

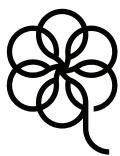
# **12 QUALITY INDICATORS for Science Communication**

## **Guide for Science Communicators**

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# Science communication matters!



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**QUality and Effectiveness  
in Science and Technology  
communication**

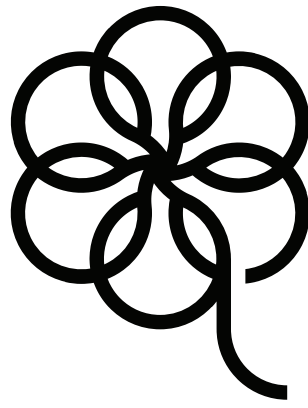
QUEST defines, measures and supports quality in science communication. We develop tools, recommendations and guidelines for communicators working in the fields of journalism, social media, and museums.

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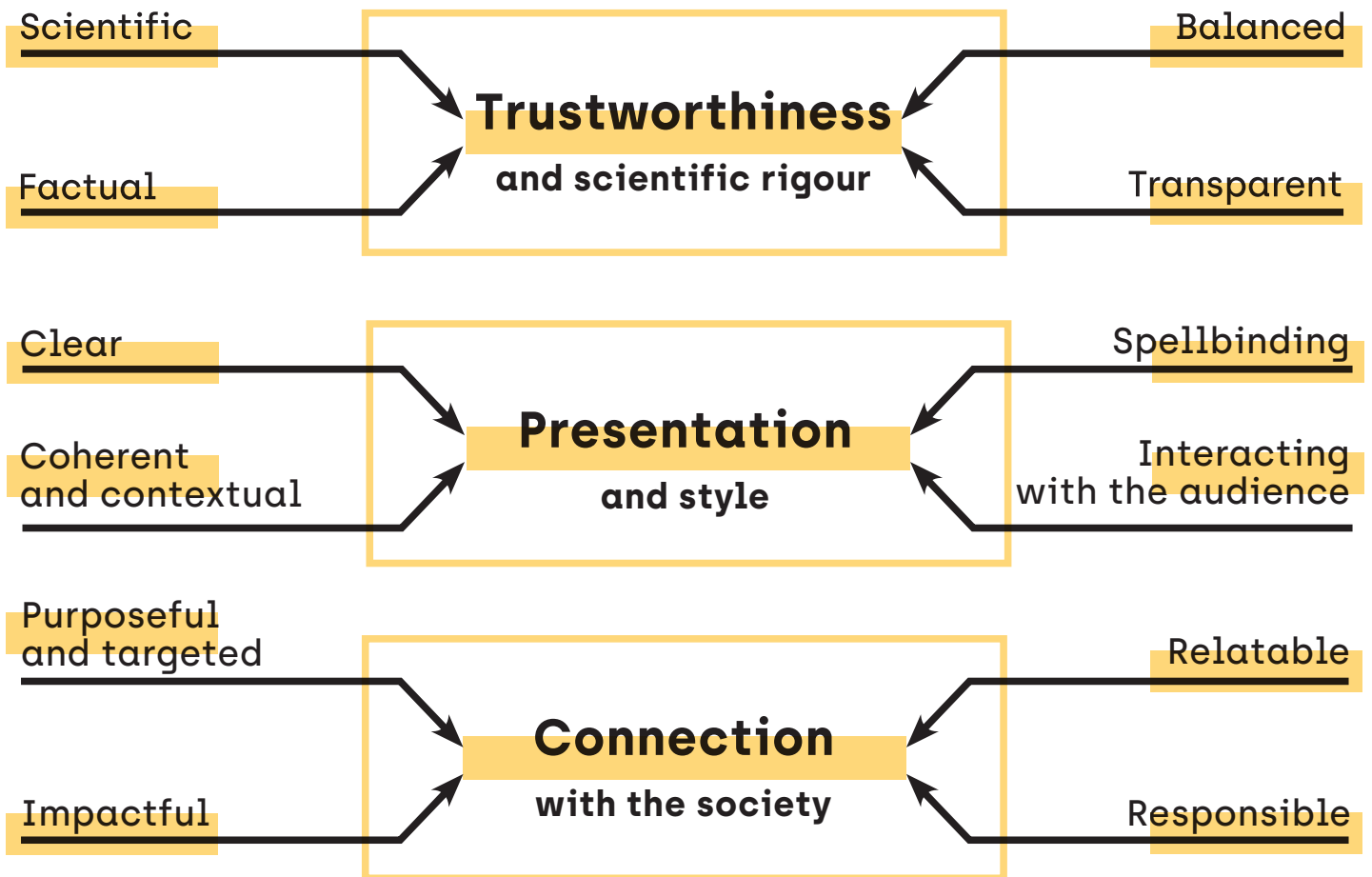
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**12 QUALITY INDICATORS for  
SCIENCE COMMUNICATION**

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# **TRUST- WORTHINESS**

**and  
Scientific Rigour**

**Scientific**

**Factual**

**Balanced**

**Transparent**

# SCIENTIFIC

**Communication is based on reliable, rigorous scientific information and sources.  
References to scientific sources are added.**

This indicator evaluates the sound scientific foundation of the communication. In this respect, communication has quality if the information presented is derived via **scientific method or reasoning**.

