



Deliverable 2.2

**Engagement Workshops (EWs) contributions to the SPIs
for OOSC**

Version 1.4

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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 ACCC. All partners contributed and reviewed the overall draft. Finally, the final version was submitted to the project coordinator for a final review and validation.

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This deliverable contains original, unpublished work except where clearly indicated otherwise.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. Acknowledgment 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.



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1. SUMMARY

This deliverable has the objective to draft a working list of Standards, Principles and Indicators (SPIs) for an Outstanding Open Science Communication (OOSC) integrating the results and feedbacks coming from the four ENJOI Engagement Workshops (EWs). This working list of SPIs goes to substitute the previous one released with the Inception report described in D2.1 since it includes the science communication producers' and users' significant feedback and views.

This document is, once again, a working version of the ENJOI SPIs that will keep evolving during the remaining months of the project and will be updated on the ENJOI Observatory for OOSC. Recommendations and contributions collected during the four Ews will also subsequently be condensed in the ENJOI Manifesto for OOSC.

2. PROJECT OVERVIEW

ENJOI (ENGagement and JOurnalism Innovation for Outstanding Open Science Communication) is exploring and testing 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 in collaboration with producers, target users and stakeholders of science communication, ENJOI is co-creating and selecting a set of standards, principles and indicators (SPIs) condensed into a Manifesto for an Outstanding Open Science Communication. This process is the result of research and of co-creation developed through a series of Engagement Workshops (EWs), Labs, field and participatory research, evaluation and testing phases.

ENJOI is also building an online 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 that of improving science communication by making it more consistently reliable, truthful, open and engaging. Contextually, ENJOI will contribute to the active development of critical thinking, digital awareness and media literacy of all actors involved in the process.



3. INTRODUCTION

Analysis of evolving SPIs

During the EWs that took place in spring 2022 in four countries (Italy; Spain; Belgium and Portugal), journalists, science communicators, researchers, science museum experts, teachers, activists, social media experts, editors, and designers co-created Standards, Principles and Indicators (SPIs) in order to improve science communication and journalism by making them more consistently reliable, truthful, engaging and useful. Each EW yielded different results with quite a range of diversity in terms of the principles as well as of the standards and indicators deemed useful to guide the journalistic and communication work.

A temporary long list of SPIs was then assembled and became the basis of the dynamic that was deployed during an ENJOI consensus workshop meeting, with participation of all partners. The dynamic helped to reduce the long list to a subset of 8 principles to be discussed and further analysed, with their relative standards of application and a number of indicators. This current list is as follows:

- **INTEGRITY:** Science journalists must be transparent, honest, and upright as communicators, seeking to maintain their independence and that of their sources.
- **RELEVANCE:** The content of the information must always be relevant to the intended audiences.
- **SOURCES:** The sources of journalism should be of proven scientific quality, rigorous and diverse.
- **RIGOUR:** Science journalism work should be prompted to the maximum of accuracy.
- **ACCESSIBILITY:** Science journalism should be accessible and inclusive for as wide a range of audiences as possible.
- **AUDIENCE-FIRST:** Communication should always be designed and crafted with the target audience in mind.
- **IMPACT:** Science communication should be designed with the goal of generating an impact and the attention to measure it with adequate indicators over time
- **ENGAGEMENT:** Audiences should be engaged not only as final users but also as producers, active thinkers, giving opinions and feedback. Special care should be put in assessing ways and methods to involve the audiences in the entire production process.



4. CONTRIBUTION OF THE EWs FOR THE CO-CREATION OF THE SPIs

This section presents and details the Standards, Principles and Indicators (SPIs) that resulted from the Engagement Workshops (EWs) in Belgium, Italy, Portugal and Spain.

4.1. EWs in Belgium, Italy, Portugal and Spain

More than 50 people attended the EWs that were organised face to face in each country and held in the local language. The first EW took place in Italy, followed by Belgium, Spain and finally Portugal, in the space of 2 months, from March to May 2022. The participants were journalists, science communicators, researchers, science museum experts, teachers, activists, social media experts, editors, and designers.

Following the methodology developed by StickyDot (described in Deliverable 3.2) and the implementation of the EWs coordinated by Science for Change (described in Deliverable 4.1), the workshops were organised in separate sections dedicated to the co-creation of Principles, identification of Standards and definition of Indicators. The four events in Italy, Belgium, Spain and Portugal followed a “cascade” approach. After each event an internal consortium meeting was organised dedicated to the mutual learning in order to contribute to the following one, so that the overall methodology was improved step by step. The information about the materials, dynamics and results will be detailed in the Deliverable 4.2.

4.2. Integrating the SPIs EWs results

This sections details the results coming from each EW, country per country, in a table that lists all the contributions and the feedback and definition proposed during the discussion with the participants.



4.2.1 Results from EW in Belgium

	Principles	Standards	Indicators
Belgium	Evidence-base	Use a variety of scientific sources	Are there at least 2 sources + independent researchers sources used?
		Informative of where to find additional information	When relevant, are uncertainty, doubts, and the unknown highlighted?
			When possible, the SciComm piece should prioritize open access and open science
			Does the SciComm piece provide a read more section to take users deeper into the topic (other publications)?
		Representative and qualitative sources	Does the SciComm piece show multiple perspectives (multi-disciplinary and contradictory)?
			Choice of sources: Is the SciComm piece choosing the best experts: recommendations, affiliation, experience, publications?
			Have the results presented in the SciComm piece been checked/peer reviewed (exceptions: processes, novelty/urgency)?
	Transparency	Reputation/integrity/code of conduct of a news outlet is important	Are the sources retrievable? (scale from open access, to not retrievable)
			Are there SciComm guidelines? (yes/no)
			Are the credentials of sources with URLs provided? (yes/no)
			Is there a general introduction on the scientific research process provided in the piece? (yes/no)
			Does the author (journalist, etc..) use her/his own quotes? (yes/no)
		Honesty about difficulties	Are the limitations in the scientific research mentioned? (yes/no)
		Experts voice is present (they talk and interact)	Where does the information come from? (Press agency, university, ...)
			Is the SciComm piece mentioning at which stage the research currently is? (yes/no)
			Is the scientific method explained/mentioned (info on sampling, process, representative, reliability)?



