Check for updates

OPEN LETTER

A conceptual framework for monitoring socially responsible research and innovation (RRI) aligned to the UNESCO-led Recommendation on Science and Scientific Researchers

[version 1; peer review: 1 approved, 1 approved with reservations, 1 not approved]

Eric Allen Jensen[1,2]

[1]International Consortium of Research Staff Associations, Cork, Ireland
[2]University of Warwick, CV4 7AL, UK

Abstract

This paper sets out a high-level conceptual framework for monitoring the development of socially responsible research and innovation systems linked to the global policy instrument called 'the Recommendation on Science and Scientific Researchers' (RSSR). This global science policy initiative was ratified by 195 United Nations Educational Scientific and Cultural Organization (UNESCO) Member States in 2017, updating an earlier version of the instrument. This UNESCO-led initiative offers a globally inclusive and agreed structure for advancing socially responsible research and innovation (RRI). A key feature of the RSSR initiative is its permanent structure of quadrennial monitoring to assess implementation of its principles. Here, a conceptual framework is presented to clarify the specific dimensions of RRI embedded in the 10 key priority areas for this quadrennial monitoring process. The paper explicates these dimensions and the underpinning policy language from the 2017 recommendation with the aim of supporting UNESCO Member States and research stakeholders globally to design appropriate evaluation methods. This conceptual framework is intended to support development of globally aligned measurement of RRI policy and practice that allows research and policy stakeholders from each world region to learn from each other. Fostering mutual learning on a global scale will help to enable evidence-based practice in the context of RRI to improve outcomes and mitigate the limitations of well-meaning but ineffective policies and practices.

Open Peer Review

Approval Status ✗ ✓ ? ✓

	1	2	3	4
version 2 (revision) 24 Jul 2023				✓ view
version 1 14 Feb 2022	✗ view	✓ view	? view	

1. **Justus Wesseler** (ID), Wageningen University, Wageningen, The Netherlands

2. **Kutoma Wakunuma**, De Montfort University, Leicester, UK

3. **Raul Tabares** (ID), Basque Research and Technology Alliance (BRTA), Derio, Spain

4. **Steven Umbrello** (ID), Basque Research and Technology Alliance (BRTA), Derio, Spain Basque Research and Technology Alliance (BRTA), Derio, Spain

Any reports and responses or comments on the article can be found at the end of the article.

This article is included in the Research on

Research gateway.

Corresponding author: Eric Allen Jensen (jensen@gatesscholar.org)

How to cite this article: Jensen EA. **A conceptual framework for monitoring socially responsible research and innovation (RRI) aligned to the UNESCO-led Recommendation on Science and Scientific Researchers [version 1; peer review: 1 approved, 1 approved with reservations, 1 not approved]** Open Research Europe 2022, **2**:21 https://doi.org/10.12688/openreseurope.14263.1

First published: 14 Feb 2022, **2**:21 https://doi.org/10.12688/openreseurope.14263.1

Disclaimer

The views expressed in this article are those of the author. Publication in on Open Research Europe does not imply endorsement by the European Commission.

