



Deliverable 5.2

Methodology for continuous evaluation Version 1.4

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Concerned work package leader: Anne Dijkstra

Task leader: Anne Dijkstra, UT

Authors: Anne Dijkstra, Anouk de Jong

Contributors: all partners

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REVISION HISTORY

Revision	Date	Contributor	Description
v1.0	19.09.2021	Anne Dijkstra, Anouk de Jong	First Draft
v1.1	01.10.2021	ENJOI consortium	Second Version
v1.2	16.12.2021	Anne Dijkstra, Anouk de Jong	Third version
v1.3	23.12.2021	ENJOI consortium	Shared revision
v1.4	30.12.2021	Elisabetta Tola, Formicablu	Final version and upload

QUALITY ASSURANCE

To ensure the quality and correctness of this deliverable, we arranged an internal review and validation process. The deliverable was drafted by the work package leader (University of Twente). All partners contributed and reviewed the overall draft. Finally, the final version was submitted to the project coordinator for a final review and validation.

STATEMENT OF ORIGINALITY AND DISCLAIMER

This deliverable contains original, unpublished work except where clearly indicated otherwise. It builds upon the experience of the team and related work published on this topic. Acknowledgement of previously published material and others' work has been made through appropriate citation, quotation, or both.

The views and opinions expressed in this publication are the authors' sole responsibility and do not necessarily reflect the views of the European Commission and the Research Executive Agency (REA), that are not responsible for any use that may be made of the information here contained.



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SUMMARY

ENJOI will build a Manifesto of Standards, Principles and Indicators (SPIs) for Outstanding Open Science Communication through many diverse lines of actions. Besides desk research and direct interviews and surveys, ENJOI will also organise **Engagement Workshops and Labs** to involve an extensive range of **diverse stakeholders** in the definition, assessment, evaluation, co-design, amendment and iterative improvement of its SPIs as well as of its guidelines, practices, tools and prototypes which are the basis of its core actions.

The **main objective of this working document** is to *develop and implement a methodology for continuous evaluation of the Engagement Workshops (EWs) and the Labs*. These EWs and Labs will be held in Italy, Spain, Portugal and Belgium. The continuous evaluation falls under the so-called first strand of research of the ENJOI project. This working document details the steps towards the evaluation methodology. It is a working document to include insights from the cascade approach the project has embraced.

As described in the Grant Agreement, the continuous evaluation consists of two parts. First, a short evaluation questionnaire will be handed out to all participants **before** the EWs and the Labs. Second, interviews (n=16) will be conducted with a selection of participants **after** each of the EWs and the labs. After having organised consultative workshops and meetings to collect views on the methodology, an observation template was suggested as an extra instrument. Observations will enrich the qualitative insights from the Engagement Workshops and Labs. The observations will facilitate the analysis and add valuable data to the existing two instruments. In practice, the observations will be collected as part of the reporting of the EWs and Labs.



ENJOI MAIN OBJECTIVES

ENJOI (ENgagement and JOurnalism Innovation for Outstanding Open Science Communication) explores and tests **engagement as a key asset** of innovation in science communication distributed via media platforms, with a strong focus on journalism.

Through a combination of methodologies and collaboration with producers, target users and stakeholders of science communication, ENJOI **co-creates and selects a set of standards, principles and indicators (SPIs)** condensed to a **Manifesto for an Outstanding Open Science Communication**. Working in four countries, Belgium, Italy, Portugal and Spain, ENJOI takes into account different cultural contexts and through a series of actions, such as Engagement Workshops (EWs), Labs, field and participatory research, evaluation and testing phases, validates the SPIs and makes them accessible and usable by the science communication community and interested parties and stakeholders at large.

ENJOI designs and builds an **Observatory** as its landmark product to make all results and outputs available to foster capacity building and collaboration of all actors in the field.

ENJOI's ultimate goal is to improve science communication by making it more consistently reliable, truthful, open and engaging, in other words, to promote **Outstanding Open Science Communication**. Contextually, ENJOI contributes to the active development of **critical thinking, digital awareness and media literacy** of all actors involved in the process.



1. INTRODUCTION TO ENJOI'S CONTINUOUS EVALUATION

The COVID-19 pandemic and the climate change crisis, among other societal challenges, have shown the increasing need to communicate about science. It also shows the urgency to understand better how to communicate effectively in such situations. Undertaking research can provide insights into people's underlying motives or choices and can lead to a better understanding of the communication dynamics (Dijkstra & Cormick, 2020). It increases our understanding of how, in our society, we make sense of science and technology (e.g. NAS, 2017). In the ENJOI project, we will be developing **instruments for continuous evaluation** to analyse and, thus, increase our understanding of our activities, such as the Engagement Workshops and Labs.

In ENJOI, a series of Engagement Workshops and Labs will be organised with a diverse range of participants, that is, communication producers and target users, such as science and data journalists, communication and dissemination experts, citizen science practitioners, media editors, cross-sectional experts, local activists, teachers and students. The EWs and Labs will be held in the four countries in the local languages, which means that support from the partners can contribute significantly to successful evaluation instruments. Collaborative development also ensures that important topics are included and not overlooked.

