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SUPER MoRRI – Scientific understanding and provision of an enhanced and robust monitoring system for RRI

D7.2 2020 Annual Event executive summary

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EXECUTIVE SUMMARY

The first SUPER MoRRI annual event took place on January 29th, 2020. The topic of the event was citizen science and RRI. Over 80 participants attended the event, representing primarily academic institutions working on SwafS and RRI projects.

The event began with brief presentations about the status of the SUPER MoRRI project, including presenting the strategic and implementation plans. Afterwards, presentations included pitches from SwafS projects, a keynote by Alan Irwin, and several presentations of citizen science projects based in the Netherlands.

The day highlighted several concerns to be taken into account when developing a monitoring framework to encourage citizen science (and public enagagment with science practices more broadly). These included (among others):

- Making explicit the motivations and purposes of monitoring;
- Negotiating the above motivations and purposes with the monitored, rather than from a prescriptive 'top-down' position;
- Sufficiently attending to the nuance that exist within a category as practically and normatively diverse as 'public engagement with science';
- The importance of attending to how decisions are made in the development of a monitoring framework may serve to reinforce or challenge existing recognition and reward mechanisms that exist within the research and innovation systems.

1 INTRODUCTION

1.1 Scope and objectives of the deliverable

The purpose of this deliverable is to provide a concise description of the 2020 SUPER MoRRI annual event which took place on the 29th of January 2020. This executive conference summary will provide background information regarding the status of the SUPER MoRRI project, statistics of the event, brief descriptions of the presentations, pitches, and posters that were presented throughout the event, and recommendations for the next annual event. The deliverable will also include a brief description of the underlying rationale for the organization of the event.

1.2 Structure of this deliverable

This deliverable will continue with a brief description of the purpose of the SUPER MoRRI annual event (1.3). Chapter 2 will describe various practical lessons and considerations that arose during the organization of the annual event. Here, the agenda of the 2020 annual event is included. Chapter 3 includes brief descriptions of various presentations that were given during the annual event with a focus on the lessons to be leaned from these components of the annual event for the SUPER MoRRI project.

Each section will end with several brief take-aways from each respective section, both for the future annual events and for the SUPER MoRRI project in general.

1.3 The purpose of the SUPER MoRRI annual event

As written in the SUPER MoRRI Description of Work (DoW), the annual events primarily serve as an opportunity to present the state of affairs of the SUPER MoRRI project with a diversity of stakeholders for whom this information is relevant. The envisioned stakeholders consist of representatives from funding organizations, private sector organizations, civil society organizations, research performing organizations, members of SwafS / RRI projects, and experts in the field of science policy.

In addition, the event also serves as an opportunity for the aforementioned stakeholders to communicate the status of their own projects and work among eachother. Several times throughout the annual event it was noted that having a space for these project members to come together and discuss potential opportunities for collaboration was useful. In fact, one of the particiants of the annual event expressed that the task of bringing together these projects 'should be the responsibility of the European Commission', and found that it was very useful to be able to discuss the state of their project with others working on similar themes. The SUPER MoRRI project thus has a unique position within the RRI and SwafS community in that it naturally serves as a project to facilitate dialogue between actors in the RRI and SwafS conceptual space. This function is further served in the SwafS ecosystem being developed within task 7.4.

A final goal of the annual event is to serve as a venue for the SUPER MoRRI project to engage more directly with the communities for whom it is creating a monitoring framework. The first annual event was thematically organized around the concept of 'Citizen Science', and as such was closely attached to the RRI key of public engagement with science. The rationale for doing so was so that both the SUPER MoRRI project and practitioners / experts on citizen science would be able to have a space to discuss the key of public enagement in more depth and at several levels of engagement (from engaging at a theoretical level to the level of individual practitioners). For a sufficiently informed and usable monitoring framework to be developed, the SUPER MoRRI project will have to actively enage with those actors who are working in implementing the concept in practice. This approach is informed by Ismael Rafols's (2019) notion of developing indicators for monitoring and evaluation 'in the wild'.

2 GENERAL PRACTICAL INFORMATION ABOUT THE ANNUAL EVENT

2.1.1 Recruitement of Participants

The CWTS team organized the 2020 SUPER MoRRI annual event. A primary challenge that was faced during the organization of the event was getting a satisfactory number of participants to attend the annual event. At the first annual event, 84 participants registered to attend, which is just short of the goal of having 100 participants at each of the annual events, as set in the communication strategy of the SUPER MoRRI project (D7.1). A notable challenge that was experienced when inviting participants to the annual event was reaching outside of the typical communities that the SUPER MoRRI project is able to engage with. The participants of the annual event were almost entirely from SwafS / RRI projects, aside from a few participants representing

funding agencies, citizen science organizations, a policy officer, and a single partipant from a civil society organization.

