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

D.4.1 Global response to RRI monitoring

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1 INTRODUCTION

1.1 Scope and objectives of the deliverable

Deliverable 4.1. summarises the feedback from the International Satellite Partners (ISP) to the RRI monitoring system and highlights opportunities for improvement from a global perspective

1.2 Structure of the deliverable

The deliverable is designed as a discussion document, including the main outputs arising from the conversations and consultations with International Satellite Partners. This deliverable is a starting point for the inspection and critical assessment of the monitoring system for RRI in order to explore the appropriateness and relevance of the system and indicators outside of Europe.

1.3 Relation to Other Tasks and Deliverables

This deliverable forms the first piece of ISP's information document and the first approach to the task 4.2. "Global involvement in assessment and testing". This deliverable will feed into WP 1 and tasks 4.3. and 4.4. but also will be taken into account in WP2, WP3 and WP6.

2 INTERNATIONAL SATELLITE PARTNERS NETWORK

The entire WP4 of SUPER_MoRRI project is dedicated to the international dimension, with the aim of promoting responsibility in research and innovation globally, enabling mutual learning about RRI and RRI-like activities in other countries and regions.

The internationalisation activities of SUPER_MoRRI project begun with the formal constitution of a network of 10 International Satellite Partners (ISP) from different countries and regions outside Europe (see Table 1). This network act as a global sounding board for SUPER_MoRRI and represent and articulate important non-European perspectives.

The ISP's network is composed by key individuals working in organizations outside Europe with experience and deep insights into issues of responsibility in research and innovation. UPF with the help of the rest WP leaders nominated different individuals and the network was formally constituted on June 2019 based on criteria ensuring diversity in terms of geographical location, stakeholder group, gender and RRI profile experiences.

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Peta Ashworth	University of Queensland	Australia
Nelius Boshoff	Stellenbosch University	South Africa
Marcela Lozano-Borda	Pontificia Universidad Javeriana	Colombia
Ali Meleki	Sharif University of Technology	Iran
Luisa Massarani	Comunicacao Publica da Ciencia e Tecnologia	Brazil
Mu Rongping	Chinese Academy of Sciences	China
Gunilla Öberg	University of British Columbia	Canada
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Carmelo Polino	Consejo Nacional de Investigaciones Científicas y Técnicas	Argentina
Michael Bernstein	Arizona State University	USA

Table 1 Members of SUPER_MoRRI international satellite network

3 METHODOLOGY

The main objective of Task 4.2 is to involve the ISPs in the inspection and critical assessment of the monitoring system for RRI, to explore the appropriateness and relevance of the indicators outside of Europe. The first step to do it were the ISPs consultations summarized in this deliverable.

In order to collect the opinions and visions of our ISP network UPF in collaboration with WP1 leaders designed a template (see Appendix 1). The purpose of this template was to have a standardized way to gather information on ISPs views and opinions for RRI monitoring. In this template we included 7 questions grouped in 4 dimensions (RRI beyond Europe, monitoring purpose, priority indicators and data collections and responsible use of indicators) plus an additional question to give the opportunity to freely express their thoughts in any RRI aspect not foreseen.

Before filling out the template, ISPs were asked to read the briefing paper prepared in WP1. Giving ISPs the opportunity to answer these questions in writing has served to compile 10 exhaustive reports with deep reflections. All reports were collected between September-October 2019. Once the 10 reports were received them were made available to the SUPER_MoRRI consortium. In this way, WP1 and WP2 partners could take these visions into consideration during their tasks.

All 10 reports were analysed in October 2019 with support of the Atlas.ti (v8) software. After this first analysis, we contacted the ISPs again to clarify some points or delve into topics that had been dealt with more superficially in the reports. This second round of conversations was made by e-mail, videoconference (skype or similar) or by telephone depending on ISPs time-availability and preferences. The main objective of this second approach was to ensure the collection of valid information. All inputs and feedback from those conversations were also integrated in the present deliverable.

4 GLOBAL INVOLVEMENT IN ASSESSMENT

This deliverable is a discussion document. We include here the main outputs raised from the conversations and consultations with ISP.

4.1 RRI monitoring purpose

The main issue that arose during UPF – ISP consultations is that the term Responsible Research and Innovation (or RRI) is scarcely used in science, technology and innovation in many countries outside Europe, especially this was reported by Latin American ISPs. If we want to globally involve non-European countries in RRI monitoring, we should think about how to translate or adapt the different concepts included under RRI label to different contexts or regions.