Introduction

The present text puts forward an overarching conceptual framework to support monitoring of an international accord adopted by 195 governments, representing a global commitment to socially responsible research and innovation (RRI). This accord sets out a wide range of principles for regulatory action on RRI, explicitly committing governments to take pro-RRI actions. The UN-organized accord is called the 'Recommendation on science and scientific researchers (2017)' (RSSR) (UNESCO, 2017). This paper aims to bolster the RSSR's role as a global vehicle for RRI by providing a conceptual framework for its associated quadrennial monitoring process. The paper explicates the dimensions of the RSSR that have been identified as priorities for measurement by the United Nations Educational Scientific and Cultural Organization (UNESCO), and the underpinning policy language from the 2017 recommendation. This elaboration of the existing guidance from UNESCO for the monitoring process is aimed at supporting UNESCO Member States and research stakeholders globally to design appropriate evaluation methods. This is because good evaluation methods require clear elaboration of the outcomes that are being targeted for measurement (Jensen, 2014; Jensen & Laurie, 2016). Such evaluation can lay the foundations for long-term international mutual learning at the level of best practices in RRI advancement and evaluation, linked to the RSSR's quadrennial cycle of stakeholder consultation, monitoring, and reflection at the national level. This monitoring process (UNESCO, 2021) is a legal expectation for each UNESCO Member State to provide national reporting on progress towards the RSSR's full implementation with appropriate substantiation, along the same lines as other UN conventions (UNESCO, n.d.). Indeed, having comparable assessments conducted across countries and time can be highly useful for policymakers as they consider the common global standards embedded in the RSSR, along with analysis of local research and innovation policies and practices that can deliver on those standards.

This conceptual framework is aimed at supporting each government and scientific community across the UNESCO Member States to take necessary actions for effective evaluation and reporting on RRI dimensions during their ongoing engagement with this quadrennial process. The tone and structure of this open letter is designed to be helpful to these research and policy stakeholders as they come to grips with the RSSR and its monitoring process. To aid the process of measuring progress in addressing the different dimensions included in the RSSR, this paper provides a conceptual framework with a detailed identification of the specific elements of the 10 key priority areas for monitoring the RSSR. The 10 priority areas that have been identified by UNESCO and confirmed by Member States in the UNESCO Executive Board in March 2020[1] (UNESCO, 2020) as the initial focus for RSSR implementation and monitoring are outlined in Table 1. The specifics of how this set of 10 key priority areas was initially fashioned have not been publicized by UNESCO beyond indicating that the goal was to achieve simplification to ease the burden of the monitoring process.

This open letter takes these confirmed key priority areas for the RSSR as a starting point and uses a close reading of the original RSSR to break each priority area down into its component

---

[1]This document is available from the Executive Board documents following the reference link on the UNESCO site, listed under the 209th session – 2020, 209 EX Main Series.

Table 1. 10 key priority areas identified by UNESCO and confirmed by Member States as the initial focus for RSSR implementation and monitoring. (UNESCO, 2017).

1. Responsibility of science towards the United Nations' ideals of human dignity, progress, justice, peace, welfare of humankind, and respect for the environment.
2. Need for science to meaningfully interact with society and *vice versa*.
3. Role of science in national policy and decision- making, international cooperation, and development.
4. Promotion of science as a common good.
5. Inclusive and non-discriminatory work conditions and access to education and employment in science.
6. Any scientific conduct is subject to universal human rights standards.
7. Balancing the freedoms, rights, and responsibilities of researchers.
8. Scientific integrity and ethical codes of conduct for science and research and their technical applications.
9. Importance of human capital for a sound and responsible science system.
10. Role of Member States in creating an enabling environment for science and research.

dimensions to clarify where measurement is needed to feed into the long-term monitoring process for the RSSR. To further guide UNESCO Member States and research stakeholders in their consideration of relevant evaluation measures and indicators, guidance notes, and direct quotations from the RSSR are included in grey font in the full framework document (see underlying data: Jensen, 2021). These notes are focused on dimensions where relevant measurement options may be more ambiguous or needing elaboration to identify the relevant aspects to target for RSSR reporting. This presentation of the 10 key priority areas for RSSR implementation and monitoring uses verbatim language from UNESCO policy documents extensively to provide assurance of the alignment of the conceptual framework to the underpinning policy instrument. The conceptual framework presented is one of a series of publications intended to guide UNESCO Member States through the process of evaluating RRI progress in science systems (Jensen, 2020). This evaluation process is required by the RSSR, but the specifics of how to assess and improve the socially responsibility of science systems in line with this policy instrument are not spelled out by UNESCO or the UNESCO Executive Board. This means that many countries' representatives are left without detailed advice about how to interpret, implement, and evaluate the RSSR in their national systems. In part, this ambiguity is by design because it allows for context-appropriate adaptation of general RRI principles. Indeed, national governments are encouraged, but not required, to convene 'working groups' to provide diverse stakeholder voices, including representatives from scientific bodies, industry, citizen groups, etc., for this process of adaptation. However, greater elaboration and clarification of the components of the monitoring framework can streamline the initial steps of coming to grips with the policy and its dimensions, thus improving the experience for national governments and boosting the value of the monitoring exercise.