The CWTS team used several strategies to invite participants to the annual event, some of which were more successful than others. Reaching out to contacts that the CWTS team had prior to organizing the annual event was among the most successful of the employed strategies. Personalized messages that expressed specific reasons why the annual event was relevant to the invitee proved to be a successful form of recruitment. Additionally, existing contacts within the locality of the organizers of the annual event (in this case, the CWTS team) proved to be a particularly fruitful group of individuals to invite. This entailed inviting participants from the University of Leiden and other contacts in the Netherlands. The organization of the annual event would have benefitted from collaborative engagement with other consortium members in the process of inviting participants. Using the contacts that have been established within task 7.1 (the SwafS ecosystem) also proved to be a fruitful form of inviting additional participants to the annual event. Several weeks prior to the annual event, the CWTS team requested SwafS ecosystem members to distribute the invitations within SwafS ecosystem members' networks. Finally, the CWTS team also benefitted from advertising the annual event on the SUPER MoRRI and CWTS twitter accounts.

2.1.2 Recruitment of Speakers

The recruitment of external speakers for the annual event was a considerable challenge since the budget allocated for the annual event was very minimal and could not provide compensation for speakers fees. Consequently, the CWTS team decided to restrict the invited speakers to those who were either local or could be compensated via a separate budget (Alan Irwin's flight was able to be compensated since he is an advisory board member). For the next annual events, it is recommended that a similar strategy for speaker recruitement is used or the budget is to be increased.

2.1.3 Venue and catering

As mentioned above, the minimal budget that the organization for the annual event was given hindered the venue and catering options that were possible for the annual event.

The CWTS team chose Leiden University's Lipsius building as the venue for the annual event because it was available free of charge. This came with considerable limitations since the rooms that were available for the annual event were intended to be used as lecture halls rather than conference spaces. Furthermore, there was no space within the venue that was conveniently designed for a lunch space and a lecture hall had to be modified for this purpose. After the annual event was completed, a feedback survey was distributed and the venue was frequently described as being unsatisfactory.

The catering for the annual event was similarly hampered by the lack of budget made available for organizing the annual event. The CWTS team was also limited in the catering options that were made available due to institutional policies that restrict the kind of catering that can be served by events affiliated with Leiden University. Because of this, the CWTS team was forced to go through the University's catering service which used up almost the entire budget that was available for the annual event.

Recommendations:
-The organization of the annual event would have benefitted from collaborative engagement with other consortium members in the process of inviting participants.

- The strategy for speaker recruitment is to restrict the invited speakers to those who are either local or can be compensated via a separate budget.
- The limited budget for the annual event restricted the options for venue and catering severely.

2.2 The 2020 SUPER MoRRI annual event agenda

Time	Programme
10:00-10:30	Registration / Coffee and tea
10:30-10:45	Welcome by Ralf Lindner & Ingeborg Meijer (SUPER_MoRRI) *This is RRI for us > open view. RRI keys and beyond? What is it for you? And can it be connected?*
10:45-11:15	Presentation of SUPER_MoRRI Strategic and Implementation Plans by Richard Woolley & Niels Mejlgaard (SUPER_MoRRI)
11:15-11:45	*Citizen science and RRI: same tune, different lyrics?* Talk by Alan Irwin (Copenhagen Business School)
11:45-12:15	Dutch Citizen Science example I *Medical Inspirer Prize: most inspiring collaboration between patients, patient organizations and researchers – Janneke Stolwijk (award winner 2019)*
12:15-13:00	3-minute Pitches by SwafS/RRI projects *SeeRRI, SISCODE, FIT4RRI, SHERPA, Big Picnic, MULTI-ACT, On-Merrit, GoNano, Transform, Scivil, TeRRItoria, RRING / GRIPP, TeRRIFICA*
13:00-13:45	Interactive Lunch in room 2.27 *Poster presentations and a space to exhibit projects. Networking possiblities*
13:45-14:15	Dutch Citizen Science example II *De Waag Society – Lucas Evers* *Working with emergent technologies, Waag conducts research in both imaginative and practical terms, addressing its fellow citizens from a position of equality and collaboration*
14:15-14:45	Dutch Citizen Science example III *Citizen Science Lab – Frans Snik* *The Citizen Science Lab brings together researchers, citizens and societal organizations to create new knowledge for science and society*
14:45-15:15	Dutch Citizen Science example IV *Naturalis – Niels Kerstes* *Naturalis is the national institute about biodiversity and a museum with everything about nature*
15:15-15:30	Coffee break
15:30-16:30	Panel discussion with Paul Wouters (dean, Leiden University), Wendy Reijmerink (Netherlands Organisation for Health Research and Development) & Colette Bos (Dutch Research Council). Moderator: Roger Strand (SUPER_MoRRI)
16:30-16:45	Closing by Roger Strand (SUPER_MoRRI)
16.45-17:30	Drinks