A gold standard for such information are articles published in peer-reviewed journals, but reliable and scientific information can also come from other sources such as textbooks, reports or expert opinions (if the opinion follows scientific reasoning).

The audience can be supported in evaluation of the quality of the information by adding relevant signals, e.g. article reference or expert credentials.

## HOW TO ASSESS?

**Is the presented information scientific?**

**Can the source of scientific information be clearly identified?**

# FACTUAL

**Communication is accurate,  
objective and fact-checked.**

This indicator evaluates how scientific information is presented in communication. The hallmark of quality for this indicator is a **truthful** and **objective presentation** of scientific facts or knowledge, so that the conclusions or interpretations are in line with the [scientific] evidence.

This includes, for example, avoiding 'mixed messages', exaggerated claims of benefits and threats, oversimplifications, cherry picking or faulty generalizations.

## HOW TO ASSESS?

- ☐ Are facts presented in a truthful and objective manner?
- ☐ Are conclusions and interpretations in line with the evidence?

# BALANCED

**Comments by independent experts  
are provided to key claims.  
Voices of key stakeholders are represented.**

This indicator illustrates **the position of experts and stakeholders** in science communication content. Science communication is balanced when the selection of actors and their input to the content allow the audience to learn about all major aspects of the issue and foster a meaningful scientific or societal discussion.

Balance can be improved by presenting comments from independent experts (e.g. a scientist working in the same field but not involved in the study) and from key stakeholders (e.g. medical decision makers and patients in case of a medical story), at the same time keeping in mind the other quality indicators (e.g. that communication is scientific and factual).

Regarding the selection of actors, balance also refers to the aspiration to reflect the diversity in the society. This can include attention to the gender balance but also to other kinds of diversity that are present in the relevant communities.

## HOW TO ASSESS?

**Is an independent opinion from a qualified expert provided?**

**Are comments from key stakeholder(s) provided?**

**Is diversity appropriately reflected?**

# TRANSPARENT




**Communication provides sufficient information about the scientific process. Communication is honest about the funding and affiliations.**

This indicator **combines various aspects of transparency**, concerning both the communicated science and the communication process.

Transparency of the communicated science can be provided by describing the used research method along with its limitations, as well as by providing information about the funding of the research, the affiliations or potential conflict of interest of the researchers when these aspects are relevant for understanding the results or claims.

Similar transparency should apply to the communication process itself: it should reveal any relevant information (author's background, institutional support, funding, etc.) that makes the process transparent.

## HOW TO ASSESS?

-  **Are the method and its limitations clearly described?**
-  **Does communication provide relevant information about the study and its authors?**
-  **Does communication provide relevant information about its own funding and affiliations?**

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# **PRESENTATION**

## **and Style**

**Clear**

**Coherent and contextual**

**Spellbinding**

**Interacting  
with the audience**

# CLEAR

**The language is simple and accessible.  
Communication has a clear focus  
and outlines key messages.**

This indicator evaluates aspects that **help the audience to understand** complex topics. This includes providing scientific information in an accessible and straightforward language while avoiding trivialization and unduly simplifications, and also explaining key concepts and supporting understanding with the structure of the communication such as a clear focus and outlining key messages.

Complex information can be efficiently reduced to something far more straightforward and easier to **assimilate with visual means** (e.g. graphics, visualizations).

## HOW TO ASSESS?

- ☐ **Is the content presented in an accessible and clear language?**
- ☐ **Are scientific concepts sufficiently explained?**
- ☐ **Are key messages outlined?**

# COHERENT AND CONTEXTUAL

**Communication provides a wider context for topics. Communication is coherent in its structure and style.**

Similar to clarity, this indicator also evaluates the measures taken to improve the audience's understanding of communicated science. Here, the focus is on **providing sufficient context** so that the audience is able to grasp the role and relevance of the scientific fact or discovery.

Context can be improved by **explaining the scientific and social history** of the topic, by discussing its limitations of the research and by investigating the societal implications of potential applications and the wider context of public concerns, interests and motivations.