As described in the ENJOI Grant Agreement, the continuous evaluation (Task 5.2) will consist of two parts. First, a short evaluation questionnaire will be handed out to all participants **before** the EWs and the Labs. And, second, interviews will be conducted with a selection of participants **after** each of the EWs and the Labs. In both instruments, the participants will be consulted regarding their views about the SPIs, their views on the EWs and Labs, how they believe these can contribute to the quality and reliability of science communication. In addition to the two instruments, we also decided to collect observations of the EWs and the Labs to increase the data. See Table 1 below for an overview of the activities and the evaluation instruments.

According to the GA, specific research questions will inquire **how mechanisms for multi-stakeholder engagement can help improve science communication** and **how mechanisms for multi-stakeholder engagement work that aim to create and promote trustworthy science communication**. The analysis will take place at the level of



comparisons per country (culture, territory), stakeholders (role, gender), and media (traditional, institutional, social).

Table 1: Overview of activities and evaluation instruments

Activities	Evaluation instruments (expected n)	Topics
Engagement workshops	Before: Questionnaire in Qualtrics Each EW will have 8 to 15 participants (total N will be between 32 and 60)	Views about SPIs; contribution to quality and reliability of science communication; expectations of the EW
	After: Interviews Two participants from each EW will be interviewed (total N = 8)	Semi-structured questions about their experiences, topics that raised attention, what learning outcomes do they see; their view on the engagement process, what message they would have to the ENJOI project
	After: Observations Together with the reporting template, observations from the EW will be reported (N=4)	One of the organisers fills in a template with three types of questions: Practical – which EW, when, how long, how many participants, what background Process – how did participants experience the EW, how was the ambience, what was remarkable or different, what stood out Content – how can an engagement process contribute to the quality and reliability of science communication
Labs	Before: Questionnaire in Qualtrics Each Lab will have 8 to 15 participants (total N will be between 32 and 60)	Views about SPIs; contribution to quality and reliability of science communication; expectations of the Lab
	After: Interviews Two participants from each Lab will be interviewed (total N = 8)	Semi-structured questions about their experiences, topics that raised attention, what learning outcomes do they see; their view on the engagement process, what message they would have to the ENJOI project
	After: Observations Together with the reporting template, observations from the Labs will be reported (N=4)	One of the organisers fills in a template with three types of questions: Practical – which Lab, when, how long, how many participants, what background Process – how did participants experience the EW, how was the



		ambience, what was remarkable or different, what stood out Content – how can an engagement process contribute to the quality and reliability of science communication
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In the remainder of this document, the development of the evaluation instruments is described. Section 2 provides a context for the continuous evaluation. Section 3 describes the process towards developing the methodology and the instruments. Section 4 offers an overview of the instruments, the expected participants, the methods, and how the analysis is conducted. A final remark regarding the evaluation instruments is that these will be adapted during the process to enable capturing of findings from previous workshops or labs. Examples of the instruments are added in Appendices C to E.



2. CONTINUOUS EVALUATION IN CONTEXT

One of the arguments for the need for ENJOI is that 'now more than ever before, science communication is a key factor in facilitating democratic deliberation and fighting misinformation' (Grant Agreement, 2020). In addition, one of the project's premises is that fostering engagement in science journalism and science communication can be a key factor in finding out how to innovate science communication and science journalism. Engagement processes can combine the power of communities and better respond to and reflect community needs and help increase media literacy (Grant Agreement, 2020). At the same time, as argued in the previous chapter, understanding the communication dynamics helps better understand how to deal with communicating about science and, therefore, a continuous evaluation approach was proposed to learn from the activities in ENJOI.

Mixed-method approach

For the continuous evaluation, a mixed-method approach was chosen with both a quantitative instrument and a qualitative instrument. A quantitative method, such as a questionnaire, enables comparisons between countries, media type and role of the participants. A qualitative method, such as interviews, can catch more of the situation's complexities. Combining both, and adding findings from observations, will help gather a more in-depth understanding of the participants' views on science communication and science journalism and the engagement process they are asked to participate in. Also, gathering data before and after the engagement will provide more insight than gathering only data afterwards.

The methodology was developed in collaboration and aligned with designing and implementing the EWs and Labs in WP3 and WP4, as described in the next section. The evaluations will gather views and perceptions of the participating stakeholders about the collected standards, principles and indicators (SPIs) and the process of engaging multiple stakeholders. We will reflect on the evaluation instruments and adapt if needed to capture new findings from previous workshops or labs. Outcomes will lead to recommendations for the tools to be developed in WP6 and the ENJOI Observatory for Outstanding Open Science Communication in WP7.



3. EVALUATION METHODOLOGY – PROCESS

This section describes the steps taken in the process of developing the methodology for continuous evaluation.

