

POLICY BRIEF ON

Excellent science communication for society at large through informal activities



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1 Introduction

The COALESCE project¹ aims to create a sustainable **European Competence Centre for Science Communication** and an associated Science Communication Academy, which will form an integral part of the Competence Centre. The project's objective is to reduce the gap in European societies regarding scientific understanding and tackle concerns about public mistrust and policy responses during scientific crises. This goal is pursued by enhancing the current levels of excellence in science communication, public engagement with science, and co-creation practices. By collaborating with key stakeholders, **COALESCE is reshaping the knowledge gained from eight sister projects** (CONCISE, RETHINK, QUEST, NEWSERA, TRESKA, ParCos, ENJOI, and GlobalSCAPE) funded through the Science with and for Society (SwafS-19) programme and other past and ongoing EU-funded and national science communication initiatives into resources and tools that promote high-quality, evidence-based, and interdisciplinary science communication.

Europe has a broad community of organisations working outside of the formal education system that contribute to engage and educate diverse audiences in a wide range of scientific topics, including science museums, science centres, science festivals, science outreach organisations and private companies active in science communication. For the purposes of this document, we refer to these as “informal



science engagement organisations.” To support this community in our public engagement work, policy must be in place to address the challenges faced by these organisations. The eight projects that feed into COALESCE made a series of recommendations on how policy can support this work. This policy brief draws together the main conclusions from those projects that pertain to the role of informal science engagement organisations, as well as drawing on the outcomes of a series of COALESCE case clinics carried out with representatives of different organisations, on the topic of public engagement on climate change, as one of the key topics addressed within COALESCE.

The **outcome is a living document with a set of recommendations** that will evolve across the series of policy briefs as it integrates the outcomes of **COALESCE case clinics on each of the four topics: Climate, Water, oceans and soils, Health, and Artificial Intelligence and Digital Transformation**. While the case clinics inform the challenges that are raised in the *Evidence and main findings* section of each of the policy briefs, the recommendations are intended to be overarching.

¹ Coordinated Opportunities for Advanced Leadership and Engagement in Science Communication in Europe. doi: 10.3030/101095230

2 Evidence and main findings

The eight EU projects that feed into COALESCE identified a number of challenges facing informal science engagement organisations. The COALESCE project also runs a series of case clinic activities that feed into these challenges identified below: for this policy brief, that clinic focused on public engagement on the topic of climate. These are summarised as follows:

1. Science communication is not inclusive enough and does not engage a broader range of audiences

The **current landscape of mainstream science communication reflects** a dominance of white, Western perspectives, leading to a **lack of diversity and inclusion**. This narrow viewpoint limits the effectiveness and relevance of science communication practices globally. **Museums, for instance, primarily engage economically privileged and ethnic majority audiences, overlooking underrepresented groups.** These underrepresented groups are varied and differ depending on cultural contexts, but can include ethnicity, culture, economic background, sex, gender, sexual orientation, religion, age, education and ability. To address this, **there is a need for science communication to adapt and become more socially inclusive.** This entails reevaluating existing approaches, broadening topics of interest, and actively involving diverse voices. One current challenge is **the importance of representation in museums**, advocating for exhibitions that address societal inequalities and hiring staff from diverse backgrounds. Additionally, science communication should **move beyond one-way dissemination and prioritise engaging with audiences on a deeper level, considering their personal contexts, beliefs, and trust.** Achieving this requires concerted efforts from institutions to set clear inclusion standards and allocate resources accordingly.

2. Informal science communication struggles to balance education with dialogue

The evolving trend in science communication involves **fostering direct engagement between the public and researchers through enquiry-based approaches and dialogue formats.** This participatory approach aligns with the role of informal science communication organisations. However, there is a tension between maintaining engagement and fulfilling the educational role of these organisations, highlighting the importance of striking a balance. Challenges arise in **framing science appropriately, avoiding shallow communication and ensuring inclusivity.** Practitioners often fail to take a participatory approach: understanding and valuing the prior knowledge, values, cultural contexts and interests of audiences and involving them in co-design of their activities; and engaging them as active participants in the dialogue fostered during these activities. **Collaboration between formal and**



informal learning institutions is advocated to maximise impact. Pedagogy plays a key role in designing engaging activities and there is a **need for synergy** between education and public engagement efforts. Enhancing these connections can **optimise resources and amplify the impact** of science communication initiatives.

3. Science communication practitioners lack skills and training

There is a critical **need for training of communicators** to address the challenges they face. These **professional communicators in informal science engagement organisations have very different training needs to scientists** who communicate their research. Practitioners emphasise the necessity for **dedicated training**, especially concerning the creation of engagement activities and materials. They stress the importance of **innovative content development programs** that bring together various professionals, including scientists, artists, educators, social scientists and designers. This **interdisciplinary approach is seen as vital for the evolution of new science communication formats**. There is a need for standardised training expectations, acknowledging that universities may not always provide expertise in every domain. However, the diverse contexts of science communication pose **challenges in establishing universal quality criteria, contributing to variations in academic programs and professional training**. Recognising this complexity is crucial for enhancing the skills and capabilities of science communication practitioners to effectively engage with diverse audiences and address the evolving needs of the field.

