

# RETHINK briefs: Improving the practice of science communication

Work package number and title: WP5 – SYNTHESISE: synthesis and policy guidelines

Deliverable: 5.3 Guidelines and recommendations for practitioners, policy makers and scientists

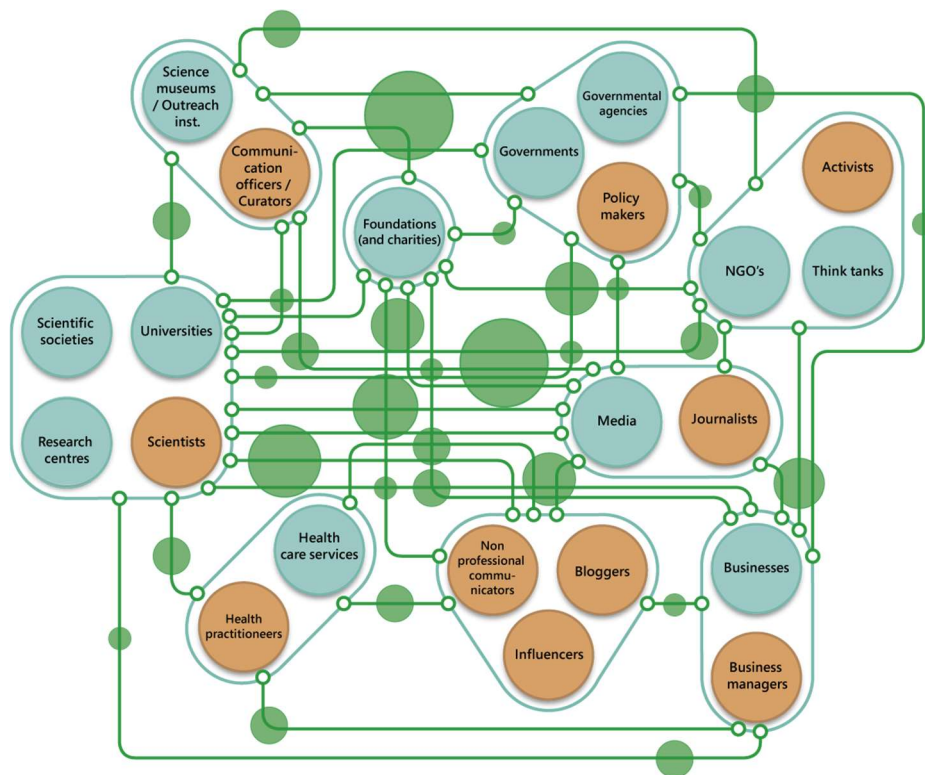
Lead-beneficiary: DBT

Work package Leader: Frederik Langkjær

Authors: Peter Hyldgård and Frederik Langkjær

Internal reviewers: VUA, Ecsite, UWE, ZU

Due Date: M36 (December 2021)



## Content

1. Introduction	3
2. One-pager: RETHINK research findings	4
3. Guidelines and recommendations:	
RETHINK brief for policy makers	5
RETHINK brief for universities and research institutions	6
RETHINK brief for science communicators	7
4. Resources	8
Annex I: Different roles	9
Annex II: Questionnaire	10

Front page illustration:

### **Sensemaking is a challenge to meaningful and efficient science communication**

The RETHINK project has investigated the European landscape of digital science communication, and the findings have formed the basis for a new framework that depict the high complexity of digital science communication. It is important to note that the illustration of the framework does not include all details or all actors. The main idea here is to show how the science communication landscape has changed significantly when compared to earlier models where scientists and media were the dominating actors.

RETHINK has focused on 'sensemaking', describing how people interact with information presented to them in a manner that is heavily dependent on their personal situations, emotions, a priori beliefs and trust in the source.

According to sensemaking theory, gaps in knowledge are a human condition, which is why knowledge is never complete. People are constantly making sense trying to bridge the gaps in their knowledge as they are moving through time and space. To do so, people draw on a variety of sources such as previous experience, expectations, emotions, values, and interest.

Such sensemaking practices are illustrated by the multiple green dots. They form some of the primary obstacles to a fruitful dialogue between science and society, and the briefs in this report give suggestions to different actors on how to support and build better science communication in the digital environment focusing on sensemaking practices.