Development of the conceptual framework
The conceptual framework presented in this paper was developed during the responsible research and innovation networked globally (RRING) (rring.eu) project to guide the project's work in conducting three national case studies in South Africa, Lithuania, and Serbia focusing on the monitoring process for the RSSR. UNESCO was a formal partner in this research and innovation action, and its lead representative on the project, April Tash, provided critical feedback during the development and application of the conceptual framework in South Africa, Lithuania, and Serbia from approximately June 2020 until April 2021.

The framework was constructed based on a close reading of the RSSR full policy text (UNESCO, 2017) and the distilled 10 key priority areas, with the aim of establishing a robust conceptual foundation for identifying relevant sources of evidence to include in formal UNESCO Member State quadrennial reporting against the RSSR. The framework was developed by the author of this open letter by applying logical deduction, separating out the elements of compound sentences to add clarity, noting cross-referencing in UNESCO policy documentation where available, and matching the language and

intentions of the key priority areas with details in the RSSR full policy text. Ultimately, this framework is built on logical argumentation, with full transparency to allow others to come to different conclusions or considerations about the linkages between the two documents. The review and implementation process did not result in significant changes to the framework.

This policy analysis document integrates these two distinct documents, with the aim of clarifying for Member States how the full policy text can be linked directly to each aspect of the 10 key priority areas. Development of this conceptual framework was prompted by feedback from the aforementioned national case studies that the 10 key priority areas on their own were not sufficiently elaborated to clarify which kinds of evidence where relevant for which key priority area. Such ambiguity is a problem in the short-term for UNESCO Member States, but it is also a long-term problem because it reduces the quality and comparability of the data that is captured by each country. For this reason, the present framework is designed to support alignment across countries in their understanding of the 10 key priority areas, bolstering the value of the quadrennial monitoring for UNESCO, national governments, the global scientific community, and ultimately the general public.

Using this conceptual framework
While this open letter may be relevant to anyone interested in evaluating RRI on a global scale or the RSSR policy instrument, its specific audience is UNESCO Member States and the working groups they convene to deliver expert input into the long-term RSSR monitoring and reporting processes. In particular, UNESCO Member State government representatives and working groups are encouraged to consider the categories indicated in the framework (Jensen, 2021) to self-assess the comprehensiveness of the available evidence that has already been documented. This document is intended to be used as a worksheet by the informally constituted working groups that some countries convene so that they can prepare reporting on evaluation measures and indicators relating to the RSSR that are as comprehensive as possible.

It is understood that practical constraints will mean that most UNESCO Member States cannot address all aspects of the 10 key priority areas in full, comprehensive detail. For this reason, this conceptual framework is designed to be used selectively to target aspects of the RSSR where clarification and orientation would be helpful. That is, the framework is designed to allow national working groups to pick and choose which key priority areas they would like to consider further at any given point. This is a supporting document to aid the monitoring process and does not replace direct engagement with the key priority areas and the full text of the RSSR.