4. Audiences do not always trust the science with which they are engaging

The level of trust in scientific information varies among different demographics and regions, reflecting a **complex interplay of factors**. Citizens tend to place greater trust in information originating from scientists and public figures, associating trust with transparency and independence in funding and ideology. However, there exists a **sense of ambivalence among audiences** regarding the quantity and quality of science information available to them. Despite abundant media coverage, audiences feel that scientific issues are often presented superficially and sensationalised, contributing to doubts about accuracy and bias: evidence points to examples such as **debate around the climate crisis**. Moreover, disparities in science communication research and practices further exacerbate trust issues, with limited collaboration across disciplines and accessibility challenges in research findings. This highlights the **importance of promoting a participatory approach** as mentioned earlier, as well as openness, integrity, and knowledge sharing in science communication to bridge the gap between scientists and society, fostering a more trusting and informed public discourse.



5. Audiences experience a sense of hopelessness regarding key societal challenges

Europeans often **experience anxiety and a sense of hopelessness when engaging in dialogue** about key societal challenges, particularly the climate crisis. The **urgency and complexity** of the issue, coupled with the **magnitude of its potential impacts**, contribute to feelings of apprehension and despair among individuals. People are **increasingly concerned about the consequences of climate change**, ranging from extreme weather events to biodiversity loss and resource depletion. Moreover, the perceived lack of effective action at both national and international levels exacerbates feelings of helplessness and frustration. The intricate interplay between environmental, social, and economic factors further complicates the dialogue, leading to feelings of uncertainty and overwhelm. An **emphasis on individual responsibility is sometimes perceived as contributing to the problem**, with many Europeans struggling to reconcile the scale of the challenge with their individual ability to effect meaningful change. This **disconnect between awareness and action can perpetuate feelings of powerlessness and disengagement**, hindering constructive dialogue and collective action.



3 Policy recommendations

1. Ensure science communication is inclusive and equitable

- The future of **science communication must prioritise building activities with marginalised voices, rather than for marginalised groups**. Achieving this involves collaborating globally to understand diverse community needs and integrating them into research and activities.
- **Marginalised communities should be involved in the co-creation** of actions and activities through working with associations, communities and schools. Organisations working in science communication, as key community resources, play a crucial role in promoting equity and accessibility.
- **Support systems should be established** by governing bodies, associations, and funding agencies to aid these organisations in becoming more socially inclusive spaces. This support could include **allocating funds** based on staff training in diversity and inclusion, organising activities on socially relevant topics, and implementing inclusive organisational structures.
- **Encouraging organisations to develop publicly available social inclusion policies, hiring diverse personnel and promoting diversity, equity, and inclusion working groups** are also essential steps. The focus should be **long-term actions** that recognise and value the knowledge, experiences, interests, and identities of diverse audiences.
- **Funding and evaluation should be prioritised based on the diversity of participants and their impact**, rather than solely quantitative measures.



2. Promote dialogue in science communication

- **Funders and governance bodies must embrace dialogic approaches**, fostering collaboration and experimentation beyond traditional methods.
- **Informal science education should be acknowledged for its pivotal role** in people's learning experiences, science literacy enhancement, fostering the enjoyment and motivation to learn about science, acquiring new skills, creating opportunities to participate in scientific activities, and bridging the gap between science and society.
- **Partnerships are encouraged** among universities, schools, and informal science engagement organisations to create inclusive engagement frameworks aligned with learning objectives. Additionally, research institutions and knowledge valorisation organisations are advised to utilise partnerships with science communication organisations to elevate public engagement within their institutional strategies.

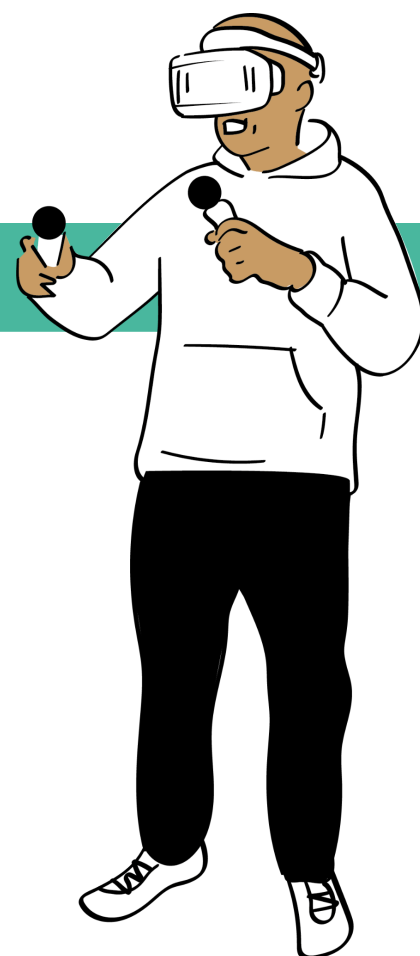
- **Adopting dialogue approaches and strengthening informal science engagement** can foster a more inclusive environment for science communication, with an impact for participants but with an impact for the systems behind research and policy too. This collaborative effort between informal and formal educational institutions, and research organisations contributes to building a more engaging and accessible science communication landscape beneficial for all.