A series of meetings were organised to develop the instruments for continuous evaluation in collaboration with the ENJOI partners. In various meetings with one or two partners, needs and criteria for the continuous evaluation were discussed, as well as a collective understanding of the evaluation process was created. In two formal meetings, input and feedback were collected from all partners.

In the first online meeting, which was part of the work for Task 3.1, the outlines of the evaluation methodologies were described and briefly discussed (30th June 2021). In a second online meeting (6th September 2021 – see Appendix A for the agenda and notes), further details about the evaluation methodologies were provided, and two brainstorm exercises were held to collect ideas and views about the content of both instruments, as well as to discuss and share other considerations and topics.

Based on the one-to-one meetings and the consortium meetings, a first draft of the evaluation methodology was developed and reviewed by the ENJOI consortium partners. The draft was shared, and feedback was collected. Another draft was compiled based on more detailed insights of the EWs and the Labs and shared for additional feedback. The final report was uploaded to the EU portal. It is handed in as a working document so that it will still be able to adapt the evaluative questions to newer insights based on the outcomes of the EWs and Labs. These are organised in a cascade form to enable learning from previous EWs or Labs.

3.1 Main outcomes from the meetings

Based on the meetings, the following considerations were collected.

Related to the instruments

- The evaluation instruments could best be aligned with the content of the EWs and the Labs. This precise content of the EWs and Labs will be adapted throughout time since the outcomes of the first EWs will feed into the later EWs. This also applies to the Labs. Also, details may vary per country.
- The survey could best be short and with a few (mainly) closed questions in order to



not burden the participants too much beforehand.

- The interviews are meant to provide more in-depth and detailed or enriched information about the participants' views and reflections on the EWs and the Labs.
- An observation template can help in getting additional insights into the main findings from the EWs and the Labs. The EWs and the Labs will be held in the local language, while the analysis will take place in English. An observation template, filled in by one of the organisers of the EWs or Labs, will enrich the data.

Possible topics and questions for the survey

- Experiences with indicators
- Examples of good science communication
- Expectations and outcomes that stakeholders hope for, e.g. regarding multi-stakeholder engagement
- Roles of stakeholders in science communication and science journalism

Possible topics and questions for the interviews

- Views on indicators after the EWs and the Labs
- Changes in views
- Main learnings from the EWs and the Labs
- Advice of stakeholders
- Participants' views on multi-stakeholder engagement
- Reflections of stakeholders of the participation process
- Challenges stakeholders foresee
- Stakeholders' future engagement in activities
- Stakeholders' future engagement in the topic



4. EVALUATION METHODOLOGY – INSTRUMENTS

This section describes, first of all, more details of the three evaluation instruments in the continuous evaluation. The three instruments are a short questionnaire, an interview guide and an observation template. Two different versions of the instruments will collect data either from the EWs or the Labs. In addition, findings from the previous EWs or Labs will inform the evaluation instruments as well. Finally, this section describes details of the ethical approval for the studies.

4.1 Survey

Participants

All participants of the Engagement Workshops and the Labs will be asked to fill in the questionnaire before they take part in the activity. In each EW or Lab, about 8 to 15 stakeholders will partake. Therefore, in total, the estimated number of respondents for both activities will approximately be 96 to 120 participants.

Method

The survey questionnaire will be developed in English in word. When a final version is ready, the survey will be put in Qualtrics and translation to other languages is easily possible. Qualtrics allows for multiple languages as well as an ENJOI style. The University of Twente holds a licence for the programme. Data are stored on servers that comply with GDPR requirements. The participants will be asked for informed consent. The duration of the questionnaire should preferably be of max 10 minutes.

Analysis

The analysis will be conducted with SPSS or excel and consists of mainly descriptive outcomes due to the maximal number of possible respondents. Comparisons per country (culture, territory), stakeholders (role, gender) and media (traditional, institutional, social) will be made.

Possible topics and questions

For the Engagement Workshops

The questionnaire will explore various topics. In general, questions relate to the following categories:



- Sociodemographic information
- Background and role of the stakeholder
- Views on the science-media relationship
- Views related to SPIs and science communication more generally
- Expectations of the Engagement Workshops
- Experiences with indicators in science communication or science journalism

For the Labs

The questionnaire will explore various topics. In general, questions relate to the following categories:

- Sociodemographic information
- Background and role of the stakeholder
- Views on the science-media relationship
- Views related to SPIs
- Expectations of the Labs
- Experiences with indicators in science communication or science journalism
- Experiences with multi-stakeholder engagement

4.2 Interview guide and template

Participants

From each Engagement Workshop and Lab, two participants will be asked for an in-depth interview. In total, 16 interviews will be conducted. The interviews will provide more detailed and enriched insights on EWs or Labs and how they were perceived.