3 DESCRIPTIONS AND LESSONS FROM EACH COMPONENT OF THE ANNUAL EVENT

3.1 Introduction to the annual event, SUPER MoRRI, and the Strategic and Implementation plans

3.1.1 Introductory presentation by Ingeborg Meijer and Ralf Lindner

The annual event began with a series of introductions from the SUPER MoRRI team, the first of which featured Ingeborg Meijer and Ralf Lindner presenting a brief description of the SUPER MoRRI project. The focus of this brief introduction highlights both streams of work within the project, which can be seen below:

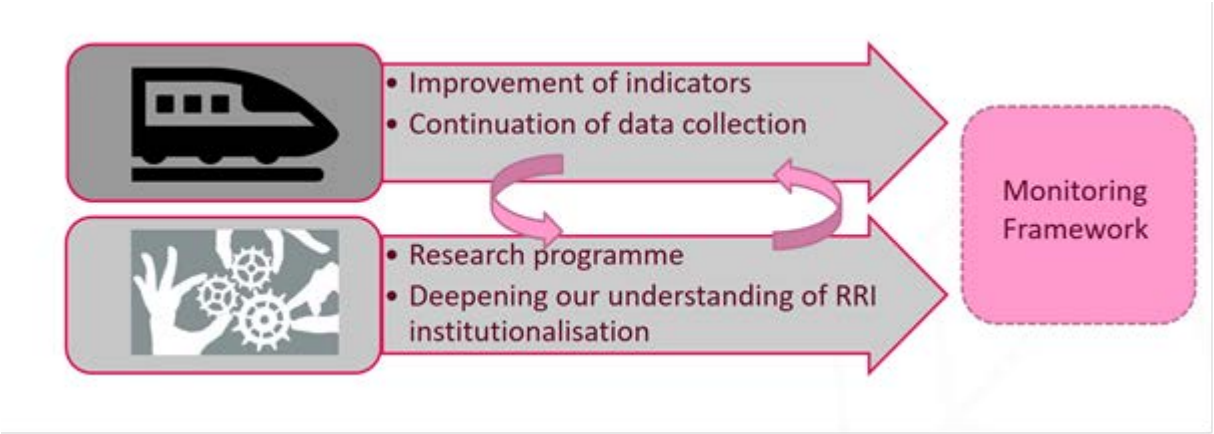


Figure 1: Both streams of work within the SUPER MoRRI project

Figure 1 highlights the intention to both create and reflect upon the monitoring framework for RRI. This entails two streams of work within the project that operate in tandem. The first is the improvement and creation of indicators and data, the second is the active reflection and research conducted on this monitoring framework.

It was emphasized that there must be a reflective and responsive relationship between the monitoring framework that the project develops and the other components of research working in tandem with the development of the framework. The SUPER MoRRI project is deeply committed to ensuring that the monitoring framework developed throughout the project is in line with recent recommendations and insights from research into science, technology, and innovation indicators.

3.1.2 Presentation of the SUPER MoRRI Strategic and Implementation plans

Subsequently, Richard Woolley and Niels Mejlgaard continued by introducing the strategic and implementation plans that have been developed within SUPER MoRRI.

When presenting the strategic plan of SUPER MoRRI, Richard Woolley highlighted that monitoring will take the form of a framework with the following goals:

- To support R&I actors engaged with various problems and challenges;
- To ensure contextually relevant information for users' monitoring purposes and needs;
- To include consolidated, exploratory, and even experimental information streams and tools.

Core to the strategic plan of SUPER MoRRI are several tenets of responsible quantification. Responsible quantification requires continuous reflexive conceptual development, staying attuned to the most recent findings in studies on the use of indicators, but also, and perhaps most challenging, **humility**. Responsible quantification requires acknowledging that what is deemed responsible or irresponsible is actor, context, and relation dependent. This requires coming to terms with the need for an open dialogue, especially with those being monitored, on **what responsible quantification and monitoring** means **for them**. Closely attached to this notion is that of **credible contextualization**. Credible contextualization entails acknowledging that the indicators meant to measure practices as value-laden and diverse as those which exist under the heading of RRI cannot be decontextualized. Thus, they require accompanying information for users to properly contextualize their creation, use, and meaning. Not only is there a requirement to accompany indicators with information for contextualization, there must also be a shift towards their design and use 'in the wild', requiring participatory practices with **all** parties potentially influenced by indicators, especially by those affected by the practices that the indicators are intended to encourage or discourage.

