

Developing tools for RRI

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Abstract

The European-wide approach in Horizon 2020 called Responsible Research and Innovation (RRI) accelerates a paradigm change in research and science. Besides the anticipation of and reflection on consequences research and innovation has for our society the public shall be involved in the discussion how science and technology can help to create a kind of world and society we want for future generations to happen. RRI brings together different aspects of the relationship between science and innovation with society, ethics, gender equality, open access, public engagement, and science education. But, how can heterogeneous stakeholder groups, such as industry, policy makers, researchers, civil society organizations or educators adopt the concept of RRI? What is an effective way to involve stakeholder groups into the RRI processes?

The RRI-Tools project will develop and deploy a training and advocacy toolkit on RRI, which will be addressed and designed by the above mentioned stakeholder groups. As a first step, based on different approaches and discussions, a common working definition on RRI has been developed. In a second step, the versatile thoughts, feelings, and interests of the five stakeholder groups were acquired. Therefore stakeholder consultation workshops were conducted in 22 different European countries involving 411 stakeholders. One of the tools developed in the framework of the project will be a self-assessment tool. This paper will identify the opportunities but also consider the restrictions due to limitations and obstacles regarding that tool.

Keywords

RRI, user needs, quality criteria, tools, best practice examples, self-assessment

1 Introduction

Throughout history science and technology have proven to be transformative forces. Research and innovation have changed our world and our lives, and will continue to do so. The Responsible Research and Innovation (RRI) toolkit project sets out to develop and collect tools for different stakeholder groups to encourage and support them in taking up the

concepts and practices associated with RRI. These following stakeholder groups are addressed: policymakers, business/industry representatives, civil society organisations, researchers and innovators, and the education community.

In order to understand more about these stakeholders, the dynamics between them and their needs the project organised a series of interactive one-day meetings across Europe. Complemented by an extensive literature review and a collection of best practice examples, requirements and quality criteria are extracted that would allow the development of an adapted self-assessment tool. The aim is to use the identified opportunities but also take into account the restrictions due to limitations and obstacles.

2 Methods

The methodology for developing the necessary quality criteria for good practice standards in RRI, which are also essential for the self-assessment tool, bases on three different layers: literature research, stakeholder consultation workshops, and collection of good practices. The results of all three layers are crucial for the development of the self-assessment tool. As a first step an extensive literature review was performed. Based upon that, a working definition was developed, specifying outcomes and process requirements for RRI (Figure 1).

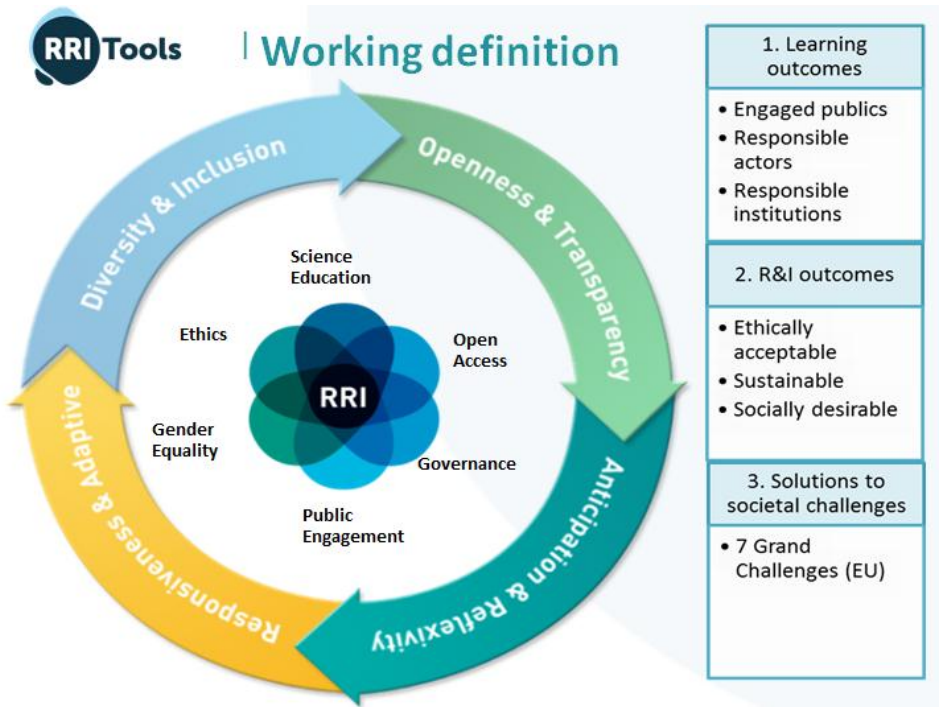


Figure 1: Working Definition RRI Tool (Kupper et al. 2015)