However, the absence of a narrative over RRI does not imply that the components involving the RRI paradigm are absent from the practical and political logic of these countries. In this sense, the ISPs identified narratives, practices and discourses viewing science and technology as “social progress” and innovation as “economic benefits”. But these views coexist with other models speaking about “science and social cohesion”, “social innovation”, “social responsibility”, “inclusive innovation” or “public participation” and “democratization”. In this scenario, issues linked to “science with and for society” European framework are also at stake beyond Europe.

Concepts such as “open science”, “open access” “responsible innovation”, “sustainability”, “public participation processes”, “public engagement”, “co-creation”, “inclusiveness” or “gender equality” appear repeatedly in our conversations with ISPs. These concepts are a core part of what is broadly understood as key approaches in RRI practices. On the other hand, some ISPs reported that there is nothing similar to RRI in their countries or such initiatives are mainly focused on “individual researcher's responsibility”, “research integrity” and “ethical behavior” which seems a strict and narrow interpretation of one portion of the larger vision of what is under RRI umbrella in European Union (EU) efforts.

The six dimensions or elements of public engagement, open access, science education, gender and governance are packaged and labelled as RRI in the EU policy context. However, the ISPs commented that other regions or countries rarely packaged these items as one bundle, but rather treat each element as a separate issue. Although each element is considered to be a key component in science and society linkages. Communities of practitioners for these elements may also differ.

On the other hand, some ISPs talked about the implementation of strategic research funding portfolios focused on assessing the potential risks, benefits and uncertainties of future science and technology, and to ensure socially responsible science and technology. But they claimed that such programmes are designed following the “Anticipation, Inclusivity, Reflexivity and Responsiveness” approach. As it is difficult for our ISPs to identify similar practices and policy measures which has all the six dimensions of RRI, we should think in a broader way of labelling it for monitoring.

4.2 RRI monitoring purpose

SUPER MoRRI wishes to understand the interests, priorities and burning questions that motivate different stakeholders to be better informed about RRI. ISP have identified potential benefit (at individual and institutional levels) as well as potential difficulties of RRI monitoring.

4.2.1 *Benefits of RRI monitoring*

I. Individual benefits

ISPs agreed that monitoring RRI policies and practices could help researchers to increase knowledge and understanding about the relationship between science and society within a perspective based on democratic principles. Their impression is also that SUPER_MoRRI indicators would inform and guide policies to mitigate social asymmetries in terms of gender equality, science education, participation, ethics, open data, open science or democratization process.

Also, ISPs consider that this monitoring will provide data availability for cross-national studies on RRI issues and case-studies for educational purposes (e.g., with certain logic models linking indicators of outcomes, building cases about translations from policy to inputs to processes to practices and products to outputs and outcomes). Some of them also commented that this data could also be used to build arguments for publics, stakeholders, and community organizations to be involved in research and innovation (e.g., along the lines of how the process looks, what outcomes may emerge).

II. Institutional benefits

Most of the ISPs consider that monitoring applies to different units of assessment (individual, project, organisation, sector, field, country, etc.). In that sense, one of them suggested that monitoring at the level of the management team (responsible for overall strategy and direction) is important for three reasons: to learn from comparisons between different entities (e.g. faculties) at a single point in time, to learn from time-based comparisons involving the same entity (e.g. changes in the same faculty over time), and to benchmark the university nationally and internationally. This implies that different layers of RRI monitoring (and also different emphases in monitoring) might be required for this threefold purpose.

Other ISPs pointed out that for universities, for example, RRI monitoring could be beneficial to understand how places themselves, to comprehend how the university promote that the communities with which it cooperates move on to exercise their autonomy over the problem and to observe the conditions set by the university so that the knowledge acquired in a community is consistently implemented.

4.2.2 *Challenges of RRI monitoring*

Some challenges of RRI monitoring arose during the ISP consultation that could be interesting to have in mind.

One of the ISPs claimed that “if the RRI monitoring process has no direct bearing to the levels that are closer to an individual (e.g. individual, project or employing organisation), any well-intended opportunities for learning and benefit might eventually be lost”. Another one pointed out that “true

monitoring of overly complex and human activities such as research is a too naïve effort, especially if solely based on quantitative metrics. System level indicators under certain conditions may have the potential to spill down to lower levels (e.g. affecting organizational practices), which could benefit (or constrain) even lower level entities within an organisation (research units and researchers)”.

So, it seems that they consider that the RRI monitoring could be beneficial only if operators are not too much of an aggregate level (sector, system or country) but it wouldn't be if operates at high levels of aggregation.