Method

The template for the interview with semi-structured questions will be developed in English and, if needed, translated into the local language. Partners from the countries will conduct the interviews with the help of the template, and (audio) recordings will be made. When a participant agrees, it is possible that the UT can conduct the interview in English. The interviews will be held after the workshop and the Lab, and preferably before the next workshop or Lab takes place. These will last about 45 minutes. The participants will be asked for informed consent.

Analysis



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The recordings will be transcribed, and a codebook will be developed based on the topics and concepts. The transcripts will be coded in Atlas.ti, and comparisons will be made per country, stakeholders and media. Relevant (anonymous) quotes will be selected to support the analysis.

What should be part of the analysis?

- For example, participants' assessment of the EW or Lab
- How useful was the workshop?
- How can these types of activities contribute to achieving better science communication?

Possible topics and questions

- Main learnings from the EWs and the Labs
- Advice of stakeholders
- Changed views on SPIs after the EWs and the Labs
- Views on multi-stakeholder engagement
- Reflections of stakeholders on the participation process
- Challenges stakeholders foresee
- Stakeholders' future engagement in activities

4.3 Observation template

An observation template was developed to enrich the data from the survey and the interviews.

Method and number

The template (1 or 2 A4) for the observations will be developed in English and filled in by one of the organisers soon after each EW or Lab. The template will ease remarkable highlighting moments. For each EW or Lab, one template will be used (even if the EW consists of multiple meetings). In total, 8 templates will deliver additional insights. The template is preferably filled in immediately after the EW or Lab. If the EW or Lab consists of multiple meetings, after each meeting, notes can be made, which can be added in the final observation form.

Analysis

The observations from each EW or Lab will be added to the data in Atlas.ti and can be coded according to the codebook developed for the interviews. When a recording is



available, the recording may be used for more details.

Possible topics and questions

Topics in the template consist of:

- Background information (which EW or Lab, when, how many participants, how long)
- Stakeholder composition (what kind of stakeholders and how many from each represented group)
- Dynamics of the multi-stakeholder engagement (passive versus active participation / co-creation – exceptions in the group?)
- What went well, and what needs more attention?
- Reflection: main challenges regarding multi-stakeholder mechanisms and how addressed?
- Suggestions
- A short summary of the EW or Lab.

4.4 Ethical approval

Ethical approval was requested from the Ethics Committee of the faculty BMS (Behavioural, Management and Social Sciences) from the University of Twente before implementing the instruments to comply with the GDPR Ethics requirements as described in Deliverables 1.2 and 9.1. The approval was received (filed under nr. 211134). An example of the relevant, informed consent forms is added in Appendix B.



REFERENCES

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APPENDIX A

Programme for the online workshop meeting with agenda and notes

- Welcome and icebreaker (10:00 – 10:15h)
 - The participants are welcomed
 - Icebreaker: bring a photo of your Summer (holidays). In break-out groups, talk about why you did bring this photo, what it says about your Summer and how you feel about it (3 or 4 people per group – max 15 minutes)
- Goals of the workshop (10:15 – 10:25h)
 - To collect views and perspectives of ENJOI partners regarding the development of the continuous evaluation as part (for example, topics and questions for the questionnaire and the interview protocol; practical issues like the informed consent, procedures regarding the methods and other issues)
- Previous workshops: proposed actions
 - Milestone document ready for submission on 29.09; which means that it has to be ready on the 17th of September for internal review.
 - Develop a template for the questionnaire
 - Develop a template for the interview guide
 - Practical issues
- Practical issues
 - Ethical approval: Apply for ethical approval (at the UT faculty BMS – form to be filled in, with the proper appendices like the informed consent form, will be reviewed by the BMS Ethical committee; the procedure takes about one to two weeks; in alignment with D2.1 and D9.1).
 - Describe procedures regarding the methods (when will the research be conducted, who are the participants, who can do the interviews; adaptation of methods when needed after reflection of each time data are collected)
 - Languages: Development in English, then translation by the partners into Italian, Spanish, Portuguese, and to be decided in what language for the Brussels workshop (added: in French). We propose to use a reporting template. The final reporting will be in English.
 - Develop a detailed time plan
 - Questionnaire: data collected before the EWs or Labs?
 - Interviews: selection of participants, make an appointment for one or two



weeks after the EWs or Labs?

- Follows the timeline according to the Gantt scheme of the EWs and Labs

Draft agenda for the ENJOI Task 5.2 workshop on 6th September 2021 - ONLINE

Moderators: Anne Dijkstra & Anouk de Jong

Time	Topic	Who	How	Remarks
10:00 – 10:15	Welcome and icebreaker	UT, Anouk & Anne, all	Icebreaker: bring a photo of your Summer (holidays). In break-out groups, talk about why you selected this photo, what it says about your Summer and how you feel about it. 3 or 4 people per group – max 15 minutes.	It is possible to use the picture as background or share it during the break out session.
10:15 – 10:30	Goals of this workshop and process	UT	Presentation of proposed actions from the previous workshop, various other information. Preparation methods with partners. Questions?	
10:30 – 11:00	Step 1: Survey	UT, all	What kind of questions should be in the survey? What main themes? What details? o Round 1: brainstorm (10 minutes) o Round 2: discuss and group the ideas (15 minutes)	What programme to use? (Check if Mural is still available?)
11:00 – 11:05	Break	All	Cameras off for 5 minutes	
11:05 – 11:35	Step 2: Interviews		What kind of questions should be in the interview protocol? What main themes? What details? o Round 1: brainstorm (10 minutes) o Round 2: discuss and group the ideas (15 minutes)	
11:35 – 11:55	Wrap up and next steps	UT, all	Summary: What will be the next steps and actions? Deadlines Questions?	
11:55 – 12:00	End		Closing	