			(yes/no)
	Engagement	Relatable	Was there a vocabulary check? Did the people understand the piece?
			Evaluation: visitor numbers
			Number of likes, shares and clicks
		Engage community around doubts and fears	What is the number of comments related to the SciComm piece (as a sign of controversy and interest)?
			"Draw a scientist" as an evaluation technique
			Quality of the comments
		Think about longevity of articles online	Follow-up with the group: what do users remember?
			Does the SciComm piece provide a link with researchers for follow-up?
		Solutions-oriented (empowerment and agency)	Did the SciComm piece provoke changes in attitude/actions taken by users? (measure changes in attitude and actions people took)
		"Podium" for all stakeholders	
	Clarity	Use the right language for the right target groups	
		Starting from questions (in boxes and things you should know)	
		Explain the context	
	Appealing format	Well written	
		Visually attractive images	
		Diversity, including gender equality	



4.2.2 Results from the EW in Italy

	Principles	Standards	Indicators
Italy	Source	Use reliable, trustworthy, verified sources	Coherence with the methodology used (which should be made explicit)
		Include different perspectives	How many and which sources were used
			Level of interdisciplinarity and diversity of fields/topics over time
		Avoid false balance	
		When possible, make the sources available to the public	How many times the same experts were interviewed and on which topics
		Include sources that are "cognitively close" to your audience	
	Target	Assure the quality and completeness of the sources	
		Define who you are talking to	
		Analyse your targets	Target(s): demographics, profiles, etc.
			"Polarization" of readers?
		Choose the right language for the right audience	
	Engagement	Try to build a community around your work	On social media: number of followers, likes, shares, comments, etc.
			Community responsiveness
			Follow these numbers over time (not just one specific moment)
			Subscribers (free + paywall)
			Fidelity level
		Collect inputs from your audience	Number of readers (copies sold)
			Permanence (e.g. for how long do users watch a video?)
			Questionnaires
		Develop call to actions	
		Listen to your readers, do not try to persuade them	Qualitative interviews to selected readers
	Relevance/Newsworthiness	Ask yourself: "Is it really relevant what I am adding to the	



		communication arena?"	
		Always think about the newsworthiness	
	Clarity	Be clear, but avoid oversimplifications	Number of typos ("If I write badly I think badly")
		Be simple, not simplistic	
		Use a clear language	
		Communicate data in a clear way	
	Accuracy	Be precise	
		Be exhaustive, not "pachydermic"	
	Rigour	Fact-checking	Peer review and fact checking in the production process
		Always have articles reread before publication	Numbers of revisions
	Concreteness	Make a communication that is concrete, close to the everyday life and to the practical world of the listener	
		Look for cognitive proximity with your audience (e.g., talking about the climate crisis using as example polar bears might feel distant; it would be better to use closer examples)	
	Context	Define the context of your work	
		Include the point of view of different stakeholders	
		Explain the causes of a phenomenon, but also try to talk about its consequences	
	Storytelling	Tell representative stories	
		Use (wisely) emotions to connect with your audience	
		Use infographics	Pertinence of images used
	Ethics	Avoid advocacy	Non-commercial partnerships
		Report the idea of "scientific consensus", if there is one	
		Be accountable	
	Impacts	Think about the value impact your work can have	Impact evaluation



			Qualitative and quantitative reports (to measure impact)
		Follow-up on your work (circular approach)	Content analysis of contents
			What do our “competitors” say about our work?
			How many times our article/product was cited/reported in other platforms
	Others	Define your communication objectives	Impact evaluation
		Define your communication strategy	Performance
		Define your communication channels	Number of views
		Do not just talk about problems, but try to include solutions	
		Do not take the press releases for granted	
		Avoid rhetoric	
		Form is substance: it should be as carefully crafted as the content	
		Follow-up on your work (keep covering relevant stories)	
		Study!	



4.2.3 Results from the EW in Portugal

	Principles	Standards	Indicators
Portugal	Rigour	Verify sources	Does the article/piece include diverse sources (with diverse cultural, socio-economic status, etc.)?
		No extrapolation	How many sources does the article/piece include/cite?
		Diversity of sources	Does the article/piece include specialised/recognised (by the scientific community) and reliable sources?
		Peer-review	Was the scientific article subjected to peer-review?
		Reliable sources	Existence of good practices in science (research) to guarantee scientific rigour
	Relevance	To adequate the topic to the format and to the media	Is the article/piece of interest for the public? (public interest)
			Does the article/piece include (statistical) data?
			Does the article/piece cover a topic of national and/or international interest? Is it subject to debate/scrutiny?
			Has the article/piece promoted social or political changes (nationally or internationally)? (e.g., legislation or new lines of funding)
			Has the article/piece promoted social or political debate?
			Metrics (for evaluation), e.g., indicators of engagement
		Relation to day-to-day (stories)	
	Accessibility	Plain language	Is the article/piece comprehensible? "Could you explain it to your granny"?
			Does the article/piece incorporate/use formats that allow inclusive communication (e.g., sign language)?
			Is the article/piece adequate to its target audience?
			Is the language used adequate?
			Usability (web accessibility)
		Analogies	