Coherence contributes to better understanding also when applied to the style and structure of communication. A coherent communication guides the audience through the topic on a **logical path** and uses a style to match the audience and the purpose of communication.

## HOW TO ASSESS?

Does communication provide sufficient context to scientific facts, discoveries or claims?

Is communication coherent in structure and style?

Are key messages outlined?

# SPELLBINDING

**Communication is emotionally engaging and makes full use of the format's capabilities.**

This indicator evaluates the ability of communication to attract and captivate the audience, with the purpose of using **emotional engagement** as a tool to bring science closer to the audience and help them to engage with complex topics. This can be achieved by using features that are entertaining, create excitement or elicit other kinds of supportive emotional responses. Using narrative and storytelling is another effective approach.

The spellbinding effect can be supported by exploitation of the possibilities of the specific format and finding innovative ways to present science. For example, using visual or multisensory experiences, borrowing elements from popular culture (such as memes) or experimenting with the format can all increase the engagement of the audience with communication.

## HOW TO ASSESS?

-  **Is communication using methods to emotionally engage the audience?**
-  **Is communication making full use of format's capabilities or is innovative in its use of formats?**

# INTERACTING WITH THE AUDIENCE

**Communication involves the audience in a dialogue and treats them respectfully.**

This indicator evaluates the ways in which communication with the audience is initiated and maintained. It concerns whether and what kind of feedback or input is sought and what is the response of the communicator.

In case of active participation or dialogue, the audience **is encouraged to participate** in discussions on scientific topics, is able to engage with communicators or experts directly and will receive meaningful responses to their input.

In a passive role, only some form of audience input is enabled (e.g. comments, reactions), without creating opportunities for further dialogue.

## HOW TO ASSESS?

What role does the audience have in communication?

Is the audience engaged in a dialogue?

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10  
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# **CONNECTION** **with the Society**

**Purposeful and targeted**

**Impactful**

**Relatable**

**Responsible**



# PURPOSEFUL AND TARGETED

**Communication has a clearly defined objective, is knowledgeable about its audience and tailored to reach the target groups.**

This indicator considers the design of communication with respect to its audience. It expects that communication is coherent in its objective, audience and style - meaning that it has a clear idea to whom and what it wants to communicate and has chosen **suitable formats, style and tone to reach the target group(s)** and make them appreciate and understand the topic.

Also, communication is timely: it aims to bring scientific information to its audience as soon as possible (in case of news) or when it is most relevant.

## HOW TO ASSESS?

-  **Are the objective and target group of communication evident?**
-  **Do the selected formats, style and other properties of communication support the objective?**

# IMPACTFUL

**Communication generates changes in the society and the individuals.**

This indicator assesses the **aspiration of communication to bring forth societal and individual change**. The vehicle for this can be introducing new and impactful knowledge and ideas to the public, initiating debates or challenging existing biases.

The communication can also be more explicitly oriented towards behaviour change, for example by supporting vaccinations or giving advice about sustainable lifestyle.

## HOW TO ASSESS?

**Is the aspiration of impact evident in the communication?**

# RELATABLE

**Communication addresses real life questions and problems, and relates scientific results to the everyday lives of people.**

This indicator **evaluates the connections** that communication is making between scientific results or concepts and the familiar elements **that people can relate to**. This can mean providing a scientific background to everyday phenomena or current events, explaining scientific results or concepts with commonly familiar metaphors or comparisons, or bringing out how a new scientific result can impact our lives.

## HOW TO ASSESS?

**Does communication create links between everyday or common phenomena and scientific concepts or results?**



# RESPONSIBLE

**Communication is socially or politically conscious and follows ethical standards.**

Responsibility, on the one hand, is understood as the readiness of science communication **to address controversial topics or wrongdoings** [both within science and in society more generally], counter mis- and disinformation with evidence-based information and bring out the ethical implications of research.

On the other hand, responsibility also means that communication itself adheres to **ethical standards**, including considering the consequences of communication and avoiding doing harm.

## HOW TO ASSESS?

-  **Is communication behaving responsibly by addressing complex and controversial topics?**
-  **Is it evident that communication has considered ethical implications?**

## What QUEST is:

**QUEST defines, measures and supports quality in science communication.**

We develop tools and guidelines for improving effectiveness in dialogue between science and wider publics.

## How QUEST works:

**We are a team of experts, scholars and media professionals** across Europe who have come together to investigate current issues in science communication.

## Contributors:

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## Indicator design:

We held six workshops in five European countries, each bringing together science communication stakeholders – researchers, journalists, science communication professionals, members of the public. Collectively, they mapped what they consider quality in science communication which we then distilled into these 12 indicators.



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a QUEST for  
better Science  
Communication.  
Join us!**

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