Notes



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The recording of the workshop can be found here:

https://utwente-nl.zoom.us/rec/share/9CtnCmNeHHPxK4MohsndpggFqC_txEhIOs-wXLLVjlzqeAVE0kvYV455tDY7h8H.dVYWuC5M6MoMvEWU Passcode: m&Y5=sc7

The recording is also available in the ENJOI google drive.

Key messages from the meeting:

After an introduction of the tasks and deadlines for Task 5.2 according to the Grant Agreement and practical issues to be considered, views and ideas were collected about the two given instruments for the continuous evaluation: the survey and the interviews.

In Mural, two brainstorm sessions with discussions took place to think about possible content for the survey instrument and the possible content for the interview instrument and related considerations.

Outcomes:

- o The evaluation instruments could best be aligned with the content of the Engagement workshops and the Labs.
- o An observation template can help in getting additional insights into the main findings from the EWs and the Labs.
- o The survey could best be short and with a few (mainly) closed questions to not burden the participants too much beforehand.
- o The interviews are meant to provide more in-depth and detailed information about the participants' views and reflections on the EWs or Labs.
- o Possible topics from the survey brainstorm:
 - the importance of science communication;
 - their experience with indicators and examples of good science communication;
 - their expectations and outcomes they hope for;
 - roles that stakeholders have in science communication.
- o Possible topics from the interview brainstorm:
 - the participants' view on science communication and indicators after the EWs or Labs;
 - their main learnings from the EWs or Labs;
 - what do they believe is important in good science communication;
 - the advice they would give and expectations of the participation process;
 - challenges they foresee;
 - their future engagement in activities and the topic.



Survey

Step 1: Brainstorm about themes and questions (10 minutes)

Step 2: Discuss and group (15 minutes)



Interviews

Step 1: Brainstorm about themes and questions (10 minutes)

Step 2: Discuss and group (15 minutes)



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APPENDIX B

As described in Deliverable 9.1, informed consent procedures will be followed for collecting data. This means that the research participants will be informed about the purpose of the research and their participation, both orally and in digital form in their local language or English. Deliverable 9.1 also describes the content of the information sheet and provides templates of the information sheet, which led to the informed consent form for the questionnaire below. Other information sheets will follow this example. In particular, for the consent form for the questionnaire, we propose a shortened version.

Information sheet – general – to derive from for the consent forms

Why have you been invited to participate?

Based on your expertise and engagement in the field of science communication and science journalism, you have been invited to participate in an online questionnaire to collect data for the Engagement Workshop you are invited to. This workshop is part of the ENJOI project.

What will I have to do if I decide to take part?

Your participation is entirely voluntary, and by clicking, you will consent to take part. You are free to decline to answer any particular question you do not wish to answer.

What will we do with your DATA?

Your responses will be anonymised by removing any personal information and will be analysed alongside other responses to produce aggregate results. All personal data is regulated under the General Data Protection Regulation (GDPR) from the European Union (EU) 2016/679. You can request for all your personal data to be erased from all project platforms at any time. In line with the open access movement, data collected for the project are publicly available in an anonymous form only for use for research purposes. No identifying information will be contained in this dataset.

How can I withdraw?

You can withdraw from the study anytime you decide to, by email to eli@formicablu.it (ENJOI coordinator's email). You do not need to add any explanation of why you want to withdraw from the study. All your confidential data will be destroyed. If your data has already been analysed, the results will be used, but the source of the data will not be retrievable.



There are no direct personal benefits of participation in this study. However, by participating, you will contribute to the aims of the ENJOI project, which contributes to the active development of **critical thinking, digital awareness and media literacy** of actors in science communication.

What will be the risks of taking part?

Regarding potential risks, those do not exceed in probability or magnitude the ones that could be expected in a work activity based on agreed meetings (physical and/or online), in which experiences and knowledge are discussed and shared around common projects. Participation in this study is entirely voluntarily and unpaid.

Rights and how to exercise them. You have the right to:

- o Request information about whether we have personal data about you, and if so, what information we have, why we have it and how we are using it.
- o Request access to your personal data. This allows you to receive a copy of your personal data and to correct any incomplete or incorrect information.
- o Request personal data deletion. This allows you to delete or ask us to delete your personal data.
- o Request to transfer your personal data to you or to a third party in an electronic and structured format – commonly known as the right to data portability.
- o You can exercise any of these rights by email to eli@formicablu.it
- o You will not have to pay any fee to access your personal data – or to exercise any other of your rights.