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	Independence	To use and cite several sources	Does the article/piece include diverse sources (minimum of two)?
		Primary sources	Diversity and number of sources: at least two sources, one should be a primary source (minimum) and one should be a specialised and independent source (minimum)
		To adapt/adjust the content to the context/needs (rhythm)	Does the article/piece identify any conflict of interests? Does the article/piece identify any financing source? Is the article/piece sponsored? - identification of sponsored content (content shouldn't be sponsored) Periodical meetings to monitor and assess the work conducted
	Factuality	Validate/verify	Does the article/piece include and/or cite sources for each fact mentioned?
			Is the article/piece based on facts?
			Has the article/piece been reviewed by experts in the field and/or other colleagues (e.g., other journalists)?
		Creativity in the way information is presented	
		Use of multimedia	
	Trust	Clarification	Are the sources official?
			Are the sources identified in the article/piece?
			(If any) Is funding clearly identified in the article/piece? (transparency about / independency of financial sources)
			Does the article/piece or media assess their performance through direct interaction with the audience (e.g., survey, focal groups)?
		Clear infographics	
		Clear language	Avoid use of jargon - accessibility of the information provided
	Transparency	Open methods and reproducibility	Does the article/piece include, cite and/or use/share open source or open data?
		Sources	Reliability of sources
			Does the article/piece include sources? How many sources are cited?



		Ethics	Does the article/piece (and/or media) identify any conflict of interests?
			Does the media make public their funding/financial information (availability of financial report)?
			Does the article/piece follow the code of ethics?
	No polarization of debates	Diversity (cultural, socio-economic, racial, ethnicity, etc.)	Does the article/piece include diverse sources?
			Does the team incorporate diverse backgrounds (gender, geographies, ethnicity, etc.)?
		Collaboration and cooperation (vs competition)	
		Definition of the target audience and adaptation of the message	Does the article/piece or media assess their performance through direct interaction with the audience (e.g., survey, focus groups)? For instance, to ensure accessibility of the content
	Scientific rigour	Critical thinking	Has the article/piece been reviewed by experts in the field and/or other colleagues (e.g., other journalists)?
			Are the sources cited?
			Is the article/piece based on facts?
			Is the article/piece based on data? (to favour the use of data, in particular in experimental sciences)
		Impartiality	Rigorous use of adjectives (only when necessary)
		Science as a process and adaptation to change (not immutable truths)	



4.2.4 Results from the EW in Spain:

	Principles	Standards	Indicators
Spain	Critical	Reflect all parties involved (make interest explicit)	Reflects any hidden interests?
			Does it include several voices or points of view?
			Declaration of conflict of interest
		Evaluate the outcome and consequences of communication	KPI RRSS- Number of likes, number of interactions
		Be clear about the didactic objective	Include and value basic research, including local research
	Diversity	Include stakeholders	
		Incorporate a diachronic view	Number of countries geographical diversity
			Gender diversity
			Number of different formats
			Number of different platforms
			Number of visual resources used
	Reach everyone	Adapt the message to the target audience	
		Enrich with humour and emotion	
		Interdisciplinary	
		Do not stereotype	
	Didactics	Recontextualise and do not simplify	
		Highlighting basic research and local innovation	
	Rigorous and truthful	Review by a collaborating specialist	Peer review
			Proximity (sources that are involved in the issue)
			Yes/no external or peer evaluation of the objectivity of your piece
		Based on up-to-date scientific evidence	
		Bibliographic sources	open access



		Multidisciplinary team for quality	
	Empathy and equity	Neutral	Number of actors considered: minimum 4 (helix)
			At least 2 different sources
			At least one voice for and one against on controversial topics (specialist people)
		Inclusive	Incidents
			Visual impairment
			Hearing impairment
			Inclusive gender
	Diversity format	Tailored to the specific audience	Tailoring message to the specific audience
			Number of press releases
			Number of journalists contacting you
		Cognitive diversity	
		Accessibility	
		Attractiveness	How many call you with requests
			That you reach a new medium that has not been reached before
			The number of times you reach media, number of unique media you have reached
		Creative	
		Display the information	Clipping
		Reference the data source	Alignment of objectives and measurement
	Contrasted, reliable and diverse sources	Accreditation and recognition	Work in recognised institutions and organisations
			Data from official organisations
		Conflict of interest (ethics)	
		Independent	
		Specialists	Expert sources



			Specialists in different topics and data
	Transparency	Real data	
	Context/objectivity	Minimum talk to 2 pax, but depends on topic and consensus	Number of sources consulted and types
		If there is controversy assess whether all perspectives should be reflected	
		Be careful with the type of literature	Indicate when pre - print
		Start with systematic reviews then high impact	Journal quality
		Go to official and original sources	Scientific articles
		Allow the info to be correctly assessed	
	Impact (driver of change)	Think about interests and priorities for telling the message	Long-term driver of change: attracting talent that when applying for an offer they know you through social networks
			Conversion funnel
		Visual and cultural references	
		Data visualisation tools are recommended	
	Audience segmentation	Change the language for each age and audience	
		Use the codes of each segment	RRSS algorithms
		Surveys, focus groups and interviews to understand the target audience	
		Stickers on Instagram	
		Surveys on YouTube, twitter likes and RT	Viewing time
			Action trigger of a communication element 'engagement', eg: likes, RT, level of interaction
			The minute they abandon a video
			Average video time (the time until you have half of your entire audience)
			Number of views



			Number of videos (equivalent for other communication products)
		Don't always simplify, define the target audience (user centered design)	
		Explain it as you have understood it	
	Be informative	Certain value adjectives avoid it	
		Beware of sensationalism	
	Be honest	Referencing everything everywhere (contacts) or admitting that you have no references	Yes/no you have consulted bibliographic sources
			Have you read the scientific article
	Balance between information and opinion	Make opinions of evidence explicit	
	Accessible language	Analogies	
		Explanation of technical terms	
		Links to more info	
		Concise sentences	
	Narrative	Audience identification	
		Helps to maintain interest	
		Keeping proportions (one testimony is not representative of all)	
	Channels	Reading time	Number of visits to the article
			Viewing time
		Tailored to the target audience	Interest by topic
			Visits typology news
		Two-way interaction	Number of comments
			Interactions
		Ease of sharing	Include tools to easily share the content



4.2.5 Integrating the SPIs from the four Ews

In this section, an effort was made to aggregate, integrate and synthesize all the informations collected during the four Ews.