## Introduction

In this report the RETHINK project provides briefs with guidelines and recommendation on how to improve the practice of science communication for three main actor groups: policymakers (at the political level, and at research institutions, as well as research funders), scientists/academia (universities and research institutions), and practitioners (science communicators),

The briefs are based on the synthesis of the RETHINK research findings (task 5.1, 5.2, and the materials and learnings from RETHINK). The findings have been supplemented by suggestions for improving science communication in the academic literature and national and international reports on the science communication (see 'Resources', page 8) as well as input to the RETHINK project in a questionnaire distributed via RETHINK project partners in November 2021 (see 'Annex II', page 10).

The recommendations focus on actions that can be taken by the different actors to support and build better science communication focusing on sensemaking practices in the digital environment. They are in line with the academic science communication literature where training (improving the skills of the individual actors), incentives (giving time, resources, and recognition to science communicators) and infrastructure (building organizations and networks, connecting actors) are the repeated suggestions for improving science communication in general.

The briefs are supplemented by a one-pager describing some of the main research findings by the RETHINK project, and a list with resources on how improve and engage in science communication both as an individual science communicator, policymaker, or research organization.

The briefs will be uploaded separately on the RETHINK website as 'quick guides' targeted the different actors. See [rethinkscicomm.eu](https://rethinkscicomm.eu).

## Research findings: “The will is there but the conditions are not”

Throughout its project period, RETHINK has investigated:

1. The landscape of communicators in terms of who communicates what to whom, how, why and on which conditions,
2. The dynamics of how people make sense of complex science-related problems, and
3. Science communication training and quality.

This research shows that **the science communication ecosystem is very complex and fragmented**, including multiple types of actors of which a majority tends to perform one-way communication, **wanting to inform audiences already interested in science about facts**. (See Annex I: different roles of science communicators)

Such tendency creates a barrier for creating a productive relationship between science and society, as **sensemaking practices are heavily dependent on people’s personal situations**, emotions, a priori beliefs and trust in the source.

This means that making sense of science-related issues is not merely a matter of getting the facts straight but is dependent on which personal contexts these facts are put into, how they relate to what people already know, and what the relationship between the communicator and the audience is. The importance of context also makes it **difficult to identify generalizable quality criteria for science communication**, which might be one of the reasons why there is great variety in how academic programs are structured and professional science communicators are trained.

Having said this, the project also shows that the ways in which people make sense of science are dynamic and constantly renewed, which in combination with the diverse and vast science communication landscape provides a **potential for creating constructive dialogues and interactions between science and society**.

Moreover, **many scientists do feel an intrinsic motivation and sense of responsibility to engage in science communication** and want to democratize science. But they find it **hard to reach out to new audiences** and often **communicate to people with pre-existing interest in science**, which reproduces inequalities in access to knowledge. Also, **the potential of new media settings is not always exploited**, even though most science communicators regularly use mainstream social media.

Scientists and science communicators in general often **lack time and resources for communication activities** and experience **a sense of disconnect with their audiences**, which is demotivating as well as bad and non-constructive interactions online causing them to limit their engagement in dialogues. So, despite attempts from science communicators to create productive interactions between science and society, willingness, and good intentions, **they face a lot of structural barriers for doing so**.

Therefore, RETHINK encourages all actors to take a close look at the proposed recommendations, continuing the efforts to ensure the best match between the achievements of science and the needs, values, and aspirations of society.

Visit the RETHINK project website for more information on the research results: [rethinkscicomm.eu](http://rethinkscicomm.eu)

RETHINK brief for **polymakers**:

## Improving digital science communication in Europe

The European Commission has worked strategically with bringing science and society closer together for decades, recognizing that engagement of citizens and stakeholders in European research projects is crucial to the communication of science and the achievement of this goal.

But communicating science is not a simple task in a complex, digital environment where the public opinion in Europe to a large extent is formed. We all digest and use information according to our mindsets and beliefs, and we do not just absorb the information that is presented to us. This phenomenon – sensemaking – is a major challenge in the digital communication ‘ecosystem’ if we want to use scientific knowledge in decision making processes, and if we want all actors in society to participate in discussions about science.