After the strategic plan was presented, Niels Mejlgaard introduced the implementation plan. The implementation plan highlights the diversity of data collection vehicles that exist throughout the project (see figure 2). These include international studies of RRI in the context of Research funding organizations (RFOs), research performing organizations (RPOs), secondary data sources, the Eurobarometer, and a series of case studies.

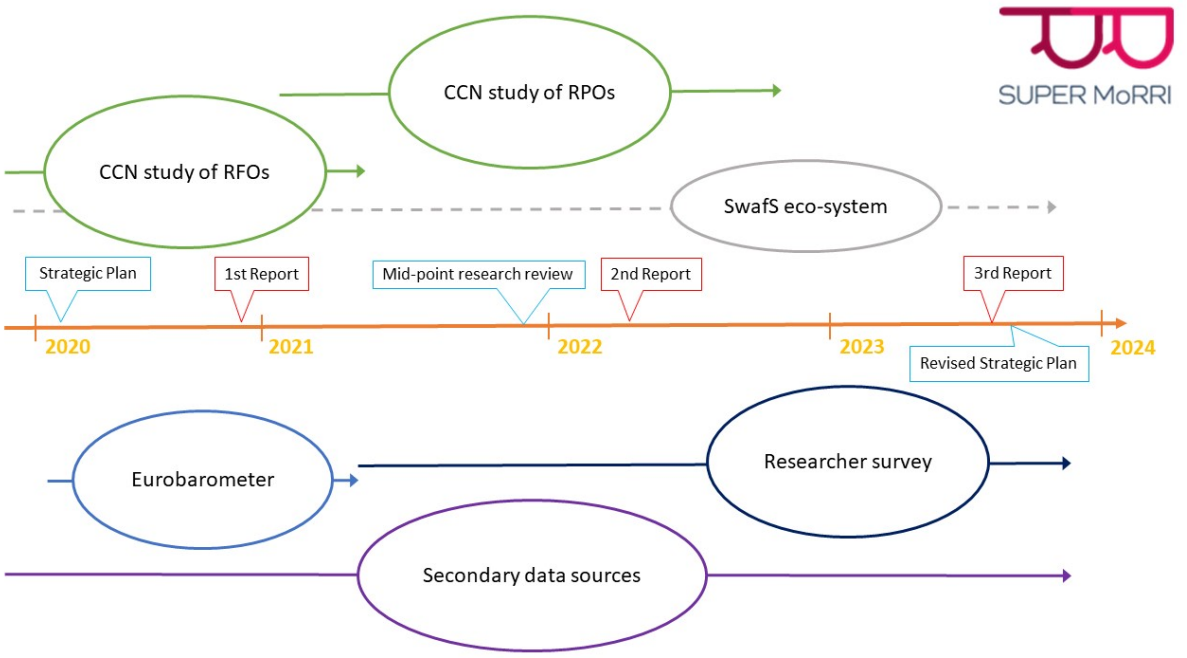


Figure 2: The various data vehicles that will be used throughout the SUPER MoRRI project

Recommendations:

- There was very little time for feedback to be given during this part of the annual event, thus recommendations are sparse;
- The context and intention of monitoring must be clear and explicit – a framework for monitoring versus learning may require different components and design requirements;

- What the indicators will eventually resemble is still vague to many stakeholders – they should be informed in an open and transparent way as the indicators are further developed.

3.2 Citizen Science and RRI

The comfortable and artificial divisions between 'science in here' and 'society out there' have fallen. Actors within R&I systems are recognizing that their products and processes are deeply and inseparably co-constitutive of broader society. Part and parcel of recognizing the interweaving of science, technology, and society is the move to ensure that a diversity of voices are present in the production of science and technology. Many strategies to ensure that this takes place operate under the heading of public engagement with science, which is also a key within the European Commission's operationalization of RRI.

The SUPER MoRRI annual event sought to put center-stage the diversity of ways in which publics are making their voices felt within the R&I system. For the SUPER MoRRI project to provide a sufficiently informed and useful monitoring framework to support the further involvement of society within R&I, we will have to listen and understand the experiences of those doing the work on the ground. That is why it was decided to bring together an array of public engagement, citizen science, and RRI practitioners together during the annual event.

Before presentations of individual citizen science and public engagement projects were given, Alan Irwin, an experienced investigator of public engagement with science, gave a keynote presentation on the connections and disconnections of RRI and citizen science.