4.2.3 *Essential transformations in policy and practices to advance RRI*

The policies created should be less vulnerable to changes in government. The effectiveness of public policies depends on designing, implementing and evaluation with appropriate indicators. This requires the existence of critical components as important as funding, infrastructures, institutional continuity, technicians and managers in training.

The adoption of new research funding programs specifically designed to advance improvements in responsible practice or new research funding review criteria with elevated and significance, importance on RRI dimensions (e.g., significant weighting of aspects like gender equality, stakeholder engagement, ethical reflection...) is a good way to start.

Ensuring RRI is a core part of PhD training is another way to ensure that the importance of RRI and its relevance to policy makers, industry and academia. Increase investment in more training and education to spread RRI awareness, such activity would benefit from accompanying research to build a knowledge base of how RRI implementations can be tailored to different local project, organization, and national contexts.

Moreover, it is not clear that all institutional actors such as universities, research centers, companies and Non Governmental Organizations (NGOs) or Civil Society Organizations (CSOs) recognize the importance of the RRI approach or have information about its potential benefits. In fact, we also don't have a baseline to contrast these assessments. So, it is crucial to strengthen communication, mutual trust and cooperation among the different stakeholders of responsible research and innovation.

It is also very important to improve the public participation in science and technology and innovation governance. To achieve this is important the adoption of new research agenda development activities, based on inclusive and participatory processes. But is also important the inclusion of RRI into industrial policy or private-sector as well as create incentives for such stakeholders.

4.3 *Priority indicators and data collections*

All ISPs agreed that there is a need to develop appropriate indicators for monitoring changes made with regard to aspects of RRI. However, some of them were worried because they consider that the 36 indicators in the MoRRI report are country-level indicators that are useful for mainly country based comparisons, but limits the value of some of these RRI indicators for use within universities or other research performing organizations.

Another thing that raises regarding data collection are the Sustainable Development Goals (SDGs). ISPs consider that they cannot be separated from debates about the societal relevance of science as a key dimension of RRI. And they suggest that SDGs should be reflected somehow in SUPER_MoRRI indicators.

Anyway, all six dimensions of RRI were mentioned when we talked with the ISPs about the priorities of the indicators and data collection, but public engagement, governance and ethics were the dimensions that most raised.

4.3.1 Gender equality

A missing action that we identified through our conversations with ISP is the lack of focus on diversity as part of the gender key. This appears to be a real oversight, particularly in countries that have First Nation and Indigenous people.

Gender equality, equity and diversity were concepts that mainly appear related to institutional interests. Which means that most of the ISPs consider that monitoring these issues is going to be useful for universities and other institutions but also for country comparisons in order to effectively improve working environments for women in science and engineering.

4.3.2 Science Literacy and Scientific Education

ISPs mentioned science literacy or scientific education as an important issue for them as individuals and less important for their own institutions.

4.3.3 Public engagement

Public engagement indicators are seen as an interesting tool to monitoring the actual involvement of community-based organizations, civil society organizations and NGOs in research. ISPs refer to these indicators because of their personal interest, but also with the idea to understand and improve and increase relationships between different sectors such as private sector and research organizations, and between civil society organizations which also is important for their institutions.

Also, some ISPs mentioned that public engagement indicators could be used to monitorize it in different sectors and analyse the perceptions of trust in actors, groups or organizations involved in research and innovation.

4.3.4 Open access

ISPs mentioned the need to know more about the changing landscape around open access and how that is being managed, regulated and rolled out as the main benefit of these indicators. They mainly refer to it as an interesting tool for librarians of universities or research institutions but also for individuals themselves.

4.3.5 *Research and innovation ethics*

ISPs expressed their concern that ethics indicators fall into a tick the box gatekeeper approval process which is not helpful to researchers and also fails to encourage wider ethical thinking about the impacts of research rather than the direct impacts on participants in the research. Despite that, ISPs seem to view ethics indicators important for the scientific community but mainly for institutions.

4.3.6 *Research and innovation governance*

Governance is perhaps the set of indicators that ISPs view as more interesting either for themselves, their institutions and their countries. Some of them mention that more transparency across the board is needed in order to gather more accessible, intelligible, assessable and usable information related to all policy-fields where science plays a central role. But they identify this set of indicators as useful to identify emerging challenges, policy processes, policy practices of RRI and progress in RRI legislation related in different countries.