This table has become the basis for a further round of selection and discussion within the consortium, starting with an internal ENJOI consensus consortium meeting that took place after the completion of the four Ews. The goal was that of reducing the number of the SPIs and made them a useful and approachable list to be used as a reference framework by all interested parties, from producers in the act of creating a piece of communication to users in the effort to judge the quality of the science communication they are exposed to.



Principles	Standards	Indicators
Rigorous and truthful	Verify sources	Does the article/piece include diverse sources (with diverse cultural, socio-economic status, etc.)?
Scientific rigour		Is the article/piece based on facts?
Evidence-base		Is the article/piece based on data? (to favour the use of data, in particular in experimental sciences)
Rigour	Impartiality	Rigorous use of adjectives (only when necessary)
Accuracy	Science as a process and adaptation to change (not immutable truths)	
	Review by a collaborating specialist	Peer review
		Proximity (sources that are involved in the issue)
		Yes/no external or peer evaluation of the objectivity of your piece
	Based on up-to-date scientific evidence	
	Bibliographic sources	open access
	Multidisciplinary team for quality	
	Be precise	
	Be exhaustive, not "pachydermic"	
	Fact-checking	Peer review and fact checking in the production process
	Always have articles reread before publication	Numbers of revisions
Relevance	To adequate the topic to the format and to the media	Is the article/piece of interest for the public? (public interest)
		Does the article/piece include (statistical) data?
		Does the article/piece cover a topic of national and/or international interest? Is it subject of debate/scrutiny?
		Has the article/piece promoted social or political changes (nationally or internationally)? (e.g., legislation or new lines of funding)
		Has the article/piece promoted social or political debate?



		Metrics (for evaluation), e.g., indicators of engagement
	Relation to day-to-day (stories)	
	Make a communication that is concrete, close to the everyday life and to the practical world of the listener	
	Look for cognitive proximity with your audience (e.g., talking about the climate crisis using as example polar bears might feel distant; it would be better to use closer examples)	
	Ask yourself: "Is it really relevant what I am adding to the communication arena?"	
	Always think about the newsworthiness	
Accessibility	Plain language	Is the article/piece comprehensible? "Could you explain it to your granny"?
Reach everyone		Does the article/piece incorporate/use formats that allow inclusive communication (e.g., sign language)?
Accessible language		Is the article/piece adequate to its target audience?
Clarity		Is the language used adequate?
		Usability (web accessibility)
	Analogies	
	Adapt the message to the target audience	
	Enrich with humour and emotion	
	Interdisciplinary	
	Do not stereotype	
	Analogies	
	Explanation of technical terms	
	Links to more info	
	Concise sentences	
	Be clear, but avoid oversimplifications	Number of typos ("If I write badly, I think badly")
	Be simple, not simplistic	
	Use a clear language	
	Communicate data in a clear way	



	Use the right language for the right target groups (4)	
	Starting from questions (in boxes and things you should know) (3)	
	Explain the context (2)	
Independence	To use and cite several sources	Does the article/piece include diverse sources (minimum of two)?
	Primary sources	Diversity and number of sources: at least two sources, one should be a primary source (minimum) and one should be a specialised and independent source (minimum)
	To adapt/adjust the content to the context/needs (rhythm)	Does the article/piece identify any conflict of interests? Does the article/piece identify any financing source? Is the article/piece sponsored? - identification of sponsored content (content shouldn't be sponsored) Periodical meetings to monitor and assess the work conducted
Factuality	Validate/verify	Does the article/piece include and/or cite sources for each fact mentioned?
Contrasted, reliable and diverse sources		Is the article/piece based on facts?
Context/objectivity		Has the article/piece been reviewed by experts in the field and/or other colleagues (e.g., other journalists)?
Source	Creativity in the way information is presented	
	Use of multimedia	
	Clarification	Are the sources official?
		Are the sources identified in the article/piece?
		(If any) Is funding clearly identified in the article/piece? (transparency about / independency of financial sources)
		Does the article/piece or media assess their performance through direct interaction with the audience (e.g., survey, focal groups)?
	Accreditation and recognition	Work in recognised institutions and organisations



		data from official organisations
	Conflict of interest (ethics)	
	Specialists	Expert sources
		Specialists in different topics and data
	Minimum talk to 2 pax, but depends on topic and consensus	Number of sources consulted and types
	If there is controversy assess whether all perspectives should be reflected	
	Be careful with the type of literature	Indicate when pre - print
	Start with systematic reviews then high impact	Journal quality
	Go to official and original sources	Scientific articles
	Allow the info to be correctly assessed	
	Use reliable, trustworthy, verified sources	Coherence with the methodology used (which should be made explicit)
	Include different perspectives	How many and which sources were used
		Level of interdisciplinarity and diversity of fields/topics over time
	Avoid false balance	
	When possible, make the sources available to the public	How many times the same experts were interviewed and on which topics
	Include sources that are “cognitively close” to your audience	
	Assure the quality and completeness of the sources	
	Use a variety of scientific sources (4)	Is there at least 2 sources + independent researchers sources used?
	Representative and qualitative sources (3)	Does the SciComm piece show multiple perspectives (multi-disciplinary and contradictory)?
		Choice of sources: Is the SciComm piece choosing the best experts: recommendations, affiliation, experience, publications?
		Have the results presented in the SciComm piece been checked/peer reviewed (exceptions: processes, novelty/urgency)?