3.2.1 Alan Irwin on Citizen Science and RRI

Not all citizen science sings the same song. Alan Irwin provides a hint of the diverse pallet of potential citizen science projects with the following typology from Wiggins and Crowston (2011):

- *Action-oriented projects* (intervention in local concerns)
- *Conservation projects* (natural resource management)
- *Investigation projects* (scientific research goals)
- *Virtual projects* (online interaction)
- *Education projects* (science curriculum in classroom)

The typology above brings into focus the multifaceted nuances that exist within citizen science. These projects contain a diversity of intentions, motivations, relationships with incumbent power structures, and challenges. From the perspective of the SUPER MoRRI project, it is necessary to reflect upon what kinds of citizen science work the framework which is developed should aim to support. A framework to support 'investigation projects' may preclude or ignore the needs present within 'action-oriented' projects and vice versa. After introducing this typology and effectively problematizing the notion of there being a single concept of 'citizen science', Irwin continued with a discussion of the following virtues and challenges of citizen science projects:

Table 1 Seven virtues and challenges of citizen science, taken from Alan Irwin's presentation

Seven virtues of Citizen Science (Kimura and Kinchy, 2016)	Seven challenges for Citizen Science
1. Increasing the amount of scientific data	1. Working with and against scientific institutions
2. Expanding scientific literacy and environmental awareness	2. Co-defining quality
3. Building social capital and community leadership	3. Ethics, power and accountability
4. Levelling inequality between experts and laypeople and fostering collaboration	4. Process, goals and outcomes
5. Challenging authority	5. Quality and quantity
6. Driving policy change	6. Balancing different views of Citizen Science (democratic and crowdsourcing)
7. Catching polluters and bringing them to justice	7. Framing of Citizen Science projects

The lessons these virtues and challenges have for the creation of a monitoring framework for RRI and public engagement practices cannot be further elaborated here, but the picture painted of citizen science is complex, deeply normative, and requires careful consideration.

Alan Irwin closed his presentation with the idea of 'scientific citizenship' being a bridge between RRI and citizen science. He emphasized that both require considerations of **cognitive justice** – bringing citizenship and knowledge together rather than as two separate domains. Furthermore, he emphasized that both Citizen Science and RRI raise questions for R&I policies, and in particular the need to reflect upon the ways in which different practices are recognized and rewarded throughout the R&I system.

3.2.2 SwafS and RRI project pitches

The SUPER MoRRI annual event sought to provide an opportunity for a number of the diverse SwafS and RRI projects that exist to come together, discuss, and briefly present their work. In order to provide a brief space for all projects to be able to have an opportunity to speak, a rapid-fire 3 minute pitch session was held in which 13 different projects were able to present themselves. The projects that were represented can be found below:

- Big picnic
- Scivil
- SISCODE
- TeRRIFICA
- GRRIP
- RRING
- Multi-act
- SHERPA
- GONANO
- SeeRRI
- Transform
- FIT4RRI
- On-merrit

Recommendations

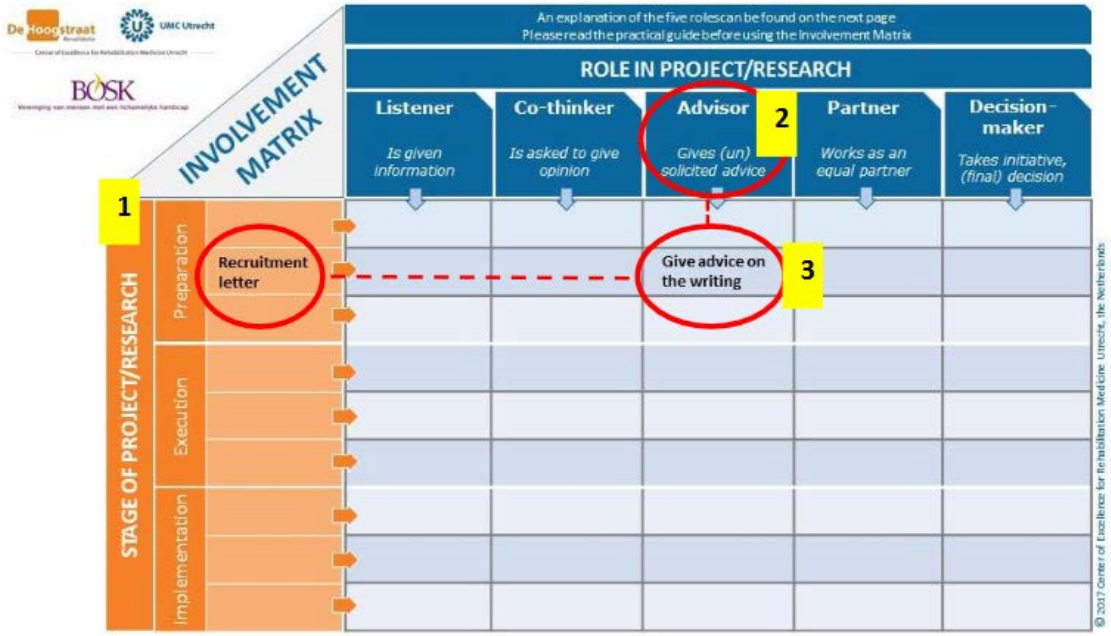
- A monitoring framework to encourage public engagement with research and innovation must be attuned to the nuance and diversity that exists within these practices;
- The divergent practices of public engagement contain differences in norms, motivations, challenges, and needs – any monitoring framework to encourage these practices must also attend to these differences;
- There exists an abundance of SwafS and RRI projects working in similar domains – providing a space for these projects to articulate their needs to each other may facilitate useful opportunities for collaboration and learning.