Conclusion
This open letter has set out a high-level conceptual framework for monitoring the development of socially responsible research and innovation systems linked to the global policy instrument called the 'Recommendation on science and scientific researchers' (RSSR). This global science policy initiative

was ratified by 195 UNESCO Member States in 2017, updating an earlier version of the instrument. This UNESCO-led initiative offers a globally inclusive and agreed structure for advancing socially responsible research and innovation (RRI). A key feature of the RSSR initiative is its permanent structure of quadrennial monitoring to assess implementation of its principles. Above, a conceptual framework was presented to clarify the specific dimensions of RRI embedded in the 10 key priority areas for this quadrennial monitoring process. The framework has explicated these dimensions and the underpinning policy language from the 2017 recommendation with the aim of supporting UNESCO Member States and research stakeholders globally to design appropriate evaluation methods. This conceptual framework is intended to support development of globally aligned measurement of RRI policy and practice that allows research and policy stakeholders from each world region to learn from each other.

The value of reinvigorating the efforts to develop health research ecosystems is particularly salient in the wake of the COVID-19 pandemic, which has seen a surge in public support for science even as the world battles an 'infodemic' of scientific misinformation (Jensen *et al.,* 2021). Fostering mutual learning on a global scale will help to enable evidence-based practice in the context of RRI to improve outcomes and mitigate the limitations of well-meaning but ineffective policies and practices (Jensen & Gerber, 2020).

Data availability

Underlying data
Zenodo: Full Text Conceptual Framework for Monitoring Socially Responsible Research and Innovation (RRI) aligned to the UNESCO - led Recommendation on Science & Scientific Researchers. [Data set]. DOI: 10.5281/zenodo.5715729.

This project contains the following underlying data:

- Full Text Conceptual Framework for Monitoring Socially Responsible Research and Innovation (RRI) aligned to the UNESCO - led Recommendation on Science & Scientific Researchers (detailed breakdown of each of the 10 key priority areas for monitoring the 2017 Recommendation, including quotations mapped over from the full text of the RSSR).

Data are available under the terms of the Creative Commons Zero "No rights reserved" data waiver (CC0 1.0 Public domain dedication).

References

Jensen E: **The problems with science communication evaluation.** *J Sci Commun.* 2014; **13**(1): C04.
Publisher Full Text

Jensen EA: **The UNESCO Recommendation on Science and Scientific Researchers will transform working conditions, rights and responsibilities of researchers globally.** LSE Impact Blog. 2020; Last accessed 20 November 2021.
Reference Source

Jensen EA: **Full Text Conceptual Framework for Monitoring Socially Responsible Research and Innovation (RRI) aligned to the UNESCO - led Recommendation on Science & Scientific Researchers.** 2021.
http://www.doi.org/10.5281/zenodo.5715729

Jensen EA, Kennedy EB, Greenwood E: **Pandemic: public feeling more positive about science.** *Nature.* 2021; **591**(7848): 34.
PubMed Abstract | **Publisher Full Text**

Jensen EA, Laurie C: **Doing real research: A practical guide to social research.** SAGE: London. 2016.
Reference Source

Jensen EA, Gerber A: **For science communication to be effective it should be evidence based.** LSE Impact Blog. 2020; Last accessed 20 November 2021.
Reference Source

United Nations Educational Scientific and Cultural Organization (UNESCO): **Recommendation on Science and Scientific Researchers.** 2017
Reference Source

United Nations Educational Scientific and Cultural Organization (UNESCO): **National Reporting on the 2017 UNESCO Recommendation on Science and Scientific Researchers.** 2021; Published 31/01/2021.
Reference Source

United Nations Educational Scientific and Cultural Organization (UNESCO): **209 EX/18.IV: Implementation of standard-setting instruments, Part IV: Implementation of the 2017 Recommendation on Science and Scientific Researchers - Preparation for the next consultation from the Executive Board two hundredth and ninth session.** 209 EX- Main series. 2020.
Reference Source

United Nations Educational Scientific and Cultural Organization (UNESCO), Legal Instruments: **1st aspect of the terms of reference of CR: examination of reports received from Member States in the framework of the implementation of UNESCO's standard-setting instruments.** (n.d); Accessed: 8 December 2021.
Reference Source

Open Peer Review

Current Peer Review Status: ✗ ✓ ?