Transparency	Open methods and reproducibility	Does the article/piece include, cite and/or use/share open source or open data?
Be honest/Integrity	Ethics	Does the article/piece (and/or media) identify any conflict of interests?
Ethics		Does the media make public their funding/financial information (availability of financial report)?
		Does the article/piece follow the code of ethics?
	Referencing everything everywhere (contacts) or admitting that you have no references	Yes/no you have consulted bibliographic sources
		Have you read the scientific article
	Real data	
	Avoid advocacy	Non-commercial partnerships
	Report the idea of "scientific consensus", if there is one	
	Be accountable	
	Reputation/integrity/code of conduct of a news outlet is important (4)	Are the sources retrievable? (scale from open access, to not retrievable)
		Are there SciComm guidelines? (yes/no)
		Are the credentials of sources with URLs provided? (yes/no)
		Is there a general introduction on the scientific research process provided in the piece? (yes/no)
		Does the author (journalist, etc..) use his/her own quotes? (Yes/no)
	Honesty about difficulties (4)	Are the limitations in the scientific research mentioned? (yes/no)
	Experts voice is present (they talk and interact) (2)	Where does the information come from? (Press agency, university, ...)
		Is the SciComm piece mentioning at which stage the research currently is? (yes/no)
		Is the scientific method explained/mentioned (info on sampling, process, representative, reliability)? (yes/no)
No polarization of debates	Diversity (cultural, socio-economic, racial, ethnicity, etc.)	Does the article/piece include diverse sources?



Diversity		Does the team incorporate diverse backgrounds (gender, geographies, ethnicity, etc.)?
	collaboration and cooperation (vs competition)	
	Include stakeholders	
	Incorporate a diachronic view	Number of countries geographical diversity
		Gender diversity
		Number of different formats
		Number of different platforms
		Number of visual resources used
Critical	Reflect all parties involved (make interest explicit)	Reflects any hidden interests?
		Does it include several voices or points of view?
		Declaration of conflict of interest
	Evaluate the outcome and consequences of communication	KPI RRSS- Number of likes, number of interactions
	Be clear about the didactic objective	Include and value basic research, including local research
Diversity format	Tailored to the specific audience	Tailoring message to the specific audience
Appealing format		Number of press releases
		Number of journalists contacting you
	Cognitive diversity	
	Accessibility	
	Attractiveness	How many call you with requests
		That you reach a new medium that has not been reached before
		The number of times you reach media, number of unique media you have reached
	Creative	
	Display the information	Clipping
	Reference the data source	Alignment of objectives and measurement
	Well written (4)	
	Visually attractive images (3)	



	Diversity, including gender equality (2)	
Impact (driver of change)	Think about interests and priorities for telling the message	Long-term driver of change: attracting talent that when applying for an offer they know you through social networks
Engagement		Conversion funnel: track how hard or how much effort the (in workelink they do apply it)
	Visual and cultural references	
	Data visualization tools are recommended	
	Try to build a community around your work	On social media: number of followers, likes, shares, comments, etc.
		Community responsiveness
		Follow these numbers over time (not just one specific moment)
		Subscribers (free + paywall)
		Fidelity level
	Collect inputs from your audience	Number of readers (copies sold)
		Permanence (e.g. for how long do users watch a video?)
		Questionnaires
	Develop call to actions	
	Listen to your readers, do not try to persuade them	Qualitative interviews to selected readers
	Relatable (5)	Was there a vocabulary check? Did the people understand the piece?
		Evaluation: visitor numbers
		Number of likes, shares and clicks
	Engage community around doubts and fears (4)	What is the number of comments related to the SciComm piece (as a sign of controversy and interest)?
		"Draw a scientist" as an evaluation technique
		Quality of the comments
	Think about longevity of articles online (3)	Follow-up with the group: what do users remember?
		Does the SciComm piece provide a link with researchers for follow-up?



	Solutions-oriented (empowerment and agency) (3)	Did the SciComm piece provoke changes in attitude and actions taken by users? (measure changes in attitude and actions people took)
	"Podium" for all stakeholders (3)	
Audience segmentation	Definition of the target audience and adaptation of the message	Does the article/piece or media assess their performance through direct interaction with the audience (e.g., survey, focal groups)? For instance, to ensure accessibility of the content
Channels	Change the language for each age and audience	
Target	Use the codes of each segment	RRSS algorithms
	Surveys, focus groups and interviews to understand the target audience	
	Stickers on Instagram	
	Surveys on YouTube, twitter likes and RT	Viewing time
		Action trigger of a communication element 'engagement', e.g.: likes, RT, level of interaction
		The minute they abandon a video
		Average video time (the time until you have half of your entire audience)
		Number of views
		Number of videos (equivalent for other communication products)
	Don't always simplify, define the target audience (user centered design)	
	Explain it as you have understood it	
	Reading time	Number of visits to the article
		Viewing time
	Tailored to the target audience	Interest by topic
		Visits typology news
	Two-way interaction	Number of comments
		interactions
	Ease of sharing	Include toots to easy share the content
	Define who you are talking to	
	Analyze your targets	Target(s): demographics, profiles, etc.
		"Polarization" of readers?