The RETHINK project has addressed this problem, and the latest insights from the project show that we still have some way to go, as the dialogue between science and society is both limited and lacking truly open and reflexive science-society interfaces. For this reason, the RETHINK project recommends that policymakers at both EU, national and local level:

1. **Initiate and support** schemes and programs that train all types of science communicators in reflexive science communication.
2. **Support** organizations working with dialogue-based science communication.
3. **Support** research in:
  - Dialogue-based and reflexive science communication in and outside universities.
  - Quality and efficacy of science communication on social media.
4. **Initiate and support** events and platforms (online and in the physical world), where researchers and science communicators can enter dialogues with new, underserved audiences (and establish collaborations between institutions).
5. **Initiate and support** umbrella organizations building networks and collecting and sharing knowledge on dialogue-based science communication.
6. **Implement** incentives for scientist to integrate dialogue-based communication into their work, including requirements for dialogue-based communication in grant proposals, rewards or formal credits for communicating science, and revision of evaluation metrics in funding programs.
7. **Coordinate** the efforts made to engage the public in and communicate science by funding agencies, governments, higher education institutions and outreach organizations to explore differences and synergies in activities.

RETHINK brief for **universities and research institutions**:

## Improving science communication in research institutions

It is important for universities and research institutions to have a continuous dialogue with society to ensure that the scientific knowledge and achievements play an active role in shaping the futures for all of us. But communicating science is not a simple task in a complex, digital environment. We all digest and use information according to our mindsets and beliefs, and we do not just absorb the information that is presented to us. This phenomenon – sensemaking – is a major challenge in the digital communication ‘ecosystem’ if we want to use scientific knowledge in decision making processes, and if we want all actors in society to participate in discussions about science.

The RETHINK project has addressed this problem, and the latest insight from the project shows that we still have a way to go. There is a tendency for science communicators to do one-way communication, wanting to *inform* the public and not necessary with the aim of creating *actual conversations* between researchers and the public. Also, scientists and science communicators often lack time and resources for communication activities and experience a sense of disconnect with their audiences.

When it comes to training programs at universities, the academic science communication educations differ regarding the extent to which the programs are adapted to the changing communication environment characterized by digitalization, and some science communication programs convey a more traditional perception of science communication as a one-way process in which the public is informed.

For these reasons, the RETHINK project recommends that universities, research institutions and other organizations in academia:

1. **Offer** courses, workshops, and concrete guidelines for researchers on reflexive science communication (sensemaking practices) and digital communication.
2. **Engage** in dialogue with different audiences to explore their perspectives so that the science communication is tailored to their life situations.
3. **Change** the incentives structures for scientist, including requirements for dialogue-based communication in grant proposals, rewards, or formal credits for communicating science.
4. **Support** researchers doing science communication by acknowledging public engagement efforts in policy and strategic documents and by making it an explicit evaluation criterion in recruitment and promotion situations.
5. **Support** further research on quality and efficacy of science communication on digital media.
6. **Incorporate** science communication in the curriculum at all educational levels (Bsc, Msc and PhD).
7. **Establish** dedicated units within research institutions and on regional/national level helping researchers to do dialogue-based and involving science communication as well as digital outreach.



RETHINK brief for **science communicators**:

## Improving your digital science communication

Do you find it easy to communicate about science? Most scientists and communication professionals don't.

Communicating science is not a simple task in a complex, digital environment where the public opinion in Europe to a large extent is formed. We all digest and use information according to our mindsets and beliefs, and we do not just absorb the information that is presented to us. This phenomenon – sensemaking – is a major challenge in the digital communication 'ecosystem' if we want to use scientific knowledge in decision making processes, and if we want all actors in society to participate in discussions about science.

The RETHINK project has addressed this problem, and the latest insights from the project show that we still have a way to go. There is a tendency for science communicators to do one-way communication, wanting to *inform* the public and not necessary with the aim of creating *actual conversations* between researchers and the public. Also, scientists and science communicators often lack time and resources for communication activities and experience a sense of disconnect with their audiences.