If you would like to learn more about the project in general, you can visit our website here: <https://enjoiscicomm.eu/>

We thank you very much for your participation!

With best wishes, researchers on the study.

Information sheet – shorter version for the questionnaire

You have been invited to participate in an online questionnaire to collect data for the Engagement Workshop you are invited to. This workshop is part of the ENJOI project. The questionnaire takes approximately 10 minutes to complete.

Your participation is entirely voluntary, and by clicking, you will consent to take part. You are free



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to decline to answer any particular question you do not wish to answer.

Your responses will be anonymised by removing any personal information and will be analysed alongside other responses to produce aggregate results. All personal data is regulated under the General Data Protection Regulation (GDPR) from the European Union (EU) 2016/679. In line with the open access movement, data collected for the project are publicly available in an anonymous form only for use for research purposes. No identifying information will be contained in this dataset.

We believe there are no known risks associated with this research study; however, as with any online related activity, the risk of a breach is always possible.

You can withdraw from the study anytime you decide to, by email to eli@formicablu.it (ENJOI coordinator's email). You do not need to add any explanation. All your confidential data will be destroyed. If your data has already been analysed, the results will be used, but the source of the data will not be retrievable.

We thank you very much for your participation!

With best wishes, researchers on the study
Anne Dijkstra & Anouk de Jong
University of Twente, Science Communication



APPENDIX C

QUESTIONNAIRE FOR ENGAGEMENT WORKSHOP – DRAFT 2021

Aims	
<i>Aims of the EW</i>	<i>Co-creating principles; Identifying standards; Defining indicators</i>
<i>Aims of the observation</i>	<i>To collect additional information about:</i> <ul style="list-style-type: none"> <i>o Views about SPIs</i> <i>o How the EWs contribute to the quality and reliability of science communication</i> <i>o How mechanisms of multi-stakeholder engagement help to improve science communication</i> <i>o How mechanisms for multi-stakeholder engagement that aim to create and promote trustworthy science communication work</i>

Topic	Question	Comments
Language selection	You can select the language of your choice <ul style="list-style-type: none"> <input type="radio"/> English <input type="radio"/> Italian <input type="radio"/> Portuguese <input type="radio"/> Spanish <input type="radio"/> French 	
Sociodemographic	What is the age group you are in? I'm between: <ul style="list-style-type: none"> <input type="radio"/> 18 and 24 years <input type="radio"/> 25 and 34 years <input type="radio"/> 35 and 44 years <input type="radio"/> 45 and 54 years <input type="radio"/> 55 and 64 years <input type="radio"/> Above 65 years 	
	What is the gender you identify with? <ul style="list-style-type: none"> <input type="radio"/> I prefer not to say <input type="radio"/> Non-binary / third gender <input type="radio"/> Female <input type="radio"/> Male 	
	What is the highest level of education you completed? I completed a: <ul style="list-style-type: none"> <input type="radio"/> Lower level of education <input type="radio"/> Middle level of education <input type="radio"/> Higher level of education 	
	In which EW or Lab will you participate? <ul style="list-style-type: none"> <input type="radio"/> Italy <input type="radio"/> Portugal <input type="radio"/> Spain <input type="radio"/> Belgium 	It may be possible to create separate links for each workshop, which means that this question is not needed also because the questions may differ a bit.
Stakeholders	How many years of experience do you have in the field of	



	<p>science communication and science journalism?</p> <ul style="list-style-type: none"> o None at all o Less than 1 year o Between 1 and 5 years o Between 5 and 10 years o More than 10 years 	
<i>Role of the stakeholder</i>	<p>How would you describe your role or roles in science communication or in science journalism?</p> <p>I'm a:</p> <ul style="list-style-type: none"> o communication or public relations officer in a scientific organisation o event organiser o lecturer in science communication o media producer o policymaker or decision-maker o practitioner in various types of activities o researcher in science communication or science journalism o science journalist o journalist not specialised in science o science museum practitioner o science writer o trainer in science communication o media editor (newspapers, journals, TV) o social media producer o other, please specify... 	<p>Roles that stakeholders have according to the respondents. Main categories: journalist, researcher, media producer, other</p> <p>Too many possibilities. Maybe it will be wiser to reduce to about 5 or 6.</p>
	<p>Which type of media are you engaged with? Engaged with can be broadly defined as: writing for, post on, using for work, collaborating with. More than one answer is possible:</p> <ul style="list-style-type: none"> o Traditional media, namely: ... <ul style="list-style-type: none"> o TV o Radio o Paper o Institutional media, namely: ... <ul style="list-style-type: none"> o o Social media, namely: <ul style="list-style-type: none"> o Twitter o Snapchat o LinkedIn o Facebook o Website o 	<p>Should we also ask to rank the engagements from most frequent to least frequent?</p>
	<p>In the ENJOI project, we aim to improve our understanding of what makes good science communication and science journalism by making it more consistently, reliable, truthful, open and engaging. The following questions explore your views.</p>	