Narrative	Audience identification	
Storytelling	Helps to maintain interest	
	Keeping proportions (one testimony is not representative of all)	
	Tell representative stories	
	Use (wisely) emotions to connect with your audience	
	Use infographics	Pertinence of images used
Relevance/News worthiness	To adequate the topic to the format and to the media	Is the article/piece of interest for the public? (public interest)
Concreteness		Does the article/piece include (statistical) data?
		Does the article/piece cover a topic of national and/or international interest? Is it subject to debate/scrutiny?
		Has the article/piece promoted social or political changes (nationally or internationally)? (e.g., legislation or new lines of funding)
		Has the article/piece promoted social or political debate?
		Metrics (for evaluation), e.g., indicators of engagement
	Relation to day-to-day (stories)	
	Ask yourself: "Is it really relevant what I am adding to the communication arena?"	
	Always think about the newsworthiness	
	Make a communication that is concrete, close to the everyday life and to the practical world of the listener	
	Look for cognitive proximity with your audience (e.g. talking about the climate crisis using as example polar bears might feel distant; it would be better to use closer examples)	



4.2.6 Drafting a working list of SPIs

The above list resulting from the effort of integrating the SPIs resulted during the four Ews was still far too long and detailed.

An important condensation step was undertaken during an ENJOI internal consensus workshop held online on June 21st 2022, to align the results from the EWs and achieve a more practical and effective list of principles, standards and indicators. The partners worked in a dynamic designed by Science for change using the Miro tool, as can be appreciated navigating [this Miro canvas](#).

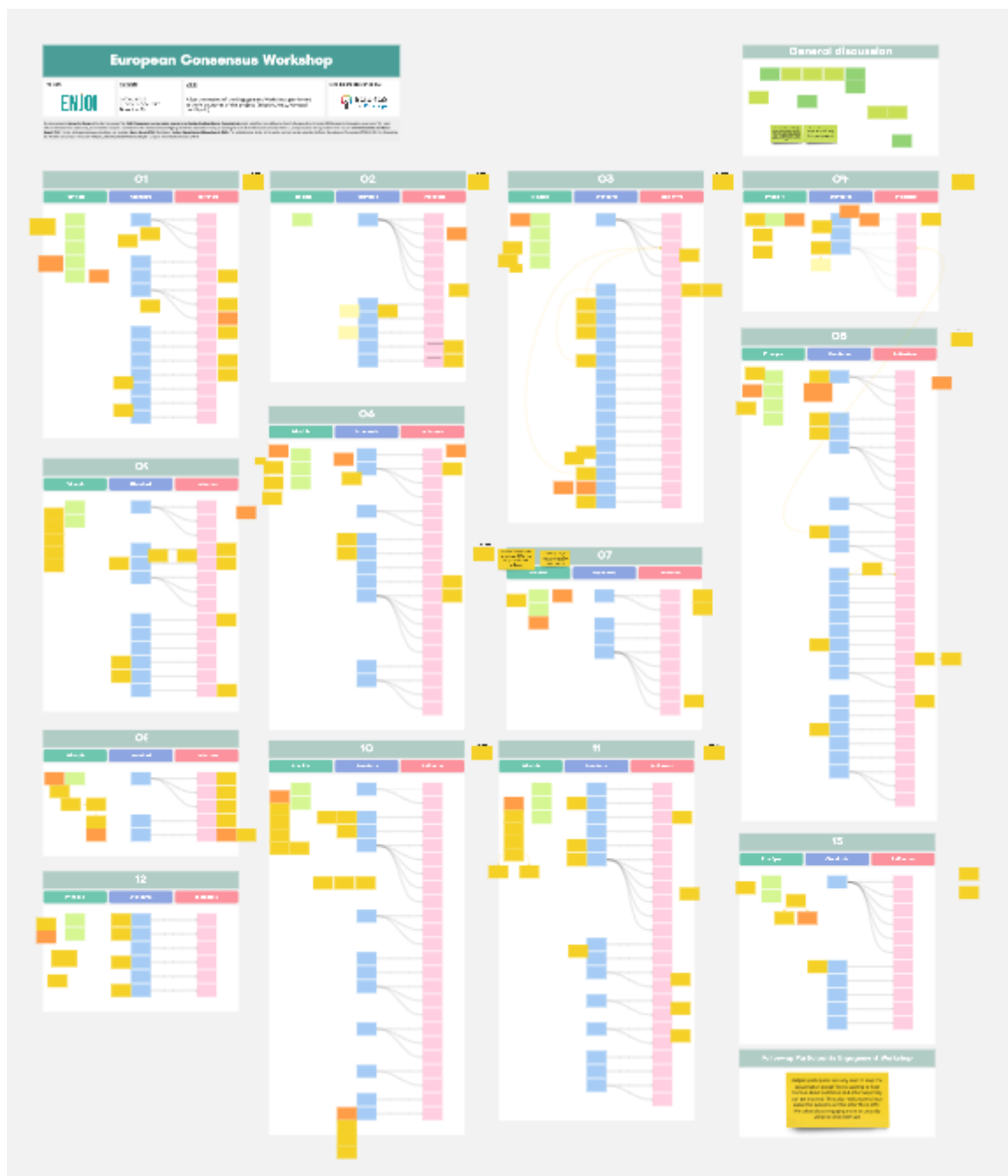
The discussion yielded a much more compact set of basic principles, with their relative standards and a redundant number of indicators that can be used to evaluate the adherence to one or another principle. In other words, there is no strict linear correspondence between one principle and its relative standard with a single indicators, since the consortium felt that more indicators might be used to measure different dimensions of the principles and standards applied in the communication work.