Version 1

Reviewer Report 21 October 2022

https://doi.org/10.21956/openreseurope.15387.r30263

? **Raul Tabares** 🆔

Basque Research and Technology Alliance (BRTA), Derio, Spain

Dear author,

Thank you for submitting your work to Open Research Europe.

The topic that addresses this letter is relevant and timely and it tries to engage with ongoing efforts and strategies for strengthening science-society interactions. The open letter pays attention to the synergies between RRI and the UNESCO "Recommendation on science and scientific researchers' (RSSR) that was ratified by 195 UNESCO Member States in 2017. The article is well-written, and the language employed is accessible.

However, there are several issues that demand attention from the author to improve this open letter. Some of them are related with the content whilst others are more related with the format. In this sense, I tend to agree with the other prior reviews in several issues. I propose to the author several changes in order to strength this manuscript:

- It is important to frame the "RRI discourse" on the text and to illustrate which synergies with RSSR have. It is hard to understand for a not-specialized reader.

- Eliminate redundancies and repetitions. Especially in the conclusion which does not point to next steps or future challenges ahead.

- The introduction is too long for a short letter like this. It needs to be shortened around half (or even more) and incorporate the RRI concept which is not explained at all in the paper.

- Section two of the letter should provide more details about how the framework was set up. Specially of interest for the reader should be to expand the 10 points of the figure into subsections (more space for the figure will be welcome in the text).

- Section three will benefit from a further clarification about the "supporting function" that this document has.

- ○ Mentions to COVID-19 at the end of the text are confusing for the reader. It should be erased.

- ○ The text will benefit from "citation diversity". Especially for situating the concept of RRI into the text and helping to the reader to understand the synergies between RRI and RSSR.

The changes proposed here demand significant work on this paper (major changes), but I think that the letter will benefit from this work to become a valuable contribution on this matter.

Is the rationale for the Open Letter provided in sufficient detail? (Please consider whether existing challenges in the field are outlined clearly and whether the purpose of the letter is explained)

Partly

Does the article adequately reference differing views and opinions?

No

Are all factual statements correct, and are statements and arguments made adequately supported by citations?

Partly

Is the Open Letter written in accessible language? (Please consider whether all subject-specific terms, concepts and abbreviations are explained)

Yes

Where applicable, are recommendations and next steps explained clearly for others to follow? (Please consider whether others in the research community would be able to implement guidelines or recommendations and/or constructively engage in the debate)

Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: RRI, RI, science-society interactions, STS

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Reviewer Report 11 April 2022

https://doi.org/10.21956/openreseurope.15387.r28668

✔ **Kutoma Wakunuma**
Centre for Computing and Social Responsibility, De Montfort University, Leicester, UK

This is a well articulated article written in language that is accessible. The article addresses the need for the inclusion of socially responsible research and innovation in UNESCO's RSSR quadrennial monitoring process. It gives a clear rationale for the need for a conceptual framework intended to monitor the development of socially responsible research and innovation systems. Although the article's language is accessible with subject-specific terms such as RSSR explained and abbreviations given, the concept of RRI could have benefited from an in-depth explanation of what it is and what it entails particularly for stakeholders unfamiliar with the term or with its practices. Further, in as far as RRI is concerned, the paper could have done well to offer differing views and opinions of RRI which may not necessarily be a universal concept that is understood and practiced in the same way across the 195 UNESCO member states. As such, different views and opinions, particularly in as far as its understanding and practice in different geographical locations are concerned would have been valuable. Therefore, given that there are 195 member states who may or may not fully understand the rationale or concept of RRI or who no doubt may practice it differently, a presentation of competing assertions would have been an ideal consideration in the article. By so doing, the article would have given insight to potential challenges in the field, therefore providing possible considerations on how to address evaluation challenges and potential mutual learning points in the monitoring process of RSSR. Further, such considerations could offer a much deeper understanding of the challenges that have prompted the need for the incorporation of socially responsible research and innovation systems when it comes to RSSR. This is important, particularly for stakeholders unfamiliar with RRI.