The variety of aspects of RRI acquired through this literature review and the studying of comparable conceptualisations of quality criteria for responsibility were essential when it

came to developing the quality criteria of good practice standards in RRI. Furthermore, the catalogue developed is one of the main sources building the basis for the structure and the content of the self-assessment tool.

In order to consult stakeholders on their needs and aspirations for RRI, 27 stakeholder consultation workshops allocated in 22 countries in Europe were conducted by the so called RRI hubs¹. For consolidating all the workshops a manual was designed, giving clear instructions and providing guidelines as well as templates for documentation. In total 411 stakeholders attended the workshops, 52% of them male and 48% female, since equal attendance of each of the identified stakeholder groups was aimed for.

These workshops explored the perceptions of the RRI process requirements and RRI outcomes amongst different stakeholders as well as identified emerging needs and actions. The consultation workshop aimed to explore first ideas and notions of potential tools for the RRI Toolkit, as well as to gain an overview of the differences across stakeholder groups, and set hereby the foundation for building an RRI Community of Practice (CoP) across Europe.

The third layer was the collection of best practice examples that were analysed for extracting quality criteria. The participants of the Stakeholder Consultation Workshops were invited to fill out a form with an example of what they thought was a promising RRI practice. These filled in forms, complemented with practices found by hub members, were categorised, discussed and assessed by RRI experts. This assignment is still processing and the final results will be available fall 2015.

3 The self-assessment tool

The self-assessment tool bases on requirements that were identified by the mentioned literature review, stakeholder workshops and best practice cases. Out of these research results, the quality criteria of good practice standards were set up that constitutes – together with the requirements – a major part of the self-assessment tool.

¹ “RRI Hubs have been created extending across the length and breadth of Europe. They are responsible for training in the use of RRI Toolkit, advocating policy makers at national and regional level, and spreading the concept of RRI. The ultimate goal is bring into being a European Community of Practice that draws together all people and organizations that are active in this new vision of scientific and social development, and that can use and continuously contribute to the RRI Toolkit” (www.rri-tools.eu). There are 19 Hubs covering 30 countries all over Europe.

3.1 Identified requirements from literature and workshops

Requirements retrieved from screenings

For the screening of evaluation concepts of RRI, different sources like literature, evaluation reports, and guidelines from national authorities, institutions and initiatives were categorised and analysed. While extensive literature on evaluation of single aspects of RRI key components were sufficiently identified (e.g. technology assessment, impact studies, gender, ethics, aso.), no holistic evaluation of the concept for RRI could be tracked. At present there are no standards, tools or guidelines that measure RRI concepts as a whole (Marschalek et al. 2014).

For the identification of quality criteria and the lack of a holistic evaluation concept of RRI, the literature review was extended to a variety of aspects of RRI, on the implementation and development of frameworks for RRI (European Commission, 2013; Stilgoe et al., 2013) and on efforts to draw up specific criteria for RRI. Comparable conceptualisations of quality criteria for responsibility were studied, and reporting initiatives or international standards were investigated for quality criteria (Kupper et al. 2015).