3.2.3 The Medische Inspirator prize – the Holomoves project

The first of the Dutch citizen science projects presented at the annual event is situated in a long and contentious history of patient-involvement within the R&I system (for an excellent example, see Epstein, 1998). The project was entitled the 'HoloMoves' project' and won the annual 'Medische Inspirator Prize' given by the Dutch organization for Health Research and Development for the most inspiring project featuring collaborations between patients, medical practitioners, and researchers. Dr. Janneke Stolwijk presented the project, and it featured a novel method of encouraging movement for patients with paraplegia by using virtual reality games. More information on the project is available here: https://holomoves.nl/.

The project had a very explicit and transparent method of ensuring that patients were involved within the research and development processes of the project in **the ways that the patients themselves wanted to participate**. To accomplish this, the project utilized a framework entitled the 'involvement matrix' (see below) which is further described by Smits, Klem, and Ketelaar (2019).

Figure 3 The involvement matrix (Smits, Klem, Ketelaar, 2019) which was used throughout the the Holomoves project to facilitate the distribution of tasks between the project coordinators and patients.



The involvement matrix is intended to be a device for patients and project members to have a dialogue about the different functions that each actor would ideally like to have throughout the project / research. The matrix highlights the complexity that exists within the different types of

roles that patients can play within projects / research, and the forms of power granted to each actor. Crucially, when negotiating the different roles for patients, the dialogue is as open as possible and the patient is asked from the beginning what role **they** view themselves as being the best fitting within the project, rather than being prescribed a role by the project coordinators from the outset.

Recommendations

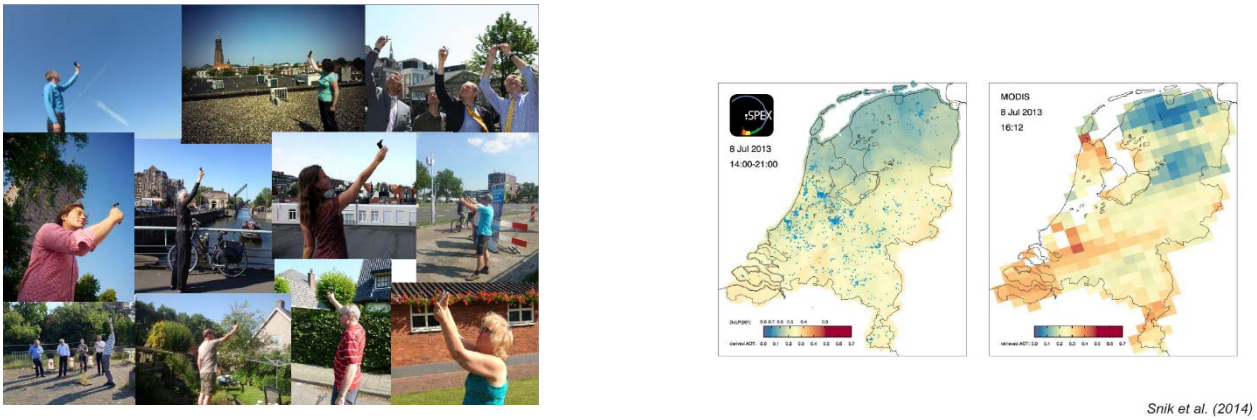
- Patient involved research benefits from patients determining their own preferred form of participating in the project, rather than being prescribed one by project coordinators;
- Patients involved in research should not be thought of as providing a free resource of labour for research purposes – they must be acknowledged as equals and compensated appropriately and respectfully.

