increase labour precarity among CSO workers, and create cultures of short-term thinking within organizations and funders.

- Material support for the creation of networks and relationships between hitherto excluded CSOs to provide a more inclusive and diverse set of organizations engaging with the research and innovation system.

3 (EXPECTED AND/OR ASSESSED) PATHWAYS / PATTERNS TOWARDS RRI IMPACTS AND BENEFITS

3.1.1 Results and pathways towards RRI impacts and Benefits

In the case study the keys of public engagement and citizen science are primarily addressed.

Within efforts to create a more socially responsible research and innovation system, the engagement of the public (and in this case, CSOs which represent particular forms of publics) is among the principle methods that this is thought to be possible.

Through investigating barriers to participation in research and innovation projects experienced by CSOs, a more inclusive and participatory research and innovation system can be developed which more directly engages with representatives from civil society. CSOs represent diverse values and publics and contain value-driven mandates within their mission statements; by facilitating their involvement within the research and innovation system in a more equitable way, more just and diverse research and innovative developments can take place.

CSOs and their expertise also represent a great opportunity for innovative projects that may not come intuitively to researchers, and hence represent a currently neglected source of new research topics. Furthermore, CSOs represent a direct community of practitioners who could use the outputs and knowledge created by researchers within their work. This raises the legitimacy of the work of both research and civil society organizations, in accomplishing impact through their activities.

On the side of the researchers, these benefits for citizens and for engagement with other non-academic actors are recognized and supported.

Finally, aligning research and innovation funding organizations to be more in tune with the needs and capabilities of CSOs represents a step towards remedying the present resource crisis (driven by short-term project based funding devices) that are broadly experienced by CSOs (as well as in the academic sector). This gap of resources (and the dependency on rapid and short project based funding cycles) inhibits the creation of longer-term and sustained projects and likely impacts the kinds of impacts organizations are able to manifest, as well the kinds of research that researchers are able to conduct.

Regarding open science further, as indicated by the collaboration of researchers with non-academic actors ranging from citizens, consumers/users, to policy and companies, the results indicate that this is taking place in 20-25% of the projects.

In terms of science literacy, researchers recognize the competencies of citizens

The keys of gender equality, ethics, and governance are not addressed in this case study.

3.1.2 How do the actors in the study describe the pathways towards impacts and benefits?

CSO representatives that were interviewed in the context of this study describe a broad swathe of potential benefits from reducing the barriers preventing their participation within the research and innovation system. They note a bidirectional benefit of legitimacy that could be granted to both researchers and CSOs. CSOs would gain legitimacy by having research to inform

their practices and researchers would gain legitimacy in creating a research system which is more in tune with the needs of society, as well as through engaging practitioners more directly.

Additionally, considering that CSOs represent certain forms of society, by reducing the thresholds of participation for CSOs and working to include a more diverse array of organizations, the research and innovation system will benefit from a greater variance of views and perspectives contained within projects.

The case study, taken from the perspective of the social movement CSO's who are not regular participants in projects funded by the typical R&I funders, would suggest the following on social, democratic, and economic benefits:

Social and democratic benefits of R&I are likely to occur if the barriers for funding of CSO's would become better aligned to their needs. In turn this would allow addressing other topics of research that address societal challenges and better democratic representation of groups usually not included in R&I projects due to the demanding nature of such projects.

Also researchers (80%) expect more social impact of their research as a result of more collaboration with non-academic partners and recognition of citizens knowledge in research.

In terms of scientific benefits, the case study as such doesn't address the scientific quality per se, since that is not usually the prime objective of small and medium-sized CSO's . However, from the researchers perspective, the expectations on the quality of scientific outputs as a result of engaging with non-academic actors are largely positive: 58% already has seen an increase in the quality (25%), or is actually expecting that to occur (33%), whereas another one third has't seen a change and is not expecting it either.

Economic benefits, again seen from the perspective of the small and medium sized CSO's economic benefits are not necessarily expected or pursued other than happening as a consequence of addressing socially relevant topics. Researchers on the other side, do expect improved products and services and more innovations as a results of engagement with non-academic actors, Around 60% reports such a positive benefit, of which 30% already has observed such benefits.

Together, the findings suggest that funders can play an even more critical role in making sure that CSO's and all other non-academic actors are more frequently include in research projects

3.2 Consideration of contextual factors relevant for assessing pathways and impacts of RRI

If we were to consider indicators from this case study, it would relate to the Research Funder Organisation Study (RFO), and support, contextualize and finetune findings therein. For instance the categorization of funders policies towards citizen science and public engagement could be scrutinized for the presence of specific needs and criteria to empower citizens and citizen science organisation to apply for funding in a meaningful way. It would mean to go into the nitty gritty details of call text preparations, applicant requirement and reporting modalities.