Anyway, the consortium feel that a further round of internal discussions and of refinement is needed to further distill the final list of SPIs to propose to the stakeholders and participants that have been involved up to this point. A further contribution is also expected to be coming from the evaluation research undertaken within WP5, whose results will be condensed in a deliverable to be produced in the coming months.

Therefore, the present list of SPIs is to be considered still as a working list, due to be integrated and further improved in the coming months.



Image 1. This image describes the dynamic of the process used by the ENJOI consortium during the consensus workshop to distill the SPIs. Technology: Miro.



4.2.7 Current working list of SPIs

Finally, the image below shows the current state of the art of the working list of SPIs resulted by the European Consensus Workshop held within the consortium.

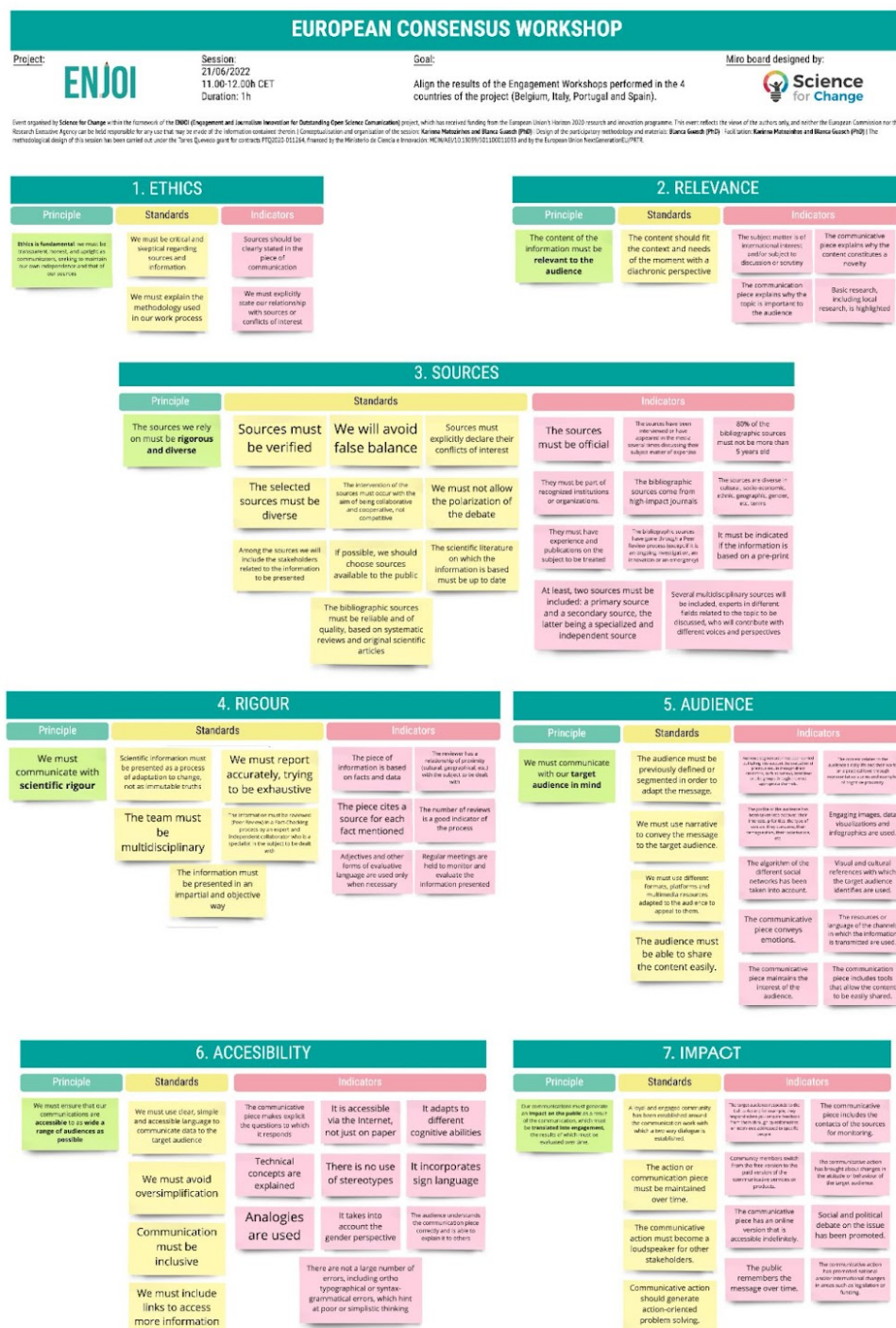


Image 2. The integrated list of the SPIs. Technology: Miro.



ENJOI - Engagement and Journalism Innovation for Outstanding Open Science Communication

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The main Principles resulted as common definitions from the four EWs are described in the following table. Besides each principle, there is a relative set of Standards and a number of potential indicators to be used to evaluate their application.

Principles	Standards	Indicators
INTEGRITY: Journalists and communicators must be transparent, honest, and upright , seeking to maintain their own independence and that of their sources.	<ul style="list-style-type: none"> Communicators should be critical and skeptical regarding sources and information. They must explain the methodology used in our work process. 	<ul style="list-style-type: none"> Sources should be clearly stated in the product of communication. Journalists/communicators must explicitly state their relationship with sources or conflicts of interest.
RELEVANCE: The content of the information must be relevant to the audience.	<ul style="list-style-type: none"> The content should fit the context and needs of the moment with a diachronic perspective. 	<ul style="list-style-type: none"> The subject matter is of international interest and/or subject to discussion or scrutiny. The communication piece explains why the topic is important to the audience. The communicative piece explains why the content constitutes a novelty. Basic research, including local research, is highlighted.
SOURCES: The sources journalism/communication rely on must be rigorous and diverse	<ul style="list-style-type: none"> Sources must be verified. The selected sources must be diverse. Among the sources communicators will include the stakeholders related to the information to be presented. Sources must explicitly declare their conflicts of interest. Journalists must not allow the polarization of the debate. Journalists should always avoid false balance. The intervention of the sources must 	<ul style="list-style-type: none"> The sources must be official. They must be part of recognized institutions or organizations. They must have experience and publications on the subject to be treated. The sources are diverse in cultural, socio-economic, ethnic, geographic, gender, etc. terms. At least, two sources must be included: a primary source and a secondary source, the latter being a specialized and independent source. Several multidisciplinary sources will be included, experts in different fields related to the topic to be discussed, who will contribute with different voices and perspectives. The sources have been interviewed or have appeared in the media