3.2.4 Citizen Science in the Netherlands – Leiden's citizen Science lab, Naturalis, and the Waag Society

3.2.4.1 Citizen science in Leiden, presentations by Frans Snik and Niels Kerstes

In addition, two presentations discussing citizen science were given by presenters working locally in the city of Leiden. The first was given by Dr. Frans Snik who presented several projects being conducted within the Citizen Science lab of Leiden. The first project that Dr. Snik presented was the 'iSpex' project, which entailed providing interested citizens with the tools to measure and report air quality. This was done by modifying smart-phone cameras with a small device that could give an indication of the air-pollution by taking a picture of the blue sky. The project resulted in over 200,000 images captured, and perhaps more importantly, nourished the development of a community of thousands of interested citizens to become more engaged with issues of air quality within the Netherlands.

Figure 4 Images taken from Frans Snik's presentation of the iSPEX project whichprovided interested citizens with a device to measure air quality. Results can be found in Snik and colleagues (2014).



Snik et al. (2014)

Snik also presented two additional projects: Erfgoed Gezocht, which is a citizen science initiative to discover new archeological sites within the Netherlands, and Plastic Spotter, which gives citizens the ability to report plastic pollution in the city of Leiden and abroad.

The second speaker presenting projects from the city of Leiden was Niels Kerstes who presented a project coordinated by Naturalis, the museum of biodiversity. Snapping pictures of snails might not be the most intuitive way to measure evolutionary responses to climate change and

urbanization, but that's exactly what the SnailSnap project sought to accomplish. With the help of nearly 8,000 photos provided by motivated citizens, it was discovered that the *Cepaea nemoralis* (a land-snail commonly found within the Netherlands) was more often to have yellow-shell colouration in highly urbanized areas. It was hypothesized that this occurs due to the urban heat island effect, which interacts with the finding that the yellow-shelled colouration of this snail species are better able to survive in high-temperature environments (Kerstes et al., 2019).

Recommendations

- Citizen science projects that provide interested and concerned citizens with the tools to address environmental concerns in their areas can be a useful method for encouraging the development of communities while simultaneously being of benefit for researchers;
- Tensions between the more typical forms of academic work (writing of publications, teaching) and the labour that is involved in citizen science project work may preclude certain forms of projects from being undertaken. A reconceptualization of how science and society function also requires attending to the forms of labour which are actively recognized and rewarded within academia.

3.2.4.2 Art, Science, and Technology - the Waag Society

The final citizen science presentation that was given during the annual event was by Lucas Evers from the Waag Society in Amsterdam. Working at the interface of science, art, and technology, the Waag Society presents a unique take on citizen science and engagement with publics. The institutional point of departure of the Waag Society is one which originates from public concern, civic activism, and providing an equitable platform for collaboration with fellow citizens (from https://waag.org/en/about-us).

One of the projects that Lucas presented during the annual event was entitled 'Trust Me, I'm an Artist', and provided "artists, cultural institutions, and audiences with the skills to understand the ethical issues that arise in the creation and exhibition of artworks made in collaboration with biotechnology and biomedicine" (from https://waag.org/en/project/trust-me-im-artist). The project included giving artists venues to present their works (featuring biotechnology and biomedicine) in front of ethical committees, followed with an open and public debate by the committee, and then a subsequent discussion between the artists and audiences about the judgement given by the committee. In this way, each actor group has the opportunity to play and engage with, not only the material practices of the art but also the forms of logic and deliberation that go into negotiations of the ethical issues around its creation. Lucas also continued with a broader description of the Waag Society's 'Smart Citizen Lab', which works with citizens scientists, designers, to provide interested parties with the tools necessary to address environmental issues in their areas.

Despite the inspiring work being done throughout the Waag Society, some concerns were raised regarding the status of a non-traditional research performing organization (RPO) when it comes to being given legitimacy in the eyes of funding agencies. Lucas highlighted that occasionally the Waag Society is excluded from, or lacks formal legitimacy in, the process of grant and funding acquisition because the institution is not considered to be a more formally recognized RPO. This has consequences on how to develop a monitoring framework for RRI. If indeed the engagement with citizens in discussions on the ethics of science and technology can be understood as being under the scope of RRI, then a more flexible interpretation will need to be taken by funding bodies in terms of which organizations and practices are recognized as legitimate. This further extends to the kinds of practices that will seek to be reinforced through a monitoring framework outside of only public engagement practices as well. This insight requires the active attending to the

unintended consequences of utilizing certain prescriptions of what practices are or are not 'RRI'. A final point, if RRI is meant to be envisioned as an effort to expand the ways in which diverse practices in the R&I system are valued, by incorporating the considerations prominent within discourse around RRI, then those developing funding and monitoring systems will need to remain flexible and tolerant of alternative forms of organizing R&I work, lest we fall into reinforcing existing regimes of worth and valuation.