<p><i>Good science communication</i></p>	<p>With three keywords: what would characterise good science communication or science journalism to you?</p> <ul style="list-style-type: none"> o Keyword 1: o Keyword 2: o Keyword 3: 	<p>Word cloud of the words given. We can make different word clouds for each EW and Lab</p>
<p><i>Role SPIs</i></p>	<p>Considering your personal experiences with standards, principles or indicators (SPIs) in science communication and science journalism, how much experience do you have with Standards, Principles, or Indicators separately or the three together?</p> <ul style="list-style-type: none"> o Not at all o Some o A little o Considerable o Much <p>Can you specify?</p> <ul style="list-style-type: none"> o I have read about SPIs in the past o I have searched for SPIs online or in other sources o I have discussed SPIs with others o I have participated in a workshop about SPIs before o I have organised workshops about SPIs before o None of the above <p>What are your views on the following statements? Please answer on a scale from not at all to very much. My experiences with SPIs in the past ...</p> <ul style="list-style-type: none"> o changed my views on science communication and science journalism o have proven useful in my work o influenced my professional attitude o contributed to more confidence in my professional competences 	<p>Experiences with standards, principles or indicators in science communication and science journalism</p> <p>Translation of: [strongly disagree, somewhat disagree, neither disagree nor agree, somewhat agree, strongly agree]</p> <p>Translation of: [not at all, a little, some, much, very much]</p>
	<p>To what extent do you agree with the following statements? Good science communication and science journalism ...</p> <ul style="list-style-type: none"> o relies on trust in sources o should be based on knowing the sources o improves when multiple sources are used o improves when openness about the sources is given <ul style="list-style-type: none"> o is independent of the speed of reporting o depends mainly on thorough analysis o depends mainly on the background of the media producer o is independent of the media type <ul style="list-style-type: none"> o improves when science sources have more experience with reporting o relies on experienced media producers 	<p>If you think of trustworthy science communication, what is important to do?</p> <p>When will trustworthy science communication increase?</p> <p>Or,</p>



	<ul style="list-style-type: none"> o depends on knowledge about media production o is independent of intuition for quality reporting <p>I trust science communication and science journalism, when...</p> <ul style="list-style-type: none"> o the consequences of the scientific topic are included in the reporting o the topic is presented from different perspectives o interests of stakeholders are reported o reporters are knowledgeable about the topic o the communication about the topic is transparent 	
<i>Expectations of the contribution of the workshop to the engagement process</i>	<p>To what extent do you agree with the following statements about the workshop?</p> <p>I expect that ...</p> <ul style="list-style-type: none"> o I can relate the outcomes of the workshop to my own work o The outcomes will make sense to me o The outcomes will be used for the next step in the project <p>In general, what is your view on engaging stakeholders in the process of considering the quality and reliability of science communication?</p> <ul style="list-style-type: none"> o It makes sense to consider input from stakeholders such as myself o It can inspire new outcomes o It can inspire unexpected outcomes o It will be informative but with little impact o I expect that suggestions formulated in the workshop will serve as a relevant input for the upcoming activities 	<i>In your view, how can a workshop like the one you're invited to, help to improve science communication?</i>
	<p>What professional outcome would you aim for when participating in the workshop? Please describe</p> <p>What personal outcome would you aim for when participating in the workshop? Please describe</p>	Open question
	<p>Finally, would you have any suggestions or comments? Please describe: ...</p>	
	<p>Thank you for filling in this questionnaire. The outcomes will inform the project.</p>	



APPENDIX D

INTERVIEW TEMPLATE FOR THE FIRST ENGAGEMENT WORKSHOP – DRAFT 12.2021

Aims		
<i>Aims of the EW</i>	<i>Co-creating principles; Identifying standards; Defining indicators</i>	
<i>Aims of the observation</i>	<i>To collect additional information about:</i> <ul style="list-style-type: none"> o <i>Views about SPIs</i> o <i>How the EWs contribute to the quality and reliability of science communication</i> o <i>How mechanisms of multi-stakeholder engagement help to improve science communication</i> o <i>How mechanisms work for multi-stakeholder engagement that aims to create and promote trustworthy science communication</i> 	
Topic	Question	Comments
<i>Sociodemographic</i>	What is your age?	Sociodemographic data will be reported in a general table (e.g. % or number people of gender; average age) together with background info such as type of stakeholder and media they represent
	With what gender do you identify yourself?	Open question – needed for analysis based on gender (and role, media)
	In which EW or Lab did you participate?	Can be filled in by the interviewer
<i>Stakeholders</i>	How much experience do you have in the field of science communication and science journalism? <ul style="list-style-type: none"> o None at all o Less than 1 year o Between 1 and 5 years o Between 5 and 10 years o More than 10 years 	
<i>Role of the stakeholder</i>	What type of stakeholder do you consider yourself? <ul style="list-style-type: none"> o Science communication o Science journalism o Media producer o Other options What kind of background do you have? <ul style="list-style-type: none"> o E.g. a background in journalism or communication versus a background in sciences or social sciences What type (kind) of media are you involved in? Can you give examples? <ul style="list-style-type: none"> o Traditional, e.g. ... o Institutional, e.g. ... o Social, e.g. ... 	Background/role of the stakeholder.
<i>Views on the EW</i>	In the questionnaire, you were asked to indicate your	