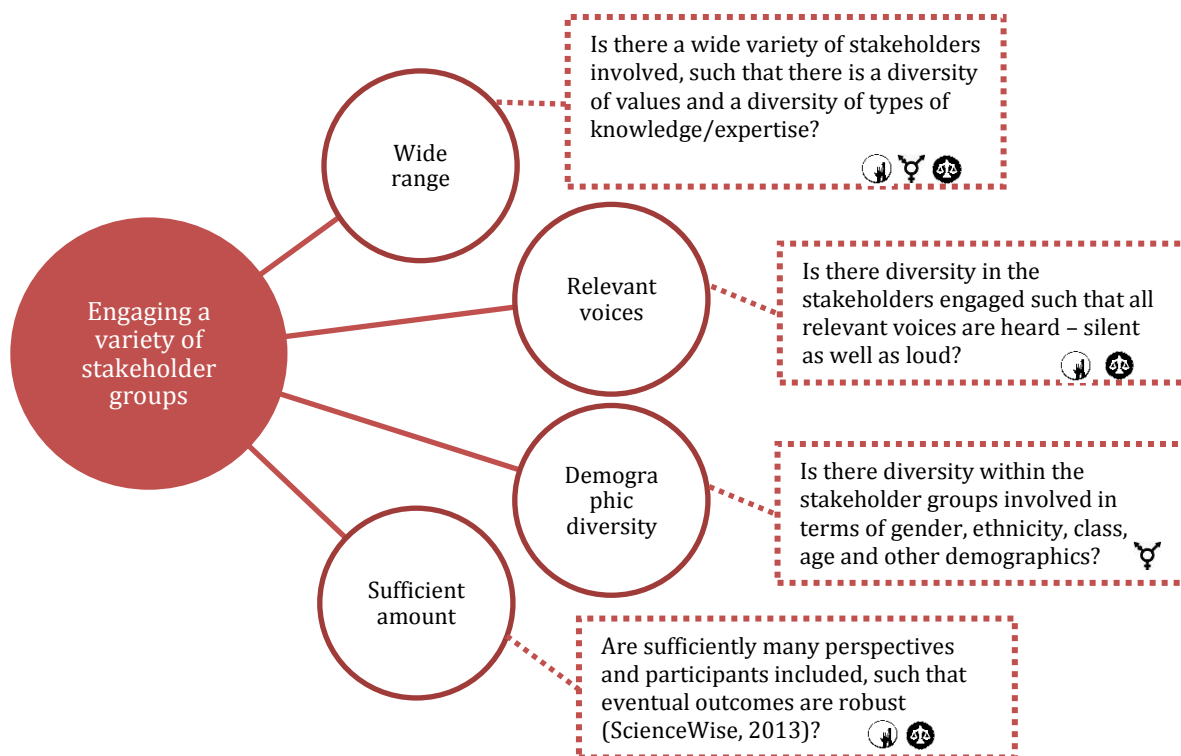
Requirements from Workshops

One of the most obvious user needs identified in the stakeholder consultation workshops (Smallman, Lomme & Faullimmel 2015) was to provide a clear definition of RRI. Providing a common understanding of RRI would ease the integration of other institutes and stakeholders. The workshop results showed that most stakeholders have a reasonably clear understanding of ethics and public engagement, but there is only little knowledge about other aspects of RRI. Consequently a RRI self-assessment tool needs to ensure the provision of a common understanding of the term, as well as a clear comprehension of what can be expected from such a tool.

Along with this request, the stakeholders also require training and networking opportunities as well as guidelines on how to apply RRI in their individual working environments and different settings. These needs were identified across all stakeholder groups and will be of high importance for the self-assessment tool to take forward. Alongside that, though, stakeholders were also very clear that whatever support was offered to them, it needed to get adapted to their particular circumstances. While there is considerable overlap between stakeholder groups, some actions will also need to be stakeholder specific. In particular, lack of existing collaborations between stakeholders is seen as an important obstacle. Thus, some features of the self-assessment tool will have to support collaboration and communication between different stakeholder groups.

Quality criteria

These three elements of methods², including the working definition of RRI Tools project, form the basis of the quality criteria developed by the RRI Tools partner VU University Amsterdam. The working definition developed in the RRI Tools project led in the development of a set of criteria and indicators. The criteria were set up per process requirement³. For each process requirement a set of criteria has been developed. The single criteria are further specified in the form of sub criteria (example for one criteria: Figure 2). The quality criteria and respective indicators developed are further specified in the form of questions that can help to get a grasp on the types of characteristics of research and innovation practices (Kupper et al. 2015). They are supporting the assessment and monitoring or (self-) evaluation. The requirement to foster the user reflection is of high importance for the self-assessment tool and will avoid an executive tick-box exercise. By delivering the catalogue in this format it enables the user to understand the tool as thinking aid.