They view governance indicators interesting for monitoring the transitioning RRI from altering research and innovation funding and practice to altering innovation and industrial policies. For example, affecting their economic zones, taxes, subsidies, corporate bylaws and other governance mechanisms can be changed to carry RRI through from basic and applied research to spaces of innovation and development at scale.

Also, they consider that such indicators can be used to monitorize correlations between adoption of RRI and improved success rates on project acquisition, job creations, improvements in technology processes and products, etc.

4.4 Responsible use for indicators

4.4.1 *Better understanding of indicators*

For a better understanding of indicators ISPs indicate that the actual MORRI indicators are not self-explanatory or are not easy to be understood, especially for stakeholders that are not necessarily specialized in the field of science and technology. Some of the ISP suggested a short video (or other kind of visual information) to give an overview of RRI and RRI dimensions. Inspiration for making the indicators and associated RRI vision could be drawn from the layout, design, and presentation of the Sustainable Development Goals [activity](#) and [promotion](#).

The general suggestion of ISPs is that it should be defined what each indicator is measuring and what is the semantic relationship with the basic concept (dimension, code etc.). Public engagement, science literacy and science education where the indicators identified as the most “challenging” to be equally understood for everybody. It should be useful to provide more background information such a short description for each indicator or examples of data sources or data information. This will help especially data experts for further development of indicators. Data analysis, which shows the relationship among variables would help users to understand the whole structure.

Another suggestion is that is needed a responsible, qualitative, analysis and critical assessment report on indicator usage. While a set of indicators may well work for example in an internationalised large

scientific community like the UK, they may lead into the undesirable and irresponsible behavior of actors in a local small community and vice versa. Also, the indicators itself should be located in a visible place and should be easy to reach.

4.4.2 Principles or resources to advance responsible use of indicators

The first suggestion of ISPs regarding principles or resources to advance the responsible use of indicators is a widespread consultation on the development of indicators with relevant stakeholders. Given there has been such a large investment into the development of indicators ISPs suggest socialise these more broadly with the research community and other stakeholders through workshops (e.g., global webinars).

Some ISPs also commented that the indicator development must not be led by the availability of data, that it must be led by a solid conceptual framework where after resources should be allocated to implementing appropriate data collection procedures in instances of no data.

In addition to specifying what an indicator measures, there should also be notes on what it does not measure, and notes on any shortcomings or assumptions in the indicator construction. The latter should not be hidden as ‘technical notes’ as users seldom read these. A multi-timing reporting structure should be considered for example, reporting on a comprehensive set of indicators every five years (where special efforts for collecting new data are required) and on a much smaller set of indicators in the years that are in-between (where data are readily available).

The concept of “committed governance” is also mentioned among the ISPs as a gradual tuning of the indicators and the monitoring system according to the learning and behavior change of the actors, aided by qualitative critical, in-depth studies of the system evaluated (special attention to be paid to infra-level agitations, attitudes and motivations). Always seeing them in a larger meaningful framework inspired by the daily stories of the evaluated agents.

ISPs also consider that specific education for people who are tasked with decisions in key areas is needed to learn and understand how to apply the indicators. One ISP suggest a practical guide type publication with clear information about it.

Appendix

1st SUPER_MoRRI international satellite partners' consultation

Before filling out the document, please read the Briefing Paper carefully.

The questions to each of the dimensions are indicative, we are interested in knowing your opinions, reflections or doubts about RRI monitoring. Of course, feel free to comment on anything additional that you consider appropriate.

Do not be afraid to extend yourself too much, all the information you provide will be extremely useful to improve the SUPER MoRRI project.

Dimension 1: RRI beyond Europe

1. Do you know any practice similar to “Responsible Research and Innovation” (RRI) that is taking place in your country?

Dimension 2: Monitoring purpose

2. Do you think that you, as an individual, could benefit from RRI monitoring? How?
3. Do you think that monitoring RRI is important for your organization? Why?
4. From your perspective, what transformations in policy and practice do you view as essential to advance responsibility in research and innovation?

Dimension 3: Priority indicators and data collections

5. About what challenges, policies or questions related to RRI would you like to be more informed?
6. What data and information would be a priority for your organization?
7. What data and information would be a priority for the RRI stakeholder community in your country?

Dimension 4: Responsible use of indicators

8. Do you think the indicators are self-explanatory? What should accompany the indicators for a better understanding?
9. From your perspective, what principles or resources to advance responsible use of indicators are most important?
10. What would help your organization to make use of RRI indicators?

Do you have any additional thoughts?

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