Recommendations

- RRI and SwafS as policy devices should be careful in not reproducing existing definitions of what are considered RPOs or research activities – doing so may preclude certain forms of novel research practices such as those conducted by the Waag Society;
- Collaborations between artists, researchers, and concerned citizens offer novel opportunities for rethinking the relationships between research, innovation, and society – these practices should be actively recognized within a monitoring framework seeking to encourage them.

3.3 Closing the annual event –Presentations and panel by Wendy Reijmerink and Paul Wouters

The closing of the SUPER MoRRI 2020 annual event featured two concluding presentations by Wendy Reijmerink, a senior strategist at the Dutch medical research council (ZonMW) and Paul Wouters, the dean of the faculty of social and behavioural sciences at Leiden University.

Wendy Reijmerink presented the existing strategies and challenges in how to better govern the R&I system from a funder's perspective. The strategies presented included 'setting justifiable research priorities; robust research design, conduct, and analysis; ensuring that research regulation and management are proportionate to risks; and that information on research methods and findings from studies is accessible and usable'. Additionally, when reflecting on the function of Citizen Science within the priority setting approaches in the funder's perspective, Wendy Reijmerink reflects that "Citizen Science strategies should adaptively address the core question [of] what do we want to achieve (outcomes), why and when (context), [and] how and with whom (engagement)?

Paul Wouters presented insights from his experience on the expert group for indicators of open science (Wouters et al., 2019). Paul Wouters highlighted in his presentation that there exist challenges when providing indicators for practices as complicated and diverse as those under the umbrella term of open science. No doubt the practices that fall under the notion of RRI are similarly complicated and diverse – if not more so. Two of the most important lessons to consider when creating the monitoring framework for RRI that the SUPER MoRRI project is tasked to create are the following. First, one must explicitly consider the following dimensions in evaluation exercises using indicator frameworks (I have slightly modified these dimensions from the indicators of open science report to be more fitting for the SUPER MoRRI project):

1. What is the goal of the evaluation exercise (learning? Monitoring? Resource allocation?)
2. What is the mission of the practices that are being evaluated?
3. What scientific field (or innovation domain) and methodological approaches are relevant?
4. Who are the potential stakeholders, audiences, and beneficiaries?
5. What does the research and innovation environment consist of?
6. What human and technical resources exist that allow for the evaluated practices to develop?

7. What capabilities and infrastructure need to be present for the evaluated practices to occur?

These recommendations require the active reflection upon what the purpose of the evaluation exercise is and how best to ensure that the desired practices are nourished by those indicators which are chosen to be included within the evaluation exercise. The second lesson involves asking the question: who should be able to determine the above considerations that go into the subsequent evaluation exercise? This requires humility and inclusion in determining the role for the evaluators and the evaluated. When the intention of an evaluation exercise is to change the practices of a community, that community should have the opportunity and power to decide which indicators would best inform the changes that they seek to take. This requires being tolerant of a conception of indicators and evaluation for **learning**, rather than solely monitoring or comparison.

Recommendations

- It is of importance to ask underlying contextual questions prior to the use and development of monitoring systems, these include: why, for whom, and to what end is the monitoring system being used / developed;
- The above questions benefit from being asked collectively with affected communities rather than from a hierarchical or prescriptive position.

4 CONCLUSIONS

Ring the bells that still can ring

Forget your perfect offering

There is a crack, a crack in everything (there is a crack in everything)

That's how the light gets in

- *Leonard Cohen, Anthem (1992)*

Responsible Research and Innovation (RRI) as a policy device does not seek to reproduce the existing value system which dominates academic work. Rather ambitiously, RRI seeks to make porous the artificial divisions between 'society out there' and 'science in here'.

Any monitoring framework developed to encourage the practices operating under the heading of RRI benefits from reflecting critically, along with the stewards of these practices, what the requirements should be for this monitoring framework. This requires humility and equitable collaboration with stakeholders.

The first year of SUPER MoRRI has consisted of collective discussion about the indicators from MoRRI and how to move forward. While there are still many questions that remain unresolved, significant steps have been made. The shift towards the institutional level will be pivotal in how the SUPER MoRRI project can encourage change. Further, extending the function of indicators from primarily monitoring to also including learning shows considerable theoretical development within the project. Finally, the active effort to work with practitioners 'in the wild' allows for a monitoring framework which is much more attuned to the needs of those working to change the research and innovation system on the ground.

The first annual event highlighted how many considerations and perspectives operate under the single heading of citizen science. The SUPER MoRRI project would do well to attend to these nuances in the development of a monitoring framework.

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SUPER MoRRI

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