3. Support training for scicomm practitioners

- **Dedicated training and upskilling programmes** should be organised by funders, governance bodies and associations in collaboration with academia.
- Training and upskilling sessions should cover **essential skills for innovative techniques of participation, co-creation and dialogue**: how to analyse and engage audiences, how to involve the public in co-design of activities, or how to foster cooperation among a wide range of stakeholder profiles, for example. They should also include the production of engaging materials, innovative content development, and fostering diversity, equality, and inclusion; as well as **addressing knowledge gaps** such as those related to social sciences and strategic communication.
- **Knowledge sharing** should be facilitated among science communicators through workshops, sustainable training opportunities, journal clubs, mentoring, shadowing and networking initiatives is crucial for empowering practitioners and enhancing the quality of science communication efforts.

4. Foster a multi-stakeholder approach to informal science engagement

- The involvement of a **broad set of stakeholders in science communication** is crucial. There should be **support for informal science engagement organisations to work with a diverse set of organisations**: researchers, industry, civil society organisations, policymakers and public institutions, but also **artists and other cultural stakeholders**.
- **National and regional support should be fostered** for this by establishing local, national, and international hubs. These hubs would serve as **knowledge brokers** between science communication community members, scientists, policymakers, and other stakeholders.
- **Hubs should facilitate knowledge sharing, collaboration, and dialogue**, with the aim of **bridging gaps between different groups**.



Local centres would ensure relevance in their activities and connect with resources. At **national level, centres would provide support, mentorship, and lobby for change. Larger international centres** would facilitate **global collaborations and ensure the innovation and inclusivity of science communication efforts worldwide.**

5. Integrate reflective practice into science communication

- **Reflective practice must be supported within science communication practice at all levels:** from policy agendas, through funding organisations and at institutional level. It should **not be solely the responsibility of individuals but embraced collectively** to foster deeper engagement with audiences and improve science–society interactions.
- **Facilitating collaborative reflective practice within the science communication community** can lead to more rewarding experiences and enhance learning opportunities, ultimately strengthening the relationship between science and society. Practitioners become more aware of their assumptions, values, emotions, and worldviews through reflective practice, facilitating meaningful conversations with audiences.
- **Collaborative reflective practice sessions should be integrated,** enabling participants to challenge assumptions and gain new insights into their communication practices. This practice should also ensure practitioners value emotions alongside opinions and see that engagement on the topic can be as valuable as convincing audiences of the science.



4 Sustainability and legacy

This policy brief is designed to be dynamic, serving as a living document that will continually evolve throughout the project. It will incorporate insights gleaned from COALESCE case clinics focusing on four key topics: Climate, Water, oceans and soils, Health, and Artificial Intelligence and Digital Transformation. As each case clinic explores real-world scenarios and examines challenges within these thematic areas, the policy brief will integrate the findings and recommendations generated. The outcomes will also feed into additional capacity building, communications and advocacy activities within COALESCE.

5 Methodology

This document was developed following a thorough review of the outcomes of the eight projects that feed into COALESCE (CONCISE, RETHINK, QUEST, NEWSERA, TRESCA, ParCos, ENJOI, and GlobalSCAPE) with a particular focus on the findings and recommendations from those projects that pertain to the role of informal science engagement organisations. These main findings and recommendations were merged according to the commonalities between the project outcomes.

Additionally, a case clinic was organised within COALESCE that brought together around 25 practitioners in science communication from a range of profiles, backgrounds and countries, recruited from the COALESCE community of

practice. This clinic engaged the participants around a specific challenge in science communication on the topic of climate, through a carefully facilitated series of steps: following a warm-up, there was a brainstorm and prioritisation activity to select a challenge, followed by a round of questions from participants on the selected challenge, and a subsequent round of recommendations. Finally there was a round of reflection and take-home messages from the group. The selected challenge and take-home messages gathered during the clinic were incorporated into the findings and recommendations in this policy brief.

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7 Project details

PROJECT NAME Coordinated Opportunities for Advanced Leadership and Engagement in Science Communication in Europe (COALESCE)

PARTNERS



WEBSITE <https://coalesceproject.eu>

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