² Literature research, consultation workshops, collection and analysis of promising practice examples

³ The process requirements according to the RRI Tools working definition have been classified in a way that four clusters of two are formed: i) Diversity and Inclusion, ii) Openness and Transparency, iii) Anticipation and Reflection, iv) Responsiveness and Adaptive Change

Figure 2: Example of one quality criteria showing linked indicators/sub criteria and specifications (Graphic by Athena VU University Amsterdam, Sara Vermeulen at RRI Tools consortium meeting, Lisbon 2015)

3.2 The self-assessment tool

Based on these requirements (literature review, consultation workshops and quality criteria including best practice cases), the self-assessment tool will be built.

The main objectives of the tool will be to make the users reflect on RRI. The concept of RRI requires this reflection process; therefore the dialogue with other users will be enabled and fostered. The self-assessment tool will launch through self-reflection a discussion on RRI to accelerate the paradigm change in research and science.

Besides its reflection aim the tool will provide the possibility to tag the user's process. A monitoring feature allows saving ones results and enables the user to check if he/she has improved or to compare ones answers.

With the help of the linkage of a complex taxonomy in the toolkit and the self-assessment tool, individually best fitting tools will be recommended and the self-assessment tool can as such be used to search for individually targeted tools.

The self-assessment tool will be a smart tool providing a user-friendly surface, taking not too much time and giving the users the first hints and recommendations for their further RRI implementation process.

In the framework of the self-assessment tool an introduction into the topic will be provided, the good practice repository will be linked and a chosen catalogue of questions will help to achieve the above mentioned goals. After finishing the questionnaire, the users will get good practice references, some recommendations for possible tools and tasks, and feedback including hints and further information. Additionally a feature for supporting communication and discussion will be offered, that ease reflection on RRI in general and –if wanted- on the individual process of implementing RRI in the own institution.

4 Discussion and limitations

Developing a self-assessment tool as required by the stakeholders is obvious a very challenging task and will have to face some limitations.

One of the most challenging issues that were also identified in the stakeholder workshops is the fact that the concept of RRI is still under development and a common understanding needs to be established. As long as a common RRI definition is still developing, it is difficult for stakeholders to uptake this concept within their working environment. Consequently, a RRI self-assessment tool will have to face the challenge on motivating stakeholders to use the tool in an adequate way, namely in reflection and consideration. Thus, an executing tick-

box exercise contradicts the reflective spirit of RRI and comes with the risk of missing the mark entirely. RRI in our understanding is an attitude towards research and innovation that needs to be implemented, rather than additional forms to be filled in.

According to the research conducted, good guidelines and tools exist only for some limited areas of RRI. While some dimensions are already well advanced (e.g. ethics or public engagement), others lack for once on existing developed concepts (e.g. policy) or even the understanding on implementation. At the same time, it raises also the question of equality in the sense if all dimensions are equally important for all kinds of research practices. Can it be justified that some are more considered than others? And if so, what role shall a self-assessment tool take up in this respect? In the spirit of the approach that the RRI Tools project takes, the self-assessment tool definitely should be designed in the way that it fosters the reflection on different dimensions that were not considered at first sight: while for projects with ethical issues the respective dimension will be handled, other dimensions like gender or open access could be significantly unattended or even totally excluded. The RRI self-assessment tool sees its tasks also in demonstrating possible gaps by pointing to resources and supporting aids.

An essential question that the entire RRI community shares and that is a major question for the RRI Tools project is how to support stakeholders to change attitudes towards RRI. The RRI Tools project faces this issue by trying to implement tools that will ease this necessary change – conducting research and innovation where RRI is an elemental part of each individual and institutions. But can a self-assessment tool really change an attitude? Clearly at this point the tool has its limitations. It can only support a change by fostering reflection and point out to resources for further information and facilities. It can also install systems that allow communication and dialogue with others but it needs wide and extensive efforts from the entire RRI community to operate this necessary change on a broad level. However, the RRI self-assessment tool can become one aid in this holistic process.

5 Acknowledgements

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