Based on the findings in the project, the RETHINK project has these pieces of advice for you, when you as a scientist, journalist, or sci comm professional communicate about science:

1. **Train** your skills with special focus on in reflexive and digital science communication.
2. **Engage** in dialogue with the intended audiences to explore their perspectives so that the science communication is tailored to their life situations.
3. **Go** to where your target audience is rather than expecting that you will reach them through broadcasting via newspapers, social media etc.
4. **Consult or partner** with organizations or community groups that already work with or organize your audiences, like activists, advocacy groups and youth communities.
5. **Join** organizations and attend events where researchers and science communicators network and share experiences and knowledge on (reflexive) science communication.
6. **Reflect** on your role as a science communicator
  - What role are you playing and why? Are you just passing on information? Or are you perhaps a convenor, trying to bring together scientists and non-specialist to discuss science?
  - Who is your target group and how do you make sure to reach it?
  - How is your relation to your audience and how does that affect your praxis?
  - What do you expect from your audience and how does that affect your praxis?
  - Do you consider whether your communication is a one-way or two-way street?

## Resources

Selected resources on how improve and engage in science communication both as an individual science communicator, policymaker, or research organization.

### RETHINK findings (selected reports)

- [“I don’t go online, because that is where the sceptics are.” Report on incentive and disincentive structures for R&I stakeholders to engage in science communication](#)
- [“At least we’re trying”: Experimenting with roles and repertoires to foster new connections between science and society.](#)
- [Strategies towards a reflective practice for science communicators](#)
- [Opportunities and barriers for strengthening the quality of interaction between science and society](#)
- [Reaching Underserved Audiences: How Science Communicators are Making New Connections Using Innovative Techniques](#)
- [Report on the barriers and opportunities for opening up sensemaking practices](#)

[Complete list of RETHINK reports](#)

### Projects and reports on science communication in Europe:

- [Quest \(Quality and Effectiveness in Science and Technology communication\): Outputs](#)
- [Concise: ‘Hurdles and incentives to science communication in Europe’](#)
- [#FactoryWisskomm: ‘Prospects for action for science communication’](#)
- [COST: Cross-Cutting Activity on science communication](#)

### Teaching science communication:

- [RETHINK SciComm Training Navigator](#)
- [Concise: ‘Teaching science communication in Europe’](#)

### Guides for practitioners:

- [RETHINK video: Making sense in Science Communication](#)
- [RETHINK video: How to reach underserved audiences](#)
- [EUSEA: Recommended Formats of Activities to Encourage Public Engagement with Science](#)
- [Quest: Toolkits](#)
- [ECSITE: Tools and resources](#)



## Annex I: Different roles

There is no one single objective way of communicating, which is why communicators inevitably need to choose between different potential roles to play in different contexts.

The RETHINK project has identified four roles that science communicators primarily play:



1. **Conduits:**  
Explaining or translating science from experts to non-specialists.



2. **Convenors:**  
Bringing together scientists and non-specialists to discuss science-related issues.



3. **Civic educators:**  
Informing non-specialists about methods, aims and limits of their scientific work.



4. **Watchdogs:** holding scientists, industry and political organizations to scrutiny.

## Annex II: Questionnaire

A questionnaire was distributed via RETHINK project partners in November 2021 with questions on how to improve science communication. The answers were used as a supplemental input adjusting the suggestions with the needs of and phrasing used by the target groups of the briefs.

74 individuals answered the questionnaire.

The questionnaire had a section highlighting some of the research findings from the RETHINK project followed by these questions:

Recommendations for the research system:

1. What should universities, research institution, foundations, scientific societies, and individual scientists do to improve science communication? e.g., Develop new initiatives for science communication at universities? Reward scientists for spending time on science communication? Train researchers on science communication?

2 How can other actors help or influence universities, research institution, foundations, scientific societies, and individual scientists to improve science communication?

Recommendations for media and journalists:

3. What should media and journalists do to improve science journalism and communication? e.g., Spend more time on fact checking and debunking? Train journalists for dealing with science? Improve relations with scientific institutions?

4. How can other actors help or influence media and journalists to improve science journalism and communication?

Recommendations for science communicators:

5. What should professional science communicators at museums, science centers, universities etc. do to improve science communication? e.g., Develop dialogic approaches in the museums? Train communicator in dialogic science communication?

6. How can other actors help or influence professional science communicators at museums, science centers, universities etc. to improve science communication?

Recommendations for the political system:

7. What should policy makers, governments and agencies do to improve science communication? e.g. Promote science literacy in schools? Support dialogue on science between scientists and citizens?

8. How can other actors help or influence policy makers, governments, and agencies to improve science communication?

Final comments/remarks:

9. Do you have general comments and suggestions not covered in the former questions?