<p>or Lab you were in / Expectations</p>	<p>expectations of the EW. Can you repeat very briefly what your expectations were?</p> <p>To what extent were your expectations of the EW met? Can you explain why or why not?</p> <p>In general, what is your opinion about the EW you were in?</p> <p>What do you think of the dynamics during the EW?</p>	
<p>Views on SPIs</p>	<p>What is your view on SPIs related to science communication and science journalism after the EW?</p> <ul style="list-style-type: none"> o General on SPIs ... o Standards ... o Principles ... o Indicators ... <p>Can you explain your views?</p>	
<p>Quality and reliability of science communication?</p>	<p>What defines, according to you, after having participated in the EW, the quality of science communication/science journalism?</p> <ul style="list-style-type: none"> o e.g. trust (e.g. in science / scientists / media producers) o transparency (e.g. openness about sources) o accuracy (of reporting / of offering science information) o etc.... <p>And what, reliability of science communication/science journalism?</p> <p>How do these two differ, in your view?</p>	
<p>Dynamics of EW engagement</p>	<p>What is your view on the process of engagement during the EW?</p> <p>In your view, how can such a process of engagement help improve the quality of science communication?</p> <p>In your view, and how can it help improve the reliability of science communication?</p> <p>When do you feel engaged and do you want to participate?</p>	
	<p>What do you think of the partnership that was formed for the workshops?</p>	



	<p>What do you think of the group of stakeholders?</p> <ul style="list-style-type: none"> ○ were any (type of) stakeholders missing? ○ would you like to continue? 	
	<p>What do you expect will be your future engagement in activities on the topic of the EW?</p>	
	<p>Finally, what advice would you have for us for the future of science journalism or more general science communication?</p>	
	<p>Thank you for your participation!</p>	



APPENDIX E

OBSERVATION FORM FOR THE FIRST ENGAGEMENT WORKSHOP – DRAFT 12.2021

Aims	
<i>Aims of the EW</i>	<i>Co-creating principles; Identifying standards; Defining indicators</i>
<i>Aims of the observation</i>	<p>To collect additional information about:</p> <ul style="list-style-type: none"> o Views about SPIs o How the EWs contribute to the quality and reliability of science communication o How mechanisms of multi-stakeholder engagement help to improve science communication o How mechanisms work for multi-stakeholder engagement that aims to create and promote trustworthy science communication
Topic	Question
Observer	o Form filled in by:
EW or Lab	<ul style="list-style-type: none"> o Which EW or Lab did you observe? (date / country) o How many participants participated? o Was the EW or Lab recorded? Yes/no <ul style="list-style-type: none"> o If yes, the recording is available at: ... o Is it possible to provide a list of the anonymised participants?
Stakeholders	<p>As far as you know:</p> <ul style="list-style-type: none"> o What kind/type of stakeholders participated? o What kind of media did they represent? (traditional / institutional / social) o How many from each group? o What is your general view of the group? <ul style="list-style-type: none"> o Were any important stakeholders missing? o Were the stakeholders complementary to each other?
Atmosphere	<ul style="list-style-type: none"> o Can you describe the atmosphere during the meeting in three keywords? good / tensions / other... o Can you briefly explain?
Evaluative questions	<ul style="list-style-type: none"> o What went well? Please describe a situation (e.g. what, who, what were the outcomes, why do you think it went well?): o What can be improved? How and why? Please describe:



	<ul style="list-style-type: none"> o What remark or discussion comes to mind immediately? Please describe:
About the EW	<ul style="list-style-type: none"> o Can you describe a situation that stood out in a positive way? Please describe:
	<ul style="list-style-type: none"> o Can you describe a situation that needs more attention the next time? Please describe:
Dynamics of the multi-stakeholder engagement	<p>How did the participants contribute to the co-creation of principles, identifying standards or defining indicators? For example, they were active, passive, enthusiastic, reluctant, with hesitancy, dedicated, critical, positive, other</p> <p>Was there one or more participants who stood out in a positive or negative way? Please describe:</p>
Reflection	What is the (main) challenge of the SPIs the participants talked about during the EW?
	What is a (main) challenge for the EW seen from the perspective that it is organised as a multi-stakeholder engagement activity?
Suggestions	What suggestion for improvement would you – as an observer – give for the next step in ENJOI? Please describe:
Summary	Can you provide a short summary of the EW with the help of a few keywords or sentences?