	<p>occur with the aim of being collaborative and cooperative, not competitive.</p> <ul style="list-style-type: none"> • If possible, journalists should choose sources available and accessible to the public. • The bibliographic sources must be reliable and of quality, based on systematic reviews and original scientific articles. • The scientific literature on which the information is based must be up to date. 	<p>several times discussing their subject matter of expertise.</p> <ul style="list-style-type: none"> • The bibliographic sources come from high-impact journals. • The bibliographic sources have gone through a Peer Review process (except if it is an ongoing investigation, an innovation or an emergency). • It must be indicated if the information is based on a pre-print. • 80% of the bibliographic sources must not be more than 5 years old.
<p>RIGOUR: Journalists must communicate with scientific rigour.</p>	<ul style="list-style-type: none"> • Scientific information must be presented as a process of adaptation to change, not as immutable truths. • The team must be multidisciplinary. • The information must be presented in an impartial and objective way. • Journalists must report accurately, trying to be exhaustive. • The information must be reviewed (Peer Review) in a Fact-Checking process by an expert and independent collaborator who is a specialist in the subject to be dealt with. 	<ul style="list-style-type: none"> • The piece of information is based on facts and data. • The piece cites a source for each fact mentioned. • Adjectives and other forms of evaluative language are used only when necessary. • The reviewer has a relationship of proximity (cultural, geographical, etc.) with the subject to be dealt with. • The number of reviews is a good indicator of the process. • Regular meetings are held to monitor and evaluate the information presented.



<p>ACCESSIBILITY: Communicators must ensure that their work is accessible and inclusive for as wide a range of audiences as possible.</p>	<ul style="list-style-type: none"> Journalists must use clear, simple and accessible language to communicate data to the target audience. Journalists must avoid oversimplification. Communication must be inclusive. Communicators must include links to access more information. 	<ul style="list-style-type: none"> The communicative piece makes explicit the questions to which it responds. Technical concepts are explained. Analogies are used. The audience understands the communication piece correctly and is able to explain it to others. Attention should be put to avoid errors, including ortho typographical or syntax-grammatical errors, which hint at poor or simplistic thinking. It is accessible via the Internet, not just on paper. There is no use of stereotypes. It takes into account the gender perspective. It adapts to different cognitive abilities. It incorporates sign language.
<p>AUDIENCE: Journalists must communicate with their target audience in mind.</p>	<ul style="list-style-type: none"> The audience must be previously defined or segmented in order to adapt the message. Journalists must use narrative to convey the message to the target audience. Communicators must use different formats, platforms and multimedia resources adapted to the audience to appeal to them. The audience must be able to share the content easily. 	<ul style="list-style-type: none"> Audience segmentation has been carried out taking into account the evaluation of previous results through direct interaction, such as surveys, interviews or pilot groups through the most appropriate channels. The profile of the audience has been taken into account: their interests, priorities, the type of content they consume, their demographics, their polarisation, etc. The algorithm of the different social networks has been taken into account. The communicative piece conveys emotions. The communicative piece maintains the interest of the audience. The content relates to the audience's daily life and their world on a practical level through representative stories and examples of cognitive proximity.



		<ul style="list-style-type: none"> Engaging images, data visualizations and infographics are used. Visual and cultural references with which the target audience identifies are used. The resources or language of the channels in which the information is transmitted are used. The communication piece includes tools that allow the content to be easily shared.
<p>IMPACT: Communications must generate an impact on the public as a result of the communication, the results of which must be evaluated over time.</p>	<ul style="list-style-type: none"> The action or communication piece must be maintained over time. The communicative action must become a loudspeaker for other stakeholders. Communicative action should generate action-oriented problem solving. 	<ul style="list-style-type: none"> The target metrics or KPIs have been achieved on the platforms, social networks or media used in the communication: number of followers, reach, interactions, Likes, shares, number and quality of comments, number of visits, unique views, viewing or reading time, conversions through a Funnel, responses to the sending of the press release and the number of impacts in the media or other platforms not achieved so far collected in Clipping, etc. The communicative piece has an online version that is accessible indefinitely. The public remembers the message over time. The communicative action has brought about changes in the attitude or behavior of the target audience. Social and political debate on the issue has been promoted. The communicative action has promoted national and/or international changes in areas such as legislation or funding.
<p>ENGAGEMENT: Journalists should try to engage their audience not only at the final step of their work but rather</p>	<ul style="list-style-type: none"> A loyal and engaged community has been established around the communication work with which a 	<ul style="list-style-type: none"> Community members switch from the free version to the paid version of the communicative services or products. The target audience responds to the Call to Action; for example, they



collecting opinions and feedback and when possible evaluating the impact on the public of our work.	two-way dialogue is established.	<p>respond when you require feedback from them through questionnaires or interviews addressed to specific people.</p> <ul style="list-style-type: none"> • The communicative piece includes the contacts of the sources for monitoring.
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