The article makes a great point about UNESCO's omission, albeit deliberately, in providing specifics of how to assess and improve the social responsibility of science systems in line with the RSSR policy instrument. Although the intention was to allow context-appropriate adaption of RRI, it would still have been beneficial to have some criteria or as indicated by the author specifics on the assessment and RRI systems. This could avoid unwieldy interpretations, implementations, and evaluations of the RSSR to the extent that the varied interpretations become challenging in their address of RSSR policy, especially in terms of comparability between member states. Similarly, the fact that member states can use the conceptual framework selectively to target aspects of the RSSR where clarification and orientation would be helpful may not bode well for comparability between member states. Granted, this is intended to be helpful for those member states who may not be able to address all 10 key priority areas in full. Despite this, it would have been beneficial to have compulsory aspects of the RSSR that each member state would need to address as a way of ensuring uniformity while leaving some as optional in the event of a failure in addressing all 10. That said, this is a timely article that is useful in its contribution to the importance of having socially RRI systems in RSSR policy.

Is the rationale for the Open Letter provided in sufficient detail? (Please consider whether existing challenges in the field are outlined clearly and whether the purpose of the letter is explained)
Partly

Does the article adequately reference differing views and opinions?
No

Are all factual statements correct, and are statements and arguments made adequately supported by citations?

Yes

Is the Open Letter written in accessible language? (Please consider whether all subject-specific terms, concepts and abbreviations are explained)

Yes

Where applicable, are recommendations and next steps explained clearly for others to follow? (Please consider whether others in the research community would be able to implement guidelines or recommendations and/or constructively engage in the debate)

Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Information and communication technologies for development; Emerging Technologies; Computer Ethics; Gender; Responsible Research and Innovation

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Reviewer Report 18 March 2022

https://doi.org/10.21956/openreseurope.15387.r28688

✗ **Justus Wesseler** (ID)

Agricultural Economics and Rural Development, Wageningen University, Wageningen, The Netherlands

The open letter is about suggesting a conceptual framework for monitoring RRI under the UNESCO-led Recommendation on Science and Scientific Researchers. The open letter is difficult to follow. The author suggests a framework for monitoring the RRI. The framework has been attached under supplementary information. The letter needs to be substantially improved. A few suggestions:

- The author writes a lengthy introduction (almost half of the text), but the reader receives almost no information about what the monitoring framework is about. This needs to be added to the main body of the text. At least a summary about the key aspects of the framework one would expect in the main body of the text.

- The introduction should be shortened to about a quarter of the text.

- The open letter includes a number of redundancies. The conclusion restates what has been

written in the introduction. Redundancies need to be removed.

○ In the conclusion, it should be more clearly stated what the next steps according to the author should be.

○ The last paragraph talks about ecosystem research and COVID-19. As a reader, I got lost. This had not been mentioned before, why now?

Is the rationale for the Open Letter provided in sufficient detail? (Please consider whether existing challenges in the field are outlined clearly and whether the purpose of the letter is explained)
Partly

Does the article adequately reference differing views and opinions?
Partly

Are all factual statements correct, and are statements and arguments made adequately supported by citations?
Partly

Is the Open Letter written in accessible language? (Please consider whether all subject-specific terms, concepts and abbreviations are explained)
Partly

Where applicable, are recommendations and next steps explained clearly for others to follow? (Please consider whether others in the research community would be able to implement guidelines or recommendations and/or constructively engage in the debate)
Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Agricultural, environmental, and natural resource economics. Substantial experience in reviewing interdisciplinary research proposals. Expertise in developing and assessing monitoring frameworks.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to state that I do not consider it to be of an acceptable scientific standard, for reasons outlined above.